



B36 Science Matters: Using DNA to Solve Missing Persons Cases in New York City

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After attending this presentation, attendees will better understand that many of the human remains for which a DNA profile is successfully obtained would still remain unidentified without the awareness of families and their willingness to provide reference samples for comparison. Attendees will hear success stories from a Missing Persons Day and gain insight into the ability of this event to provide resolution to missing persons cases.

This presentation will impact the forensic science community by providing vivid examples of success when the power of a DNA database is fully exploited. Many DNA profiles in the database belonging to unknown individuals would remain unidentified without families of the missing being made aware of the need to submit reference samples. Identifying a missing person not only provides resolution to the family but also creates leads in cases in which foul play or violence is suspected in the disappearance of the missing person.

There are nearly 100,000 active missing persons cases in the United States. Potential success in connecting these cases to Unidentified Human Remains (UHRs) is often dependent on the awareness of families and their willingness to provide DNA reference samples for comparison. The collection of family samples may sometimes be the only way to identify unknown remains that pass through the nation's mortuaries with nothing more than a DNA profile as a possible pathway to identification. Attendees of this presentation will gain insight into the ability of a special event, Missing Persons Day, to provide resolution to missing persons cases.

New York City maintains a massive 100-acre cemetery on Hart Island that is used for burying the indigent, unclaimed, or unidentified. The impetus for conducting DNA testing on the city's UHRs came from the success of DNA methods developed in response to the terrorist attacks of September 11, 2001. State-of-the-art techniques for testing bone were used to obtain DNA profiles from samples that would have otherwise been difficult to recover. This novel protocol has since been applied to thousands of bones from UHRs.

Many of the UHRs for which a DNA profile is successfully obtained would still remain unidentified without the willingness of families to provide samples for comparison. In 1975, a teenage male disappeared. Although a police report was filed, no DNA reference samples were collected because the case preceded DNA testing. The next year, a trash bag with human remains was recovered from a highway shoulder in a neighboring state. When bones from the trash bag were tested for DNA years later, the profile was uploaded to the national DNA database. In 2014, New York City initiated an annual event called Missing Persons Day, designed to connect families of the missing with resources and to provide an opportunity to submit DNA samples. One of the attendees at this event was a relative of the missing teenage male. When the relative's sample was collected and the profile uploaded to the database, it revealed kinship to the profile obtained from the bones in the trash bag.

There are many instances in which identifications have been made that would have otherwise been impossible without the ability of the Missing Persons Day event to raise awareness of the need for families of the missing to submit reference samples. In 2003, a man from one of New York City's outer boroughs went missing. Shortly thereafter, skeletonized remains were found in a suburban area approximately 30 miles away. There was no investigative progress and both cases remained unsolved for years. In 2014, the children of the missing man attended the Missing Persons Day event and submitted reference samples. The DNA profile from the children showed kinship to the profile developed from the skeletonized bone whose source was determined to be their father.

The Missing Persons Day event is billed as a humanitarian effort in which attendees are given the opportunity to visit a laboratory that is managed by the city's Department of Health and be connected to police detectives, chaplaincy services, mental health counselors, and forensic scientists. Conducting the event at a venue not associated with law enforcement is particularly important in urban areas, where potential attendees could have skepticism of the police or fear of repercussions regarding their own criminal history or immigration status. In 2013, a male in his 30s was crossing the United States-Mexico border illegally when he lost contact with family. The next year, his family attended the Missing Persons Day event and submitted reference samples. The DNA profiles obtained from these samples revealed kinship to a bone that was recovered in the desert near the border.

Since its inception in 2014, the New York City Missing Persons Day has aided in eight identifications. These are cases that would have remained unsolved without the willingness of families to submit DNA samples as part of the search for their loved ones. The full potential of the national DNA database is realized only when events such as Missing Persons Day make families aware of the need to provide samples for comparison. Identification of a missing person may also provide valuable leads in cases in which death of a UHR is ruled as homicide.

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