Description of document:	National Transportation Safety Board (NTSB) Slides and Syllabus for the Class Mass Fatalities for Medicolegal Professionals 2014
Requested date:	2021
Release date:	03-January-2022
Posted date:	01-July-2024
Source of document:	National Transportation Safety Board Attention: FOIA Requester Service Center, CIO-40 490 L'Enfant Plaza, S.W. Washington, DC 20594-2000 Fax: (240) 752-6257 Submit an Online Request

National Transportation Safety Board
Office of the Chief Information Officer
FOIA Office (CIO-40)
Washington, DC 20594

January 3, 2022

Re: National Transportation Safety Board (NTSB)
Freedom of Information Act (FOIA) No. FOIA-2021-00393

This letter responds to your FOIA request seeking a copy of the presentation slides and syllabus for the class Mass Fatalities for Medicolegal Professionals (TDA403).

The Safety Board located several pages of responsive documents. Enclosed are 253 pages, however, we withheld certain information partially to the following exemptions specified below.

Personal information, notably autopsy information and graphic photos, social security numbers, and any personal identifying information, is withheld pursuant to 5 U.S.C. 552(b)(6), which exempts from disclosure "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy," to include personal addresses, phone numbers, etc. Pursuant to this exemption, I partially redacted 28 pages.

In several documents enclosed with this letter, I determined that exemption(s) to the FOIA required that I redact a limited amount of material. The redactions are clearly marked, and the applicable exemption(s) are noted at the place of the redaction.

Some documents that were located in our search originated at another federal agency; the Federal Aviation Administration (FAA). In accordance with standard government practice, these documents, totaling 19 pages, have been referred to that agency for decisions on whether they should be released to you. You will be hearing from the FAA directly.

The NTSB has concluded processing your FOIA request. You may contact our FOIA Public Liaison at 202-314-6540, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration (NARA) to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: OGIS, NARA, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

If you are not satisfied with the response to this request, you have the right to appeal this determination under the FOIA. You may administratively appeal by writing to the NTSB, Attn: Ms. Dana Schulze, Managing Director, 490 L'Enfant Plaza, SW, Washington, D.C. 20594. Your appeal must be postmarked or electronically transmitted within 90 days of the date of the response to your request.

Sincerely,

Melba D. Moye
FOIA Officer
Office of the Chief Information Officer
National Transportation Safety Board

Enclosure

NTSB TDA 403: Mass Fatality Incidents for Medicolegal Professionals

National Transportation Safety Board

Welcome!

- Introductions
  - Name & agency
  - Job function
  - Experience working with the NTSB?
  - What do you hope to gain from this course?
- Logistics
  - Wi-Fi access
  - Breaks / coffee / lunch
  - Restrooms
  - Emergency evacuation
- Thumb drives
  - Presentations
  - Reference files → 77 documents
- Course Critique / Evaluations → please complete!!!
- Sign-in sheet → please update

National Transportation Safety Board

Course Overview

National Transportation Safety Board

Disaster Response Plan Pitfalls

- Failure of Imagination
  - Plan is built on a rigid scenario
  - Planning for "all fatal" events
- Belief in Magic
  - Waxing and waning in detail
  - "Call DMORT"
- Fortress Mentality
  - Lock the door and solve the problem
  - Data silos

National Transportation Safety Board

Introduction to the NTSB

National Transportation Safety Board

NTSB Mission

- Determine probable cause(s) of transportation accidents
- Make recommendations to prevent reoccurrence
- Conduct special studies and investigations
- Airman and mariner certification appeals
- **Coordinate resources to assist victims and their families after an accident**

National Transportation Safety Board

NTSB Governance

- Reports directly to Congress
- Independent federal agency
- **No regulatory authority**
- Composed of five Board Members
- ~400 FTE staff
- ~ $100 million budget

Vice Chairman Christopher Hart | Member Robert Sumwalt | Member Mark Rosekind | Member Earl Weener

National Transportation Safety Board

Investigative Responsibilities

- All U.S. aviation accident investigations
  - Except military/intelligence agencies
  - Accredited representative for foreign aviation accidents
- Selected rail accidents
- Selected highway accidents
- Selected marine accidents
- Selected pipeline accidents
- Selected hazmat accidents

National Transportation Safety Board

NTSB Investigations

Major

- Major carrier/commuter airliner, passenger rail, other modes
- Substantial damage, multiple injuries/deaths
- Go Team Composition:
  - Investigator in charge (IIC)
  - Representative of each investigative group
  - Board Member--serves as the "voice" of the investigation
  - Transportation Disaster Assistance specialists
  - Public affairs officer

Non-Major

- "Field Major"
  - Partial go-team
- Typical "Field"
- "Limited"

National Transportation Safety Board

NTSB Investigative Process

National Transportation Safety Board

On-scene Information Flow

National Transportation Safety Board

What do I need to know immediately?

National Transportation Safety Board

Accident Notification Process

National Transportation Safety Board

NTSB Contact Information

www.ntsb.gov

NTSB Headquarters
Washington, DC 20594
Phone: 202-314-6290

Eastern Regional Office
Ashburn, Virginia
Phone: 571-223-3930

Central Regional Office
Denver, Colorado
Phone: 303-373-3500

Western Regional Office
Seattle, Washington
Phone: 253-874-2880

Alaska Regional Office
Anchorage, Alaska
Phone: 907-271-5001

National Transportation Safety Board

Initial On-scene Actions

- Locate the scene & define its overall dimensions
- **Determine jurisdiction**
- Clearly delineate and secure its maximum boundaries
- Prevent the disturbance of wreckage and debris except to preserve life and rescue the injured, protect property, and protect the wreckage from further damage
- Maintain a record of personnel who enter the accident site

National Transportation Safety Board

Suspected Criminal Actions

- **Crash assumed to be accident unless evidence indicates intentional act**
- Requires consultation between the Chairman of the NTSB and the US Attorney General
- **FBI takes lead if evidence indicates intentional criminal act**
- NTSB serves in an SME role in support of criminal investigation

National Transportation Safety Board

Family Assistance

National Transportation Safety Board

Why was aviation family assistance legislation needed?

- Mid 1990s accidents
  - US Air 427, Valujet 592, TWA 800, American Eagle 4184
- Family members were not provided coordinated, consistent information and effective services to address their needs
- NTSB seen as neutral agency to coordinate information and service delivery
- NTSB works in concert with air carrier, federal partners, and the local community to ensure effective family assistance response

National Transportation Safety Board

Fundamental Concerns of Family Members

Notification of Involvement
- Initial notification
- Immediate information

Victim Accounting
- Search, rescue, hospitalization, release
- Search & recovery of fatally injured victims
- Identification, death certification and repatriation of remains

Access to Resources
- Disaster mental health
- Financial/Logistic
- Information regarding investigation
- Legal rights

Personal Effects
- Processing and return of personal effects
- Associated and unassociated

Monitor ⇄ Address Needs

National Transportation Safety Board

Family Assistance Legislation

- Aviation Disaster Family Assistance Act of 1996
- Foreign Air Carrier Family Support Act of 1997
- Rail Passenger Disaster Family Assistance Act of 2008

Criteria for accident to qualify as "legislated"
- Occurred in US or territories
- Major loss of life
- DOT Certificate of Public Convenience & Necessity
  - Part 121 air carriers (most)
  - Part 135 air taxi/commuter (few)
- DOT Economic Authority
  - Part 129 air carriers (most)

NTSB coordinates and provides additional resources to the airline/rail carrier and local government to help victims and their families while preserving local responsibility and jurisdiction

The Board shall have primary Federal responsibility for facilitating the recovery and identification of fatally-injured passengers involved in an accident..."

National Transportation Safety Board

LEG/NON-LEG FROM THE LOCAL & STATE AGENCY PERSPECTIVE

LEGISLATED
- Support at federal level
  - NTSB
  - Federal partners
- Support from carrier
- ARC support

NON-LEGISLATED
- Cannot count on support from NTSB, federal partners, carrier

City/County/State responsibilities remain the same:
- **Victim accounting**
- **Personal effects management**
- **Emergency management/logistic support**
- **Coordination with other agencies (NTSB, DoS)**

National Transportation Safety Board

NTSB

Transportation Disaster Assistance Division

National Transportation Safety Board

Federal Family Assistance Plans
Aviation & Rail

Victim Support Tasks (VSTs):
1. NTSB
2. Air/Rail Carrier
3. Family Care and Mental Health (ARC)
4. Victim Identification Services (DHHS/DOD)
5. Assisting Families of Foreign Victims (DOS)
6. Communications (FEMA)
7. Assisting Victims of Crime(DOJ)

National Transportation Safety Board

NTSB Responsibilities

- Determine if accident meets criteria set forth in legislation
- Oversight of family assistance process
  - Family Assistance Center
  - Ensure provision of disaster mental health services
- Provide NTSB investigative info to families in advance of media
- Coordination with local agencies
- Facilitate victim recovery and identification
- Assess air carrier support
- No solicitation review
- Enforce no-impede clause

National Transportation Safety Board

Air/Rail Carrier Responsibilities

- 18 assurances filed with DOT
- Notification of involvement
  - Toll-free #
  - Emergency contact outreach
- Provision of manifest to NTSB
- Personal effects management
- Logistic support for families
  - Transportation, lodging, child care
  - Equal treatment for rev, non-rev, and ground
- Consult with families prior to construction of memorial
- Resources & training for staff

National Transportation Safety Board

DOT Penalties for Non-compliance

- DOT discretion to take enforcement action if carrier fails to meet filed assurances
  - Warning Letter
  - Civil Penalties/Fines
    - Up to $27,500 per day per violation (or up to $2500 for a Small Business Entity)
  - "Cease & Desist" Order
  - Modification or suspension of air carrier's certificate

National Transportation Safety Board

VST 4: Victim Identification, Forensic & Medical Services

Department of Heath & Human Services / Assistant Secretary of Preparedness & Response

- Assist ME/C with victim ID & mortuary support.
- Provide temporary morgue facilities.
- Interview families to obtain antemortem & disposition of remains information.
- Assist with long-term remains re-association efforts.
- Ensure accuracy of the chain-of-custody & implement quality assurance program.
- Assist with notifying NOK of positive ID.
- Coordinate release of remains to funeral director.

National Transportation Safety Board

VST 4: Victim Identification, Forensic & Medical Services

Department of Defense

- AFMES will provide resources from the Office of the Armed Forces Medical Examiner (OAFME) & the Armed Forces DNA Identification Laboratory (AFDIL) to assist ME/C with victim ID.
- Provide available medical & dental records, & DNA reference samples of fatally injured passengers who may have antemortem records based on prior of current military service.

National Transportation Safety Board

VST 5: Assisting Families of Foreign Victims

Department of State

- Assist in obtaining dental & medical records, & DNA samples for foreign victims.
- Assist the ME/C in acquiring the necessary information to complete death certificates.
- Facilitate necessary consulate & customs services for the return of remains and personal effects to the country of destination.

VST 7: Federal Bureau of Investigation

- Provide resources of the FBI Evidence Response Team & other FBI laboratory assets to assist with victim recovery operations.
- Provide resources of the FBI Disaster Squad to facilitate fingerprint identifications.
- FBI assumes lead investigative & family assistance role if case determined to have occurred as a result of criminal intent

Remember…

VST responsibilities support the four primary concerns of family members, which are…

Fundamental Concerns of Family Members

Notification of Involvement
- Initial notification
- Immediate information

Victim Accounting
- Search, rescue, hospitalization, release
- Search & recovery of fatally injured victims
- Identification, death certification and repatriation of remains

Access to Resources
- Disaster mental health
- Financial/Logistic
- Information regarding investigation
- Legal rights

Personal Effects
- Processing and return of personal effects
- Associated and unassociated

Monitor ↔ Address Needs

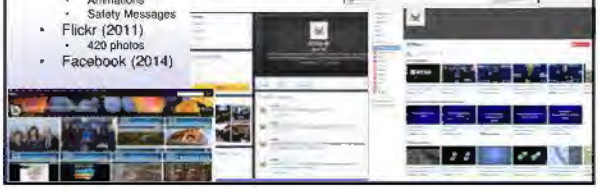
National Transportation Safety Board

Media Management

National Transportation Safety Board

NTSB Information Outlets

- www.ntsb.gov
  - Aviation accident database
  - Reports and dockets
  - Safety recommendations database
- Twitter (2010)
  - 4,026 tweets
  - 88,900 followers
- YouTube Channel (2011)
  - 3530 subscribers
  - Media briefings / investigative updates
  - Animations
  - Safety Messages
- Flickr (2011)
  - 420 photos
- Facebook (2014)



Why do we talk to the press?

- Official source of independent accident information
- Transparency fosters confidence
- If we don't someone else will
- Manage rumors and leaks
- Briefings occur minimally once a day

San Francisco,
July 2013

National Transportation Safety Board

What do we talk about?

- Factual information
  - Vehicle recorder readouts
  - Measurements & specific times of accident events
  - Contents of interviews
- Never speculate
  - Is it possible…
  - Could that mean…
- Never release:
  - Names of passengers (crew names may appear in some documents)
  - CVR audio
- Monitor coverage & respond to inaccuracies by contacting reporter/media outlet to clarify and/or request correction

National Transportation Safety Board

Stay in your lane!

- Accident investigation info → NTSB
- Emergency resp info → 1st Resp Agencies
- Medicolegal information → ME/C
- Communicators should reach out to NTSB Public Affairs ASAP after occurrence of accident/incident to open channel of communication
- **NTSB Public Affairs Division: 202-314-6100**

National Transportation Safety Board


Questions?
National Transportation Safety Board

HARRIS COUNTY
INSTITUTE OF FORENSIC SCIENCES
SCIENCE. SERVICE. INTEGRITY.

Mass Fatality Operations in Texas: A Framework for State Support of Medicolegal Authorities

Jason Wiersema, PhD DABFA, DABMDI
Forensic Anthropologist • Director of Forensic Emergency Management

Parallel Initiatives

- **Forensic Sciences**
  - National Academy of Sciences (NAS) Report identified vast differences in capabilities between offices of different sizes
- **Mass Fatality Planning**
  - Significant differences in capabilities between Medical Examiner and Justice of the Peace (JP) jurisdictions

NAS Report, Death Investigation

The forensic science disciplines currently are an assortment of methods and practices used in both the public and private arenas. Forensic science facilities exhibit wide variability in capacity, oversight, staffing, certification, and accreditation across federal and state jurisdictions. Too often they have inadequate educational programs, and they typically lack mandatory and enforceable standards, founded on rigorous research and testing, certification requirements, and accreditation programs. Additionally, forensic science and forensic pathology research, education, and training lack strong ties to our research universities and national science assets. In addition to the problems emanating from the fragmentation of the forensic science community, the most recently published *Census of Crime Laboratories* conducted by BJS describes unacceptable case backlogs in state and local crime laboratories and estimates the level of additional resources needed to handle these backlogs and prevent their recurrence. Unfortunately, the backlogs, even in DNA case processing, have grown dramatically in recent years and are now staggering in some jurisdictions. The most recently published BJS *Special Report of Medical Examiners and Coroners' Offices* also depicts a system with disparate and often inadequate educational and training requirements, resources, and capacities—in short, a system in need of significant improvement.

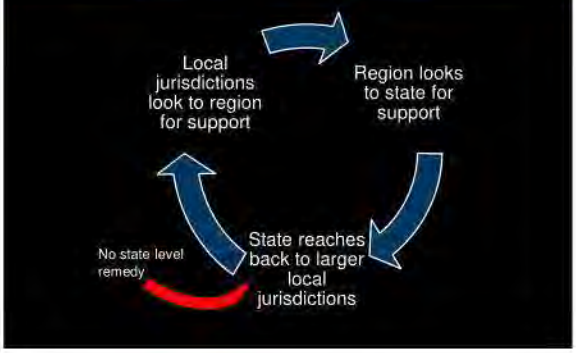
– 2009 NAS Report, pg 14

NAS Report, Mass Fatality Management

"With the exception of some large city, county, and state systems, the level of preparedness of ME/C jurisdictions is generally very low. Larger medical examiner systems may be able to manage events causing several hundred simultaneous single-site recoverable bodies with minimal outside assistance. Any event with thousands of fatalities would require federal assistance. Some statewide systems have developed consortia with neighboring states to supplement staff and equipment, but smaller cities and counties will need to rely entirely on federal assets such as Disaster Mortuary Operational Response Teams and the DOD Joint Task Force Civil Support.56 Homeland security and disaster response would be well served by universal improvement in ME/C offices to manage mass fatality events such as the multistate Hurricane Katrina tragedy and the World Trade Center attacks, while also surveilling for the links between bioterrorism deaths. Multiple fatality management across jurisdictional lines, such as was needed in response to Hurricane Katrina, is nearly impossible under current conditions, given the absence of medical expertise in some systems, the absence of standards of performance, and the noninteroperability of systems and procedures. The recent infusion of funds to the states through the Department of Health and Human Services (DHHS) and the Department of Homeland Security (DHS) is of little assistance when there are no competent systems able or willing to employ those funds. Uniform statewide and interstate standards of operation, consolidation of small systems, regionalization of services, and standardization of staff training are needed to assist in the management of interstate and cross-jurisdictional events. A software program is needed that is universally usable and available, and its use should be promulgated by ME/C systems for multiple fatality management."

– 2009 NAS Report, pg 260-261

MFI Capabilities Reside Locally

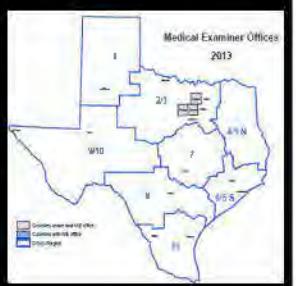


Breaking Aerial Footage: LODD Houston, TX Firefighter Dies in 2-Alarm House Fire

U.S. Medicolegal System

Texas Medicolegal System

No	• State Medical Examiner
254	• Counties
At least 1	• Justice of the Peace (Coroner)
>1 million	• County population that requires ME office
13	• Medical Examiners (serving 16 counties)
59%	• Population served by ME office



Catastrophic Mindset

- Mass fatality is not synonymous with disaster
- Catastrophic focus (pandemic, 9/11, etc.)
  - Number of fatalities
  - Human remains storage

Mass Fatality Incident Defined

- Any incident producing fatalities that overwhelm local resources

Average Deaths Per MFI

=84

U.S. MFIs 2000-2012

MFI Type	MFI Subtype	Category	MFIs (93 Total)	Deaths (7,782 Total)	Avg. # of Deaths/MFI
Natural	Weather-Related	Tornado	22	1002	46
		Hurricane	12	2470	206
		Flood	3	63	21
		Mudslide	2	24	12
		Fire (Natural)	1	17	17
Manmade	Accident	Fire (Accident)	2	110	55
		Explosion	6	93	16
		Bridge Collapse	2	27	14
		Marine Incident	2	31	16
		Aviation Accident	16	614	38
		Train Accident	2	37	19
		Bus/Motorcoach Accident	4	69	17
		Motor Vehicle Accident	5	61	12
		Stampede	1	21	21
	Criminal	Fire(Arson)	1	16	16
		Shooting	9	141	16
		Terrorist Attack	3	2988	996

Average Deaths Per MFI

Take Out Shooting & 9/11 Terrorist Attacks

=52

U.S. MFIs 2000-2012

MFI Type	MFI Subtype	Category	MFIs (92 Total)	Deaths (4,796 Total)	Avg. # of Deaths/MFI
Natural	Weather-Related	Tornado	22	1002	46
		Hurricane	12	2470	206
		Flood	3	63	21
		Mudslide	2	24	12
		Fire (Natural)	1	17	17
Manmade	Accident	Fire (Accident)	2	110	55
		Explosion	6	93	16
		Bridge Collapse	2	27	14
		Marine Incident	2	31	16
		Aviation Accident	16	614	38
		Train Accident	2	37	19
		Bus/Motorcoach Accident	4	69	17
		Motor Vehicle Accident	5	61	12
		Stampede	1	21	21
	Criminal	Fire(Arson)	1	16	16
		Shooting	9	141	16
		Terrorist Attack	3	2988	996

Average Deaths Per MFI

=33

U.S. MFIs 2000-2012

MFI Type	MFI Subtype	Category	MFIs (90 Total)	Deaths (2,969 Total)	Avg. # of Deaths/MFI
Natural	Weather-Related	Tornado	22	1002	46
		Hurricane - Katrina	11 ~~46~~	1833 ~~2975~~	53 ~~65~~
		Flood	9	83	21
		Mudslide	2	24	12
		Fire (Natural)	1	17	17
Manmade	Accident	Fire (Accident)	2	110	55
		Explosion	6	93	16
		Bridge Collapse	2	27	14
		Marine Incident	2	31	16
		Aviation Accident	16	614	38
		Train Accident	2	37	19
		Bus/Motorcoach Accident	4	69	17
		Motor Vehicle Accident	5	61	12
		Stampede	1	21	21
	Criminal	Firestorm	1	16	16
		Shooting	9	141	16
		Terrorist Attack	1	~~2996~~	~~2996~~

Very Recent History: Average Deaths per MFI

=13

2012
- 27 Newtown, CT shooting

2013
- 3 Boston Marathon bombing
- 15 West, TX plant explosion
- 6 Granbury, TX tornado
- 8 El Reno, OK tornado
- 23 Moore, OK tornado
- 5 Houston, TX firefighters
- 19 Yarnell, AZ firefighters
- 6 Philadelphia, PA building collapse
- 3 San Francisco, CA Asiana plane crash
- 47 Quebec, CA train incident
- 10 Alaska plane crash
- 8 Birmingham, AL UPS cargo plane crash

2014
- 9 Bellevue, TN plane crash
- 8 Manhattan, NY building explosion
- 43 Oso, WA mudslide
- 8 Isla Vista, CA shooting
- 6 Las Vegas, NV shooting
- 8 Houston, TX shooting

West Texas Fertilizer Plant Explosion

Forensic Emergency Management

- 2003 to 2004: Mass Fatality Preparedness assigned to Forensic Nurse Investigator
- 2004 to 2005: Developed Mass Fatality Plan for NAME accreditation
- 2007: Mass Fatality Preparedness reassigned to Forensic Anthropologist
  - Disaster Preparedness Coordinator position developed
- 2012: Division of Forensic Emergency Management developed
  - Director and PTEC positions developed

Forensic Emergency Management

- FEM Division
  - Director
  - Preparedness Training and Exercise Coordinator
  - Emergency Management
    - Planning, training and exercise
  - Safety
  - Security
- Science/Operations and Planning/Emergency Operations
- Culture of Preparedness

Grant Support

Since 2007, HCIFS has been awarded more than $3 million in federal grants to:

1) enhance daily operational efficiency

2) ensure continuity of operations

3) enhance local and regional mass fatality response capability

Forensic Emergency Management

Two Different Planning Approaches

Regional

- More generalized concepts
- Focused on operational coordination, not tactical response
- Identifies discipline responsibilities
- Trainings and exercises to enhance coordination amongst jurisdictions

Harris County

- Very specific response guidance
- Focused on tactical response and operational coordination
- Identifies agency and agency personnel responsibilities
- Training and exercises validate plans and procedures

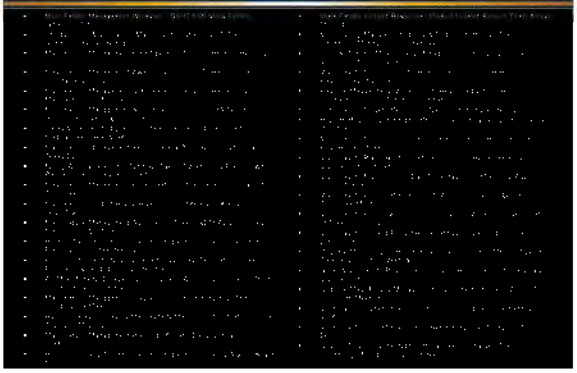
Regional Catastrophic Preparedness Initiative

- Department of Homeland Security Grant
- Awarded to 10 sites around the nation deemed as Tier 1 or Tier 2 sites
  - Determined by port location, critical infrastructure, vulnerability to catastrophic disasters, etc.
- Houston was notified of award in 2008, during the Hurricane Ike response
- Plans, Training, and Exercises only
- Mass fatality was identified as a regional gap, and prioritized near the top of the list

Program Deliverables

- **Plans**
  - Montgomery County Mass Fatality Management Plan
  - Local Jurisdiction Mass Fatality Management Template
  - Mass Fatality Management Field Operating Guides
  - Regional Mass Fatality Management Concept of Operations
- **Trainings**
  - Introduction to Mass Fatality Management
  - Family Assistance Center Workshops
  - Mass Fatality Management Symposium
  - Family Interviews
  - Missing Persons Call Center
- **Exercises**
  - Family Assistance Center Tabletop
  - Family Assistance Center Game

Outreach: Trainings & Presentations



Outreach: Conferences & Exercises

- **Conferences**
  - Family Reception Centers for Healthcare Agencies Workshop
  - Family Assistance Center Seminar
  - Topics in Forensic Science Conference
  - Mass Fatality Management Symposium
  - Family Assistance Center Workshop
  - Medicolegal Death Investigation and Mass Fatality Preparedness Conference
- **Exercises**
  - Mass Fatality Incident Site Field Training
  - Full Scale Mass Fatality Drill
  - Full Scale Alert III Airport Exercise
  - Family Assistance Center Tabletop Exercise
  - Operation Morning Star
  - Family Assistance Center Exercise

Project Successes

- Developed MFM plan for Montgomery County
- Improved consistency of plans with Galveston, Fort Bend, and Harris counties
- Substantial increase of mass fatality incident response knowledge within the region
- Consistent engagement with local, state, and federal stakeholders
- Captive Texas audience for MFM planning
- Regional CONOPS has become the template for Texas MFM regional planning

Texas MFM Planning Initiative

- Lead by Texas Disaster Medical System
  - Mass Fatality Management Workgroup
- Supported by Department of State Health Services (DSHS) and Texas Division of Emergency Management (TDEM)
- Great traction in this environment for education, training, and potentially some grant funding for further initiatives
- Involves subject matter experts from numerous regions and disciplines around the state

TDMS MFM Workgroup

- TDMS Steering Committee identified Fatality Management as a priority and formed the workgroup in early 2013
- Workgroup Chairs
  - Jason Wiersema, PhD
  - Allison Woody, MS
  - Dee Grimm, RN, JD
- First Project: validate assumptions of preparedness levels

Survey Responses

- Survey sent out to all local Texas jurisdiction in March 2013
  - Local offices of emergency management
  - Local public health offices
- Asked ~35 questions re: fatality management
  - Demographics
  - Planning
  - Training
  - Exercises
  - Equipment
- 78 total respondents (city/county)
- Presented at the 2013 Texas Emergency Management Conference

Current Texas MFM Response Teams

- Texas Funeral Directors Association (TFDA) Disaster Team
- Texas Military Forces (TMF) Fatality Search & Recovery Team (FSRT)
- Texas A&M Engineering Extension Service (TEEX) – Texas Task Force 1 (TxTF1)

Texas Funeral Directors Association

Response Capabilities

- Incident Assessment
- Recovery
- Transport
- Temporary Storage
- Disinterment
- Family Interviews

Equipment Cache

- PPE
- Body Bags
- Embalming Fluid
- Refrigerated Trailers (3)

does not have the same capabilities as a DMORT team

Site Recovery Assets

- **Texas Military Forces FSRT**
  - Search & recovery in chemical environments
  - Newly developed team – still in training
- **Texas Task Force 1 (USAR)**
  - Assist with human remains recovery in complex environments
    - Collapsed structures
    - Water environments

Grant-Funded MFM Assets

- **Storage**
  - Mortuary Enhanced Remains Cooling Systems (MERCS)
  - Refrigerated Trailers/Trucks/Conex boxes
- **Body bags**
- **Disaster Portable Morgue Unit (DPMU-2)**
- **Mass Fatality Operations Center**
- **Regional Postmortem Response Trailer (RPR-1)**

Disaster Portable Morgue Unit

- Fully-equipped mobile morgue
  - Body bags
  - PPE
  - HVAC
  - Command tent
  - Water stations
  - Forensic equipment

Regional Postmortem Response Trailer

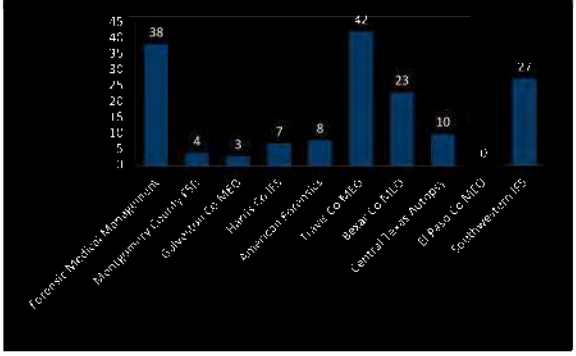
- 42-ft self contained trailer
- Full autopsy suite
- Refrigerated storage for 2 decedents
- Designed as an infectious disease autopsy suite
- Specs:
  - Full bath, dressing, decon areas
  - Generator powered (on board)
  - 150-gal water supply
  - Gray / Black / Contaminated water tanks
  - Dual air filtration system

TMORT

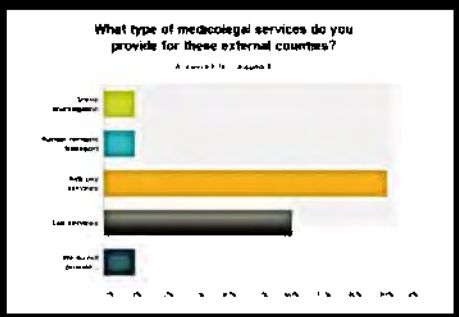
- Texas Mortuary Operations Response Team
  - MFI assessment
  - Human remains search & recovery
  - Morgue operations
  - Victim information
  - Victim identification
  - Family Assistance Center

Chief ME Meeting

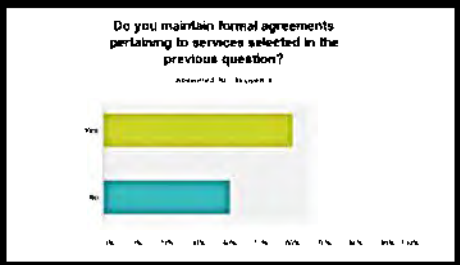
Number of Jurisdictions Served



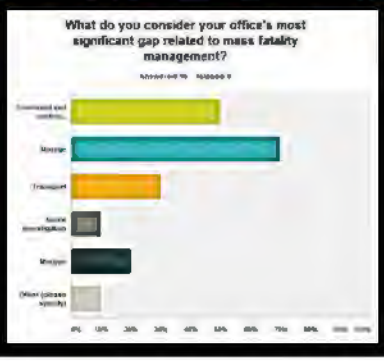
Medicolegal Services



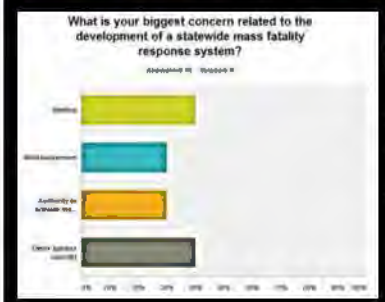
Formal Agreements



MFM Gap Identification



MFM System Concerns



Additional concerns:

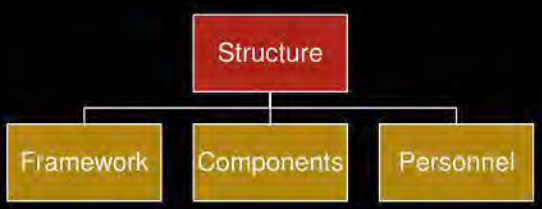
- Ability to contribute and continue to do regular work
- Coordination of activities
- Capital equipment resources
- Coordination of personnel and resources

Chief ME Meeting

State Mass Fatality Preparedness Components

- Site Operations
- Morgue Operations
- Identification
- Victim Accounting
  - Call Center
  - Missing Persons Investigation
- Family Assistance Center
  - Victim Information Center
- Data Management
- Where does it live?
- Who pays for it?
- Who manages the system?
- Who is included?
- How is it deployed?

