G15 The Importance of an Interdisciplinary Review Process in the World Trade Center Mass Disaster Investigation

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Upon completion of this presentation, attendees will be informed about potential problems associated with the recovery and identification of human remains after a mass disaster and illustrate the value of cooperative effort between medical examiners, anthropologists, DNA specialists and other experts.

In the wake of the events of the September 11, 2001, terrorist attacks on the World Trade Center, the Office of Chief Medical Examiner, New York was faced with the daunting task of identifying the nearly 3000 victims of the attacks. For over 10 months, a constant and heavy flow of remains was delivered to the OCME with which the pathologists, anthropologists, DNA experts, dentists, investigators, and numerous other members of the OCME staff were forced to deal in a rapid fashion. During the triage process, in the interest of avoiding the potential complications of commingling the OCME pathologists and anthropologist were supposed to consider only those remains that were connected by tissue (bone, skin, muscle, etc) to be definitively the remains of a single individual and assign a single identifying case number. Due to the long shifts and large number of remains that needed to be processed this was not always the case as was discovered after the first identifications had been made and from commingled DNA results.

It could not be assumed, for example that the remains delivered in a single body bag were those of a single individual. Even remains delivered within clothing might not belong to a single individual given the number of factors that may have influenced their deposition especially later in the recovery process. Initially, during the triage process of sample collection, little effort was made to use traditional anthropological methods for sex, age, and ancestry determination. In addition, there was also a need for more detailed descriptions of the remains because victims' families were interested in receiving this information.

Hence, on May 28th, the Anthropology Verification Project was initiated. Without the same time constraints endured by the OCME pathologists, a team of anthropologists reopened each of the more than 19,000 logged in sets of remains to verify the existing descriptions and look for inconsistencies and commingling. During the verification process, the anthropologists encountered extreme levels of fragmentation, variable decomposition, varied stages of mummification and skeletonization, and the effects of prolonged exposure to fire, all of which complicate the effects of commingling. In addition to the verification of the existing file material, the anthropologists were also able to add detail to the descriptions with regard to skeletal tissue, which was often more easily recognizable than the soft tissue remains. These descriptions can be revisited in the event that DNA matches are made for individual remains. It can be insured for instance using DNA that there are no duplicated body parts sharing the same case number. Non-human remains recovered from the site were separated from the remains of victims of the attack.

DNA typing confirmed the value of this effort. All cases in which the Anthropology Verification Project decided to assign additional identifying numbers were retested and in each case at least one of the fragmented remains was determined to be from a second individual. This process not only eliminates wrong associations but might also allow for additional identifications that otherwise might have gone undetected.

Mass Disaster, Anthropological Review, DNA Typing

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