National Commission on Forensic Science Meeting

The Role of Forensic Science in Mass Fatality Management

Frank DePaolo, PA-C
Assistant Commissioner of Forensic Operations
NYC Office of Chief Medical Examiner
“In its charge to the committee, Congress raised the question of the role of forensic science in homeland security.” (p 279)

“Homeland security and disaster response would be well served by universal improvement in ME/C office to manage mass fatality events such as the multistate Hurricane Katrina tragedy and the World Trade Center attacks...” (p 260)
Mass Fatality Management

Disaster Missing Persons Call Center

Remains Transport & Storage

Laboratory Analysis (DNA, Toxicology, etc.)

NOK Notification & Final Disposition

Victim Search & Recovery

Disaster Victim Identification
- AM data
- PM data
- Reconciliation

Notification & Final Disposition

Laboratory Analysis
- DNA
- Toxicology
- etc.
Mass Fatality Management

- Disaster Missing Persons Call Center
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Mass Fatality Incidents in the U.S. (2000-Present)

97 U.S. Mass Fatality Incidents*  
7,887 Deaths

**Open Population Incidents**
- 85% (82) open population
- 15% (15) closed population

**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  (15 deaths per incident)

**Top 4 Mass Fatality Incidents (# Fatalities):**
1. Attack on the World Trade Center (2,753)
2. Hurricane Katrina (1,836)
3. April 2011 Tornado Outbreak (344)
4. American Airlines Flight 587 Aviation Accident (265)
Who Are The Victims?

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

Open Population
- 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
Disaster Victim Identification (DVI)

**Data Input: Call Center and FAC**
- Interviews
- Photos
- X rays
- Dental

**Data Input: Scene and Morgue**
- PM Exam
- Photos
- X Rays
- Dental

**Reconciliation**
Postmortem Data
Antemortem Data
Comparisons
Laboratory Analysis

**Antemortem Data**

**Postmortem Data**

FORENSIC IDENTIFICATION
DVI Process

**ANTEMORTEM OPERATIONS**
- Disaster Missing Persons Call Center Reports
- Investigate Missing Persons Reports & Develop Manifest
- Conduct Targeted Antemortem Interviews
- Acquire/Analyze Ante Mortem Data

**POSTMORTEM OPERATIONS**
- Recover Remains/Personal Effects
- Conduct Post Mortem Examinations
- Submit Fingerprints, DNA
- Acquire/Analyze Other Post Mortem Data (Dental)

Reconciliation Information

Establish Forensic Identification

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DVI Process

ANTEMORTEM OPERATIONS

Disaster Missing Persons Call Center Reports

Investigate Missing Persons Reports & Develop Manifest

Conduct Targeted Antemortem Interviews

Acquire/Analyze Ante Mortem Data

Reconciliation Information

Establish Forensic Identification

POSTMORTEM OPERATIONS

Recover Remains/Personal Effects

Conduct Post Mortem Examinations

Submit Fingerprints, DNA

Acquire/Analyze Other Post Mortem Data (Dental)
DVI Process

ANTEMORTEM OPERATIONS

- Disaster Missing Persons Call Center Reports (Crossed Out)
- Investigate Missing Persons Reports & Develop Manifest
- Conduct Targeted Antemortem Interviews
- Acquire/Analyze Ante Mortem Data

POSTMORTEM OPERATIONS

- Recover Remains/Personal Effects
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Reconciliation Information

Establish Forensic Identification
Why is a Disaster Missing Persons Call Center Necessary?

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Disaster Missing Persons Call Center

• A centralized, structured process for collecting disaster missing persons reports and communicating with the public

• To decompress 911 system volume

• To enable investigative efficiencies:
  • Automated data comparisons
  • Call grading schema

• To enable the efficient gathering of antemortem data for use in disaster victim forensic identifications
An Exercise in Identification

- Fatalities
- Injured – Hospitalized
- Injured – Treated & Release (Hospital)
- Injured – Treated & Release (scene)
- Uninjured
Efficient Antemortem Data Workflow

Call Center & Internet Based Data Collection

Existing Manifests?

