



W8 From the Ashes — Transforming the Response to Mass Disasters

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After attending this presentation, attendees will understand how different agencies integrate various areas of forensic science in mass fatality incidents and how various forensic service providers can collaborate within and with these agencies to prepare for mass disaster events. In addition, attendees will better understand how emerging technologies are being leveraged.

This presentation will impact the forensic science community by highlighting what has been learned from numerous natural and unnatural disasters and how the forensic science community working together can prepare to respond to future incidents by teaching how to process and investigate mass disaster scenes and evidence.

A mass fatality incident occurs when the local resources that are normally used in response to a fatality event are overwhelmed or have the potential to be overwhelmed. This varies widely depending on the size of the departments and the type of incident. In order to effectively manage these incidents and conduct appropriate medicolegal death investigations, it is necessary to have an integrated approach between various forensic science disciplines.

This presentation will provide an overview of how various areas of forensic science are integrated in mass fatality incidents.

The goal is to introduce forensic scientists working their first mass fatality scene to scientific and administrative procedures generally used in processing the scene. In many incidents, it is not known at the onset whether the incident was accidental or criminal in nature, so the scene must be treated in the same detailed manner in all cases until conclusions can be made. A number of cases that have caused these agencies to improve their procedures will be discussed. There is more coordination between all state, local, and federal law enforcement agencies than ever before, addressing, for example, preparation, jurisdiction, responsibilities, and task assignments.

At the scene, it is necessary to identify evidence, decontaminate the remains as necessary, systematically document and recover the remains and personal effects, provide transport and/or temporary storage of the remains, and generate and maintain a chain of custody of all evidence, remains, and personal effects. This presentation will provide an overview of these procedures and how they may change based on circumstances.

Various resources available to law enforcement and medicolegal agencies developing their continuity of operations, contingency plans, and other plans will also be discussed.

At the intake area of the autopsy operations site, all remains are triaged, photographed by a forensic photographer, and given a unique identifier. Remains are scientifically identified by integrating the skills of fingerprint specialists, forensic odontologists, and DNA specialists. Radiographs are performed by radiology technicians and forensic radiologists interpret the images. Examination of the remains is conducted by forensic pathologists, toxicology samples are taken, and all evidence is collected and released to the investigative agency. Forensic anthropologists assist in the triage and provide expert consultation. The forensic pathologist usually completes the death certificate and certifies the identification and cause and manner of death. The remains and personal effects are released to mortuary affairs and communication is made with the families.

After intake, the triaged and numbered remains are viewed by the dental team. Forensic odontology provides a highly accurate, rapid method of identifying remains and associating partial remains. Successful dental identification requires trained forensic odontologists and support staff, a means of locating and obtaining the antemortem dental information, sufficient space and support to perform the postmortem examinations, and adequate Information Technology (IT) support and resources. The dental team works closely with the other forensic disciplines and with the members of the family assistance group, which gathers antemortem information. The dental team makes identification recommendations on the ultimate identity and release of the remains.

Once the examinations in the morgue are finished, the DNA laboratory begins work. Samples received may be much different than standard postmortem samples in source, amount, and condition, depending on the incident. DNA may be the only method to identify partial remains, but it is crucial to collect from all samples regardless of other identification modalities, since reunification of as many remains as possible is a major goal. Laboratories may find themselves inundated with samples almost immediately; this includes remains, known samples, and other family samples. Having the correct data in an organized fashion facilitates identifications; therefore, Copyright 2016 by the AAFS. Unless stated otherwise, noncommercial *photocopying* of editorial published in this periodical is permitted by AAFS. Permission to reprint, publish, or otherwise reproduce such material in any form other than photocopying must be obtained by AAFS.



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DNA-relevant information must be collected by the Victim Information Center. Tremendous improvements have been made in DNA database programs (capacity for Short Tandem Repeat (STR), Y-chromosomal Short Tandem Repeat (Y-STR), and mitochondrial DNA data as well as metadata), which can be used as a stand-alone system for mass disasters. Since 9/11, methods for bone processing and developing mini-STRs for degraded samples have advanced greatly.

Preparing for a future yet-unknown mass disaster can assist when disaster does strike. Developing a program for preparedness and training across agencies can be daunting but well worth the effort. This presentation will describe developing a model program to coordinate Orange County forensic operations stakeholders with a first-hand look at the process development, planning, and implementation of a simulated mass disaster; this will assist in developing programs in the participants' own jurisdictions.

Mass Disaster, Coordinated Response, Forensic Scientists