



Odontology Section – 2003

F7 OCME/DMORT Recovery Operations of 9/11 at the World Trade Center and Staten Island Landfill

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The attendee will receive an overview of the recovery operation of human remains at Ground Zero and the Staten Island Landfill following the attack on the World Trade Center.

The terrorist attack on the World Trade Center was unique in a variety of ways. Never before had the country sustained such a violent strike that resulted in so large a number of civilian deaths and casualties in the homeland. A recent death toll of 2,795 was more than those who died at Pearl Harbor, an attack on a military base in a U.S. territory. Preparation for this type of surprise assault was impossible. Response to this type of attack had never been truly played out. Therefore, when it did occur in such a huge magnitude, rescue and recovery teams were overwhelmed. Considering the number of people (approximately 45,000+) working in the Trade Center, the death toll could have been substantially worse.

Although rescue efforts continued in hopes that survivors would be found in the numerous pockets of the rubble and debris, it was soon obvious that the destruction was so severe that it was unlikely that intact bodies would be recovered. Once authorities decided to re-open the Staten Island Landfill (closed the previous March), for a repository for all the rubble, it was further determined that all debris brought there would be searched for human remains, personal effects, and anything that could be considered evidence from a crime scene. It was estimated that the collapse of the Trade Center buildings produced over 1.7 million tons of debris, a sizable amount to deal with and cart away. It's unlikely that any other community has ever been faced with such a challenge in removing such an extraordinary and horrific amount of debris filled with so touching and emotional amount of human remains.

The debris and rubble from the attack site were transported to the Fresh Kills Landfill (the name means waterway in Dutch), on Staten Island by barges that were filled from a loading site on the Hudson River. After arriving at the base of the landfill everything was offloaded to large Volvo trucks and carried up to the top where it was spread out by pay loaders on a three acre raking site to be thoroughly and painstakingly searched by New York Police Department (NYPD) personnel and, in the beginning, by cadaver dogs. However, the commingling of human and non-human remains and the residue from the previously closed landfill produced confusion for many of the dogs and their involvement in the operation was terminated after a few weeks.

In order to identify human remains from within the large amount of animal residue from all the restaurants in the Trade Towers, the New York City Office of the Chief Medical Examiner sent the federal government's DMORT (Disaster Mortuary Operational Response Team) team's forensic dentists and forensic anthropologists to the landfill site on a 24/7 basis. Each team consisted of one dentist and three anthropologists. While DMORT team members actually worked the raking site from time to time, their mission was to identify what the NYPD personnel brought to them.

Working under the supervision of the NYPD Crime Scene Unit, the forensic teams were able to sort out and identify the human remains brought to them for triage. Each human specimen was photographed, tagged, placed in an evidence bag, and held in a reefer truck until picked up by the medical examiner's office for completion of postmortem records and DNA analysis. In spite of the mass carnage and extreme trauma to the remains, much of which was unusual and rarely seen, every effort was made to recover and identify body parts from the seemingly endless tons of debris. Nothing was left unexamined. When in doubt about a specimen, it was considered human until the final decision was rendered by the medical examiner.

Human remains recovered from the World Trade Center (WTC) site were delivered to the medical examiner's office where they were anatomically identified, matched to dental records and/or fingerprints, and sampled for DNA. Under the direction of the OCME NYC, combined efforts of the NYPD Crime Scene Unit, DMORT, and many other support agencies, over 19,900 body parts were recovered. This resulted in 1,435 positive identifications. The major modalities of identification were DNA, dental, and fingerprints. There were over 700 DNA, over 500 dental and over 200 fingerprint identifications. Photos, remains viewed, body X-Rays, tattoos, and personal effects were the other means of identification utilized for this disaster. Of the victims identified by multiple modalities, 83% were by DNA, 78% by dental, and 40% by fingerprints. Due to the severe trauma that these victims received, positive identification required tremendous effort by all of the agencies working together.

DMORT, Staten Island Landfill, WTC