B35 The Spanish Phoenix Program: Update on the DNA Missing Persons Identification Program (1999-2005)

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After attending this poster presentation, attendees will understand the strategies and results of the Spanish national missing person's identification program, also known as the Phoenix Program. How the program was established, its characteristics and criteria, and the experiences accumulated to date will be presented so that others may benefit when developing a missing persons database and identification program. Participants will receive updated data on the protocols currently established and operating as well as the identifications performed.

This presentation will impact the forensic community and/or humanity by demonstrating how forensic scientists might utilize the strategies followed in Spain to implement the first database of its kind in the world.

In November 1998, the Spanish Ministry of the Interior supported an initiative from the University of Granada and the Guardia Civil (the largest law enforcement agency in Spain) to implement a National Program to attempt to identify cadavers and bones from missing persons. The program, named the "Phoenix Program" based on classic Greek mythology, became operational in 1999 and yielded its first results in 2000.

The Phoenix program contains two independent databases that can automatically compare DNA sequences to identify matching or related pro- files, such that identifications of unknown remains may be possible. One of the databases is the Reference Database (RD). The RD contains mtDNA sequences from maternally related relatives of missing persons. The ref- erence samples are provided voluntarily. To generate the data, two bucal swabs are obtained from at least 2 relatives (when available). The second database is the Questioned Database (QD). The QD is comprised of mtDNA sequences obtained from bones or cadavers that cannot be iden- tified or that were not identified by routine and standard procedures; such as fingerprints, anthropology, odontology, x-rays, etc.

From 1999 until 2001 only mitochondrial DNA analysis (HV1 & HV2) was routinely performed on the samples. When mtDNA matches were found, a second and independent analysis was performed as part of the quality control mechanism. STR analysis (13 CODIS loci) was per- formed only when mtDNA results showed a match. In 2002, systematic analysis of mtDNA and STRs was enacted for all cases and samples. STR typing was conducted on those samples analyzed prior to 2002. As of July 14, 2005, over 2,200 relatives of missing persons have contactedthep- rogram. Of these, 526 persons donated biological samples; 507 mitochon- drial DNA sequences and 389 STR profiles thus far has been generated. In the QD, 581 mitochondrial DNA sequences and 560 STR profiles from human remains have been entered into the database. In total, 97 persons have been identified using a genetic approach. Some of these remains had been buried and marked as "unknown" for many years, and without the DNA technology their identification would have been impossible. The missing person's database is exemplary of the social benefits of DNA identification.

Missing Persons, DNA, Database

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