



Pathology Biology Section – 2011

G93 Improving Evidence and Victim Recovery Protocols at the Mass Fatality Incident

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After attending this presentation, attendees will understand problems faced by coroner and medical examiners relative to their responsibility to properly recover and identify plane crash victims. Attendees will be presented with effective strategies and protocols for dealing with these scenes.

This presentation will impact the forensic science community by describing efficient and effective evidence and victim recovery protocols applicable to large-scale, widely-dispersed mass fatality scenes

The crash of a major airliner results in an extremely chaotic situation. After the first responders have dealt with survivors and fire resulting from the crash, the *processing* of the scene can commence. The primary goals of this processing effort are: (1) determining the cause of

the crash; (2) comprehensively recovering the victims and their personal effects; (3) determining the identity of all of the biological tissue; and,

(4) removing all of the debris from the site.

With respect to the first goal, in the United States; if the cause is likely accidental (vehicular malfunction or human error), the National Transportation Safety Board (NTSB) will be in charge of the investigation. If it is instead determined that criminal intent may have been involved, the Federal Bureau of Investigation (FBI) will take custody of the scene.

The efforts of both the NTSB and FBI are focused on the non-human evidence at the scene. The recovery, identification and interpretation of the human remains (Goal 2) are the province of the Medical Examiner/Coroner (ME/C). While nearly all ME/C offices can deal with the morgue component of victim identification on their own or, they can request the services of federal groups such as DMORT, most offices do not possess the training, expertise, experience, or protocols to deal with a large scale scene containing the highly fragmented and commingled remains of large numbers of victims. This presentation will demonstrate that the best approach to the processing of outdoor crime scenes, especially large-scale scenes such as a plane crash, is to employ forensic archaeological methods. A new set of protocols for the processing of large-scale disaster scene will be presented.

The new protocols are based on the Weldon Spring protocols developed during the past decade (Dirkmaat and Hochrein 2000). The Weldon Spring Protocols are based on a systematic sequence of search, documentation, and recovery methods that is intended to result in the most efficient and effective scene processing effort. By effectiveness we refer to the proportion of physical and contextual evidence identified, documented, and recovered at the scene, while efficiency relates to the time and personnel required for effective recovery completion under a particular protocol. The goal of the present study was to optimize these two factors through the logistic and technological enhancement of the Weldon Spring protocols. To attain this, different technological configurations, affecting all the components of the protocol, from evidence location to data acquisition and recordation, were developed and tested in terms of their efficiency and effectiveness at real forensic cases and realistic mock scenes. Comprehensive guidelines for needs assessment and decision-making, targeting the identification and resolution of trade-offs related to technology availability and amortization, budgetary and personnel constraints, and training were also developed, in an attempt to offer different configuration alternatives to fit the needs and resources of a wide array of agencies without significant effectiveness losses.

The technological enhancements include high-resolution GPS units for the quick recordation of precise spatial recording, bar code scanning for data entry and sharing, and the utilization of wireless networks at the scene. The combination of these elements resulted in a reduction of recording times from minutes to just a few seconds, higher data integrity, with a standardization of evidence codes and the virtual elimination of any risk of reference duplication. This translates into an almost automatic coordination of all the recovery teams involved, in a manner that not only reduces the amount of time required by each team to locate, map, document and recover each evidentiary item, but also allows more teams to be deployed simultaneously at the scene.

Mass Fatality Incident, Forensic Archaeology, Victim Recovery