Victim Manifest

Targeted AM Data Collection

Fingerprint AM Records

Antemortem Interview Data

Obtain EMS, Hospital, Medical & Dental Records

DNA Kinship and/or Direct References

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Efficient Antemortem Data Workflow

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Primary Factors Influencing Antemortem Data Collection

- **Accurate** Victim Manifest
- Population impacted:
  - Open vs. Closed
  - Local vs. International
  - Language barriers
  - Religious considerations
  - Socioeconomic considerations
- AM Availability/Accuracy
- Interview Data Reliability
Incident Considerations

World Trade Center Attacks
9/11/2001

American Airlines Flight 587
11/12/2001

Hudson River Mid-Air Collision
8/8/2009
Disaster Missing Persons Call Centers

UK Casualty Bureau:

• Has maintained a robust national disaster missing persons call center capability since World War II
• Police based system
• July 7, 2005:
  - 42,000 reports within the first hour of operation
  - 121,000 total reports made
  - 85% of victims captured in grade one calls

[NYC re-modeled it’s Call Center app on the London system]
Disaster Missing Persons Call Centers

New York City UVIS/311:

- A call center did not exist on September 11, 2001.
- Investigative effort: More than a year to reconcile 30,000 missing persons reports/88 countries
- Unified Victim Identification System (UVIS) established in 2004
  - System now operational in other jurisdictions, including: New Jersey and Nevada
New York City 311 Call Center

Unified Victim Identification System is Activated by the Mayor or Police Commissioner

Following activation, a message is broadcast from the Mayor directing the public to call 311 or 212-NEW YORK

- System runs dormant at the NYC 311 Call Center and can be activated instantaneously
- 311 becomes the single, centralized, call center for reporting persons potentially involved in an incident
- Reports typically handled by agencies such as American Red Cross are directed to 311
Data Management System - UVIS

The Unified Victim Identification System (UVIS) is a browser-based application that resides at NYC’s Centralized data center and provides an integrated platform to manage missing persons and victim information.

- The centralized call center 311- UVIS Missing Persons Module collects data from the public, law enforcement, etc:
  - Automates all processes into a single, central repository
  - Allows the efficient investigation of missing persons reports through a report comparison engine and prioritization schema
GAP: Disaster Missing Call Center Capability

Hurricane Katrina (2005):
- “The ad-hoc creation of a missing persons systems collection system created confusion and compromised public safety.”
- They were “highly inaccurate,” they “did not collect the right data”

- Brent Woodworth
  (as quoted in Post-Disaster Missing Persons Process: San Francisco 311 Customer Service Center; Goldman School of Public Policy May2, 2014)

Boston Marathon Bombing (2013):
- The Mayor’s 24 Hour Constituent Service was expecting to receive around 80 calls the day of the marathon
- Received 8,600 calls in 24 hours (1,000% increase)
- Only 28 matches of missing people
- Many people experienced delays/busy signals for 10 - 20 minutes before they were able to speak to an operator
“With the exception of some large city, county, and state systems, the level of preparedness of ME/C jurisdictions is generally very low.” (page 9-15)
National Disaster Missing Persons Call Center

A National Disaster Missing Persons Cell Center would serve to assist local jurisdictions with any incident in the US or abroad which might include American disaster victims.

• Serve small jurisdictions unable to fund, equip and staff a disaster missing persons call center.
• Greatly improve the nations response to a large scale incident
• Ensure reliability of collected disaster missing persons data
• Improve post-incident coordination amongst missing persons stakeholders.
QUESTIONS?

Frank DePaolo, PA-C
Assistant Commissioner, Forensic Operations
Office of Chief Medical Examiner, City of New York
212-447-2738
FDePaolo@ocme.nyc.gov