TMORT



TMORT Structure

Framework	Components	Personnel

• Housing Agency
• Funding Source
• Deployment Strategy
• Command and Control
• Multi-Agency Cooperation
• Training Strategy
• Research
	• Victim Accounting
	  • Call Center
	  • Missing Persons Investigation
	• Incident Site
	• Morgue
	• Transport
	• Storage
	• Family Assistance
	  • Victim Information
	• Long-Term Storage/Final Disposition
	• Data Management
		• Recruitment Sources
		• Compensation
		• Responder Health and Safety
		• Credentialing
		• Licensing

TMORT: Progress

- MFI assessment
- Resource typing
- Partnership building
- Credential experts across the state
  - Human remains search & recovery
  - Morgue operations
  - Victim information
  - Victim identification
  - Family Assistance Center
- SOP development
- Training and exercise

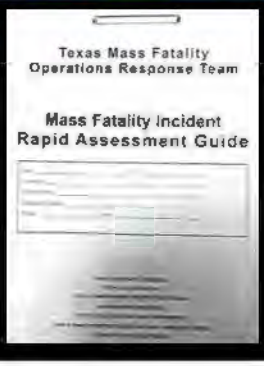
Rapid Assessment Capability

- Identified need for more comprehensive information in the early hours after the incident
- Who do we train?
  - Emergency Managers in fatality management?
  - Medicolegal personnel in emergency management?
- Developed Rapid Assessment Guide

Rapid Assessment Teams (RAT)

TMORT MFI Assessment

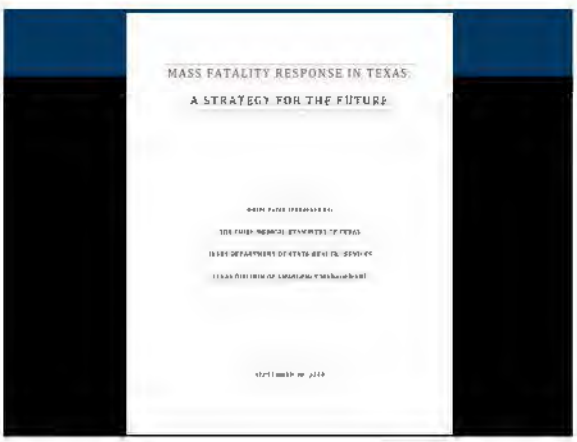
- Situational assessment
- Site operations
- HR transport & storage
- Morgue operations
- Call center & public info
- FRC & FAC
- Close out

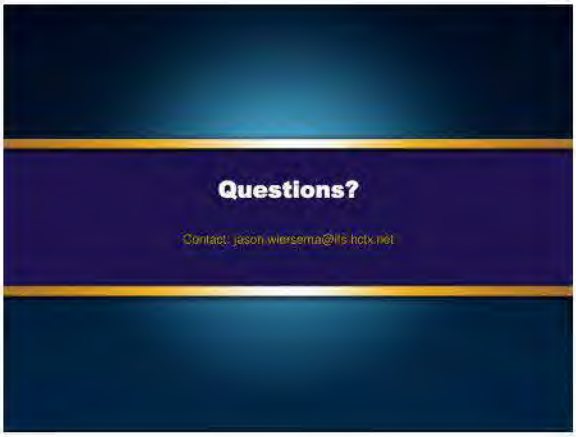


TMORT RAT Assessment Guide

Evaluation Page

Notes Page




Questions?
Contact: jason.wierserma@lfs.hctx.net

Overview of Family Assistance Operations & the ME/C Role

National Transportation Safety Board

What is Family Assistance?

National Transportation Safety Board

Fundamental Concerns of Family Members

Notification of Involvement
- Initial notification
- Immediate information

Victim Accounting
- Search, rescue, hospitalization, release
- Search & recovery of fatally injured victims
- Identification, death certification and repatriation of remains

Access to Resources
- Disaster mental health
- Financial/Logistic
- Information regarding investigation
- Legal rights

Personal Effects
- Processing and return of personal effects
- Associated and unassociated

Monitor ↔ Address Needs

National Transportation Safety Board

Family assistance may provide...

- ✓ Information (factual)
- ✓ Consistency (routine)
- ✓ Realistic expectations
- ✓ A place and the people to get answers
- ✓ Safety and security (from public and media)
- ✓ Support for the grief process
- ✓ Reduction in stress and anxiety

National Transportation Safety Board

Family assistance <u>does</u> <u>not</u> provide...

- "Closure"
  - Supports the grief/recovery process
  - Encourages resiliency
- All the answers
  - Factual information when available/allowable
  - Information on process when no factual information available
- Support for all needs
- Elimination of legal actions

National Transportation Safety Board

Family Assistance Operations

National Transportation Safety Board

Family Assistance Center (FAC)

National Transportation Safety Board

FAC: What happens?

- Source of factual information and official briefings
- Collection of antemortem information
- Focus on services for the families
  - Meet immediate/short term family needs
  - Crisis and grief counseling
  - Child care services
  - Spiritual care services
  - Other services as determined necessary
- Safe and secure gathering place

National Transportation Safety Board

FAC: Who is there?

- Rail/air carrier management & support team representatives
- NTSB TDA staff
- Medical Examiner/Coroner staff & antemortem data collection teams
- Local law enforcement
- American Red Cross & local support personnel
- Personal effects management coordinator
- Repatriation & funeral coordinator

National Transportation Safety Board

Medicolegal Role at the FAC

- **Antemortem Data Collection**
  - **Interviews with family members**
- Victim Recovery & Identification Briefings
  - Establish realistic expectations
  - Dispel misconceptions (whole body concept, autopsy, etc)
- Notification of Identification
- Process Close-Out
  - Final disposition paperwork
  - Additional remains notifications
  - Group remains

National Transportation Safety Board

Joint Family Support Operations Center (JFSOC)

National Transportation Safety Board

Purpose of the JFSOC

- Coordinate family assistance operation
- Interagency coordination
  - Ensure communication between agencies
  - Identify needs, gaps, and duplication of services
  - Identify appropriate agencies to provide services
  - Coordinate and manage resource requests
- Determine frequency of and prepare for family briefings
- Monitor on-going family support activities
- Daily status reports from participating agencies
- Interagency planning and coordination for site visit

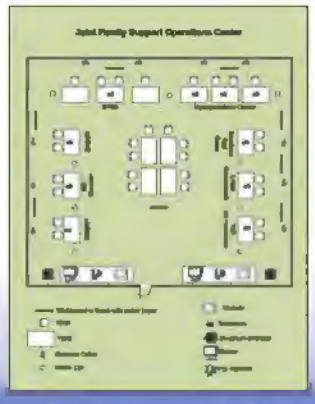
National Transportation Safety Board

Agencies in the JFSOC

- NTSB TDA
- Rail/air carrier
- Rail/air carrier's underwriter
- Local government representative(s)
- Medical Examiner/Coroner/JP representative(s)
- American Red Cross
- NTSB Federal Partners (as needed)
  - DOS
  - FBI
  - DHHS
  - DOD

National Transportation Safety Board

JFSOC Floor Plan Example



National Transportation Safety Board

Who's in Charge?!?

- Unified Command
  - Shared responsibilities
  - Agencies work together effectively without affecting individual agency authority, responsibility, or accountability
- Legislated aviation & rail accidents
  - NTSB coordinating agency
  - Air/rail carrier logistic support
  - OEM, Public Health, Community Services
- Other types of mass fatality and casualty incidents
  - Federal crime → FBI OVA
  - Other MFI/MCI events → ???

National Transportation Safety Board

Important Considerations

- Understand what is involved in family assistance operations in order to make informed decisions regarding roles and responsibilities
- Where does the division/organization/entity responsible for coordinating support services reside within your jurisdiction?
- Ask who is in charge!

National Transportation Safety Board

FAMILY MEMBER BRIEFINGS

National Transportation Safety Board

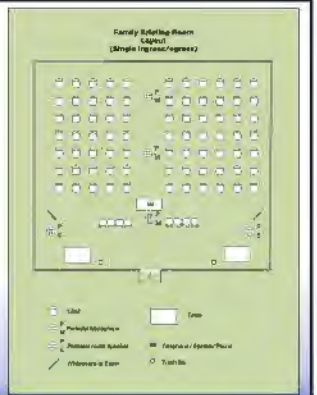
Briefing Objectives

- Provide structure / routine
- Provide factual information
- Rumor control
- Provide information to family members prior to press conferences

National Transportation Safety Board

Family Briefing Room Layout

3-6 family members per victim



National Transportation Safety Board

Typical Agenda Topics

- NTSB Investigative update
- Medical Examiner/Coroner update
  - Victim recovery and identification process
- American Red Cross services
- Carrier
  - Logistic concerns
- Others (as necessary)
- Confirmation of next scheduled briefing

National Transportation Safety Board

Important Considerations

- Establish one primary point of contact to represent each agency at each briefing
- Two briefings per day (first few days)
  - Possibly one briefing per day thereafter
- Briefings may last 2+ hours

National Transportation Safety Board

Questions and Answers

- Structured
- Factual information only
- Rumor control
- Question and answer session lasts as long as is necessary

National Transportation Safety Board

Typical Questions?

- Family members seeking accurate factual information
- Wide range of questions:
  - Detailed and general
  - Direct
  - Technical
  - On topic and off topic

National Transportation Safety Board

What Questions Are Asked of the Medicolegal Authority?

- How is the search and recovery of my family member progressing?
- What is the condition of my family member's remains?
  - Whole body vs. other states of remains
- When can we see the remains?
- How will you identify my family member?
  - Methods (esp. DNA)
  - Length of time
- Why are you asking for dental, medical, and other types of records?
  - Antemortem data collection
- Who will make the final decisions about:
  - Receipt of information on the identification?
  - What happens to group/unidentified tissues?
  - The release and final disposition of remains?

National Transportation Safety Board

HARRIS COUNTY
INSTITUTE OF FORENSIC SCIENCES
SCIENCE. SERVICE. INTEGRITY

The Role of the Medicolegal Authority at the Family Assistance Center

Jason M Wiersema PhD, DABFA, DABMDI
Forensic Anthropologist/Director of Forensic Emergency Management

Texas Code of Criminal Procedure Chapter 49.25

- **Medicolegal authority responsibilities:**
  - Scene investigation
  - Decedent transport
  - Postmortem examination
    - Cause and manner certification
  - Decedent identification
  - Notification of NOK
  - Release to funeral agency

Federal Family Assistance Plan for Aviation Disasters (2008)

Victim Support Task	Responsibilities	Agency
VST 1	Coordinate family assistance operations (facilitate identification, liaison between families and air carrier, media relations)	NTSB
VST 2	FAC location, Call Center, family travel logistics, FAC credentialing, Manage personal effects, memorial, Reimburse non-profits	Air Carrier
VST 3	Family Care and Mental Health, Childcare	Red Cross
VST 4	Victim identification - Civilian	DMORT assistance to local medicolegal authority
VST 4	Victim Identification – Military	OAFME/AFDIL
VST 5	Assisting Families of Foreign Victims	Department of State
VST 6	Communications	Homeland Security
VST 7	Assisting Victims of Crime	Department of Justice

The medicolegal authority at the FAC

- The National Response Framework (NRF) utilizes the National Disaster Medical System (NDMS), as part of the Department of Health & Human Services, Assistant Secretary for Preparedness and Response (ASPR), Office of Preparedness and Operations (OPEO), under Emergency Support Function #8 (ESF #8), Health and Medical Care, to provide victim identification and mortuary services. These responsibilities include:

- temporary morgue facilities
- victim identification
- odontology
- pathology
- anthropology
- preparation
- disposition of remains

…No family assistance

So, why all the confusion?

- Unlike legislated transportation incidents, there is no legislative guidance
- Guidance comes from two sets of federal emergency management documents:
  - Preparedness framework documents
  - Preparedness goal documents
- These documents provide guidelines for those seeking federal grant funds
- This means that a lot of local discussions of FAC are done in the context of grant application

So why all the confusion?

~~HSPD8 (2003)~~
PPD 8 (2010)

~~National Response Plan (2004)~~
National Response Framework (2008)

Emergency Support Function #8
Health and Medical

Fatality Management

ESF #8 may task HHS components and request assistance from other ESF #8 partner organizations, as appropriate, to provide support to families of victims during the victim identification mortuary process.

~~National Preparedness Guidelines (2007)~~
National Preparedness Goal (2011)

~~Target Capabilities~~
Core Capabilities

Fatality Management

...sharing information with mass care services for the purpose of reunifying family members and caregivers with missing persons/remains, and providing counseling to the bereaved

So why all the confusion?

HSPD8 (2003)
PPD 8 (2010)

National Response Plan (2004)
National Response Framework (2008)

Emergency Support Function #8
Health and Medical

Fatality Management

ESF #8 may task HHS components and request assistance from other ESF #8 partner organizations, as appropriate, to provide support to families of victims during the victim identification mortuary process.

National Preparedness Guidelines (2007)
National Preparedness Goal (2011)

Target Capabilities
Core Capabilities

Fatality Management

interaction with and provision of legal, customary, compassionate, and culturally competent required services to the families of deceased within the context of the family assistance center.

The medicolegal authority at the FAC

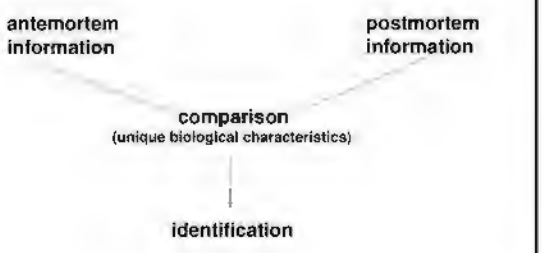
- **Aviation Disaster Family Assistance Act (1996):** "Responsibilities of the Board.--The Boerd shall have primary Federal responsibility for facilitating the recovery and identification of fatally-injured passengers involved in an accident described in subsection".
- **Federal Family Assistance Plan for Aviation Disasters (2008):** NTSB notifies The Dept. of Health and Human Services that a local jurisdiction requires help with ID.
  - DMORT activated as necessary
  - DMORT FAC Team

The medicolegal authority at the FAC

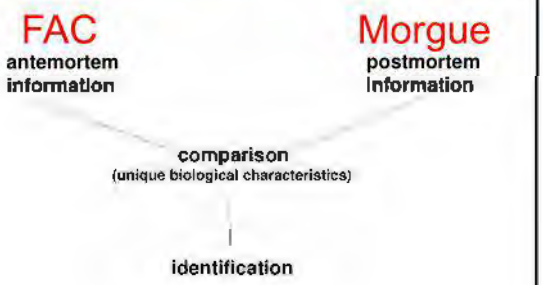
- **Aviation Disaster Family Assistance Act (1996):** "Responsibilities of the Board.--The Board shall have primary Federal responsibility for facilitating the recovery and identification of fatally-injured passengers involved in an accident described in subsection".
- **Federal Family Assistance Plan for Aviation Disasters (2008):** NTSB notifies The Dept. of Health and Human Services that a local jurisdiction requires help with ID.
  - DMORT activated as necessary
  - DMORT FAC Team …. DMORT VIC Team

So, who does the FAC "belong to"?

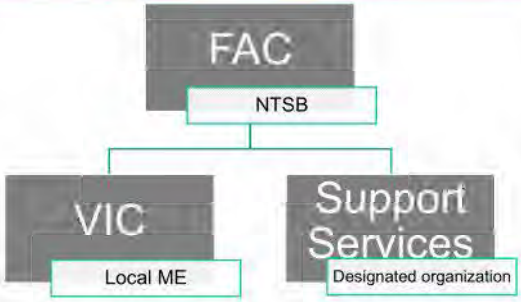
What is an identification?



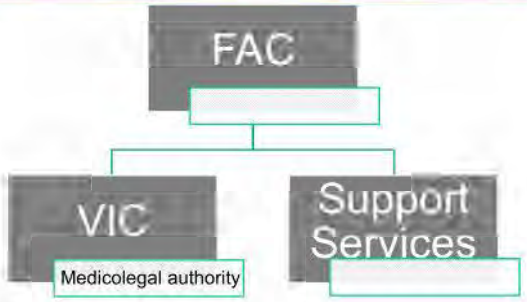
What is an identification?



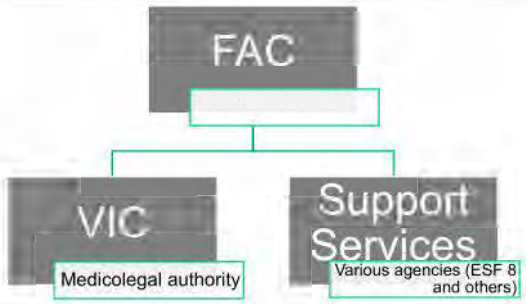
Airline Model



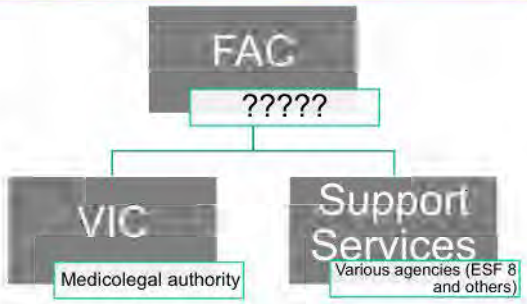
Non-Transportation Incidents



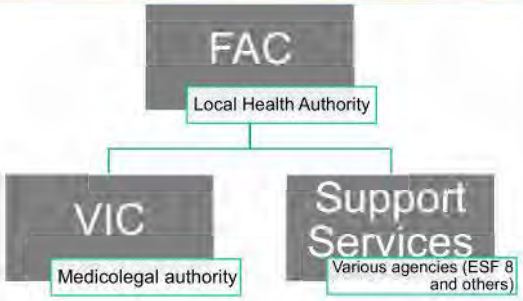
Non-Transportation Incidents



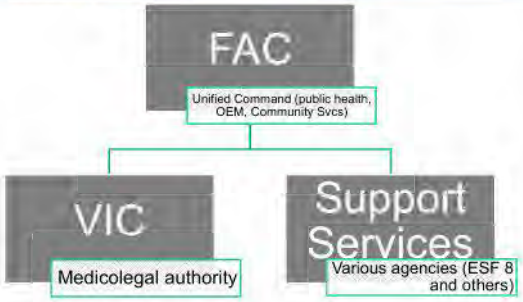
Non-Transportation Incidents



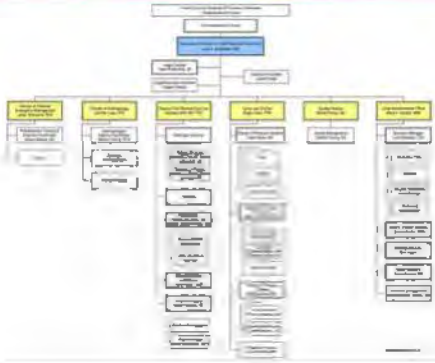
Non-Transportation Incidents/Houston



Non-Transportation Incidents/Harris County



HCIFS Organizational Chart



Multi-disciplinary Approach

- Medicolegal Authority
- Local Elected Officials
- Emergency Management
- Public Information Officers
- Law Enforcement
- Fire/EMS/Hazmat
- Public Health
- Legal Counsel
- Healthcare
- Mental Health Providers
- Non-Governmental Agencies
- Religious Organizations
- State/Federal Agencies
- Private Industry
- Others??

HARRIS COUNTY
INSTITUTE OF FORENSIC SCIENCES
SCIENCE. SERVICE. INTEGRITY.

Questions?

Jason Wiersema PhD DABFA, DABMDI
Harris County Institute of Forensic Sciences
jason.wiersema@ifs.hctx.net

NTSB Perspectives on Managing DVI Operations

National Transportation Safety Board

What is a Mass Fatality Incident?

"An event causing death and/or extensive property damage, which overrides usual response capabilities." Transportation Disaster Response Handbook; 2002

"By definition, a mass fatality incident is one that overwhelms the capabilities of the local resources." Mass Fatality and Casualty Incidents: A Field Guide; 2000

Any situation in which there are more human bodies to be recovered and examined than can be handled by the usual local resources." NAME Mass Fatality Plan

Any incident, disaster, or public health emergency where more human deaths have occurred than can be managed with local or regional resources. Texas Department of State Health Services presentation at 56th annual Texas Vital Statistics Conference, 12/8/10

National Transportation Safety Board

Mass Fatality Plan Activation Triggers

An "objective" definition (NYC OCME):

- Any incident having the **potential** to yield 10 or more fatalities
- Any incident in which there are remains contaminated by chemical, biological, radiological, nuclear or explosive agents or materials
- Any incident or special circumstance requiring a multi-agency response to support ME/C operations
- Any incident involving a protracted or complex remains recovery operation

National Transportation Safety Board

How are Mass Fatality Incidents "Unique?"

- Large numbers of time sensitive cases processed at one time
- Fast paced
- Complex
- Mass comparison of data
  - References to human remains
  - Human remains to human remains
- Public awareness and pressure
- New experience for many

National Transportation Safety Board

Mass Fatality Incidents
in the U.S. (2000-Present)

97 U.S. Mass Fatality Incidents
7,854 Deaths

Top 4 Mass Fatality Incident Types

1. Tornado – 23 incidents (45 deaths per incident)
2. Aviation – 16 incidents (38 deaths per incident)
3. Hurricane – 12 incidents (206 deaths per incident)
4. Mass Shootings – 10 incidents (26 deaths per incident)

- **Average Number of MFIs in US each year:** 7
- **Average Number of Deaths per MFI:** 81
  (52 not incl. 9/11)
  (33 not incl. 9/11 or Katrina)
- **Majority of MFIs involve less than 50 deaths**
- **A majority of MFIs involve open populations**
  67% (65) open population
  33% (32) closed population

Data courtesy of NYC OCME National Transportation Safety Board

Primary Objectives of a Mass Fatality Medicolegal Operation

- Investigate, recover and examine decedents in a dignified and respectful manner
- Accurately determine cause and manner of death
- Perform accurate and efficient identification of victims
- Provide for the rapid return of victims to their legal next of kin if possible
- Exchange factual and timely information with families in a compassionate manner

Medical Examiner/Coroner Responsibility

National Transportation Safety Board

Factors Influencing Operational Complexity

- Open or closed victim population
- Number of fatalities
- Condition of remains
- Antemortem data
  - types, availability, accuracy
- Search/recovery challenges
- Identification focus: victims or remains
- Role of DNA: ID and/or re-association
- Concerns/expectations of society and NOK

National Transportation Safety Board

COMPLEXITY

- Low
+ High

Closed Population
Complete Remains

- Decedent list known
- More rapid acquisition of AM data
- Morphoscopic ID methods primary
- Minimal DNA required/corroborative role
- Re-association not required

Open Population
Fragmentary Remains

- **Reported/actual missing**
- Increased reliance on DNA IDs
- Lesser role for morphoscopic IDs
- ID all fragments vs. all victims
- Re-association required
- Group remains management

National Transportation Safety Board

Recent Accident Victim ID Data

	Victims	Remains	DNA IDs	ID Time	DNA Cost	Comments
Egyptair 990 (1999)	217	6000	144	6 months	$658,000	54 families did not provide DNA reference samples
Alaska Air 261 (2000)	88	950	85	4 months	$255,500	3 not recovered
Executive Air (2000)	19	25	0	5 days	--	
American 77 and Pentagon (2001)	188	2000	183	3 months	$659,000	5 not identified 5 unique DNA profiles (terrorists)
United 93 (2001)	44	1300	44	3 months	$334,000	4 unique DNA profiles (terrorists)
USAirways 5481 (2001)	21	43	2	1 week	$12,500	
Corporate Airlines 5966 (2004)	13	30	4	2 weeks	$41,000*	
Comair 5191 (2006)	49	49	0	4 days	$0.00	
Continental Connection 3407 (2009)	50	447	45	3.5 months	$265,000	

↑ Fragmentation severity = ↑ ID time & ↑ DNA cost

National Transportation Safety Board

Mass Fatality Management Considerations

National Transportation Safety Board

Quality Assurance

- Origins in complex manufacturing processes with a division of labor
- Critical in high consequence environments
- Systematic monitoring of processes and an associated feedback loop that:
  - Identifies and mitigates errors and bias
  - Confirms the continued validity and reliability of SOPs and protocols
  - Ensures that best practices are being followed
  - Corrects procedures and protocols that are found to need improvement

National Transportation Safety Board

Victim Accounting

National Transportation Safety Board

The Accounting Process:

Integration of data from multiple sources

National Transportation Safety Board

Data Management Systems

National Transportation Safety Board

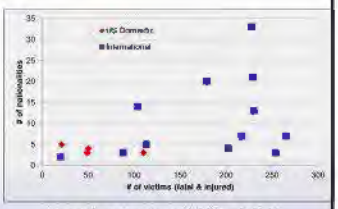
DVI Data Management Systems

- Victim Identification Profile
- Unified Victim Identification System
- State Sponsored Systems (e.g. FRED)
- INTERPOL DVI/plass Data

National Transportation Safety Board

INTERPOL

- Largest international police organization
- 186 member countries
- WTC: 60 nationalities



AM data sources?

16 aviation accidents (1996 – 2009)
20 – 265 victims
3-33 nationalities
Avg. 4 nationalities/domestic flight
Avg. 11 nationalities/international flight

National Transportation Safety Board

INTERPOL DVI

http://www.interpol.int/INTERPOL-expertise/Forensics/DVI

Antemortem Data Collection

Antemortem Data

Variables Influencing Antemortem Data Collection

- Population impacted
  - Religious
  - Socioeconomic
  - Defined groups
  - Local vs. international
  - Open vs. closed
- Availability
- Accuracy

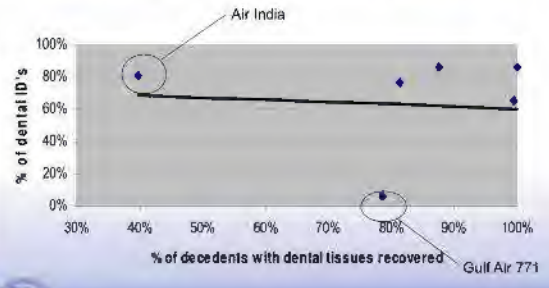
Antemortem data is the prime mover

↓

In principle, antemortem data drives identifications

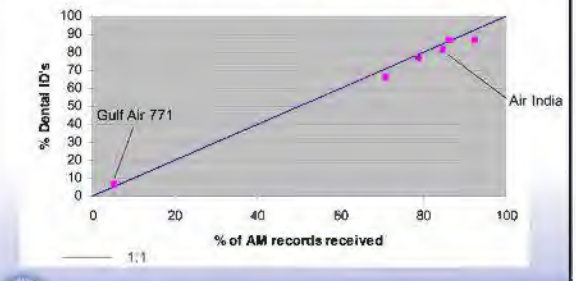
National Transportation Safety Board

Identification success as a function of the remains recovery effort…



National Transportation Safety Board

Identification success as a function of the antemortem records recovery effort…



National Transportation Safety Board

Antemortem Records
Training

- Delattre and Stinson (JFS 1999) showed that 69% of dentists with no forensic dental training thought their AM records would be extremely helpful for identifications.
- The number dropped to 29% once the dentists had received forensic training.

National Transportation Safety Board

Antemortem Records
Quality

- Kieser et al. (JFS 2006) estimated that 62% of AM dental records post-Tsunami were of unacceptable quality and 64% had no/poor quality radiographs.

