



A81 Renewed Efforts to Identify the Victims of the World Trade Center Disaster via DNA Testing

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After attending this presentation, attendees will summarize the DNA testing efforts used to identify the victims of the World Trade Center disaster with a focus on the work that has been performed since 2006. Anyone attending this presentation will learn about the more recent techniques in DNA analysis used in the identification effort.

This presentation will impact the forensic science community by explaining how DNA testing is used to identify the victims of a large scale mass fatality event.

On September 11, 2001, 2,753 people died in the attack on the World Trade Center (WTC). Approximately 20,000 separate human remains were recovered initially from the site dubbed "Ground Zero," indicating an extreme level of remains fragmentation. New York City's Office of Chief Medical Examiner (OCME) was responsible for not only identifying each victim, but identifying every human remain that was recovered. DNA testing was crucial in the identification effort. Three DNA technologies, short tandem repeat (STR), mitochondrial, and single nucleotide polymorphisms (SNPs), were employed to aid in the identifications. As of October 2005, 1,597 victims and 10,904 remains were positively identified. Ninety percent of the remains were identified with DNA testing alone which suggested any future identifications would likely result from improved DNA technologies. By the end of 2005, such improvements began to take shape. The Bode Technology Group offered its optimized bone extraction method which proved to be successful on the WTC samples. Also around this time, more human remains were discovered on the roof of the Deutsche Bank building adjacent to Ground Zero. New phases in both the recovery and identification of the victims had begun. The renewed recovery effort included searching of additional roof tops in the Ground Zero vicinity and systematic excavation underneath previously paved over access roads. The excavated material was searched for biological remains by using large sifting platforms. The resulting samples varied in size but were generally small and severely compromised. In order to maximize the success rate for this sample type, the OCME Department of Forensic Biology validated the Applied Biosystems' MiniFiler™ kit and adopted the optimized bone extraction method. Overall, a number of methods have been employed to help identify more of the WTC missing persons. Aside from STR testing with the MiniFiler™ kit, there was also retesting of victims' reference samples, and enhanced data interpretation with Cybergenetics' TrueAllele® system. Also, the OCME has incorporated the optimized bone extraction into a high throughput sample flow for retesting of previously collected remains. Most of the new DNA results lead to piece to piece associations rather than finding new identifications. As of July 2011, 1,631 victims and 12,810 remains have been identified; 9,007 remains are still unidentified.

World Trade Center, Mass Fatality, Victim Identification