



Pathology Biology Section – 2003

G17 Victim Identification Following the Crash of United Airlines Flight 93

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This presentation examines the overall victim identification forensic response to the crash of United Airlines Flight 93 on September 11, 2001. The various stages of the response will be examined, and the unique issues of this event will be discussed. Final figures on the methods of victim identification will be presented.

The last of the four terrorist attacks on September 11, 2001, was the crash of United Airlines Flight 93 (UA93). The Boeing 757, carrying 44 passengers and crew, was en route from Newark, New Jersey, to San Francisco when the plane was overtaken by four hijackers and turned back towards the Washington, DC, area. At about 10:10 am, the aircraft crashed into an abandoned strip mine near the town of Shanksville, PA. According to media accounts based on cell phone calls, several passengers attempted to take control of the cockpit shortly before the crash.

The Somerset County coroner and law enforcement and fire/rescue personnel were the first to the crash scene. It became evident to the coroner that outside support would be needed to help identify the remains. State volunteer response teams, including the Pennsylvania Dental ID Team (PADIT) and the Pennsylvania Funeral Director's Association, assisted the coroner in selecting and organizing a morgue site. The Federal Bureau of Investigation took control of the crash scene because of the criminal nature of the event. Initial confusion regarding the proper procedure of the deployment of the U.S. Department of Health and Human Services's Disaster Mortuary Operational Response Team (DMORT) delayed arrival of the team. Attempts to have the site declared a federal disaster through the state proved unsuccessful and the crash did not fall under the Aviation Disaster Family Assistance Act. Ultimately, DMORT responded under a memorandum of understanding with the FBI. A team of nearly 60 DMORT members, comprised largely of the Region III team and augmented by members from other DMORT regions, was on site for two weeks. DMORT operation focused on victim identification and the family assistance center.

This response featured several firsts for DMORT, of note because of their importance for future responses. These included the first use of a contract morgue, the deployment of the DMORT DNA team, the establishment of protocols documenting the operation of each morgue section, the response of the DMORT Family Assistance Center team, the collection of family blood reference samples, and the inclusion of a formal remains triage station.

Typically, DMORT relies on the Portable Morgue Unit (DPMU) to supply and equip the team for victim identification operations. However, the DPMU was deployed to the World Trade Center disaster, so equipment and supplies for the UA93 response was pieced together from a variety of sources. A majority of the materials for the morgue were obtained under a contract with Kenyon International Services. Kenyon maintains a mobile morgue that is a scaled down version of the DPMU. Kenyon transported the mobile morgue to Somerset and provided staff for resupply and equipment purchasing. The local hospital and area funeral homes also provided morgue materials. Other pieces of specialized equipment were obtained elsewhere from local universities and hospitals.

This activation marked the first response of the DMORT DNA team. This three-person team (consisting of a team leader/pathologist, an anthropologist, and a dentist) provides reliability in the collection of DNA specimens. Because the Armed Forces DNA Identification Laboratory (AFDIL) conducts most of the DNA identification work during a DMORT response, the team was trained by AFDIL earlier in 2001. Initial assessments of the UA 93 crash scene revealed highly fragmented remains, indicating that DNA would play an important role in ensuring positive identifications. The delay in the DMORT response allowed the DMORT team commander to meet with AFDIL staff to address DNA requirements were met before starting the operation in Somerset. During the morgue operation, DMORT DNA team personnel worked closely with AFDIL staff during the collection of DNA samples.

The DMORT Family Assistance Center (FAC) team, who had completed training a few days before September 11, had their charter deployments in Somerset and New York. The UA 93 FAC team worked out of the Seven Springs Mountain resort (nearly 25 miles from the morgue site), the location of the family center selected by United Airlines. The FAC team worked closely with the airline, the Red Cross, and the National Transportation Safety Board to collect victim information. The national travel restrictions in the weeks following the crash posed some problems in obtaining records, and some families chose not to travel to the assistance center. To assist the FAC team, the U.S. Department of Health and Human Services deployed a Disaster Medical Assistance Team nurse to collect family blood and direct reference samples for



Pathology Biology Section – 2003

DNA analysis.

Given some of the concerns involving the numbering and processing of fragmented remains at previous responses, a triage station was established. Staffed by a pathologist, two anthropologists, and a dentist, the triage team sorted through the remains, first separating personal effects from remains. Once the personal effects were transferred to the FBI, the remains were examined to ascertain their potential for identification. Potentially identifiable remains, those with dental remains, friction ridge patterns, unique characteristics, or potentially usable for DNA analysis, were assigned a sequential number, a file was created, and the specimen was sent through the morgue. Non-identifiable remains (small pieces of fatty tissue, burned tissues, and other small fragments that would be unsafe for DNA collection) were placed in containers, weighed daily, and stored separately from the numbered remains. The triage process helped to focus work on remains that would most likely lead to identification, eliminated unidentifiable remains from the morgue flow, reduced unnecessary paperwork, and allowed the numbering process to remain simple and easily understandable.

The nature of the crash required creating written protocols for each morgue station. Team members at each morgue station submitted the protocol to the morgue manager, who then provided them to the FBI for review. These protocols were compiled, producing a document describing the particulars of the United 93 morgue operation.

The DMORT response concluded on September 25. The final numbers for victim identification indicate that DNA was the primary tool for identification. There were nearly 1500 fragments of human remains collected during the initial response and subsequent recoveries. Of these, 592 specimens were taken for DNA analysis, and 546 yielded profiles adequate for identification. From these remains, forty positive DNA identifications were completed, and four additional unique DNA profiles were isolated (probably representing the four terrorists). Fourteen positive identifications were made using traditional methods: five dental identifications, seven fingerprint identifications, and two using both dental and fingerprint methods.

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