National Transportation Safety Board

Antemortem Data Collection
Challenges

- Incorrect information from the informant
  - Catherine vs. Katie
- Informant misunderstands question
  - What is your relationship to the victim?
- Lack of standardized answers/recording
  - DOB: 6/7/72 or 7/6/72
  - Sally Ritter-Dawkins, Sally Ritter Dawkins, Sally R. Dawkins, Sally Dawkins, Sally Ritter
- Information incorrectly recorded by interviewer
  - Misspelling, transposed #s
- Use of trained interviewers
- Handwritten vs. direct data entry at time of interview
  - tt or H, o or a, m or n, 7 or 1

National Transportation Safety Board

Antemortem Data Collection

Levels of Accuracy & Error Estimates

- VIP has 340 data fields
- Assuming 99% accuracy → 4 errors per record
- Assuming 90% accuracy → 34 errors per record

WTC DNA data collection (Hennessey 2002)

- 40 data fields on DNA collection cover sheet
- 4,500 DNA collection events (12,000 items in 2 weeks)
- Donor not recorded in 250 collections
- Name of victim not recorded in 11 collections

National Transportation Safety Board

Scene Operations

Search, Detection, and Recovery

National Transportation Safety Board

General Principles

- **Responsibility of presiding medical examiner/ coroner jurisdiction**
  - If possible, coordinate with the NTSB prior to the recovery of fatally-injured victims
- Recovery is a destructive process
- Documentation is essential
  - *In situ* position of human remains
  - Use of restraint systems
  - Manipulation of wreckage during recovery (accidental/intentional)
- Proper S&R facilitates victim ID by mitigating:
  - Additional commingling
  - Destruction of evidence

National Transportation Safety Board

Postmortem Data Collection and Identification

National Transportation Safety Board

Victim Identification Process

Antemortem Data
- Dental information
- Fingerprint information
- DNA reference samples
- Unique biological or medical information
- Radiographs

Postmortem Data
- Dental remains
- Fingers/ridge skin
- DNA samples
- Unique biological or medical information
- Prosthetic devices

Comparison
(unique biological characteristics)
↓
Identification

National Transportation Safety Board

Additional approaches…?

What is the threshold of certainty that transitions an identification from "circumstantial" to "positive"?

National Transportation Safety Board

Are traditionally "unique" biological/medical features sufficiently rare to be deemed individualizing?

Komar and Lathrop (2006)

n=482

contemporary TN & NM pop

17.8% surgical intervention

37.7% AM trauma

47.7% skeletal pathology

Context Effects and Cognitive Bias

Context Effect

13

Context Effect

12
13
14

National Transportation Safety Board

Context Effect

A B C

National Transportation Safety Board

Context Effect & Cognitive Bias

- Sway toward an opinion as a result of having information extraneous to the task at hand

12
A B C
14

National Transportation Safety Board

Context Effects & Cognitive Bias

- Motivational bias
  - Induced by one's perceived role and the desire to conform to the beliefs and perceptions of others
- Confirmation bias
  - Conscious or unconscious proclivity to search for or interpret additional information to confirm beliefs and to steer clear of information that may disagree with those prior beliefs

National Transportation Safety Board

Other Sources of Cognitive Bias

- Hawthorne effect
  - Subject perform better or more deliberately when they know that they are being studied
- Contrast Effect
  - Tendency to shift the judgment standard after repeated exposure to stimuli of a certain threshold
  - Particularly inherent in subjective comparison work
  - Practitioner begins to see associations that are not there
- Overconfidence effect
  - Overconfidence in one's abilities when performing routine or repeated tasks

National Transportation Safety Board

Is cognitive bias an issue for ID scientists?

- Understand that context effects and bias ***may*** be a potential issue
  - Especially likely when underlying data is ambiguous
  - Analyst exposed to domain-irrelevant information that engages emotions or desires
- Few studies to date on the influence of cognitive bias in forensic identification sciences…

National Transportation Safety Board

Fingerprints…
(Dror *et al.* 2006)

- 5 fingerprint experts
  - 85+ years combined exp.
- Latent & suspect prints previously ID'ed as match in 2000 during normal casework
  - Verified as a match by independent evaluation
- Same expert asked to analyze same pair of prints in 2005 during normal casework
  - Provided with info indicating the prints were erroneously matched
  - Experts did not know that they were in an experimental situation
- **One expert judged prints to be a match**
- **Four experts changed ID decision**
  - **3 judged as definite non-matches**
  - **1 determined there was insufficient info to make definite decision**

National Transportation Safety Board

The Power of Contextual Effects in Forensic Anthropology: A Study of Biasability in the Visual Interpretations of Trauma Analysis on Skeletal Remains

- 99 participants evenly distributed amongst 3 websites containing 14 identical images of skeletal remains presenting a range of trauma. Each website presents a different context:
  - Human rights mass graves excavations
  - 19th century archaeological excavation
  - No contextual information (control)
- Higher likelihood of identifying trauma within the mass grave context
- Significant biasing effect observed with ambiguous images
- Participants with less experience more likely to interpret presence of trauma

National Transportation Safety Board

Context Effects in Forensic Anthropology…Continued

- Sex vs. Gender: Does it Really Matter (Saul & Saul 2004)
  - "It is always tempting to use clothing to jump to conclusions when confronted with otherwise immediately unidentifiable remains."
- SWGANTH Statistical Methods Committee Draft Document
  - General Principles: "Forensic Anthropologists should be alert to cognitive bias that may affect the taking, recording, and/or analysis of data, and limit its influence by working in the blind whenever feasible."
- **Need to quantify the degree to which practitioners are subject to these effects**

National Transportation Safety Board

Develop systems to mitigate context effects & bias

- Design morgue work-flow so that AM data and PM data are collected by different analysts
  - Sequential unmasking (Krane *et al.* 2008)
- Conduct analysis independent of the AM & PM data collection
- Analysts should limit exposure to victims, NOK, LEO
- Limit extraneous information available to analyst
  - Results of analysis of other modalities
  - Complete ignorance to case-specific information?
  - What is relevant and what is superfluous?

National Transportation Safety Board

Keep the processes of data collection and analysis as blind as possible for as long as possible.

Accurately document what was done.

National Transportation Safety Board

Incorrect Identifications Happen More Often When:

- Exclusive use of on-scientific identification methods
- Data collected is unreliable (AM or PM)
- There are no set standards or pre-determined threshold for identification
- Succumb to pressure to make identifications
- Appropriate checks and balances are not in place
- Operations are disorganized/haphazard

National Transportation Safety Board

Scientific Identification

VALIDATED METHODS & TECHNIQUES

LOGICAL, SYSTEMATIC, REPEATABLE WORK PROGRESSIONS

MEASURES OF EFFECTIVENESS AND UNCERTAINTY

High-Throughput Morgue Operations

Mass Fatality Incident Morgues

EgyptAir 990

Quonset Naval Air Station

Secure
5000-8000 sq ft
Hot/cold running water
Electricity
HVAC
Drainage
Parking
Restrooms
Communications

- Hangar
- Abandoned warehouse
- National Guard armory
- ME/Coroner office

Morgue Personnel

Management
- QA/QC manager
- ID manager
- Evidence manager
  - HR, PE
- Liaisons to other agencies
- Family member briefer
- POCs for families

Forensic
- Pathologists
- Anthropologists
- Odontologists
- Medicolegal investigators
- Fingerprint specialists
- Technical support
  - Radiology techs, dieners, dental assistants, morgue techs
- DNA specialists
- *AM interviewers*

Logistics/Support
- Supply technician
- Runners/trackers
  - Bar code system
- Data entry personnel
- Accountant/property manager

National Transportation Safety Board

Quality Assurance: Morgue Operations

- HR accountability
  - Trailer audits, bag inventories
- Group remains
  - Visual examination & radiography to determine if remains below the ID potential threshold
- PE & other classes of evidence
  - Disassociate remains prior to release to other agencies
- Case review prior to release
- Data collection & management
  - Paperwork audits, completeness of case files, numbering

National Transportation Safety Board

Notification and Release

- Who should be notified?
- Straight forward with whole bodies
- Fragmentary remains pose a challenge:
  - Inform next of kin of the potential for group remains and the explain the re-association process

When and how often to notify the NOK?
- Initially
- Each time a fragment is identified
- End of ID process
- Never

Establish a balance between family member wishes and medical examiner/coroner responsibilities

National Transportation Safety Board

Group Remains

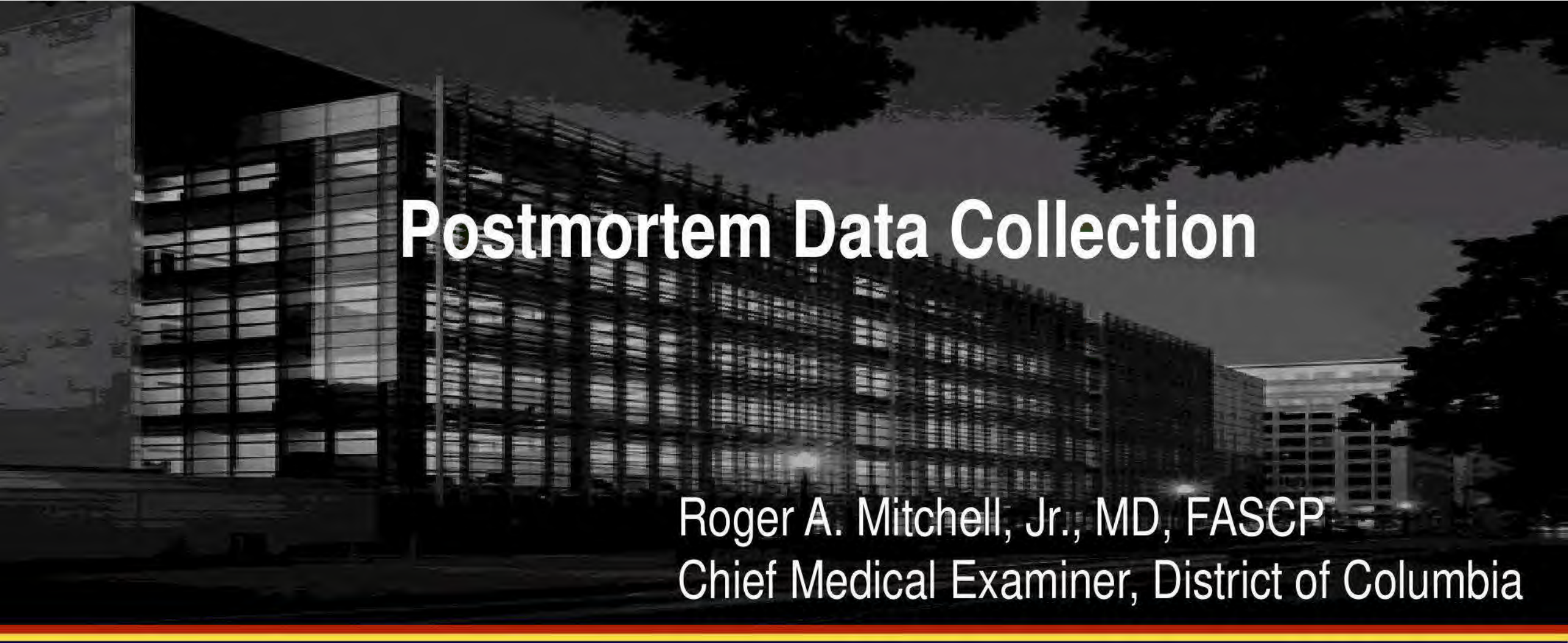
- Remains that are:
  - Not identified
  - Not examined beyond the initial triage
  - Devoid of all potentially identifiable characteristics
  - Devoid of information useful to death investigation and determination of incident causation
- Families must understand that group remains may exist even after DNA analysis.
- ME/C in conjunction with families decides about the final disposition of group remains.

Manage the group remains process *from the beginning*; communicate with clarity and *establish realistic expectations.*

Medicolegal MFI Resources

- Scientific Working Group on Disaster Victim Identification
  http://www.swgdvi.org
- National Association of Medical Examiners
  http://thename.org/
- American Academy of Forensic Sciences
  http://www.aafs.org/
- Disaster Mortuary Operational Response Teams
  http://www.dmort.org/

Questions?



Postmortem Data Collection

Roger A. Mitchell, Jr., MD, FASCP
Chief Medical Examiner, District of Columbia

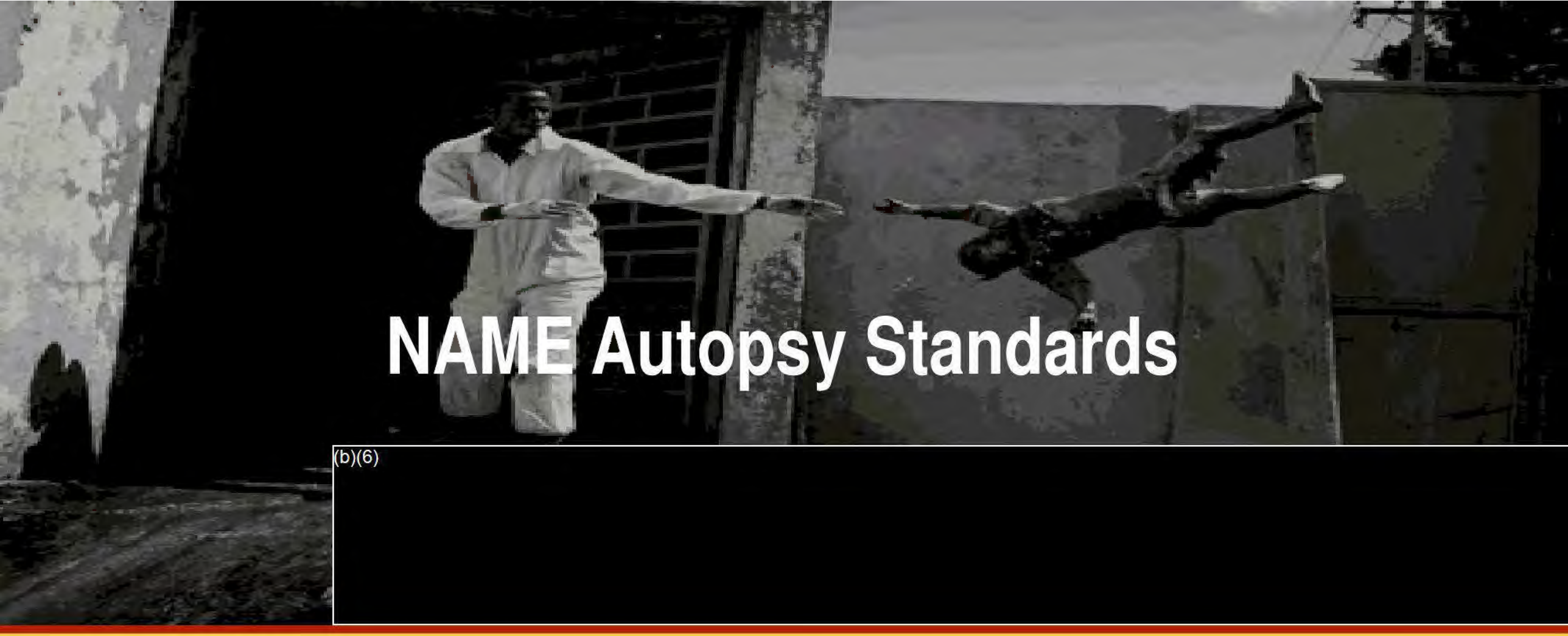
Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

Agenda

Postmortem Data Collection

Today we will discuss:

1. NAME autopsy standards
2. When is autopsy required
3. Injury documentation
4. Scenario-specific evidence collection considerations
5. Postmortem Data Collection After an MFI: Hurricane Sandy Case Study



NAME Autopsy Standards

(b)(6)

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

NAME Autopsy Standards

- ME's role in post-mortem evidence collection
- What postmortem information must be collected?
- What are the reporting standards?
- QA/QC of the postmortem data collection process

QA/QC of the Postmortem Data Collection Process

ME/C must have documentation of:

- Age
- Race
- Gender
- Clothing
- Photography of the body

Scribes

Pictures

documentation

Workers remove one of 298 decedents killed on board Malaysia Flight MH17 after the airliner crashed in eastern Ukraine,

ME's Role in Post Mortem Evidence Collection

- Determine the disposition of remains and how to handle and ID the decedent
  - What is on them and what about them can help ID the decedent
- Properly reunify the decedent with their family

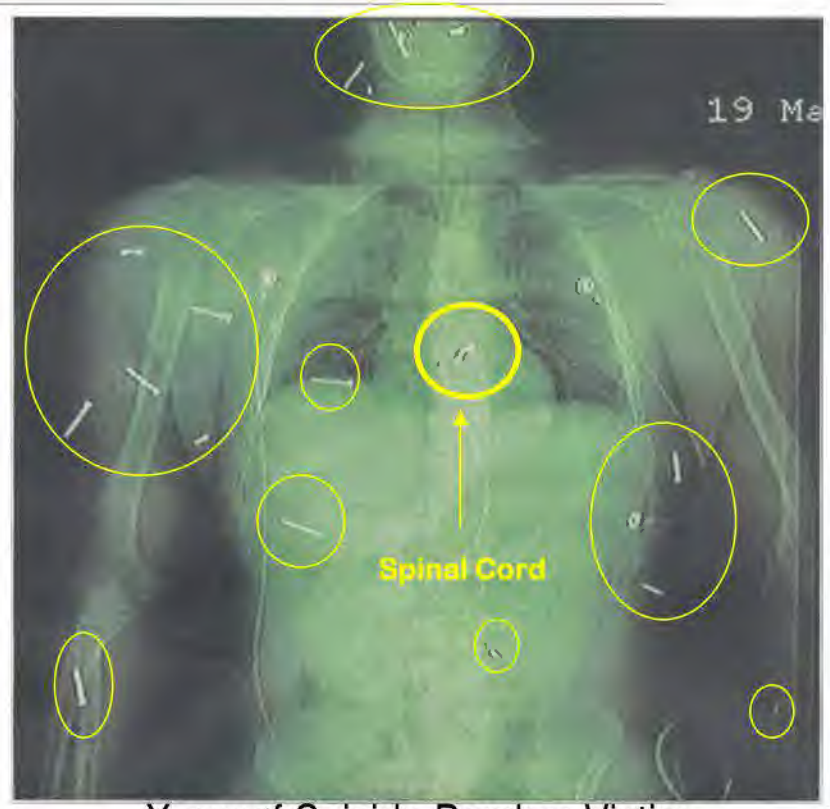
10 killed in a three-vehicle crash involving a bus carrying high school students on April 10, 2014, near Orland, Calif.

What Evidence will be Collected

- Full-body x-rays or CXR
- Dental x-rays
- Fingerprints
- Associated evidence/personal effects
- DNA (buccal swabs)

When is an Autopsy Indicated?

- Various levels of examination (external, radiography, photography)
  - Terrorist act (post-blast)
    - X-ray guides dissection
    - Directed autopsy for shrapnel recovery
  - Terrorist act – time critical evidence for law enforcement
  - Level of autopsy is dependent on volume of remains
    - May require alternate standards of forensic pathology (number of remains outweigh the capacity to process)
- Objections to autopsy



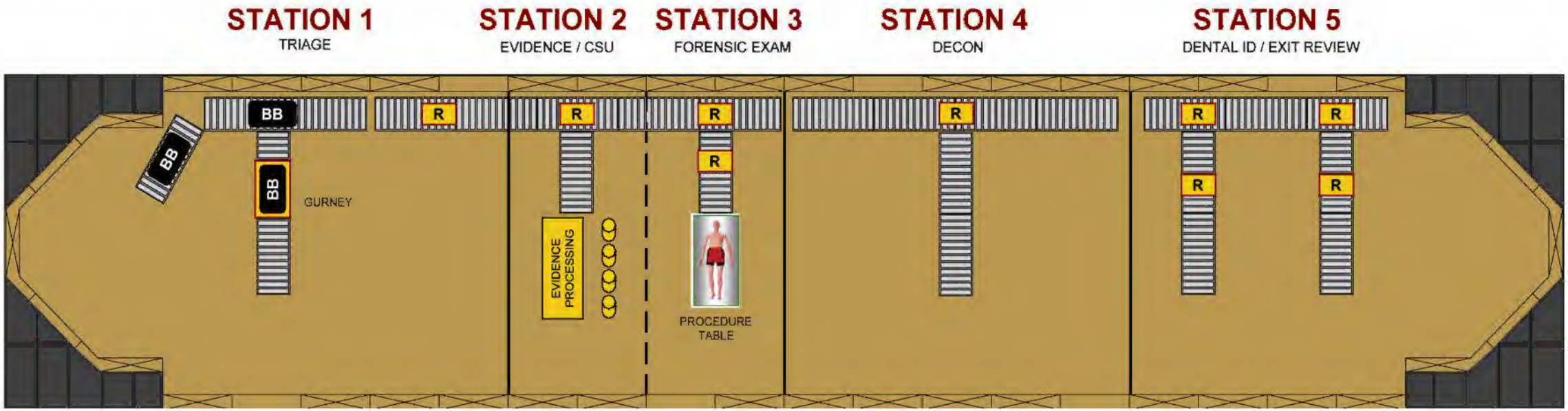
X-ray of Suicide Bomber Victim
19 May 2002, Netanya, Israel

Injury Documentation

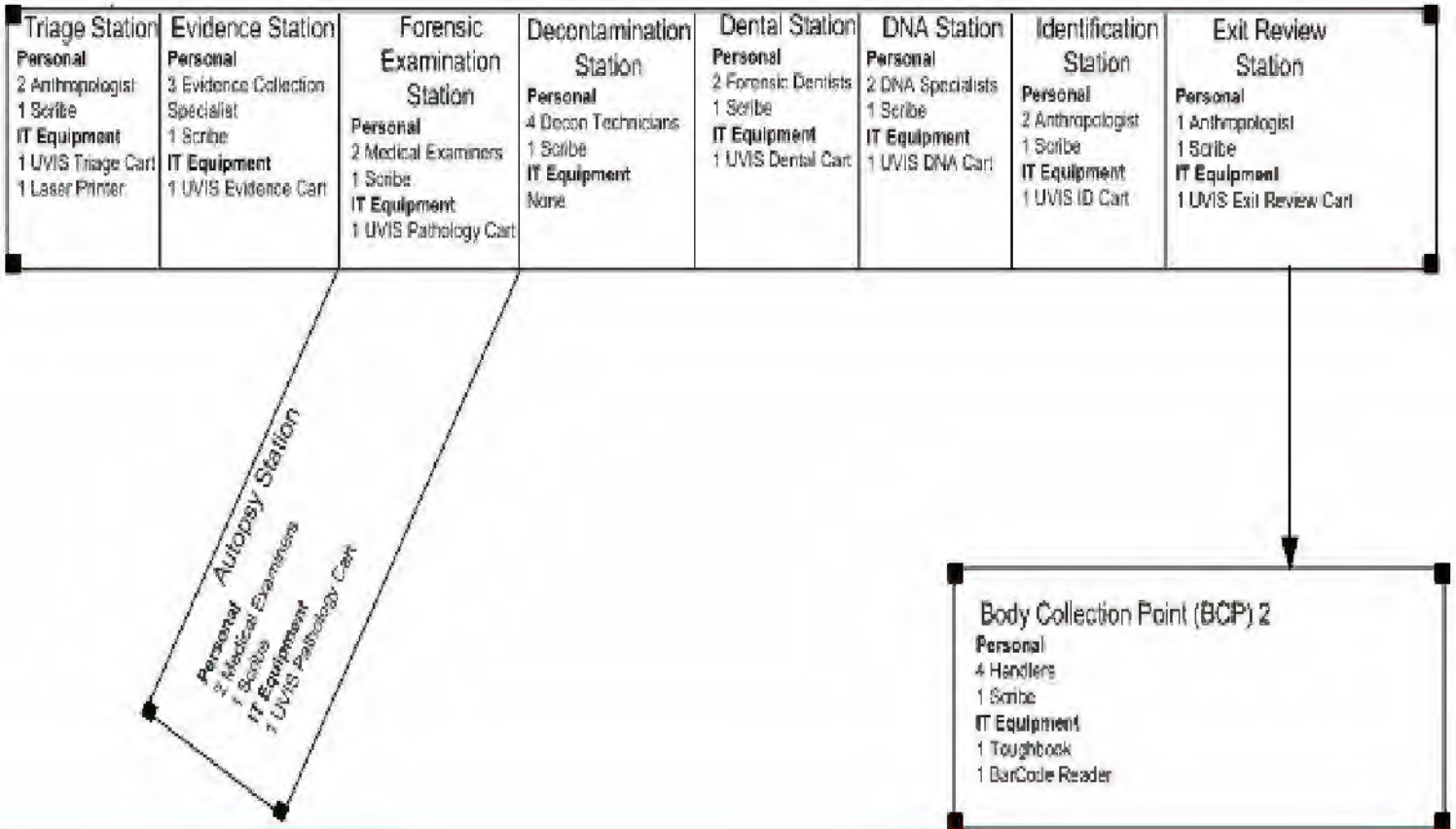
- Cause & manner of death
- Interval from injury to death
- Flight crew examination
- Critical autopsy data required for the specific event (time-sensitive evidence/data)
- Proper collection of data aids in determination of survival factors by NTSB

Bodies lay by the wreckage of the train crash that killed 60 passengers in Spain on July 25, 2013

Disaster Morgue



Disaster Morgue



Scenario-specific evidence collection considerations

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

Special Considerations for Evidence Collection

- Terrorist with intact bodies (active shooter)
- Terrorist non-intact – fragmented
- Transportation incident
- Natural disasters

The bodies of 37 decedents along the railroad tracks after the train ran into a crowd of pilgrims in India

Mass Fatality with Intact Bodies: Active Shooter Scenario

- Large crime scene
- Delayed identification process
- Open/closed population
- Population Type
- Establishing the VIC/FAC
- Examination types (Autopsy vs. Modified Exam)
- Media

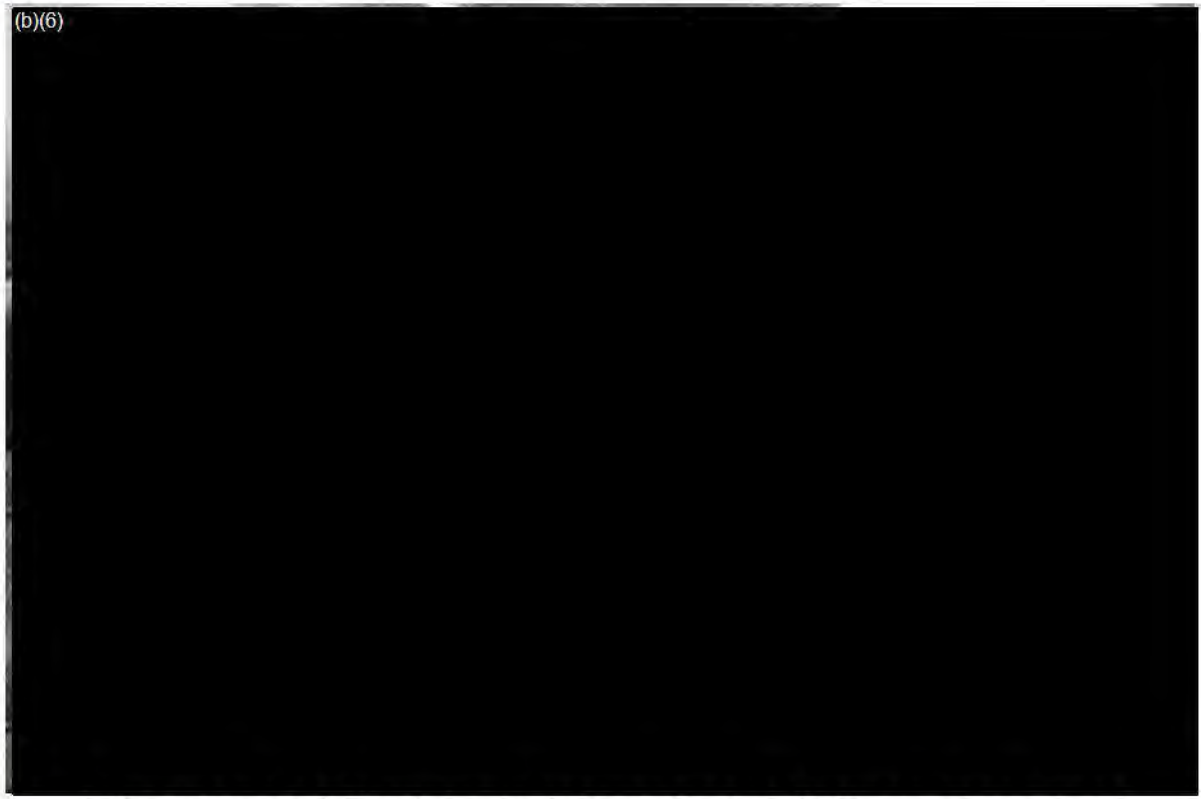
Mass Fatality with Non-Intact Bodies: Post-Blast Scenario

- Wide area of distribution of remains
- Poor condition of remains:
  - Charred
  - Highly fragmented
  - Scattered
- Large-scale crime scene
- Open population
- Identification
- Suicide Bomber co-mingled remains
- Anthropologist support

West Bank Suicide Bomber

Transportation Incident

- Widespread area of destruction
- Wide area of distribution of remains
- Open or closed manifest
- Open populations deaths (plane into building)
- Poor condition of remains:
  - Charred
  - Highly fragmented
  - Scattered
- Co-mingled Remains
- Anthropologist Support
- Odontology Support



Wreckage of Pakistan's International Airlines plane that crashed in Multan, on 10 July 2006

Natural Disasters

- Widespread area of destruction
- Wide area of distribution of remains/Search and Recovery needed
- Possible decomposition due to inability to locate remains
- Open manifest
- Delayed Deaths complicating Natural Disease

New Orleans post Hurricane Katrina

Postmortem Data Collection After an MFI: Hurricane Sandy Case Study

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

Objectives

- Provide an overview of the role of the ME/C in response to a natural disaster
- Describe preparation and response to Super Storm/Hurricane Sandy 2012
- Define and describe Medical Examiner Surveillance of Super storm-related Deaths in New Jersey

Mission

- To provide vision and leadership for the Regional/State Medical Examiner System
- To achieve/maintain excellent Forensic Service, Education and Research
  - Investigation, Response, and Report Cause & Manner of Death
  - Education and Training of law enforcement and health care providers
- To provide Family Assistance in understanding cause and manner of death
- To support Law Enforcement and Public Health related initiatives at the state, local, and county levels (i.e. Gang Violence, Drug Abuse)
  - Surveillance: Identification of emerging public health/law enforcement trends
- **To work with county/state agencies toward Mass Fatality Preparedness**

Introduction

- On October 29, 2012 Superstorm Sandy made landfall on the coast of New Jersey resulting in severe coastal flooding, destruction of homes, and loss of life.
- The New Jersey Office of the State Medical Examiner (OSME) is responsible for the surveillance of all storm-related deaths.

