



Physical Anthropology Section – 2009

H42 Solving Medical Examiner Cold Cases: Modern Resources in the Reanalysis of Human Skeletal Remains

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After attending this presentation, attendees will have a better understanding of the processes involved in the reanalysis of unidentified remains that may lead to positive identifications, removal of non-forensic cases from national databases, and the reanalysis of skeletal trauma often essential in the adjudication of homicide trials.

This presentation will impact the forensic community by providing standard operating procedures that prioritize the reanalysis of trace evidence from medical examiner cold cases through the effective use of state-of-the-art technologies in the following fields: anthropology, DNA, fingerprinting, odontology, facial reconstruction, tool mark analysis, digital photography and documentation, and the productive use of missing persons databases (e.g., NCIC, NamUS, NCMEC, NCMA, CODIS, FLUID DB, and other databases).

Medical examiner cold cases often remain in dry storage or refrigeration for years to decades without the benefit of reanalysis. However, President Bush's DNA Initiative, the Joint Initiative of the Florida Department of Law Enforcement Missing Children Information Clearinghouse, and the Florida Medical Examiner's Commission have helped to re-focus an over-taxed medical examiner system and underscored the importance of medical examiner cold case reanalysis. To this end, this study presents cold casework from Florida Medical Examiner Districts 4 and 20. The pairing of these two medical examiner districts was prudent because of the disparity in case loads between these two entities (e.g., Homicides District 4 = 148; Homicides District 20 = 5) and because they share a forensic anthropology consultant. Additionally, District 20 provided supplementary evidence storage space for District 4 and quick access to Florida's Unidentified Decedent's Database (FLUIDDB) which was housed therein.

For this study, the standard operating procedures for the reanalysis of unidentified remains and those remains retained for trauma analysis was in accordance with Florida State Statute 406.11. As such, the following standard order of operations was applied (when applicable): collection/resubmission of blood and fingerprint cards, odontology charting and radiography, exhumation, metric and non-metric anthropological analysis, and 2-D or 3-D facial reconstructions. These new data were input into the following databases: NCIC, NamUS, NCMEC, NCMA, CODIS, AFIS, and FLUIDDB databases.

Data were pooled from the eighty-seven medical examiner cold cases in order to identify trends in the sample (e.g., peaks in numbers of unidentified, completeness of remains, and biological profiles). Results show that the lowest numbers of unidentified remains occurred from 1974 to 1979 which represented 7% (n=6) of the sample. The number of unidentified remains peaked between 1985 and 1989 (31%; n=27). Lastly, the numbers of unidentified remains was constant from 2000 to 2004 (15%; n=13). These findings were compared to statewide and national trends presented in the Bureau of Justice Studies' 2007 Fact Sheet (a public domain document). Florida's numbers of unidentified peaked from 1980-1984 (24%; n=230) and had the fewest numbers of unidentified from 1990 and 1994 (17%; n=157). Florida's numbers of unidentified has continued to rise for the last 15 years. The national trend in numbers of unidentified remains was lowest from 1980 to 1984 (15%; n=1,516), peaked from 1990 and 1994 (26% (n=2,686) and remained constant from 1995 to 2006 (19%; n=1,956). Interestingly, the research sample was in keeping with the nationwide trend in numbers of unidentified remains when analyzed by 5 year periods. However, while Florida's statewide numbers of unidentified continue to rise, the sample compiled for this study continues to drop as a result, in part, of our reanalysis of medical examiner cold cases.

The numbers of non-forensic and forensic cases within the sample were also noted. The authors observed 15 (17%) archaeological cases (e.g., the decedent was dead for greater than 75 years; FL statute 872.05). There were 2 anatomical specimens (2%) as evidenced by screws and plasticized veins and arteries, and sixty-seven cases (77%) were of forensic significance. Of the medical examiner cold cases presumed to be forensic and unidentified, at least five (6%) were isolated mandibles and maxillae, 22% (n=19) represented nearly complete skeletons, 37% (n=32) were comprised largely of long bones and postcrania, and 57% (n=50) had a cranium or cranial fragments present.

Through the analysis of these cases, this research emphasizes the various challenges facing the



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procedures used to solve medical examiner cold cases. Thus far, significant strides have been made in the resolution of medical examiner cold cases through the (1) modernization of standards in several forensic disciplines, (2) the effective use of missing persons databases, and (3) the collaboration of multiple agencies and resources.

Cold Cases, Missing Persons, Forensic Anthropology