Hurricane Sandy 2012
Storm Preparation and Response

Regional and Statewide Conference Calls

- Effective Friday, October 26th, 2012 the OSME led Statewide conference calls with New Jersey Regional and County Medical Examiners.
  - As well as participated in separate Regional Catastrophic Planning Team (RCPT) – Mass Fatality Management conference calls.

Staffing and Resource Allocation

- Portable Body Storage provided to the Southern Regional Medical Examiner.
- Additional staffing assigned to the Northern and Southern Regional Medical Examiner.

Mobile Storage Capacity

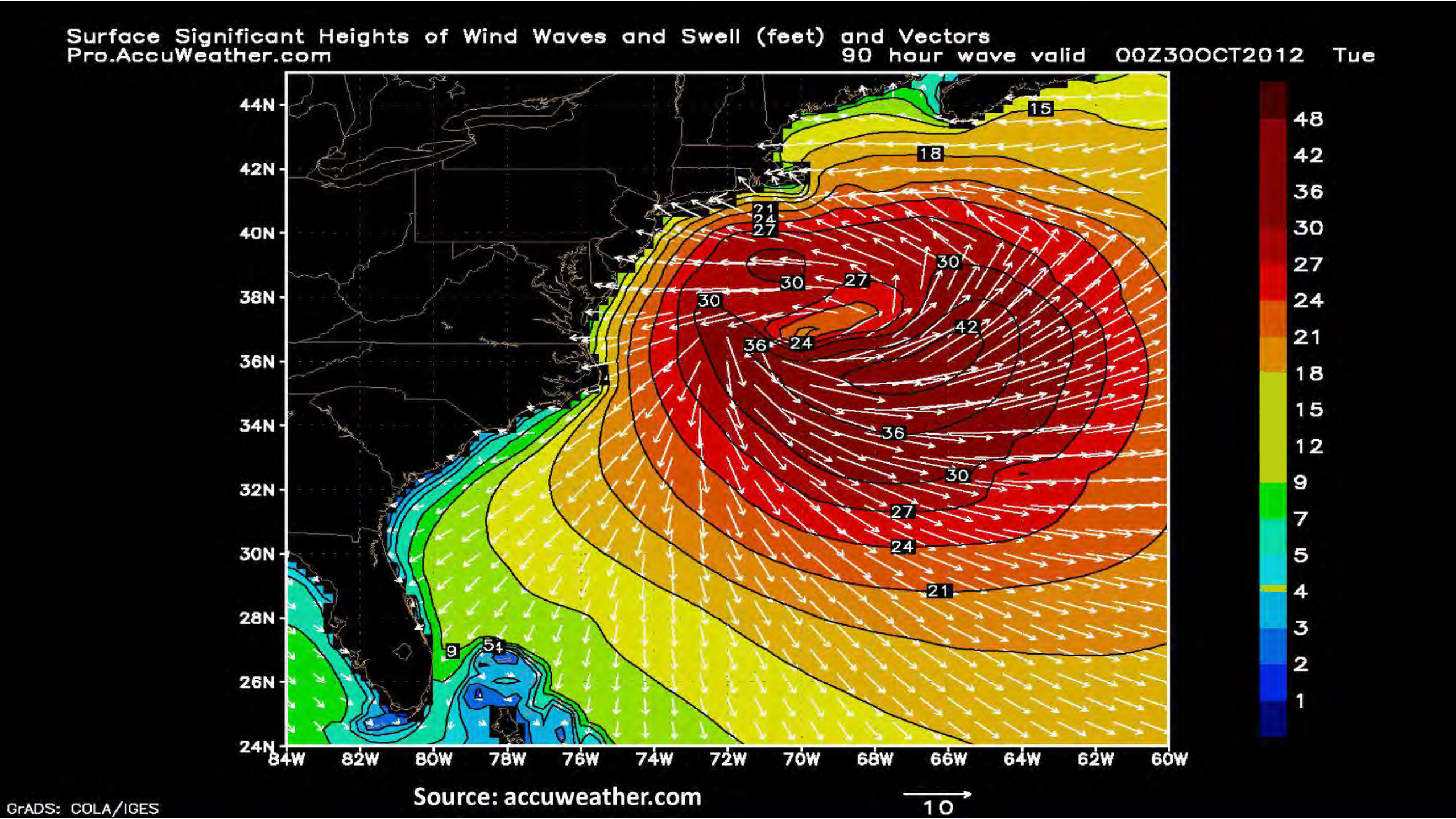
Superstorm Sandy 2012

New Jersey Governor Christopher Christie declared a statewide State of Emergency on Saturday, October 27th, 2012 at 11:30am

New Jersey Regional Operations Intelligence Center (ROIC) and State's Emergency Operations Center (SEOC)

- All State and Federal allied agencies were staffing the SEOC's support room at the ROIC
  - **Including the Office of the State Medical Examiner**
- Residents of the Barrier Islands in Cape May, Atlantic, and Ocean Counties were advised of the Governor's mandatory evacuations.
  - **All residents were instructed to be clear of the islands by 4:00pm on Sunday, October 28th, 2012.**


HURRICANE SANDY
9 WEATHER NOW
WINDS: 90 MPH GUSTS: 115 MPH MOVING: NNW AT 18 MPH
PRESSURE: 943 MB LOCATION: 37.5°N, 71.5°W
11:00 AM ADVISORY
HALIFAX
BOSTON
NEW YORK
WASHINGTON
NORFOLK
NASHVILLE
HATTERAS
ATLANTA


Surface Significant Heights of Wind Waves and Swell (feet) and Vectors
Pro.AccuWeather.com
90 hour wave valid 00Z30OCT2012 Tue
44N
42N
40N
38N
36N
34N
32N
30N
28N
26N
24N
84W
82W
80W
78W
76W
74W
72W
70W
68W
66W
64W
62W
60W
15
18
21
24
27
30
30
27
30
42
36
24
36
30
27
24
21
9
54
48
42
36
30
27
24
21
18
15
12
9
7
5
4
3
2
1
Source: accuweather.com
10
GrADS: COLA/IGES

Superstorm Sandy 2012 Communication and Coordination

- Daily conference calls afforded Medical Examiners from around the state the mechanism to report deaths to the OSME directly.
  - Daily centralized communication surrounding storm related deaths occurred with DCJ Chief of Staff, State Police PIO, as well as LPS PIO.
- The OSME, NJSP Missing Persons & NJ211 facilitated the limited deployment of the Call Center and Missing Persons modules of the Unified Victim Identification System (UVIS) to assist in the development of a victim manifest of any potential missing persons.

Superstorm Sandy 2012 Urban Search and Rescue

The OSME provided fatality management and support for the Ocean County Medical Examiner Office

- Providing portable body storage unit and a Medical Examiner Assessment Team to assist with the search and recovery efforts on the Barrier Islands for two days.
- Assessment Team consisted of:
  - 1 Deputy Chief of Detectives
  - 2 Medicolegal Death Investigators

Super storm Sandy 2012
Urban Search and ~~Rescue~~ Recovery

Super Storm Related Deaths

70 storm related deaths in NJ as of May 2013

- The initial reporting of storm-related deaths occurred during daily communications with county medical examiners.
- **36 cases were identified and reported within the first several weeks.**
- Nearly seven months after landfall, the OSME continued to receive reports of deaths submitted by families for FEMA funeral/death benefit.
- The OSME has received 61 additional reports for funeral benefit review **34 of which have been identified as Super storm-related.**

Source: accuweather.com Retrieved on 10/06/2014

Hurricane Sandy 2012
Sustained Post-Storm Support

Death Benefit Coordination

- FEMA and NJ Dept. of Human Services – Office of Emergency Management
- 400 Death Benefit Claims
  - 97 focused claims
  - Requires Review and Coordinated Medicolegal death investigation

State of New Jersey DHS Department of Human Services

Office of the State Medical Examiner

U.S. Department of Homeland Security FEMA

Definitions

- Related deaths were defined as any death that was “directly” or “indirectly” related to Superstorm Sandy among evacuees, residents, nonresidents, or rescue personnel in the State of New Jersey.
- **Directly related**: included any death caused by the physical forces of the hurricane, such as wind, rain, or floods or by direct consequences of these forces such as structural collapse or flying debris.
- **Indirectly related**: included any death caused by conditions that occurred because of the anticipation or actual occurrence of the hurricane. These conditions included the loss or disruption of usual services (i.e. utilities, transportation), personal loss, fire due to use of candles, etc.

Case Review Process

Case provided by FEMA for Death Benefit Review

Reviewed each case by collecting information provided on the "Report of Investigation by the Medical Examiner" (RIME) uploaded into the statewide Medical Examiner Case Management System (MECMS),

Reviewed death certificates within the Electronic Death Registry System (EDRS)

Reviewed information provided by families

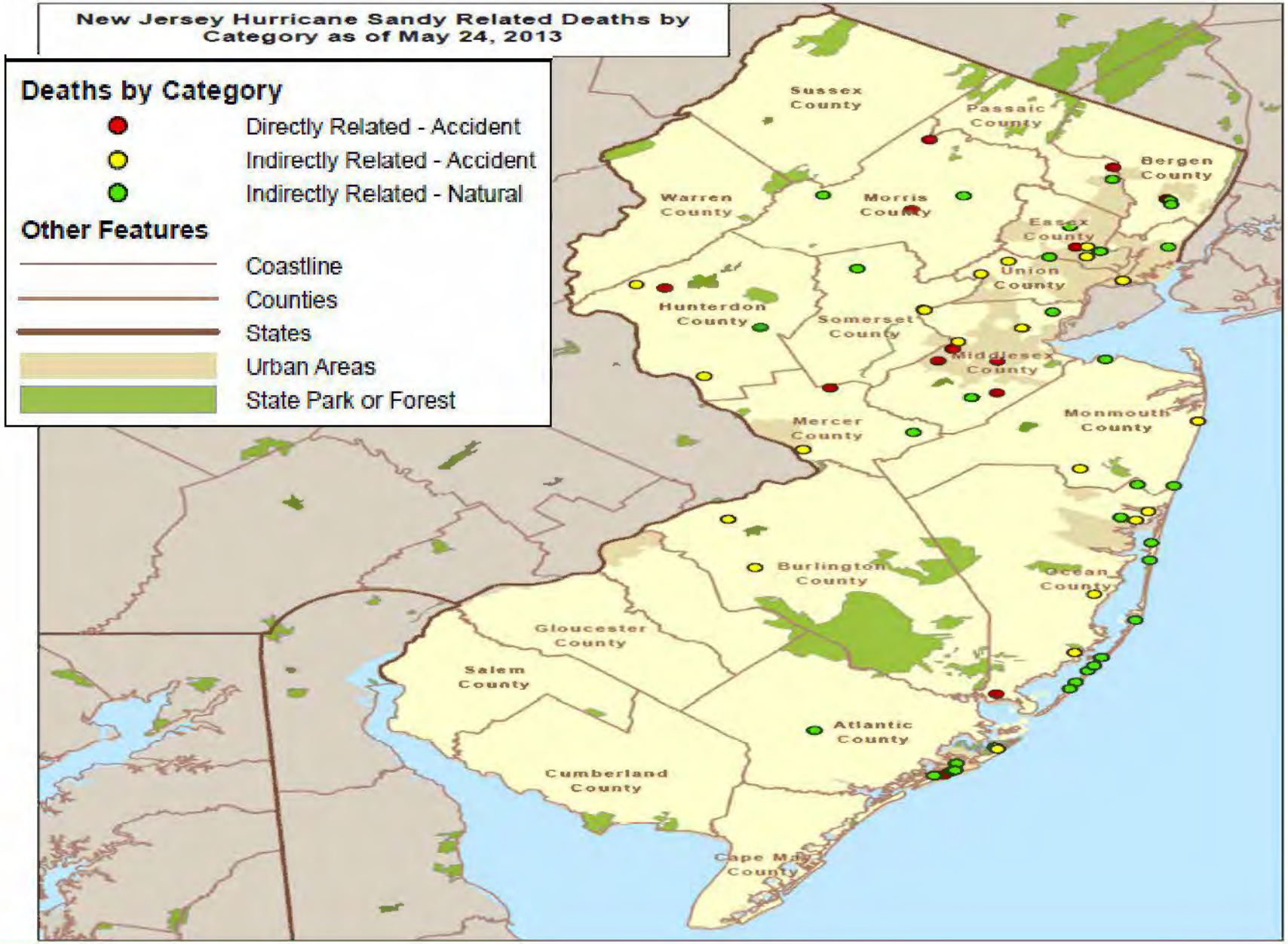
CDC Disaster Mortality Form used to ensure uniformity

Hurricane Sandy 2012
Sustained Post-Storm Support

70 Sandy-Related Deaths by Category (as of 5/21/2013)

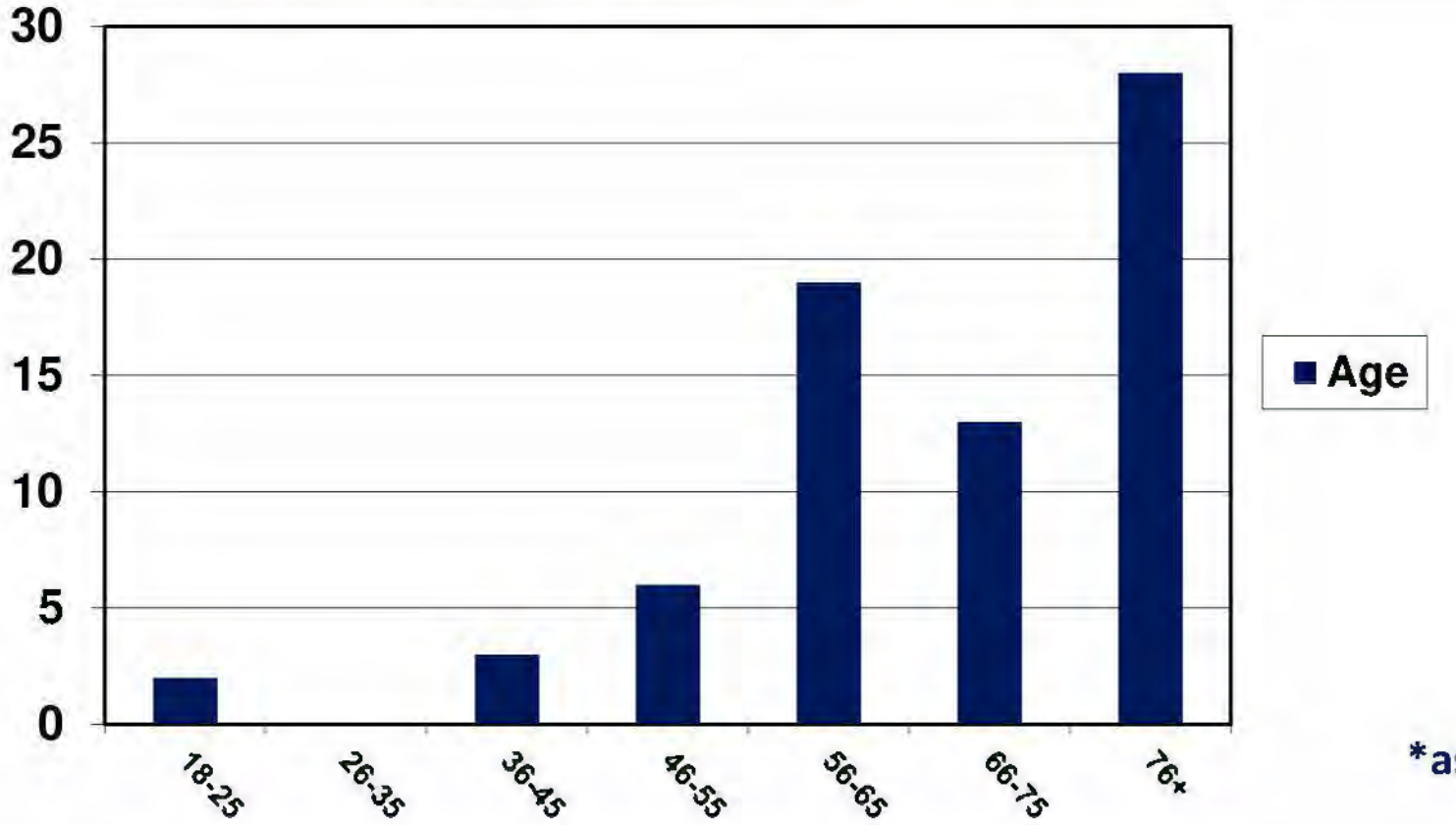
- **35 Accidental**
  - **Directly Related** 12
    - 6-Struck by tree
    - 4-Drowning
    - 2-Fall due to wind conditions
  - **Indirectly Related** 23
    - 6-Falls due to power loss
    - 5-Carbon Monoxide (generators with improper ventilation)
    - 4-House fire
    - 4-Hypothermia
    - 2-Pedestrian struck while moving storm debris
    - 2-Struck/fall while cleaning post-storm debris
- **35 Natural**
  - **Indirectly Related*** 35
    - 15-Cardiac related
    - 8-Respiratory related
    - 3-Dementia
    - 4-Cancer
    - 5-Other

**Individuals with significant underlying chronic disease exacerbated by conditions created by the storm or undesirable circumstances created by physical displacement.*



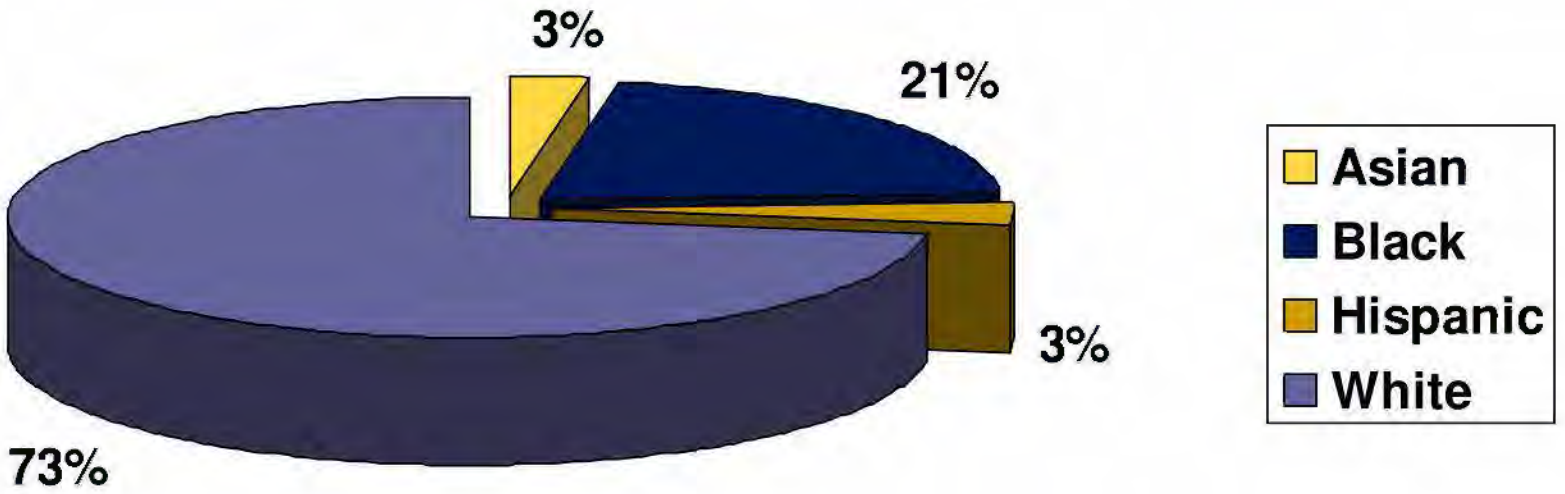
As of 5/21/2013

Super Storm Sandy Related Deaths*



*as of 5/21/2013

Super Storm Sandy Related Deaths*



As of 5/21/2013

References

Zane et al. Tracking Deaths Related to Hurricane Ike, Texas, 2008.

Disaster Medicine and Public Health Preparedness. 2011; 5(1):23-28

Centers for Disease Control and Prevention (CDC). Preliminary Medical Examiner Reports of Mortality Associated with Hurricane Charley – Florida, 2004. *MMWR Morb Mortal Wkly Rep.* 2004;53(36): 835-862

Bunkard et al. Hurricane Katrina Deaths, Louisiana, 2005. *Disaster Medicine and Public Health Preparedness.* 2008; 2(4) 215-223

Ragan et al. Mortality Surveillance 2004 to 2005 Florida Hurricane-Related Deaths. *Am J Forensic Med Pathol.* 2008; 29(2): 148-153

Centers for Disease Control and Prevention (CDC). Public Health Response to Hurricanes Katrina and Rita – United States, 2005. *MMWR Morb Mortal Wkly Rep.* 2006;55(9): 229-268

Centers for Disease Control and Prevention (CDC). Disaster-related Mortality SurveillanceForm. http://www.bt.cdc.gov/disasters/surveillance/

QUESTIONS

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

Conclusion

Thank You

Roger A. Mitchell, Jr. MD FASCP

Government of the District of Columbia

Chief Medical Examiner

(b)(6) [redacted]

TWA 800
Case Study

Overview of accident investigation
Medicolegal information
Reconstruction

July 17, 1996
Departed JFK at 8:19 p.m.
230 on board
Routine Air Traffic Control Communications
Aircraft breakup begins at 13,700 feet

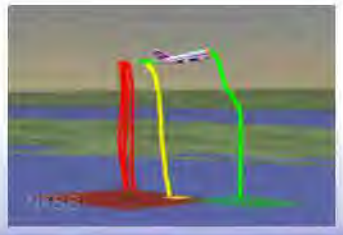
Initial Response

- 10 nm south of East Moriches, NY
- The ICP was established at USCG Station Group East Moriches
- Over 120 agencies or organizations assisted with investigation

Wreckage Dispersion

- Area: 4 x 3.5 miles
- Depth: 110 to 130 feet

- ROV
- Side-scan sonar
- Laser line-scanning
- Divers



- Search and recovery operations through November 2
- 3,167 dives/1,689 hrs conducted by Navy, Coast Guard, New York State Police, Suffolk County Police, and New York City Police
- Scallop Trawlers used to rake ocean floor for parts
- 98% of aircraft recovered

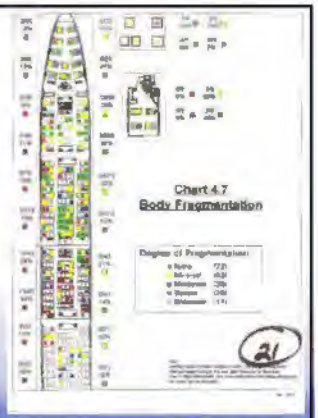
MEDICAL/FORENSIC GROUP

- Synthesis of factual data on seat damage and trauma
  - Victim injury and cabin seat maps
    - Seating issues (not full flight)
- Objectives:
  - Assess injury events that occurred during accident sequence
  - Determine whether explosive device detonated in close proximity to passengers and/or crew
  - Elucidate AC burn, break-up patterns and sequences

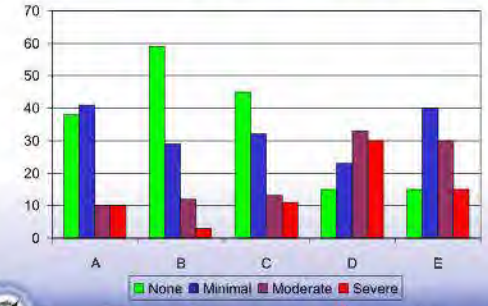
TWA 800 Victim Recovery & Identification

- 99 victims recovered in first 24 hrs
- Most remaining victims recovered in next 3 months
- Last identified remains recovered May 1997
- 214 identified using dental, fingerprints, and other conventional modalities
- 16 identified using DNA

- A cluster of highly fragmented victims may indicate explosion near those victims.



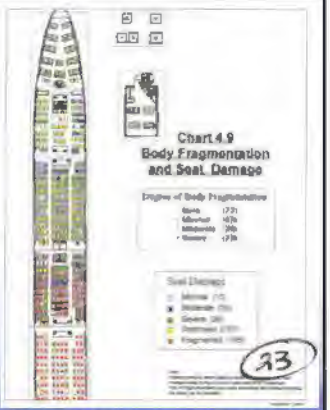
VICTIM FRAGMENTATION



Fragmentation severity increases proceeding towards the rear of the cabin

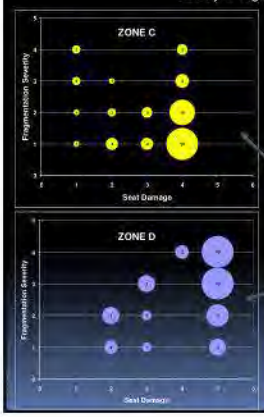
National Transportation Safety Board

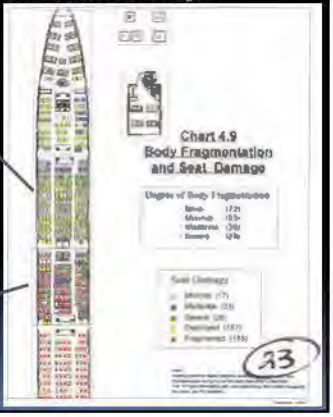
- Correlation between body fragmentation and seat damage



National Transportation Safety Board

Body Fragmentation and Seat Damage





- Most burns consist of singed hair and first or second degree burns primarily over the faces, upper arms, and chest

- 11 of 12 burn victims (92%) were assigned to Zone C

- 9 of 12 burn victims (75%) were assigned to burned seats

- Zone C is above the center fuel tank

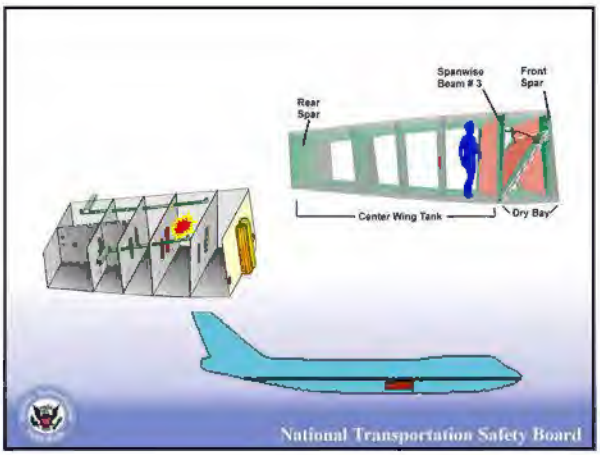
TWA 800 Findings

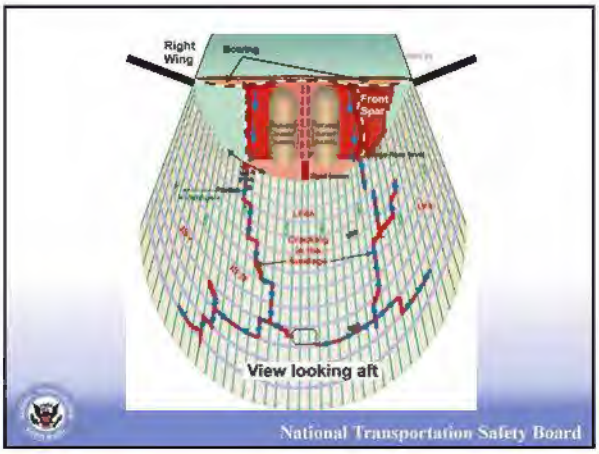
- Conditions inside center wing tank were flammable
- Ignition energy is between 0.5 and 500 millijoules
  - Energy requirements are temperature sensitive
- Peak combustion pressures between 39 and 52 psi
  - Peak pressures exceed strength of CWT (25 psi)

1/4-scale Center Wing Tank Model

•Simulate combustion behavior within a center wing tank model

•Include duplication of TWA 800 temperature and altitude





TWA 800 Probable Cause

An explosion of the center wing fuel tank (CWT), resulting from ignition of the flammable fuel/air mixture in the tank. The source of ignition energy for the explosion could not be determined with certainty, but, of the sources evaluated by the investigation, the most likely was a short circuit outside of the CWT that allowed excessive voltage to enter it through electrical wiring associated with the fuel quantity indication system.

8/23/2000

TWA 800
Safety Recommendations

- 15 recommendations drafted to address:
  - Fuel tank flammability
  - Potential fuel tank ignition sources (excessive energy entering aircraft fuel tanks through FQIS)
  - Design of aircraft fuel tanks, wiring systems, maintenance of non-structural systems
  - Handling and placement of explosives during training exercises

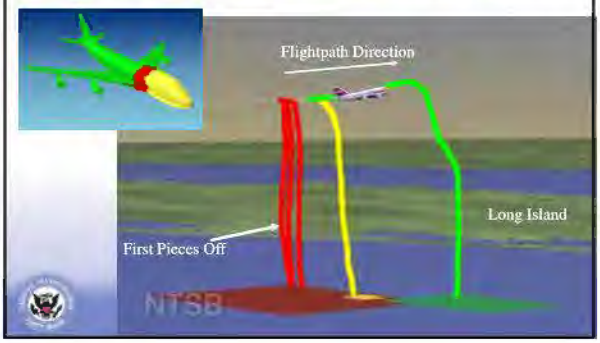
National Transportation Safety Board

TWA 800
Safety Recommendations Status

- Recommendations made to the FAA
- As of 19 Feb 2010:
  - 4 closed – acceptable response
  - 2 closed – unacceptable response
  - 1 closed – no longer applicable
  - 8 open – acceptable response

National Transportation Safety Board

Wreckage Dispersion:
Red, Yellow, and Green Zones



National Transportation Safety Board

Green Zone

- 160 ft of rear section of plane
- Sooting and fire damage

Red Zone

- Circumferential section 13 ft long
- Initial event area
- First to impact water

Yellow Zone

- 65 ft from nose to red zone
- No evidence of fire/heat damage
- Second to impact water

National Transportation Safety Board

Viewing the Reconstruction…

Please,

NO PHOTOGRAPHY

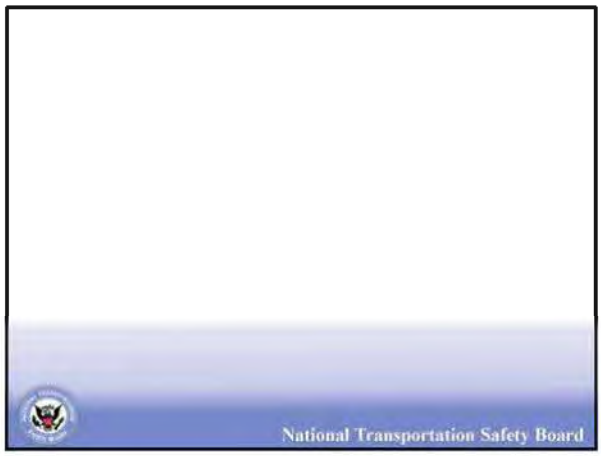
of any kind…

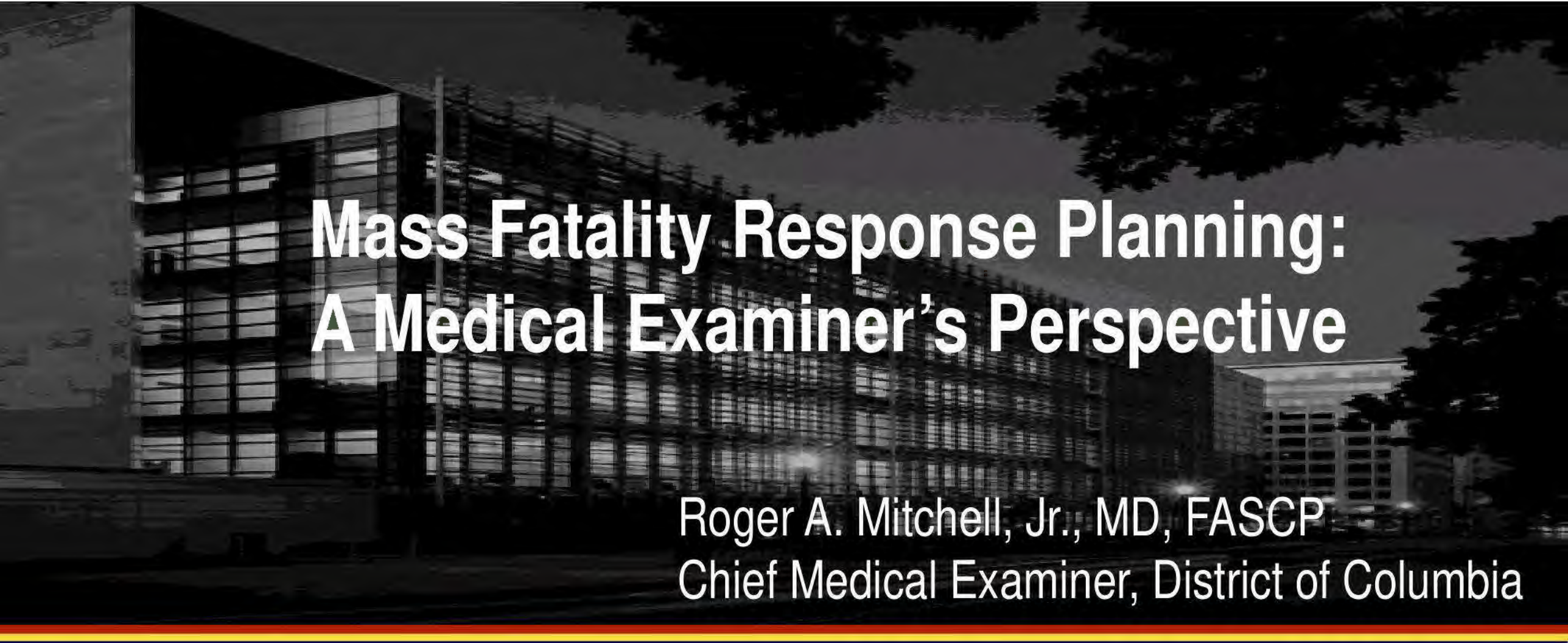
and please

Watch Your Head!

Thank you

National Transportation Safety Board


National Transportation Safety Board



Mass Fatality Response Planning: A Medical Examiner's Perspective

Roger A. Mitchell, Jr., MD, FASCP
Chief Medical Examiner, District of Columbia

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

Agenda

Mass Fatality Response Planning: A Medical Examiner's Perspective

Today we will discuss:

1. Roles and responsibilities of the ME/C in mass fatality planning, response, and post-incident phases
2. Developing a transportation mass fatality response ME/C plan
3. Questions that need to be addressed in the ME/C MFI plan
4. Challenges faced by the ME/C and possible solutions
5. Mass Fatality Incident case study: 2013 Navy Yard Shooting

Roles and Responsibilities of the ME/C in Mass Fatality Planning, Response, and Post-Incident Phases

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

Roles and Responsibilities of the ME/C in MFI Planning

What role does the ME/C play in planning for an MFI?

- Development of local or state MF plan
- Development of local or state Victim Identification Center (VIC) plan
- Participate in local or state Family Assistance Center (FAC) planning
- Determine and augment fatality surge capacity
- Define concept of operations (ConOps) for ME/C field response
- Assure ME/C continuity of operations planning (COOP)
- Engage in and support regional and federal-level ME/C coordination

Roles and Responsibilities of the ME/C in MFI Planning

What are the planning issues for ME/Cs?

- Lack of emergency planning experience/staff
- Funding for planning and exercises
- Fatality surge capacity
- Field response

Roles and Responsibilities of the ME/C in MFI Response

What role does the ME/C play in responding to an (MFI)?

- Initial scene assessment
- Establishment of Fatality Management Branch (FMB) in ICS
- Death investigation and associated evidence preservation
- Human remains recovery, storage and transport

Roles and Responsibilities of the ME/C in MFI Response (continued)

What role does the ME/C play in responding to an (MFI)?

- Establishment of Victim Identification Center (VIC)
- Representation at Family Assistance Center (FAC)
- Representation at local or state Emergency Operations Center (EOC)
- Representation at local or state Joint-Operations Center (JOC)
- Representation at local or state Joint-Information Center (JIC)

Roles and Responsibilities of the ME/C in MFI Response

What are the response issues for ME/Cs?

- ME/C field staff lack experience with large-scale incidents/working at disaster sites
- Getting to the scene(s)
- Working within the ICS structure
- Surge capacity and cold storage capacity (on and off-site)
- Providing adequate staffing and resources for multiple sites and/or multiple operational periods

Developing a Transportation Mass Fatality Response ME/C Plan

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

Developing a Transportation Mass Fatality Response ME/C Plan

Things to consider:

- What is a Mass Fatality Incident (MFI) for planning purposes?
- What are the jurisdictional issues?
- Legal/statutory authorities
- Issues specific to transportation incidents

What is a Mass Fatality Incident (MFI)?

Things to consider for planning purposes:

- Is a **number** useful for MFI planning?
  - Number of decedents?
  - Potential number?
- **Condition** of remains?
  - Highly fragmented (aviation incident)
  - Burned/charred
  - Contaminated (HazMat)
- Are there other things to consider when defining:
  - Ability/time needed to recover remains (protracted scenes)

What are the Jurisdictional Issues?

Things to consider:

- Wide area of destruction/dispersal of remains that cross jurisdictional boundaries
- Pre-existing jurisdictional landscape
  - Embassies and consulates
  - Military bases, installations, buildings (Navy Yard shooting)
- Mass Fatality Incident *begins* in one jurisdiction and *concludes* on another (Bronx Casino Bus crash)
- ME/C COOP and devolution (Katrina)

Developing a Transportation Mass Fatality Response ME/C Plan

Unique issues that transportation MFIs pose:

- Open vs. closed manifest/population
- Multijurisdictional response/regional implications
- Terrorism
- Wide area of distribution
- Poor condition of remains
- Protracted ME/C response

Medical Examiner MFI Response Case Study: 2013 Washington DC Navy Yard Shooting

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

DRAFT-FOUO

Washington Navy Yard

On September 16, 2013 a lone gunman armed initially with a shotgun, fatally shot twelve (12) people and injured three (3) others in a mass shooting at the headquarters of the Naval Sea Systems Command (NAVSEA, Building 197) inside the Washington Navy Yard in Southeast Washington, D.C. The attack began at 8:16 a.m. EDT. The shooter was killed by law enforcement at 9:25 a.m. EDT.

Washington Navy Yard

8:20 a.m. Shots are fired at the Naval Sea Systems Command headquarters building, where about 3,000 people work. A witnesss reported that shots were heard in the cafeteria, on the first floor. Employees were told to stay where they were. Emergency personnel were on the scene.

11:20 a.m. The police instruct family members of Washington Navy Yard employees to reunite at a Nationals stadium parking lot.

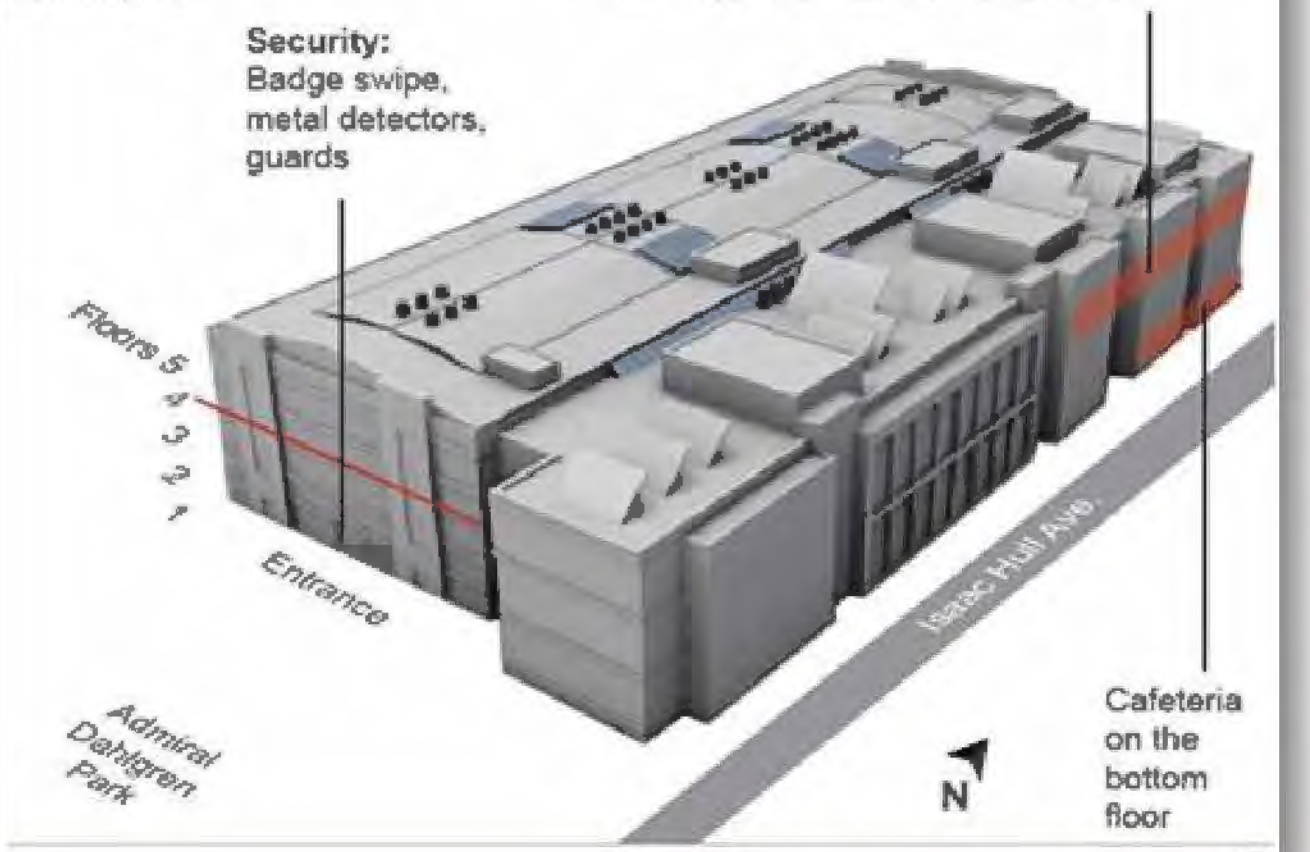

Washington
9:10 AM ET
WJLA
BREAKING NEWS
NEWS ROOM
ACTIVE SHOOTER AT WASHINGTON NAVY YARD
Several wounded inside Naval Sea System Command Hq.
LIVE CNN
MORNING AT THE NAVAL SEA SYSTEMS COMMAND HEADQUARTERS
9:10 AM ET
© CNN

Shooting at Navy Yard

Aaron Alexis, a former Navy reservist who killed 12 people at the Washington Navy Yard, was never stripped of his security clearance which allowed him access to Building 197.

BUILDING 197
NAVAL SEA SYSTEMS COMMAND

The gunman was shooting from a 4th floor overlook, aiming at people down in the building's cafeteria on the first floor.



AP

Washington Navy Yard

Initiate/Activate MFM Plan and Deploy Assessment Team

- Scene response occurred with the formation of the Office of the Chief Medical Examiner (OCME)
- Assessment Team that included the Chief Medical Examiner, Chief of Death Investigations, and Lead Forensic Photography.

Make contact with Incident Command and Establish Jurisdiction

- The medical examiner jurisdiction established (according to Title 10 of the US Code § 1471).

Washington Navy Yard

Identify partner agencies to ensure fluid communication and response

- The primary law enforcement team leading the investigation and response was comprised of the DC Metropolitan Police Department in cooperation with the Naval District of Washington Police Department, Naval District of Washington Fire and EMS, Naval Criminal Investigative Service, DC Fire and EMS, US Park Police, and the FBI Washington Field Office.


197


OCME
OCME


FBI
WASHINGTON FIELD OFFICE
VIDENCE RES NSE TEAM
OCME
← BUILDING 197


Seth Thomas
QUARTZ

Washington Navy Yard

Thirteen (13) individuals were examined and transported from the scene by the DC OCME.

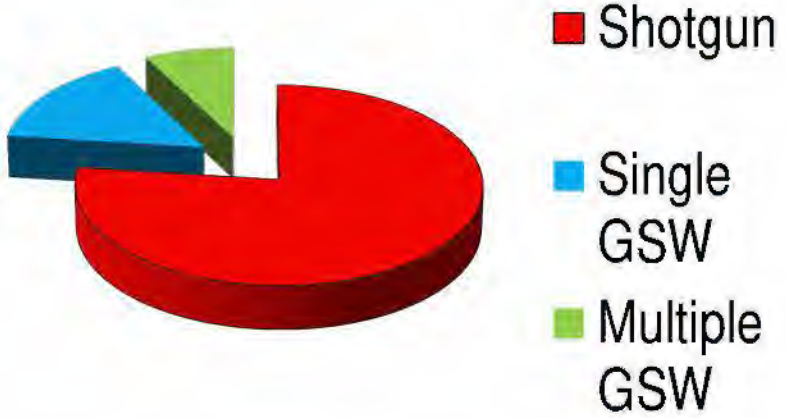
- Full autopsy examinations were performed on eleven (11) men and two (2) women.
- All deaths were classified as Homicides.
- Ten (10) of the twelve (12) victims suffered Shotgun wounds of the head, neck, and/or torso; two (2) victims sustained gunshot wounds of the head; and the gunman suffered multiple gunshot wounds.

Washington Navy Yard

Gender

(N=13)

Cause of Death



Washington Navy Yard

Extended Autopsy/Mortuary hours

- 36 hours
- Staggered Autopsy schedule that extended overnight
- Provision of overtime for forensic photographers and mortuary staff
- Full Forensic Pathologist participation

Washington Navy Yard

Family Assistance

- Prompt notification of families as to death of their loved one
- Provision of identifiers when not acceptable for visual identification
- Discussion of next steps towards identification and disposition
  - Paper work for identification
  - Funeral Home Arrangements
  - Personal Items
- Grief Support

Important Aspects of Active Shooter Fatality Management

- Initiating the Fatality Management Plan
- Coordinating scene response for death investigation
- Leading victim identification

Challenges

Notification of Event

- Communication and Relationships with first responder agencies
  - Fatality management requires relationships with first responder agencies in order to ensure a coordinated response
- Lack of mobile command structure and equipment for Death Investigation staging
- Lack of incident specific Fatality Management planning

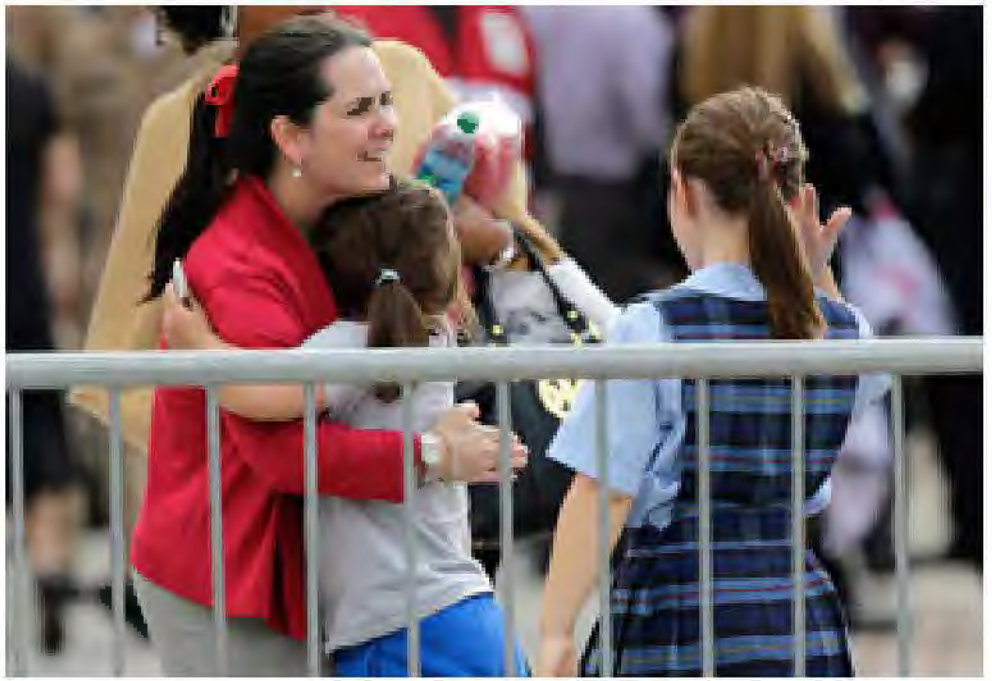
Challenges

Establishment of the FAC and VIC

- Death Notification
  - Close proximity to Reunification Center
- Only one mental health provider present
- No OCME staff present

Identification

- Office waiting area too small
- Lodging provisions for families traveling far distances for ID process



Success

Death Notification

- Trained Clinician present during death notification
- Grief Therapist knowledge of OCME ID process in the absence of OCME staff during notification

Identification

- Integration of Grief Staff into OCME
- Extended hours for identification

Success

- Timely and accurate determination of Cause and Manner of Death.
- Clear communication with City Leadership
- Disposition of remains available to families and funeral homes within 36 hours
- OCME staff clearing showing dedication to the mission of the office
- Provision of EAP/Post-incident Mental Health support to staff.

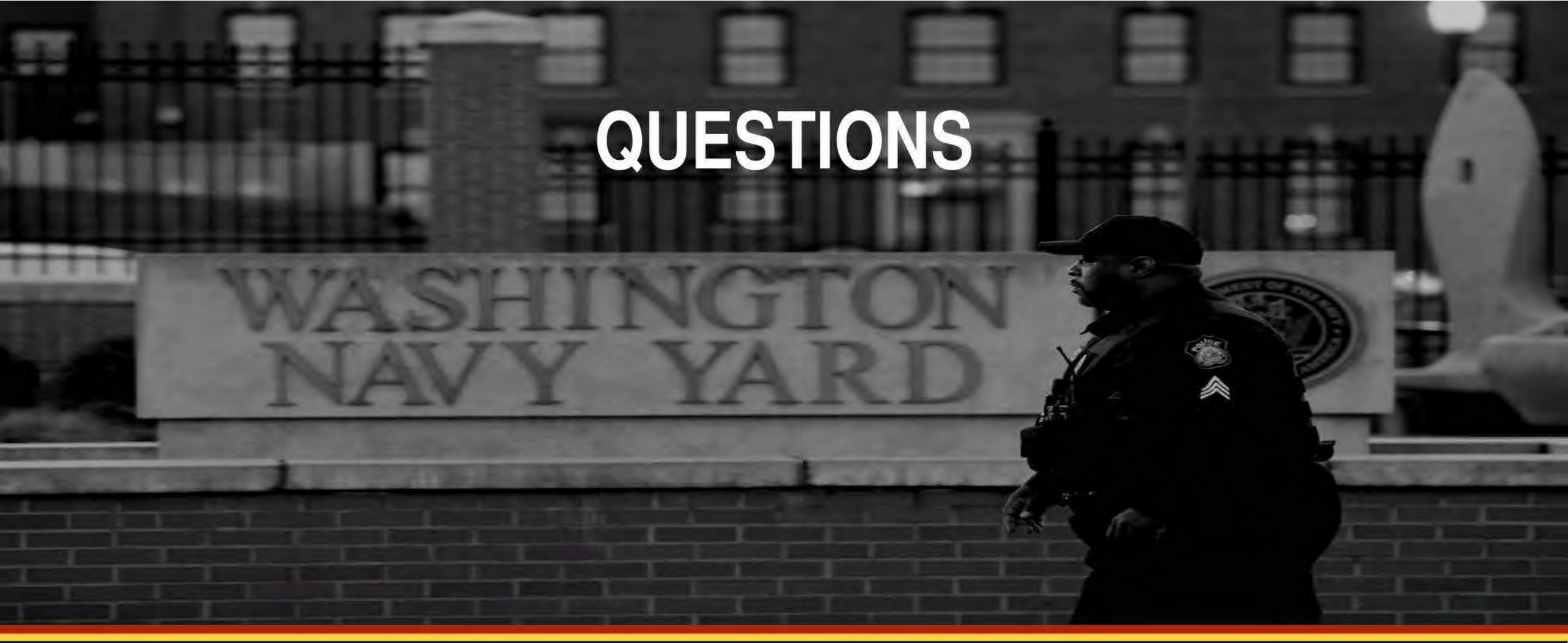
Planning & Preparedness

As a result of the Washington Navy Yard Shooting the DC OCME has:

- Secured funding for a Mobile Command Vehicle
- Secured funding for four (4) Mobile Body Storage Units
- Digital X-ray
- Hired a Mass Fatality/COOP Coordinator
  - Began revisions of the MFM and COOP plans
- Improved relationships with partner agencies/organizations


MobiRad Digital
Radiographic System
High Power
High Resolution
High Frequency
Maximized Convenience
User Oriented

ANDRE CHUNG/MCT/GETTY IMAGES



QUESTIONS

Mass Fatality Incidents for Medicolegal Professionals
NTSB National Training Center
October 21, 2014

Conclusion

Thank You

Roger A. Mitchell, Jr. MD FASCP

Government of the District of Columbia

Chief Medical Examiner

roger.mitchell@dc.gov

NTSB Perspectives on Victim Accounting Following Transportation Disasters

National Transportation Safety Board

Why is the NTSB interested in the local victim accounting effort following a major transportation disaster?

National Transportation Safety Board

NTSB Federally-Legislated Responsibilities

- "The Board shall have primary Federal responsibility for **facilitating the recovery and identification of fatally-injured passengers** involved in an accident…
- …coordinates and provides additional resources to the airline/rail carrier and local government **to help victims and their families while preserving local responsibility and jurisdiction**."

Aviation Disaster Family Assistance Act of 1996 (49 USC §1136)
Rail Passenger Disaster Family Assistance Act of 2008 (49 USC §1139)

National Transportation Safety Board

Who are the victims?

National Transportation Safety Board

Immediate Questions Raised by Family Members

- **Where is my husband, wife, son, daughter…?**
- **Are they dead, seriously injured, or alive?**
- **When can I see them?**

National Transportation Safety Board

Which agencies are responsible for victim accounting and addressing these questions?

National Transportation Safety Board

A Local Responsibility!

Accounting for all victims (fatal and non-fatal) is **a local responsibility**:

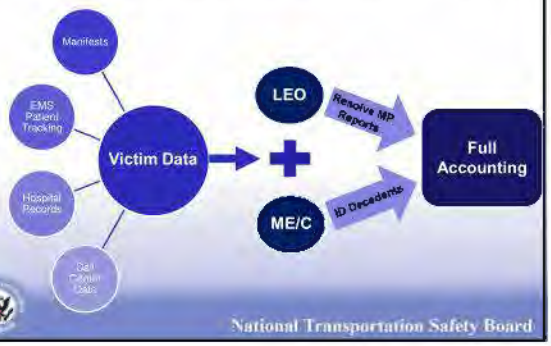
- EMA
- Fire/EMS
- Law Enforcement
- Hospitals
- ME/C

With assistance from:
- NTSB
- Carrier/Operator
- Other state & fed agencies

National Transportation Safety Board

The Accounting Process:

Integration of data from multiple sources



National Transportation Safety Board

Manifests

- A list of names of passengers, crew, and others aboard the vehicle
- List is based on the best available information at the time of the request
- A starting point to:
  - Notify family members of **possible involvement**
  - Begin the process of collecting antemortem data

National Transportation Safety Board

Provision of Passenger List/Manifest

Aviation:
- Provided to:
  - NTSB (legislated accidents)
    - Upon request
  - Red Cross (upon request)

Rail:
- Provided to:
  - NTSB (upon request)
  - DOT Secretary
  - DHS Secretary
  - Red Cross (upon request)
- **Reasonable efforts** to ascertain passengers' names for unreserved trains

NTSB may provide to:
FBI: security, fingerprint
DOS: foreign nationals
Medical Examiner/Coroner

NTSB never releases a manifest to the media or public

National Transportation Safety Board

What information is contained on an aviation manifest?

Preliminary
(1-3 hours)
- Name of ticketed passenger
- Passenger's PNR
- Passenger's assigned seat
- Crew members' names
- Total number on board
  - Lap children
  - Non revs

Final
(approximately 6-12 hours)
- Updated prelim information
- Initial contact information for family members
  - Beginning of process
- Passport numbers
- Address
- Emerg. Contact name & #
- Sex, age (possibly)

National Transportation Safety Board

EMS & Hospital Records: Seastreak Wall Street

- January 9, 2013; 0841 hrs
- Highlands, NJ – Lower Manhattan
- Allided with pier 11 @ 12 kts
- 326 pax, 5 crew
- 400 person capacity
- No manifest

EMS & Hospital Records: Seastreak Wall Street

- No fatalities
- 83 pax, 1 crew injured
- 77 xported to 7 hospitals
- 1 walk-in
- Patient Care Reports received ~40 hrs
- Hospital Records → subpoena

Truck/Bus Collision
Davis, OK

- ~9:00 PM CDT; 9/26/14
- Davis, OK vicinity of MM 47
- North-bound tractor trailer crossed center median on I-35 and collided with south-bound bus carrying North Central Texas College women's softball team
- 16 POB bus
- 1 POB tractor trailer

Truck/Bus Collision:
Patient Transports

- 17 patient transports by 7 "services":
  - 3 OOCME (pronounced on-scene)
  - 6 Southern Oklahoma Ambulance Service
  - 3 Pauls Valley EMS
  - 1 Murray County EMS
  - 2 Eagle Med (air)
    - 1 landed and pronounced
    - 1 to Norman Regional
  - 1 Air Evac to OU Medical Center
  - 1 Private Vehicle

National Transportation Safety Board

Truck/Bus Collision:
Facilities Receiving Patients

- 6 facilities received patients:
  - 7 Mercy Hospital, Ardmore OK
  - 4 Pauls Valley General Hospital
    - 1 transferred to Norman Regional
  - 1 OU Medical Center
  - 1 Norman Regional
  - 1 Arbuckle Memorial, Sulpher OK (fatal)
  - 3 OOCME
- **Within 24 hrs all treated and released except for 2 that remained admitted.**
- **All except for fatalities and those admitted left state within 24 hrs.**

National Transportation Safety Board

Asiana Flight 214

- Boeing 777-200ER
- 291 passengers
- 16 crew

National Transportation Safety Board

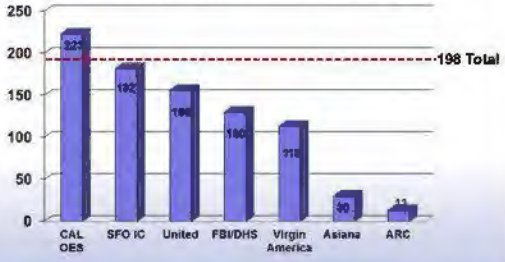
Victim Accounting

- 11:28:07AM, aircraft comes to rest
- High number of survivors (304)
- Closed to "open" population

National Transportation Safety Board

How many patients were transported to hospitals?

(Error Rich Data ~48 hrs)



National Transportation Safety Board

Victim Accounting Timeline

All times are provided in Pacific Time

National Transportation Safety Board

Hospital Response Times to NTSB Subpoenas

- 15 local area hospitals received patients, in a major urban area
- **6 of 13** hospitals that received a subpoena responded with their list of patient names on 11 July (**~50% ≤ 24 hrs**)
- **3** additional lists on 12 July (**~70% ≤ 48 hrs**)
- **3** additional lists on 16 July **(~92% ≤ 5 days)**
- Final close-out of subpoena process **18-29 July**

National Transportation Safety Board

Operational Challenges

- EMS Patient Tracking
  - ✓ Not standardized
  - ✓ No name capture
- Multiple EOCs
  - ✓ Local, county, state government
  - ✓ Carrier/operators
  - ✓ Airports
- Numerous victim lists
  - ✓ Sourcing
  - ✓ Error rich data
- Hospital surge
  - ✓ HIPAA Privacy Rule
  - ✓ American Red Cross interface
- Foreign passengers
  - ✓ Language barrier
  - ✓ Translation services
  - ✓ Embassy & consulate involvement

National Transportation Safety Board

Among the lessons learned…


August 27, 2013

Memorandum of Understanding

between

American Red Cross

and

California Hospital Association

- No strong pre-established relationships btwn ARC & hospitals
- MOU clarifying relationship
- CHA will "educate and inform its members of the provisions in law that allow for protected health information of disaster victims to be released."
  - Existence and status of specific disaster-related patients
  - Level of severity of injury
  - Limited access to offer patient and family assistance & services

National Transportation Safety Board

Call Centers

- Call Center # published ASAP after incident
- Objective is to:
  - Collect missing persons information
  - Collect reported contact information
  - Assess likelihood of involvement
  - Minimize data collection errors

National Transportation Safety Board

Reno National Championship Air Races
Galloping Ghost

Sept. 16, 2011, 1626 hrs PDT
North American P-51D
~200,000 attendees annually

National Transportation Safety Board

11 fatalities
66 serious injuries
4 hospitals received patients

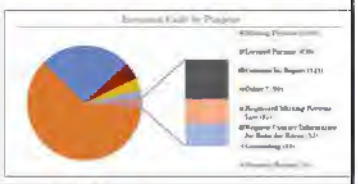
National Transportation Safety Board

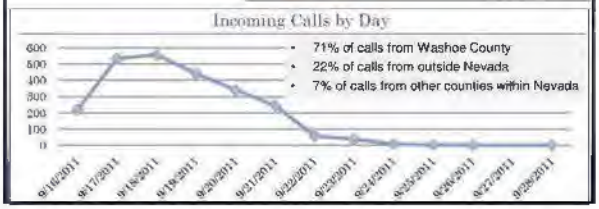
Reno National Championship Air Races:
Call Center – Missing Person Reports

- Nevada 2-1-1 activated ~2040 hrs
- Missing persons reports & requests for information received by:
  - Medical Examiner's Office
  - Crisis Call Center volunteers
  - Trauma Intervention Program
  - Regional Emergency Operations Center

Call Center Data

- 1498 missing persons reports
- 77 calls for the 11 fatalities
  - Avg. 7 calls/fatality
  - Range: 1-16 calls
- 45% of reported missing involved in incident
  - Fatal
  - Hospitalized
  - Returned home





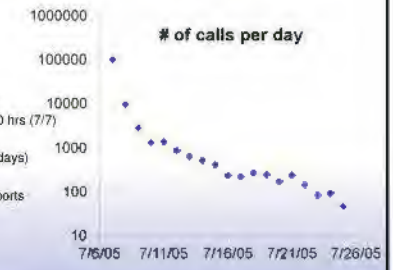
- 71% of calls from Washoe County
- 22% of calls from outside Nevada
- 7% of calls from other counties within Nevada

Call Center Case Study:
7 July 2005 London Bombings

- 3 bombs detonated aboard London Underground
- 1 bomb on double-decker public bus
- 52 civilians fatal
- 4 bombers fatal
- 700+ injured
- UK Casualty Call Bureau
  - Established in England during WWII
  - Staff from 21 UK Police Forces

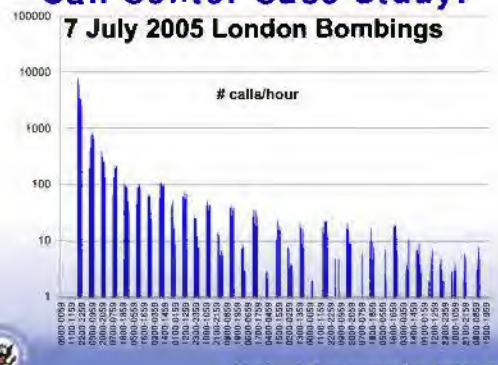
Call Center Case Study:
7 July 2005 London Bombings

UK Casualty Call Bureau
- 43,701 calls from1500-1600 hrs (7/7)
- 111,000 calls on 7/7
- 121,146 calls 7/7-7/25 (18 days)
- 1,300 Priority-1 calls
- 12,000 missing persons reports



National Transportation Safety Board

Call Center Case Study:
7 July 2005 London Bombings



National Transportation Safety Board

Operational Considerations...

- When to activate Call Center?
- How to publicize contact information?
- Capacity threshold and sustainability?
- What information should be collected?
  - Informant name and contact info.
  - Name of person missing
  - Prioritization information
- QC data?
  - "Proof-reading" contact information prior to getting off the initial report taking call
- Amount of time spent with each caller?
- Who receives data obtained by Call Center?

National Transportation Safety Board

TDA's interest in victim accounting?

National Transportation Safety Board

Effective family assistance hinges in part on an accurate and efficient accounting of all victims, their status, and their *location*

National Transportation Safety Board

Key Points

National Transportation Safety Board

...for EM's, LEO, ME/C's, & Hospitals

- ✓ **Victim accounting is the responsibility of the jurisdiction in which the disaster has occurred.**
- ✓ Accounting for all victims requires the **integration of data from multiple sources.**
- ✓ Hospitals should have a plan for notifying the appropriate local/state EMA, LEO, or other pre-designated entity (e.g. ARC) when their facilities receive a surge in "unknowns."
- ✓ Hospitals should notify one of the following official channels when their facility may have accident passengers as patients:
  - EMA or EOC that has been activated to respond to the accident (city, county, or state level)
  - Law enforcement
  - American Red Cross
  - NTSB

National Transportation Safety Board

...continued

- ✓ Air and rail carrier/operators have a federally-legislated requirement to provide assistance to victims and their family members.
- ✓ They need to know the whereabouts of survivors in order to offer assistance to those patients and their families.
- ✓ They should be reaching out to hospitals if those facilities have admitted any of their passengers as a patient following an accident.

National Transportation Safety Board

Questions?

National Transportation Safety Board

United States Department of
Health & Human Services
Office of the Assistant Secretary for Preparedness and Response (ASPR)

DMORT VIP AM Data Collection Process Nuts and Bolts

Gregory Klimetz
DMORT Victim Information Center Team / Logistics Officer
VIP Database Administrator HHS/ASPR
<>
Florida FEMORS DPMU Team / VIC Team
VIP Database Administrator

United States Department of
Health & Human Services
Office of the Assistant Secretary for Preparedness and Response (ASPR)

DMORT Team and System

- Overview of DMORT
- DMORT VICT Structure and SOP
- Interaction with family members
  - Addressing Questions & Concerns
  - Difficult Questions
  - Tracking IOU's
  - Conflicting Information
  - Releasing Data
  - HIPPA Considerations
  - Quality Assurance

Victim Identification Program

What's a DMORT
What is their Mission

Victim Identification Program

A Disaster Mortuary Operational Response Team
or DMORT

A team of experts in the fields of victim identification and mortuary services. DMORTs are activated in response to Mass Fatality Incidents which overwhelms the local authority, ME or Coroner….

Victim Identification Program

Department of Health and Human Services / NDMS.

Funeral Directors,
Pathologists,
Medical Examiners,
Coroners,
Forensic Anthropologists,
Fingerprint Forensic Odontologists,
Radiographers.
Dental Assistants

They are supported by:

Medical Records Technicians
Computer Professionals,
Administrative Staff,
Investigative Personnel.
Transcribers, Mental Health,
Medical Legal Investigators,
Security

When a DMORT is activated, personnel on the team are treated as temporary Federal Employees.

Victim Identification Program

Where did DMORT Come From:

New York Funeral Directors Association
National Funeral Directors Association

- Tom Shepardson / Formed committee in early 80's
- Initial plan was to only address Funeral Directors
- No standardization existed for treatment of Victims
- A non-profit Org. was formed to include all Forensic disciplines.
- The idea was to support a national level response.

Victim Identification Program

Concept to Organization:

- Non-Profit Org. "National Foundation for Mortuary Care"
  - Purchased first DPMU Late 1980's
  - Happy Land Social Club – Bronx NY. 1990
    - March 25, 1990 / 87 fatalities
    - Young Hondurans celebrating carnival
    - Boyfriend of an employee….

New York City 1990

- Population 7,322,564
- 2,245 murders in 1990
- 31,236 Police Officers

The City was Overwhelmed !

Victim Identification Program

Where did DMORT Come From:

- Cemetery Flood – Hardin MO. 1993
- US Air Flt 427 – Pittsburg PA 1994
- Cemetery Flood – Albany GA. 1994
- Bombing – Oklahoma City OK. 1995
- Hurricane Marilyn – US Virgin Islands 1995
- Floods – Del Rio TX. 1996

Victim Identification Program

U.S Public Health Service

- Early 1990's Rough Idea of DMORT
- After 1996 DMORT Volunteers / Federalized
- Came under the authority of USPHS / NDMS

Victim Identification Program

Aviation Disaster Family Assistance Act of 1996

- In response to family complaints about treatment
- Required all airlines operating in the U.S. to have a plan to assist families in the event of an aviation incident
- DMORT signed MOU with NTSB for Transportation Incidents
- 2002 NDMS moved to FEMA / Dpt. Homeland Security
- 2007 NDMS moved to HHS

Victim Identification Program

DMORT's Mission:

✓ **Has always been to assist the Local Medical Examiner / Coroner**

For the duration of their service, DMORT members work under the local authorities of the disaster site and their professional licenses are recognized by all states.

Victim Identification Program

Disaster Mortuary Operational Response Team

- **DPMU- Disaster Portable Morgue Unit**
- **DMORT Regional Teams / 10**
- **Victim Information Center Team**
- **WMD Team**

Victim Identification Program

DPMU

Victim Identification Program

10 DMORT Regional Teams

Victim Identification Program

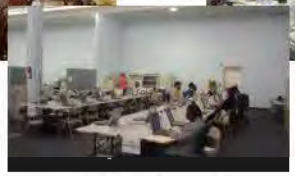
10 DMORT Regional Teams

Victim Identification Program

VIC

Victim Identification Program

VIC



Upwards to 200 persons taking calls and working on investigations.

Victim Identification Program

An empty Shopping Mall

Victim Identification Program

Victim Information Center Team

Victim Identification Program

WMD Team

Victim Identification Program

Victim Information Center Team Structure and Operational Procedures

Formerly the

Family Assistance Center Team

Victim Identification Program

Victim Information Center Team

VIC Command Staff

- Commander
- Deputy Commander
- Training Officer
- Logistics Officer
- Safety Officers
- AO
- Deputy AO

Jennie Thommen, Commander

Don Bloom, Deputy Commander

Gregory Klimetz, Logistics Officer

Arbie Goings, Administrative Officer

21

Victim Identification Program

Who Are We ? ? ?

- We are one of the smallest NDMS teams.
- We have 37 members composed of:
  - Funeral Directors
  - Medical Legal Investigators
  - Administrative personnel
  - Computer and IT personnel
  - A Pathologist
  - A Dentist
  - Mental Health Specialists
  - Logistics
- Our members live across the Nation; they are not grouped in one Region as are most teams.

22

Victim Identification Program

Victim Information Center Team

Responsibilities would be:

- Assist in coordinating any necessary functions of the FAC
- Obtain ante-mortem data through interviews and obtaining medical / dental records
- Ensure only approved forms would be used
- Ensure confidentiality and security of all forms and records
- Transfer information to other authorized departments / agencies of the incident
- Provide next of kin with dignity and respect

23

Victim Identification Program

Victim Information Center Team
How we do what we do.

SOP

Standard Operating Proce

Go Team Documents

MOU's

DOMORT Standard Operating Procedures for National Transportation Safety Board Activations

---

Tick tock tick tock……..

Victim Identification Program

Victim Identification Program

Victim Information Center Team
What we do.

We collect and mine Data:

Day to Day… Cause and Manner of Death

Mass Fatality Incident… Identification

Estonia Ferry Sept. 28 1994
Baltic Sea: 989 Passengers and Crew

852 Dead

Estonia Ferry Sept. 28 1994
Baltic Sea: 989 Passengers and Crew

(b)(6)

Victim Identification Program

Presumptive Identification

- Visual
- Personal Effects
- Photographs
- Scars, moles, etc.

Victim Identification Program

Challenges: Antemortem

- ✓ Ante Dental Needs
- ✓ Expanded use of DNA (CSI TV Effect)
- ✓ Types of Disasters
- ✓ Missing Persons
- ✓ Perception of VIP
- ✓ Needs of the Medical Examiner

Utmost Care and Concern for the Families
Compassionate manner of gathering AM Data

Victim Identification Program

Challenges: Postmortem

- ✓ Dental Needs
- ✓ Expanded use of DNA
- ✓ Types of Disasters
- ✓ Missing Persons
- ✓ Standardize exam process in the Morgue
- ✓ Perception of VIP
- ✓ Needs of the Medical Examiner

Same challenges because PM is 1/2 of the whole.

Victim Identification Program

Type of Incidents

Open Population
Verses....
Closed Population.

Victim Identification Program

Twisted Sisters
Katrina and Rita

CAT **5**

August 28 2005 September 18 2005

Victim Identification Program

New York, NY
American 587 / 2001

Lexington, Ky
Comair 519 /

Buffalo, NY
Conn 3407 / 2009

Victim Identification Program

"VIP"
Victim Identification Program

Victim Identification Program

Parts and Pieces:

- Antemortem Data
- Postmortem Data
- Record Specific Media Import Ante and Post
- Records Management Ante and Post
- Remains Management
- Family Affairs / Release
- Dashboard for Stats
- Call Center
- Cemetery Incident

Numbers Numbers Numbers

P

T

MRN

Morgue Reference #

RM

HR

Reported Missing #

CC

DP

SR

ME

D

Numbers Numbers Numbers

- ☑ Site Recovery.....
- ☑ Call Center.....
- ☑ Reported Missing.....
- ☑ Morgue Reference.....
- ☑ Medical Examiner/Coroner Case Number...

Make relationships and track related cases.

VIP Database Numbers

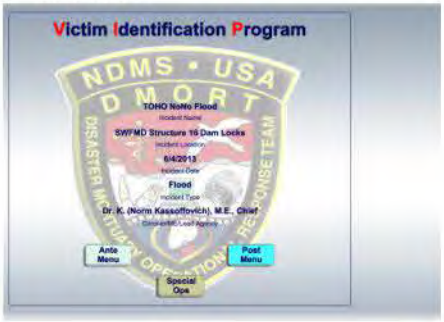
- RM# - Reported Missing
- Antemortem Number "Unique Automatic"

- MRN# - Morgue Reference Number
- Postmortem Number "Unique Automatic"

THE OLD WAY.....

Victim Identification Program

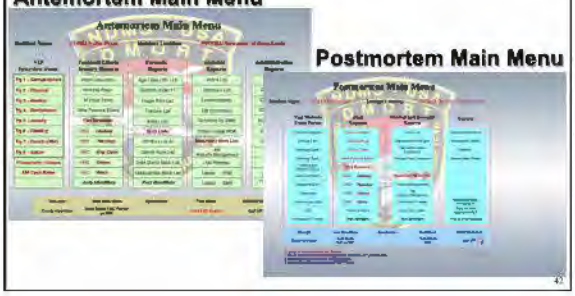
THE NEW WAY



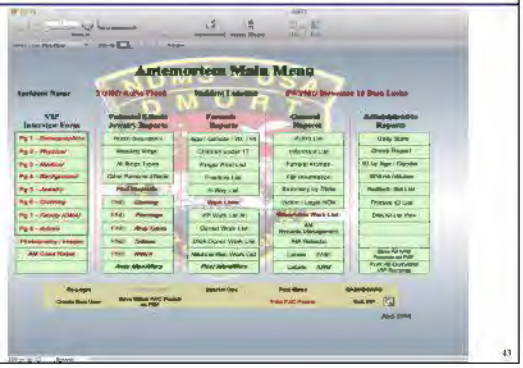
Victim Identification Program

Antemortem Main Menu

Postmortem Main Menu



Victim Identification Program



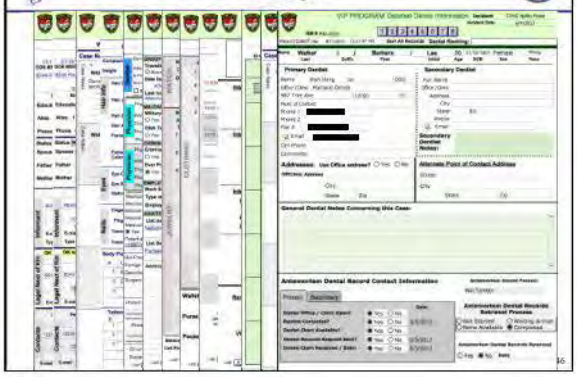
Main Menu Second Column Scripted Finds

Victim Identification Program

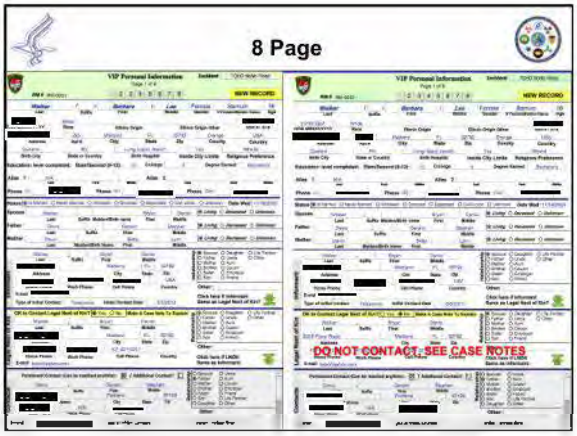
Family Interaction / The Family Interview

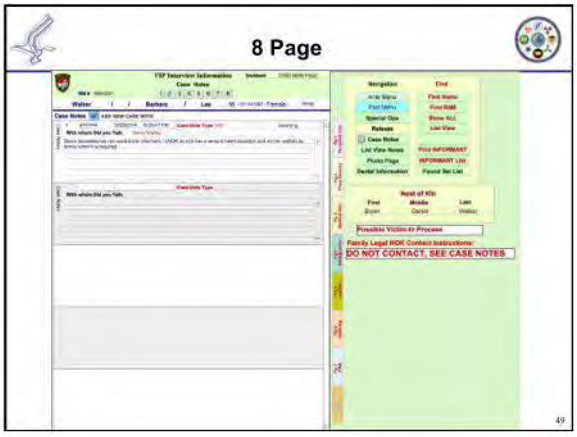
- The Interview Process
- Difficult Questions
- Tracking IOU's
- Conflicting Information
- Releasing Data
- HIPPA Considerations
- Quality Assurance

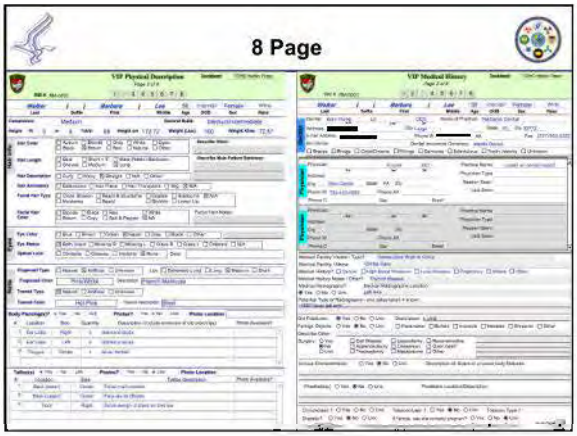
8 Page

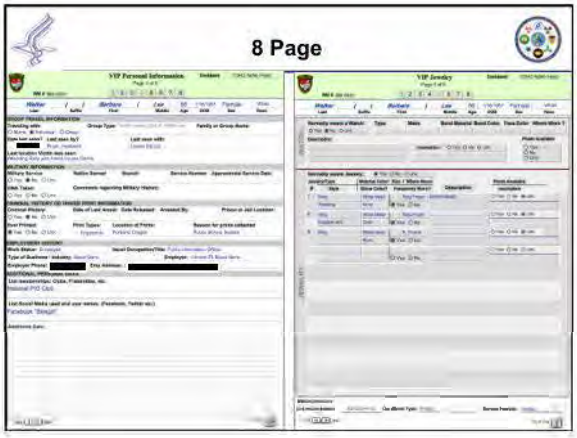


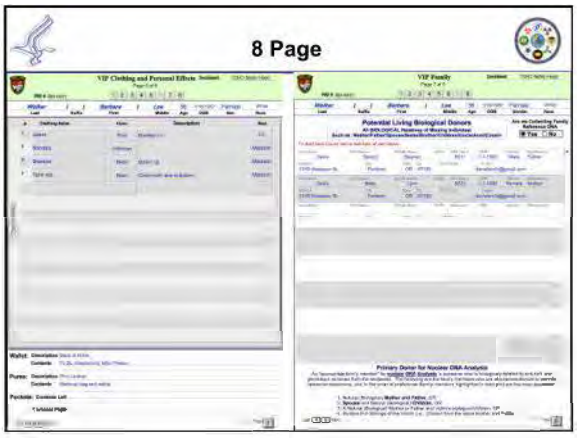
8 Page

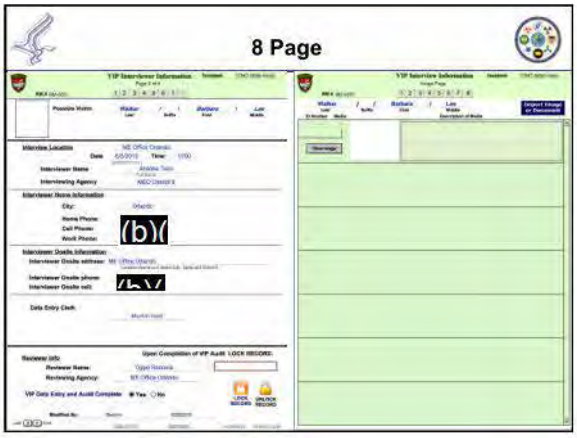

8 Page
DO NOT CONTACT, SEE CASE NOTES


8 Page
DO NOT CONTACT, SEE CASE NOTES

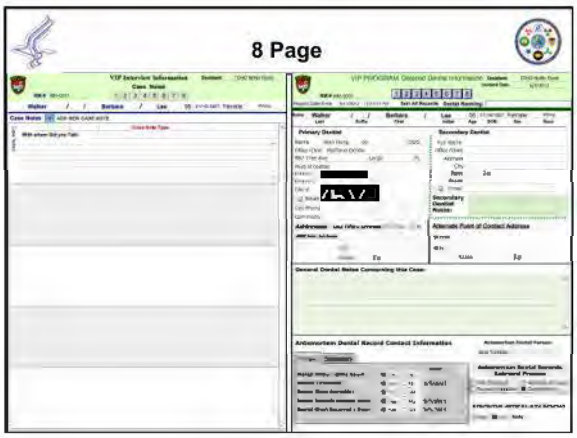

8 Page


8 Page

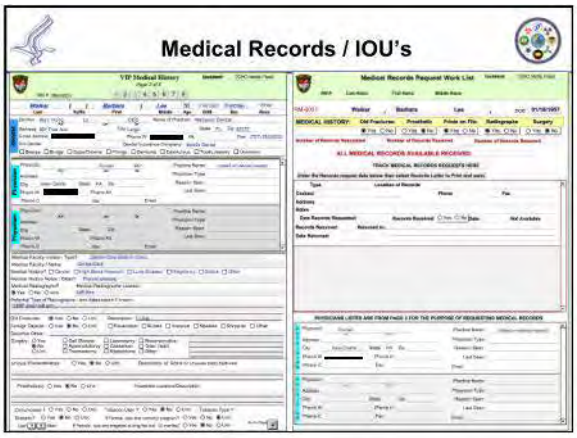

8 Page


8 Page

8 Page



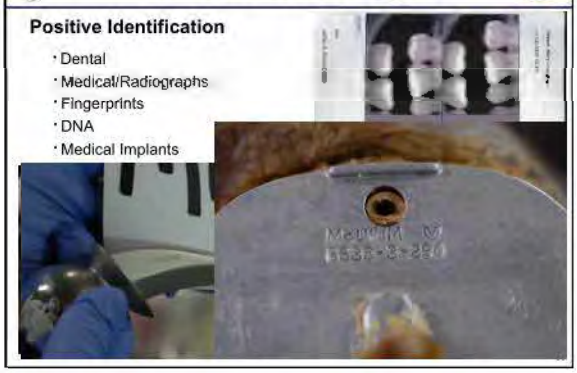
Medical Records / IOU's



Victim Identification Program

Positive Identification

- Dental
- Medical/Radiographs
- Fingerprints
- DNA
- Medical Implants



Victim Identification Program

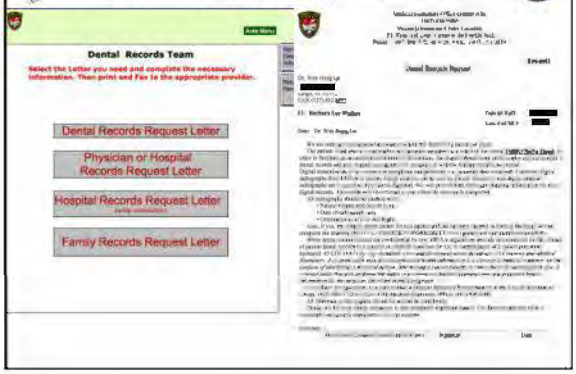
Antemortem Dental

- Forensic Dentists Contact missing persons primary Dentist to obtain dental records for possible Ante to Postmortem comparisons

Victim Identification Program

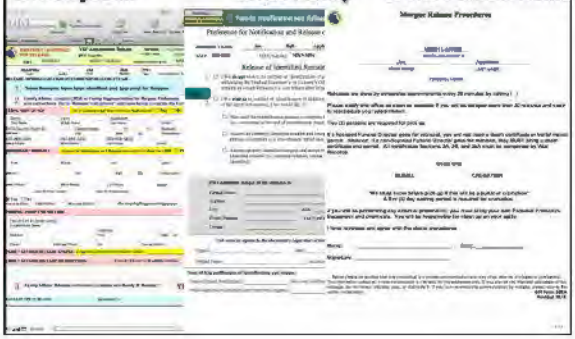
- DNA / Family History
  - Determine Family Pedigree.
  - Contact and Interview Family Members.
  - Arrange for and Maintain DNA Reference Samples.

Medical Records Request Letters



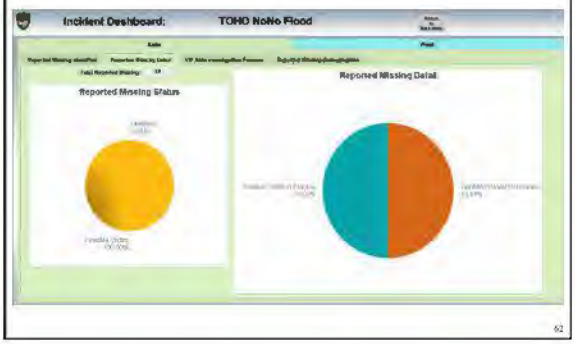
Family Affairs: Release Authorization Difficult Questions

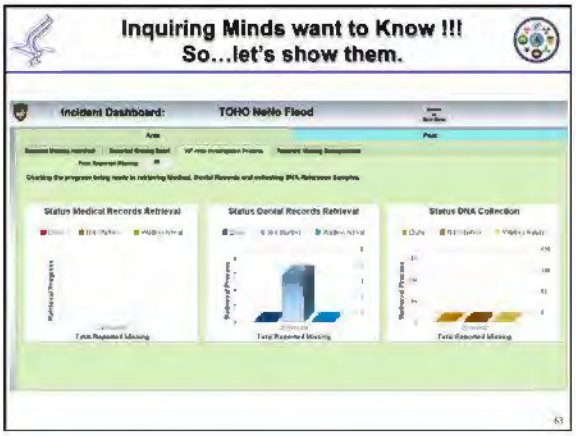
1.The System 2.The Family 3. The Funeral Home

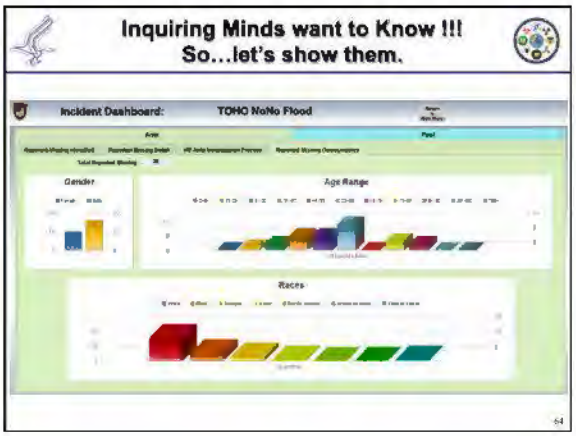


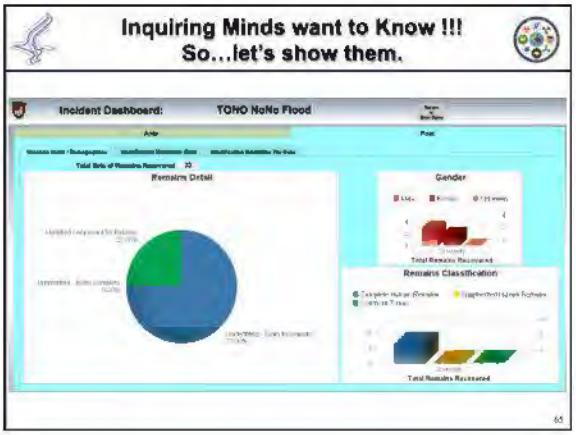
Inquiring Minds want to Know !!! So…let's show them.

Inquiring Minds want to Know !!! So…let's show them.




Inquiring Minds want to Know !!!
So…let's show them.
Incident Dashboard:
TOHO NoNo Flood
Status Medical Records Retrieval
Status Dental Records Retrieval
Status DNA Collection
63


Inquiring Minds want to Know !!!
So…let's show them.
Incident Dashboard:
TOHO NoNo Flood
Gender
Age Range
Races
64


Inquiring Minds want to Know !!!
So…let's show them.
Incident Dashboard:
TOHO NoNo Flood
Remains Detail
Gender
Remains Classification
65

Inquiring Minds want to Know !!!
So…let's show them.

Victim Identification Program

Victim Identification Program

• Cemetery Flood- Hardin Mo.	1993 (1st deploy)
• Cemetery Flood- Albany, Ga.	1994
• Bombing- Oklahoma City, Ok	1995
• Hurricane Marilyn-U.S. Virgin Isl.	1995
• Atlanta Olympic Games	1996
• Floods- Del Rio, TX	1996
• United Express 5925- Quincy, Il	1996
• Comair Flight 3272-	1997
• Korean Air flight 801- Agana, Guam	1997
• Oklahoma Tornados	1998
• State of the Union Address	1999

Victim Identification Program

• Papal Visit	1999
• Amtrak - Bourbonnais IL	1999
• NATO Conference	1999
• Hurricane Floyd – Tarboro NC	1999
• Egypt Air Flt 990 – Providence RI	1999
• Alaska Air Flt 26 – Ventura CA	2000
• Executive Air – Wilkes-Barre PA	2000
• WTC NY City / Shanksville PA	2001
• American Flt 587 – NY NY	2001
• Presidential Inauguration	2002
• State of the Union	2002

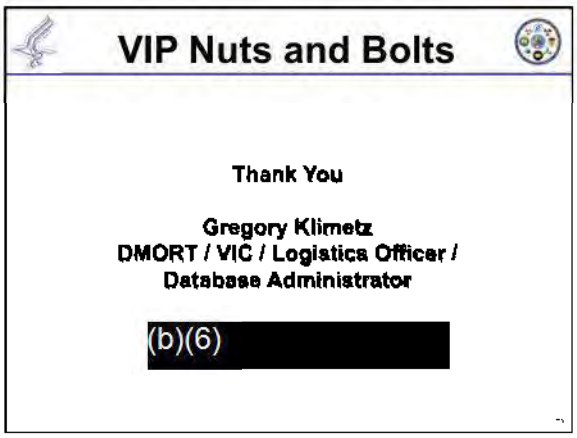
Victim Identification Program

• Winter Olympics – Salt Lake City	2002
• Tri States Crematory – Noble GA	2002
• US Air Flt 5841 – Charlotte NC	2003
• Night Club Fire – W. Warwick RI	2003
• Space Shuttle Columbia – TX	2003
• Hurricane Ivan – Pensacola FL	2004
• American Flt 5966 – Kirksville MO	2004
• Hurricane Katrina – MS / LA	2005
• Comair Flt 5191 – Lexington KY	2006
• Hurricane Gustav & Ike – TX / LA	2008
• Continental Flt 3407 – Buffalo NY	2009

Victim Identification Program

• Earthquake Tsunami – American Samoa	2009
• Earthquake – Haiti	2010
• Tornado – Joplin MO	2011
• Hurricane Sandy – NE United State	2012

35+ Deployments and pre-deployments since inception.


VIP Nuts and Bolts
Thank You
Gregory Klimetz
DMORT / VIC / Logistics Officer /
Database Administrator
(b)(6)

Florida Emergency Mortuary Operations Response System

Jason H. Byrd, Ph.D.
FEMORS Commander

Associate Director
W.R. Maples Center for Forensic Medicine
University of Florida
College of Medicine

Florida's FEMORS Evolution

- Sept. 11, 2001
  - U.S. Attacked
  - Florida Gov. Bush Issued Executive Order 01-262 directing Florida Department of Law Enforcement to coordinate and direct security resources

DOH & UF Maples Center

- Fall 2001 – Spring 2002
  - Department of Health-Office of Emergency Operations contacted the William R. Maples Center for Forensic Medicine at the University of Florida to explore mass fatality response issues and strategy.
  - Purpose: to create a State asset to assist local needs
- July 1, 2002
  - FEMORS was inaugurated under the 1999 CDC Bioterrorism Grant with $150,000
  - Working Group of forensic subject matter experts established to give direction

What is FEMORS?

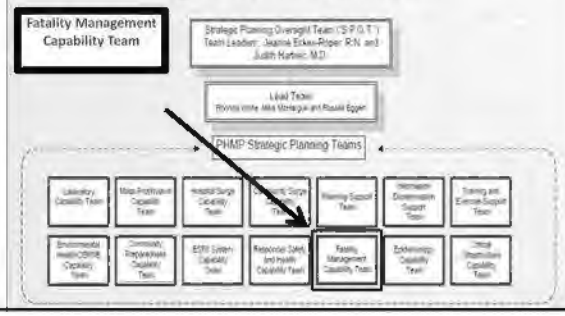
- Florida Department of Health - Office of Emergency Operations
  - Lead state agency for Emergency Support Function 8
- University of Florida William R. Maples Center for Forensic Medicine
  - College of Medicine, Department of Pathology
- FEMORS Program (Inaugurated 2002)
  - Professional Mass Fatality Forensic Response Teams

State Fatality Management

- FEMORS is a state-level asset of forensic specialists and equipment
- FEMORS supports Florida Medical Examiners in mass fatality incidents under Department of Health (DOH), ESF-8 Mission Assignment
- Activated members become temporary FDOH employees (for compensation, travel, liability and worker's comp coverage)

DOH FEMORS Relationship

2007-2010 Florida Public Health and Medical Preparedness (PHMP) Strategic Plan Implementation Team Structure



FEMORS-Resources

- Personnel Assets (Current Program)
  - 160+ Members Registered
  - Response Training Seminars (Annually)
  - Specialty Training Seminars
    - Odontology
    - Victim Information Center
    - Morgue Identification Center
    - System-wide Training
  - Activated members
    - Temporary state employees
    - OPS positions with Department of Health
- Equipment Assets
  - Disaster Portable Morgue Unit

What is FEMORS?

160+ Individuals specializing in human remains handling, identification, and forensic evidence.

- Disaster Response Managers
- Pathologists
- Odontologists
- Anthropologists
- DNA Analysts
- Medical Investigators
- Autopsy Technicians
- Crime Lab Analysts
- Fingerprint Analysts
- CSI Analysts
- Administrative Specialists

Temporary DOH Employee

- Classification Plan
- Description
- Credentials

CODE	FEMORS Title	Description (primary duties listed)	Minimum Requirements
[illegible]	FEMORS Coordinator	Disaster Management of Human and Equipment Assets. All Hazards. DOH/EOC Liaison. Establishes	Must Satisfy Disaster Response Operations Management and Administration Experience
[illegible]	Regional Team Leader	Performs On-Team Duties as Back-up to ROMERO Commander	Must Satisfy Disaster Response Operations Management and Administration Experience
VIC	Victim Information Team Leader	Supervises Victim Information Center	Must Satisfy Disaster Response Operations Management and Administration Experience
PAT	Pathologist, Forensic	[illegible]	Forensic Pathologist Board Certified
PATN	Pathologist, Non-Forensic	[illegible]	M.D. or D.O. without forensic pathology experience
ANT	Anthropologist, Forensic	[illegible]	Ph.D. with forensic anthropology experience
ANTN	Anthropologist, Non-Forensic	[illegible]	B.A., B.S., M.S., or Ph.D. in Anthropology without forensic anthropology experience
ODO	Odontologist, Forensic	Examines dental remains, preserves, documents dental records for identification. May serve on Team Leader for site or professional Odontology	Licensed Dentist with forensic anthropology experience
ODNS	Odontologist, Non-Forensic	Examines dental remains, preserves, documents dental records for identification under the supervision of a forensic odontologist	Licensed Dentist without forensic anthropology experience
MEO	Behavioral Health Officer	Monitors team member performance and well being	M.D., Ph.D., Licensed Mental Health provider or Nurse

Classification vs. Job Title

There is a significant distinction between a person's "Classification" for the purposes of membership/compensation and the NIMS imposed credentialed "Job Title" or the ICS duty to which the person is assigned during activation.

- ***Classification*** is the pay scale rating upon which the responder is compensated
- ***Job Title*** is the ICS assignment a person fulfills during activation

FEMORS - Services

FEMORS Can Provide Aid For:

- Search and recovery
- Scene documentation
- Family Assistance Center
- Antemortem data collection
- Mobile Morgue Operations
- Forensic examinations
- Postmortem data collection
- DNA Acquisition
- Personal effects processing
- Remains identification
- Coordination of release of remains
- Records management
- Database administration
- Medical/psychology support
- Safety Officers and Specialists

Services Design (DMORT Model)

FEMORS Can Provide Aid For:

- Search and recovery ***(post DECON)***
- Victim Information Center (VIC)
- Portable morgue operations
- Forensic examinations
- Postmortem data collection
- DNA sampling
- Personal effects processing
- Remains identification (MIC)
- Coordinating remains release
- Records management
- Database administration
- Medical/psychology support
- Safety Officers and Specialists

DPMU Set-Up Example (2008 Exercise)

Victim Information

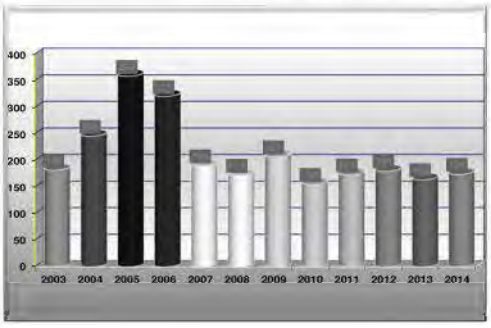
MIC Morgue Identification Center

State Fatality Management

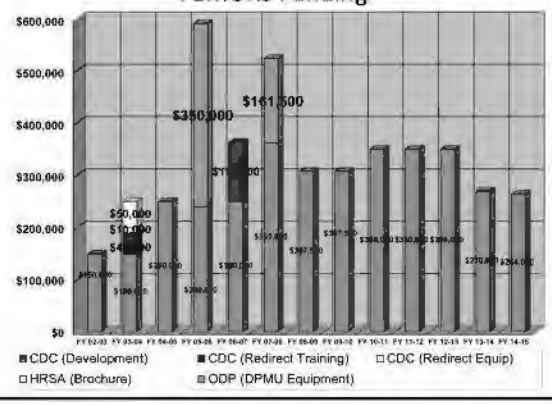
- Responds before a Federal declaration exists (e.g., Georgia Crematorium, Rhode Island Night Club Fire)
- Coordinates with Federal DMORT if Federal resources are needed
  - DMORT supports FEMORS to support Medical Examiner needs
- Can support other states through Emergency Management Assistance Compact (EMAC) agreements between Governors
- Relies on Haz-Mat or WMD to decon victims

FEMORS Team Membership

Since 2006-Active Ranks Trimmed of Training No-Shows
Today: 168 Active and ready
26 Inactive but available



FEMORS Funding



Inventory and Marshaling

DPMU Labor Intensive

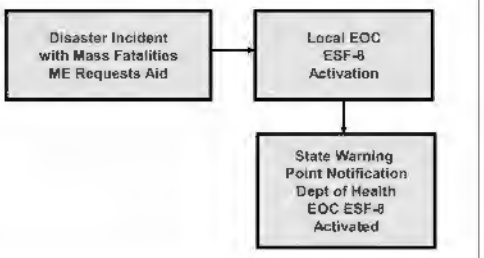
- Logistics Manager (Full-time, dedicated for 1-2 years then part-time)
  - Procurement/Inventory Control
  - Marshaling and Container Coding
    - Labeling (EVERY single item by container code)
  - Preventative Maintenance
    - Generators
    - Computer Updates
    - Battery recharging (tools, generators, etc.)
    - PPE replenishment
- DPMU Team of "McGyver" volunteers 2-3 times/year
  - Worker's Comp and Liability coverage

Sample Mission Cost Estimate

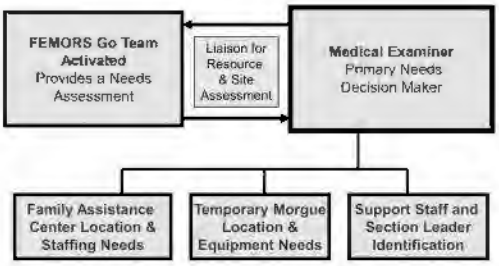
- Annual Training 2011 Drill used for Example
- Estimated labor cost as if it was a real 2.5 day deployment for 91 responders
  - DPMU Team spent extra days setting up and knocking down

Payroll *(w/o overtime)*	$	91,483
Travel and Per Diem	$	21,623
Lodging	$	15,000
"Mission" Total Cost	**$**	**128,106**

Typical Incident Activation



Resource Determination

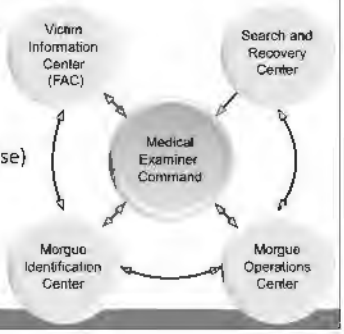


FEMORS - Mission

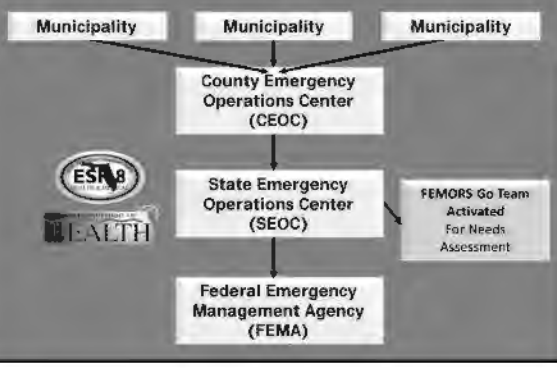
- In the event of a mass fatality incident, FEMORS will Assist and Support.
- Medical Examiner retains control and determines level of help required.
- Request for activation is made through local EOC to State EOC, Emergency Support Function (ESF) 8 Desk (Health and Medical Services).
- Goal: to identify victims, preserve evidence, and reunite remains with families.

FM Response Operations

- 5 Functional Areas-Scalable:
  - Few or All
- Information Coordination (database)
- Goal: Victim Identification

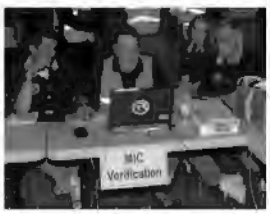


Requesting Assistance



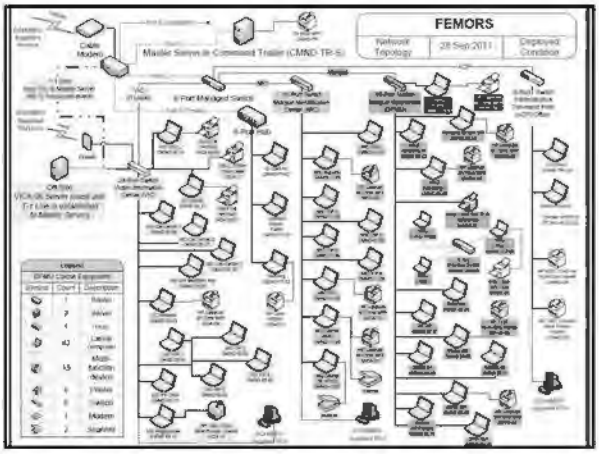
Logistics Group-Communications

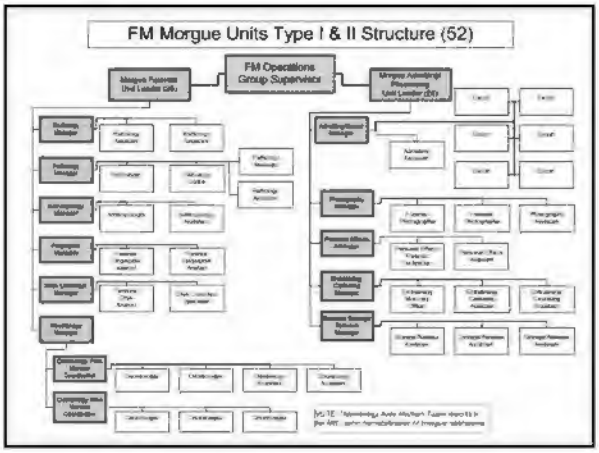
- Logistics Communications Manager sets up the computer networks needed to run the FEMORS operations
- Sets up secure wired/wireless database LAN for access among:
  - ACP, MIC, VIC, DPMU
  - Remains Storage
  - Records Management
  - Internet

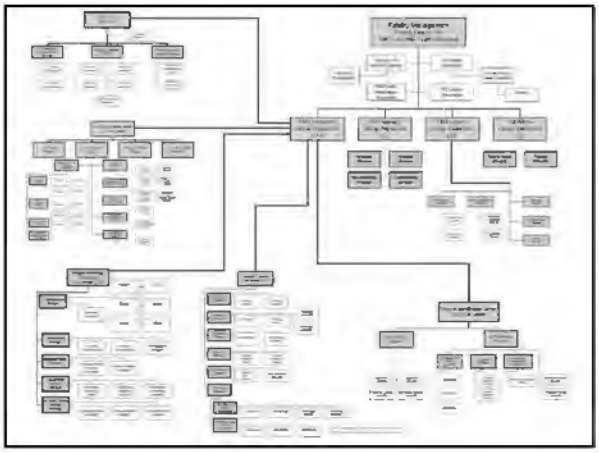


Command Post

- Administrative Command Post (ACP) receives and assigns arriving FEMORS members (via the Resource Manager)
- Establishes logistics coordination with local or State EOC via ESF-8
- Planning Group Supervisor Develops SitRep
- Prepares daily briefing agendas for FEMORS teams
- Houses Database Server







Data Management Issues

- **VIP -DMORT's Victim Identification Program**
  - **Call Center** tracks missing person reports
  - **VIC** (Victim Information Center) collects Antemortem Data by interviews
    - Part of the Family Assistance Center responsibilities
  - **MIC** (Morgue Identification Center) collects and analyzes postmortem data to offer potential identifications to Medical Examiner/Coroner

Portable Morgue Issues

- DPMU contains equipment for stations/offices
  - Supplies for 72 hour self sufficiency
- Facility (fixed or tenting) required on-site
  - Availability for the time frame necessary
    - Optimal-Hard weather tight structure with concrete floors (HV/AC for responder safety)
  - Space Requirement 10,000 sq. ft.
  - Power (minimum 400 amp. service)
  - Water/Sanitation Services
- Adaptable to needs of the Local Medical Examiner (least necessary rule)

Portable Morgue Issues

DMORT Katrina - Gulfport, MS

DMORT Katrina – St. Gabriel, LA

DMORT – Port-Au-Prince, Haiti

FEMORS Annual Training

Portable Morgue Limitations

- State team staff strength sufficient for only 3-4 weeks duration (day job obligations)
  - No USERRA job protection for non-federal responders
  - DMORT requested for longer staffing support
    - ~200 (State) vs. ~1,000 (DMORT) Members
- DPMU contains NO decon equipment
  - Local Haz-Mat teams or WMD render victims safe to enter morgue
  - Victims remain in situ until rendered safe

Disaster Site Center

- FEMORS' focus at the site will be the documentation and subsequent recovery of all artifacts involving human remains
- Recovery will be documented, collected, and transferred to the morgue through the Transportation Staging Team.
- Anthropologists may evaluate purported remains to determine human vs. non-human status

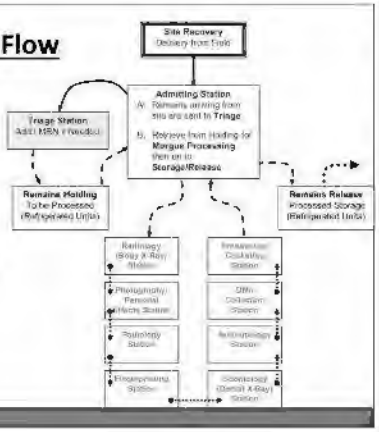
Morgue Operations: Postmortem Processing

Admitting Station

- Receives Remains from Site
- Creates the next Morgue Reference Number(MRN) in VIP
- Sends Remains to Triage
- Prepares Disaster Victim Packet (DVP)
- Logs Start of Morgue Processing
- Logs End of Morgue Processing
- Sends DVP to MIC for Data Entry

Triage Morgue Flow

1. Admitting to
2. Triage to
3. Holding to
4. Admitting to
5. Processing to
6. Admitting to
7. Storage to
8. Release



Morgue Entrance

Morgue Entrance

Morgue Triage

Morgue Administration

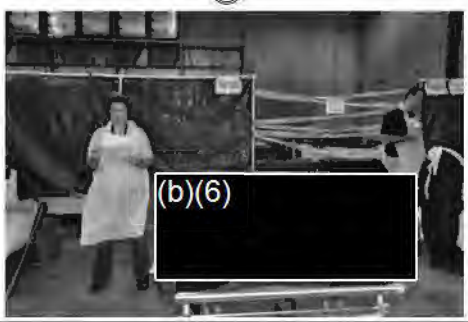
Admitting

Radiology

Personal Effects

Photography

Fingerprints



DNA

Anthropology

Odontology

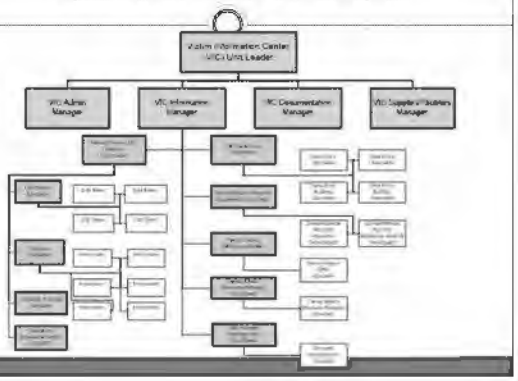
Exit - PPE

Exit - PPE

Victim Identification Center

- VIC Management (Call Center) may need to precede morgue operations
- Interview of Families for Data Gathering (Ante Mortem Interview Forms)
- Dental and Medical Records Acquisition
- DNA Familial Sample and Victim Reference Specimen Collection.

Victim Information Center Unit



Morgue Identification Center

- Postmortem Data Entry Team
- Verification Team
  - Odontology Ante Mortem Team
  - Fingerprint Ante Mortem Team
- Records Management
- Presents matches to Medical Examiner for approval.

VIP Links Data Sets

- Handles multiple fragmented remains
- ME Case# assigned upon identification
- All data and photos remain with ME office
- Data can be imported to existing office systems

ICS–EOC Interface

- ICS provides:
  - On-scene management.
  - Information needed by the EOC to establish incident priorities and make resource decisions.
- EOC:
  - Establishes priorities.
  - Provides and prioritizes resources.
  - Acts as a liaison with other ICPS's, agencies and organizations.

Resource Considerations

- Mutual aid (local-county-State)
- Funeral directors associations
- Law enforcement
- Fire/EMS
- Emergency management (county/State)
- State response teams
- Private-sector
- Federal

DMORT Supports Coroner/ME

- Work in conjunction with local authorities
- Augment existing local resources
- Provide specialized personnel
- Provide mobile morgue facility
- Provide computer based tools
- Provide family assistance center support

Incident Operations

- On-scene operations:
  - Staging
  - Search and recovery
  - Notification of response personnel
- Morgue operations
- Family Assistance Center operations

Incident Morgue Requirements

- Convenient to the scene, but in a secure location
- Adequate size to comfortably accommodate morgue personnel, supplies, and equipment
- Infrastructure for communications, lighting, HVAC, restrooms, water, drainage, and other support for morgue personnel
- Easily accessible

Additional Morgue Requirements

- Security and storage for personal effects
- Removed from public view
- Nonporous or disposable flooring
- Office space
- Tractor trailer/forklift accessible

Typical size is 8,000-10,000 square feet.

Additional Morgue Requirements

- Rest and debriefing areas
- Refreshment/lunch area

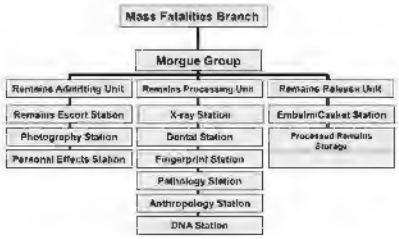
Morgue Personnel Requirements

- Remains handlers
- Trackers
- Pathologists
- Anthropologists
- Dentists
- Records librarians
- Radiography technicians
- Photographers

Morgue Personnel Requirements

- Personal effects technicians
- DNA technicians
- Fingerprint experts
- Supply clerk
- Security personnel
- Morgue safety personnel
- Morgue medical personnel

Morgue Organization



Refrigerated Truck Requirements

- "Rule of Thumb:"
- 1 refrigerated truck for 20-25 sets of remains

Morgue Stations

- Triage of remains
- Admitting of remains
- Photography
- Personal effects
- Postmortem examination
- Radiography

Morgue Stations

- Forensic pathological examination
- DNA collection
- Dental examination
- Forensic anthropology examination
- Fingerprint examination

Morgue Stations

- Autopsy
- DNA Collection
- Dental

Identification and Mortuary Services

- Processing
- Preparation
- Disposition of remains

Field Operations Guide

- FEMORS FOG
  - ICS Basics
  - Operational Overviews
  - Position Descriptions
  - Organization Charts
  - Station Guides *(new)*
  - Policies and Protocols
  - Forms and Logs
  - Adaptable to ME/C Systems
- NIMS Compliant
  - FM as "Branch" under Operations Section

http://femors.org/News_Items.aspx

FOR MORE INFORMATION:

www.femors.org

Search, Detection, and Recovery: Basic Principles

National Transportation Safety Board

General Principles

- **Responsibility of presiding medical examiner/ coroner jurisdiction**
  - If possible, coordinate with the NTSB prior to the recovery of fatally-injured victims
- Recovery is a destructive process
- Documentation is essential
  - *In situ* position of human remains
  - Use of restraint systems
  - Manipulation of wreckage during recovery (accidental/intentional)
- Proper S&R facilitates victim ID by mitigating:
  - Additional commingling
  - Destruction of evidence

National Transportation Safety Board

When can the victim recover operation begin?

§830.10 Preservation of aircraft wreckage, mail, cargo, and records.

(b) Prior to the time the Board or its authorized representative takes custody of aircraft wreckage, mail, or cargo, such wreckage, mail, or cargo may not be disturbed or moved except to the extent necessary:

(1) To remove persons injured or trapped;

(2) To protect the wreckage from further damage; or

(3) To protect the public from injury.

(c) Where it is necessary to move aircraft wreckage, mail or cargo, sketches, descriptive notes, and photographs shall be made, if possible, of the original positions and condition of the wreckage and any significant impact marks.

National Transportation Safety Board

How is high-volume, disaster victim recovery done?

Best Practice

- **Locate** the scene, **define** its overall dimensions, and if possible, clearly delineate and **secure** its maximum boundaries.
- Identify, number, record, and collect **all physical and contextual evidence**.
- **Transfer** all evidence **to the proper authority**, and in a manner that does not harm its overall probative value.
- Establish and maintain appropriate **chain-of-custody** documentation.
- Conduct all activities in a **scientific manner** that is appropriate, expedient, **and ethically above reproach**.

National Transportation Safety Board

Evaluate the Scene

National Transportation Safety Board

What do I need to know immediately?

National Transportation Safety Board

Conditions & Context

- Number of fatalities
- Condition of human remains
- Environment/surface terrain
- Size, scale, orientation, other physical constraints of the scene
- One contained scene, or multiple focal areas over long distances?
- Security?

National Transportation Safety Board

Where can I get this critical information?

National Transportation Safety Board

Survey Methods

- Aerial photography
  - Highest spatial & temporal resolution
- Satellite imagery
  - High spatial resolution available; generally low temporal resolution
- Geophysical remote-sensing
  - Big data sets
  - And even bigger cost…

"A situation can be reached where the amount of data precludes its use."
Tomlinson, 1962

National Transportation Safety Board

A Simple Walkthrough

Continental Connection Flight 3407
12 February 2009
Clarence Center, New York

- Visual/pedestrian
- Non-intrusive ('no touch')
- Initial photos/video
- Assess/adjust scene boundaries

National Transportation Safety Board

Hazards at an Aircraft Accident Site

- Biohazards
- Sharp metal
- Burned Composites
- Cargo
- Pressurized Objects
  - Oxygen Bottles
  - Accumulators
  - Tires
- Chemicals/Fluids
  - Fuel / Oil
  - Hydraulic Fluids/Skydrol
  - Battery Acid
- Fire bottles/squibs

FAA First Responder Safety at a Small Aircraft or Helicopter Accident
http://www.faa.gov/aircraft/gen_av/first_responders/

National Transportation Safety Board

Ballistic Recovery/Parachute Systems (BRS)

- Rocket propelled parachute system
- 0 to 10,000 feet within 2 seconds
- ~30,000 systems installed
  - Cirrus (~5,000 aircraft)
  - Cessna 172/182 (STC'ed)
  - Diamond DJET
  - Experimental/homebuilt
- BRS Aviation Hotline
  - 763-226-6110
    EMERGENCY ONLY

National Transportation Safety Board

Seatbelt Airbag Systems

- Since 2001 80% of new GA aircraft have AmSafe Seatbelt Airbag System installed
  - Air Tractor
  - Aviat
  - Cessna
  - Cirrus
  - Diamond
  - Hawker Beechcraft
  - Mooney
  - Piper
  - Thrush
- Small discharge cylinder below the seat uses compressed helium (6250 psi) to inflate airbag

AmSafe: 602-850-2850

National Transportation Safety Board

Search & Detection

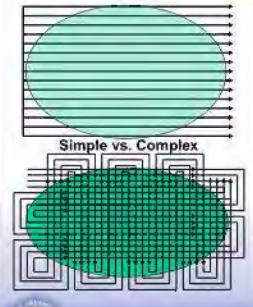
National Transportation Safety Board

Search/Survey Objectives

- Coordinated, systematic, & methodical
- Maximum horizontal and vertical scene coverage (as close to 100% as possible)
- All incident wreckage surfaces checked
- Find and mark all possible human remains
- Overview photographs (4 cardinal directions)
- **'No touch' rule: not in danger—leave in place**

National Transportation Safety Board

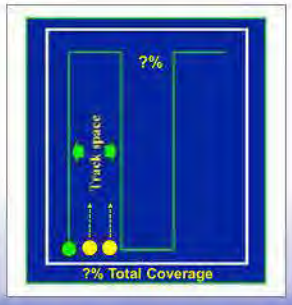
Search Patterns



- Transects
- Grids
- Concentric Circles
- Radial Lines
- And many others…
- **Divide the scene into manageable areas**

National Transportation Safety Board

Track Lines & Overlap



National Transportation Safety Board

What three factors influence the detection of human remains, personal effects, and other evidence on scene?

National Transportation Safety Board

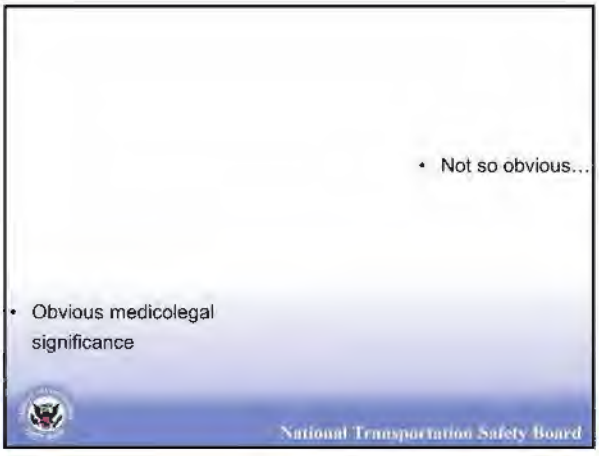
The Primary Factors

- How visible?
- How obvious (medicolegal significance)?
- How accessible?

National Transportation Safety Board


National Transportation Safety Board


National Transportation Safety Board


• Not so obvious…
• Obvious medicolegal significance
National Transportation Safety Board

- World Wide Tours
- 12 March 2011
- Open highway

National Transportation Safety Board

- Air France Flight 447
- 1 June 2009
- 600m x 200m
- 12,795 fsw
- Highly fragmented
- Nearly 2 years, just to find

National Transportation Safety Board

There's a Broad Range of Variation

Heavy logistics; time in days, months, years

- Water
- ≥ 190 fsw depth
- Confined area (w/obstructions)
- Sloped bottom
- Fragmented remains
- Thermal alteration

\- Low — COMPLEXITY — + High

- Land
- Low altitude
- Open area (clear surface)
- Flat, no slope
- Whole-body remains
- No thermal alteration

Light logistics; time in hours

National Transportation Safety Board

Mapping, Recording, & Collection

National Transportation Safety Board

There are three key elements of documentation at a mass fatality scene…

National Transportation Safety Board

Documentation Needed

- Map/s (Plan/Profile)
- Photographs/Video
- Victim Recording Forms

National Transportation Safety Board

Equipment

Total Station

Compass & Tape

GPS

Theodolite/Transit

National Transportation Safety Board

The Basic Elements

Date/Time
Location
Name/Phone

National Transportation Safety Board

Flagging/Marking

- Standardized placement
  - Always at the same place on the body
- Remains, unassociated PE, wreckage
- Associated PE do not require separate markers
- Process for dealing with concentrations of highly fragmented and/or calcined remains (e.g., mark as a feature)

National Transportation Safety Board

Numbering Systems

- **Simple**
- **Sequential**
- **Expandable**
- Scene ≠ Morgue
  - Incorporate scene info into the PM case file
- Avoid alphanumeric schemes
- Applicable to varying COR
- Consider audit complexity
- Integration into normal system?

1000s: Vehicle wreckage
3000s: Unassociated personal effects
5000s: Human remains (w/or without directly-associated personal effects)

National Transportation Safety Board

Best Practice…

- ✓ Whole body, intact…**one** unique evidence number
- ✓ If anatomically-connected …**one** unique evidence number
- ✓ Each isolated fragment (i.e., no anatomical connection to any other remains)…**one** unique evidence number
- ✓ Dense concentrations of highly-fragmented and/or calcined remains…**one** evidence number for **feature**
- ✓ If **directly-associated** personal effects are present, **leave** them **fastened** to the remains

National Transportation Safety Board

Videography & Photography

- Videography
  - Useful during initial walkthrough
  - Good for complex features
  - Not a replacement for photography
  - **Careful with audio**
- Photography
  - Overview, midrange, close-up/detail
  - **Considered the "gold standard" for evidentiary-quality imagery**

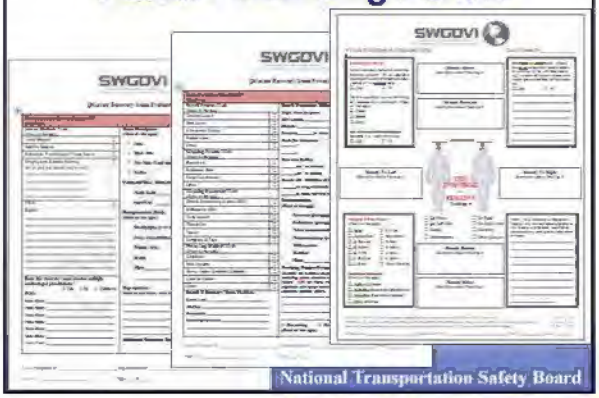
National Transportation Safety Board

Common Photography Problems

- **Identification:**
  - **What is it?**
  - Overviews with no associated close-ups (lacks detail)
  - Close-ups with no overviews (lacks context)
- **Orientation:**
  - **Which way is up, down, left, or right on the item?**
  - What is the direction of view?
  - Where is it on scene?
  - What else is it associated with?
- **Confusion:**
  - **Multiple photographs of similar items, or of a single item?**
  - Where, along the timeline of activities?
  - What is the scale?
- **Incomplete Documentation:**
  - **No photograph taken (of an item or even an entire area)**
  - Unique reference missing or not visible
  - No photo log

National Transportation Safety Board

Victim Recording Forms



National Transportation Safety Board

Evidence Collection

- Be systematic
- Use appropriate stabilization techniques
- Duplicate the evidence numbering and associated data inside/outside of containers
- Seal according to evidence standards and protocols

National Transportation Safety Board

Verification & Transport

- Keep remains refrigerated and send to morgue in groups (e.g., midday and evening)
- Document and verify all transfers on chain-of-custody (name, date, time)
- Assign driver; confirm departure & arrival times with morgue

National Transportation Safety Board

Quality Assurance: Scene Operations

- Sterile boundaries
  - How far, deep, high?
- Screening sediments
  - Planted "evidence"
  - Spoil checks
- Numbering system
  - All remains, assemblages assigned a number?
- Scene/morgue communications
  - Methods
  - Evidence preservation
    - Head/hand wrapping
  - Attempts to resolve commingling
  - Numbering system strategy
  - Inventory of unaccounted-for remains
    - Fewer victims
    - Minimal fragmentation

National Transportation Safety Board

"Top 10" List

6. Taphonomic changes may have rendered human remains (difficult or impossible) to detect. And wreckage *must* be examined for remains.
7. Modifications to the scene can (and do) occur during life-safety operations—expect it. If it has happened—try to document it.
8. Shifts and required breaks will be necessary.
9. Life-safety to victim recovery operations may be a transition, with overlap. Have a system for conducting safe, ***concurrent*** operations.
10. Verify and confirm the medicolegal jurisdiction responsible for victim recovery and identification.

National Transportation Safety Board

"Top 10" List

1. Scene perimeters, control zones, access ways, and staging areas often erode and require adjustment (it's easier to go smaller than expand).
2. A risk assessment must be periodically updated. Hazards on scene will not always be immediately apparent or recognized.
3. Visualization of the physical constraints of the scene (aerial photography, remote-sensing, walkthrough) is always critical.
4. Some evidence, may need to be isolated and protected, (or even recorded and recovered) immediately upon detection. Presumptive identifiers should be left *in situ*, but this is not always the case.
5. Commingling, cross-contamination, and even destruction of human remains, personal effects, and other probative evidence is most likely to occur while the immediate crisis is being stabilized.

National Transportation Safety Board

Personal Effects Management

National Transportation Safety Board

Personal Effects

Significance

Photo Courtesy of BMS GLOBAL

- Evidentiary
- Sentimental
- Financial

Investigators were able to examine the pilot's partially damaged logbook. The pilot had an estimated total flight time of about 270 hours, with an estimated 27 hours in the accident make and model. He completed a biennial flight review in February 2007.

National Transportation Safety Board

Personal Effects

Categories

Associated with human remains
ME/C responsibility

Associated with victim name
Air carrier responsibility*

Unassociated
Air carrier responsibility*
Catalog → family member review
Unclaimed → retain for 18 months

*Air carrier responsibility assuming legislated accident.
Responsibilities not prescribed if accident does not meet criteria set forth in family assistance legislation.

National Transportation Safety Board

Personal Effects

Process

- On scene documentation
- Collection
- Cleaning/making safe to handle
- Cataloging
- Restoration
  - Decision driven by claimant
- Return to owners/family members
  - Retain unclaimed PE for at least 18 months

National Transportation Safety Board

Return of Personal Effects

- Associated
  - Coordination between ME/C & commercial vendor
  - Contact established with owner/family
- Unassociated
  - Catalogue
  - Family claims item
  - Competitive Claims
    - Proof of ownership

National Transportation Safety Board

Personal Effects Recovery & Processing
Scope of Operation

	Victims	Personal Effects	Processing Time (days)	Comments
AA 587 (2001)	265	~500,000	180	$300,000 cash $200,000 jewels contents of five homes
CO 1404 (2008)	110	15,688	60	81% associated
US Airways 1549 (2009)	155	36,685	90 (est.)	78% associated
Con Conn 3407 (2009)	50	~75,000	90 (est.)	Includes contents of home & garage

Commercial Vendors
Other companies not listed are available to provide a variety of disaster response services.
The NTSB does not endorse specific commercial vendors.

- BMS CAT® Global Commercial Services
  - http://www.bmscat.com/services-airline_transportation.aspx
  - 24 hour Response Center
    - 800.433.2940
- Kenyon International Emergency Services
  - http://www.kenyoninternational.com/
  - 24 hours Response Center
    - 281.872.6074
- Blake Emergency Services
  - http://www.blakeemergency.com/
  - 24 hours Response Center
    - +44 (0)1298 815785

Questions?
Comments

Jason H. Byrd, Ph.D., D-ABFE
Commander

FEMORS
Maples Center for Forensic Medicine
College of Medicine
University of Florida

FEMORS Activation
I-75 Fire, Jan 29, 2012

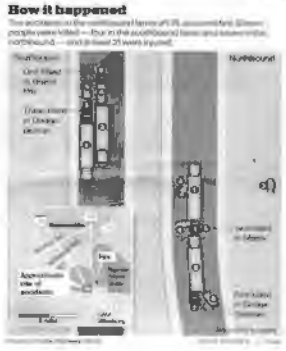
Gainesville, FL

What's Ahead

- Incident Description
- Local Resources and Capacities
- Local Resources Disaster Plan
- Mission Time Line Events
- Debrief Session
- Activation Cost Estimates

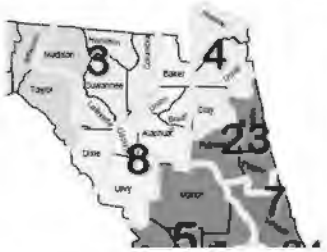
Incident Description

- 4:00 am, Sunday, January 29, 2012, Interstate 75 along Paynes Prairie immediately south of Gainesville, Alachua County, Florida.
- The northbound lanes crash resulted in 7 deaths (designated as Scene #1).
- The southbound lanes crash resulted in 4 deaths (designated Scene #2).
- 24 injured taken to local hospitals



Local Resources and Capacities

- Alachua County (and six other counties) fall under the jurisdiction of the District 8 Medical Examiner
- District 8 staff consists of:
  - 2.5 Pathologists
  - 3.5 Investigators
  - 1.5 Autopsy Technicians
  - 1 Administrator
  - 1 Secretary



Local Resources and Capacities

- Physical plant resources consist of 3,000 sq. ft. in 2 buildings.
- Overall, the physical facilities can be described as meeting daily needs but with no reserve capacity.

Local Resources and Capacities

- The autopsy suite has space (16' x 25') to allow two tables to be working simultaneously.
- Cooler room with space for 7 carts on a normal day.

Local Resources Disaster Plan

VIII. Decision Trigger Point Assumptions

A. Capacity Maximized -Deaths (expected) up to 10 with intact morgue facilities:
- Incident Morgue will be the normal Medical Examiner 8 Office.

B. Capacity Exceeded -Deeths (expected) over 10 (or compromised morgue facilities or body fragmentation has occurred):
- Contact ESF-16 (Law Enforcement desk) at Alachua County (local) EOC to request FEMORS assessment team.

Local Resources Disaster Plan

B. Capacity Exceeded – (continued):
- Incident morgue will be established at a separate location contracted by ESF-8 for that purpose.
- Victim Information Center will operate out of a hotel contracted by ESF-8 for that purpose.
- Refrigerated trailers (2 for each 20 victims) will be requested vie the locel EOC.
- FEMORS protocols, modified and approved by the Chief Medical Examiner, shall be followed.
- District 8 staff will be incorporated into the FEMORS ICS orgenizational chart.

Mission Time Line - Day 1

- 4:00 am Incident Occurred Sunday morning.
- 6:00 am FHP notified Dist. 8 Chief Investigator
  - 13 confirmed dead
  - 7-8 more expected
  - Bodies will be ready to move in next few hours
    - i.e., no rush, vehicles are being separated
- 6:15 am Chief Investigator notified MEO Director of Investigations and Chief ME.
- 6:30 am MEO Director of Chief ME conferred
  - Need refrigerated storage if 10+ victims
  - Need FEMORS personnel for VIC and dental IDs

Mission Time Line - Day 1

- 6:50 am MEO attempted to contact Alachua EOC to request FEMORS support
- 6:55 am MEO contacted State Warning Point to obtain EOC number
  - Notification of FEMORS request passed on.
- 7:00 to 7:25 am Gainesville area FEMORS Assessment Team members are alerted.
- 7:30 am ESF-8 Activated FEMORS
  - Assessment Team dispatched by phone

Mission Time Line - Day 1

- 8:00 am FEMORS sent e-mail contact to Alachua EOC for reefer
- 8:00 am Chief Investigator assembled and briefed staff at MEO then departed for scenes
  - Two FEMORS members made available to handle the phones.
- 8:25 am FEMORS reached Alachua EOC for
  - Reefer unit ("in Ocala")
  - Need for Hotel for VIC and Responder Team lodging

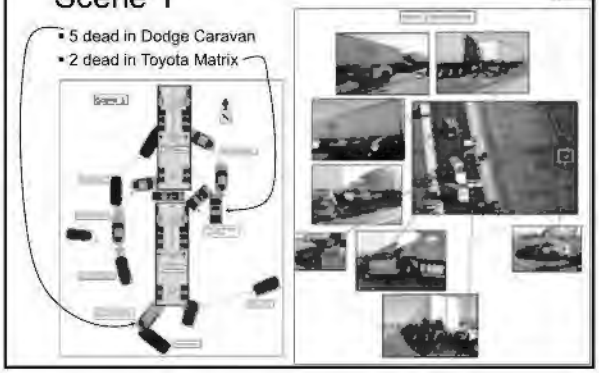
Mistake #1 - Day 1

- 8:25 am FEMORS suggested a local (Ocala) vendor for a Reefer unit
  - Vendor had been a sponsor at past Medical Examiner Annual Conference.
  - Vendor was assisting District 19 with one unit.
  - Unit was in Ocala and therefore fast response expected.
  - Price (unknown at time of suggestion) turned out to be prohibitive.

- Proper request should have been:
  - "We need refrigerated storage for 20 bodies"
  - ESF-8 and SEOC would have used standing contracts for 56' refrigerated trucks (far less expensive)

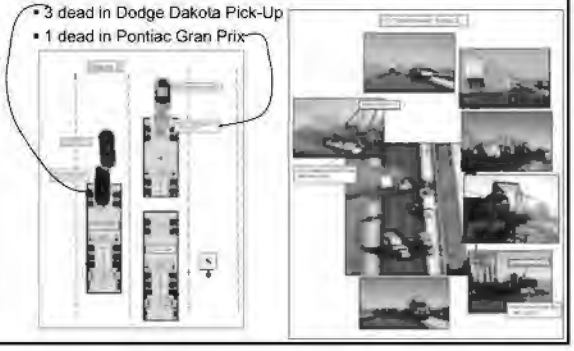
Scene 1

- 5 dead in Dodge Caravan
- 2 dead in Toyota Matrix



Scene 2

- 3 dead in Dodge Dakota Pick-Up
- 1 dead in Pontiac Gran Prix



VIC Set Up

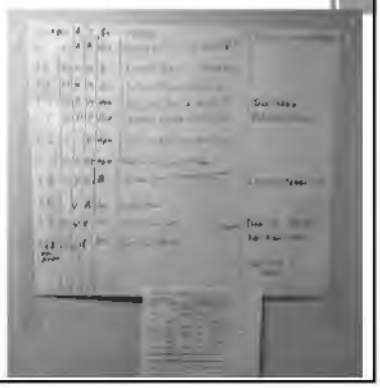
- Paramount Plaza
  - 2.5 miles from ME Office
  - Provided by Alachua EOC
- Brazilian family (5 dead, 1 survived) detail provided by congregation following in 2nd car.
- Phone work on rest of FHP list of 16

Wall Chart

- Morning Briefings
- 7 Victims not burned
  - FHP tracked vehicle ownership
  - Identifications made by:
    - Visual
    - Fingerprints
- 1 Burned victim ID'd by fingerprint

Wall Chart

- FHP provided 16 names of missing to VIC
  - 15 Found Alive
  - 1 was a local victim
- By Jan 30th
  - 8 Identified
    - No more missing person names
  - 2 or 3 Unidentified in Dakota



Scene 2 – In Depth Look

- 3 dead in Dodge Dakota Pick-Up

Scene 2

- 3 dead in Dodge Dakota Pick-Up

Scene 2 Dodge Dakota

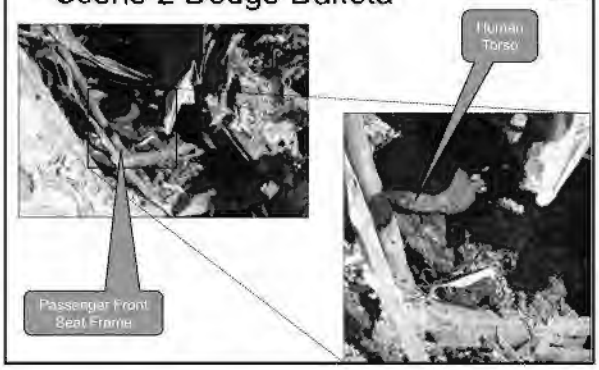
Scene 2 Dodge Dakota

Scene 2 Dodge Dakota

Scene 2 Dodge Dakota

Scene 2 Dodge Dakota

Scene 2 Dodge Dakota



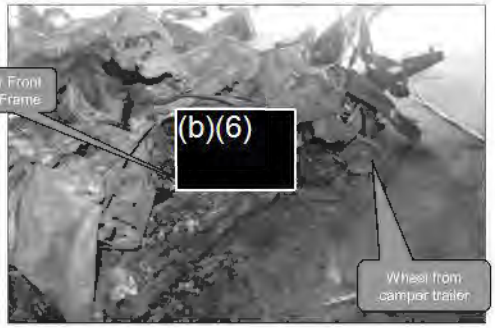
Scene 2 Dodge Dakota

- Decision made to move Dakota with bodies intact to Sheriff Office for processing.

Victim Recovery Dodge Dakota

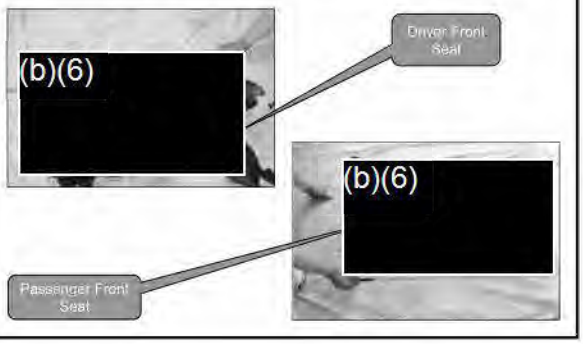
- Day 2 at Sheriff's Office
  - UF Anthropology Team
  - ME Investigators

Scene 2 Dodge Dakota Day 2



Scene 2 Dodge Dakota Day 2

Scene 2 Dodge Dakota Day 2



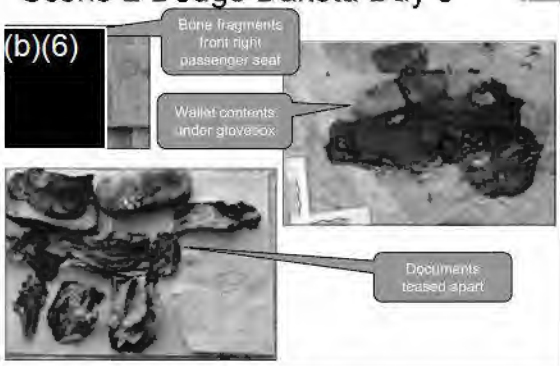
Scene 2 Dodge Dakota Day 3

Scene 2 Dodge Dakota Day 3

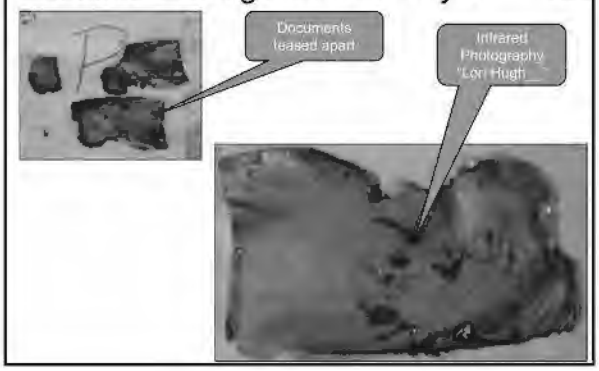
- Forensic Odontologists added to the processing team.

Scene 2 Dodge Dakota Day 3

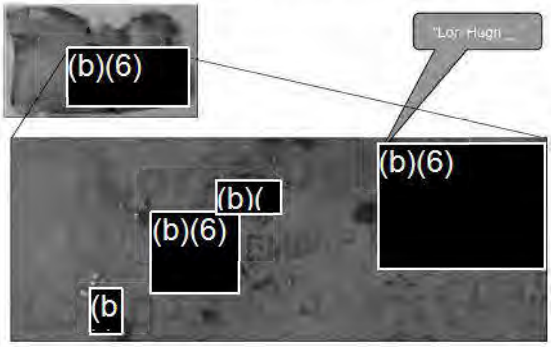
Scene 2 Dodge Dakota Day 3



Scene 2 Dodge Dakota Day 3



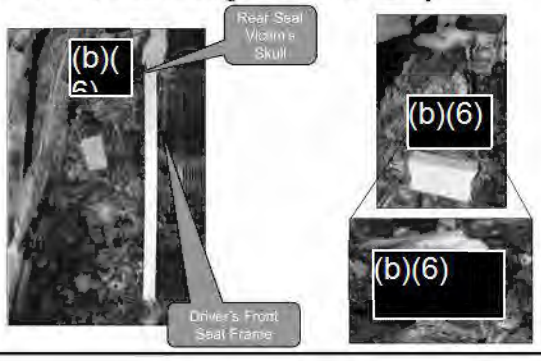
Scene 2 Dodge Dakota Day 3



Scene 2 Dodge Dakota Day 3

- Fire Department ready to expose rear seat

Scene 2 Dodge Dakota Day 3



Scene 2 Dodge Dakota Day 3

- Tuesday, Jan 31st - 3rd Victim Recovered

Victim Recovery Dakota

- By end of Day 3, Autopsy revealed
  - Driver – Adult Male
  - Passenger – Adult Female
  - Rear Seat – Pre-Adult Female
- FHP Began Tracking "Lori Hugh__" and Dodge Dakota
- Hughes Family of Pensacola came forward
  - Mon, Jan 30th "Sabryna Hughes" mother called Escambia Sheriff to report teenage daughter missing
    - Told that she "Must wait 24 hours"
  - Tue, Jan 31st Grandmother called FHP to report Sabryna Hughes missing
    - Simultaneous, FHP was tracking "Lori Hugh__" info.
    - Dispatcher put the two together

Victim Recovery Dakota

- Hughes Family of Pensacola
  - Michael Hughes
    - Owner of Dodge Dakota (asked brother for gas money to go to Sarasota)
    - Husband of Lori Brock-Hughes
    - Father (with no legal custody of) Sabryna Hughes
    - No dental records available
  - Lori Brock-Hughes
    - Step-Mother of Sabryna
    - Father in Sarasota died and she was headed to funeral
  - Sabryna Hughes
    - Lived with maternal Grandparents Gilley
    - Asked for and received permission to attend Lori's family funeral
    - At 12:58 am, Sunday, Jan. 29, 2012, had posted an update to her Facebook page indicating that they were finally on the road
    - Dental records located

Victim Recovery Dakota

- Dental records of Sabryna Hughes were delivered to the office by FedEx at 2 pm on Thursday, Feb 2nd, digitized and forwarded to Forensic Odontologist.
  - "This is consistent with her chronological age. No useful maxillary data. No exclusions.

(b)(6)

(b)(6)

Victim Recovery Dakota

- Facts and circumstances articulated in final identification decisions:
  - "Therefore, these final three victims of the I-75 multi-vehicle crash of Sunday, January 29, 2012 are now identified by facts and circumstances to the exclusion of any other persons known to be missing."

Incident Debriefing

- Sought out Deficiencies and Positive Outcomes

Incident Costs

- Four Day Response
  - 16 FEMORS Members supported MEO Staff
- Bottom Line:
  - FEMORS responders arrived rapidly, effectively aided Medical Examiner staff with surge events, and demobilized in an appropriate manner as the work demands lessened.

Payroll (raw)	**$17,087**
Travel and Per Diem	**$ 2,376**
Lodging Estimate	**$ 850**
2012 Total Costs	**$20,314**

After Action Review

- Responder Care And Feeding
  - Initial Scene was 1 mile south of Rest Area for bathrooms
  - Food and Hydration Supplies were needed.
  - "Donuts" box on FHP trooper vehicle – Media opportunity not lost!
  - Extended days of processing the Dakota truck also required Food and Hydration Supplies
- What was all that stuff burning? EPA Concerns for Responders

After Action Review!

- DOH Comment at AAR Meeting
  - 10-12 hours both North and South I-75 lanes shut down
    - "Open Roads" Policy - 45 minutes
    - FHP, Public Works and Dept. of Highways looking into options
  - What about the miles of backed up vehicles on I-75 without access to
    - Bathrooms, water or food facilities for children
    - Medical care if needed (fortunately cool weather)

NTSB TRAINING CENTER

Mass Fatality Incidents for Medicolegal Professionals

TDA 403
October 20 – 22, 2014
Agenda

Monday, October 20, 2014

0800-0830	Registration	
0830-0845	Welcome/course overview	*Schuda/Kontanis*
0845-0930	Introduction to the NTSB	*Kontanis*
0930-1015	Overview of Family Assistance Operations & the ME/C Role	*Wiersema/Kontanis*
1015-1030	Break	
1030-1130	NTSB Perspectives on Managing DVI Operations	*Kontanis*
1130-1215	NTSB Perspectives on Victim Accounting	*Kontanis*
1215-1315	Lunch	
1315-1415	The DMORT VIP AM Data Collection Process	*Klimetz*
1415-1430	Break	
1430-1530	Search, Detection & Recovery: Basic Principles	*Kontanis*
1530-1700	FBI Evidence Response Team: Interfacing with the ME/C Community	*Marx*
1700-1715	Questions/Wrap-up	

Tuesday, October 21, 2014

0830-0915	FAA Autopsy Program Team Overview	*Hileman*
0915-1000	FAA Toxicological Processing of Biological Specimens from Aviation Accident Fatalities	*Craft*
1000-1015	Break	
1015-1115	Postmortem Data Collection	*Mitchell*

1115-1215	Mass Fatality Response Planning: A Medical Examiner's Perspective	*Mitchell*
1215-1315	Lunch	
1315-1445	NTSB Medicolegal Investigative and Research Interests	*Webster/Poland*
1445-1500	Break	
1500-1600	Morgue Operations and Logistics	*Byrd*
1600-1700	The I-75 Multivehicle Accident Medicolegal Response	*Byrd*
1700-1715	Questions/Wrap-up	

Wednesday, October 22, 2014

0830-1030	The UVIS AM Data Collection Process and Case Studies in Open Populations: WTC & Bronx Building Explosion	*DePaolo*
1030-1045	Break	
1045-1200	Mass Fatality Management Operations in Texas: A Framework for State Support of Local Medicolegal Authorities	*Wiersema*
1200-1300	Lunch/TWA 800 Case Study	*Kontanis*
1300-1630	Table Top Exercise Managing the Mass Fatality Medicolegal Process	*Course Faculty*
1630-1700	Course Evaluations & Attendance Certificates	*Kontanis*