



Physical Anthropology Section – 2010

H123 The Use of Population-Specific Standards in Anthropological Examination and Their Incorporation Into a Multidisciplinary Mortuary Database

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The goal of this presentation is to present an overview of how population-specific standards are incorporated in anthropological examinations and the use of a custom mortuary database module for reassociation and case tracking.

This presentation will impact the forensic science community by illustrating the benefits of population-specific standards and a multi-disciplinary database.

As a result of the high instance of fragmentation and commingling, cases recovered from Srebrenica graves and received by the International Commission on Missing Persons (ICMP) mortuary facilities may include the mortal remains of more than one individual. Standard anthropological practices are applied to sort the skeletal assemblage and a preliminary biological profile is created for each bone, body part, or body. Upon the receipt of DNA match results, a final biological profile is developed for the DNA-identified complete or reassociated skeleton.

In general, the blind-matched Powerplex 16© DNA typing results establish a probable identity for a set of remains. The identity is subsequently corroborated by anthropological data based on the sex, age-at-death, estimated stature, and individualizing characteristics then compared with information provided by the family. The ability to support the DNA identification with anthropological data is directly dependent on the amount and type of skeletal remains presented for examination and the appropriateness of published anthropological standards. In response to the paucity of literature related to Balkan-specific anthropological standards, the ICMP has supported development of such standards to ensure greater accuracy of developed biological profiles.

It is important to note that the Srebrenica graves are characterized by numerous instances of first-degree relatives among the victims, and as such, there is a high incidence of childless brothers reported missing. Thus, independent, evidence-based parameters of age-at-death estimation are necessary to ensure the greatest level of confidence in determining a certain identity. Circumstantial evidence, such as clothing and personal effects is always considered as part of the overall case, but does not stand as a scientifically-based identifier. In many cases involving childless siblings, a final determination cannot be ascertained due to the lack of remains present for examination.

Tracking anthropological reassociations within commingled cases has proven to be challenging and, in response, the ICMP has developed a skeletal inventory and mortuary management database module, within the larger Forensic Data Management System (fDMS). This module allows any bone or associated body part to be accurately inventoried in its original case, and then informatically reassociated to one or more DNA-matched bones or body parts, following the physical reassociation of the skeletal remains. This informatic tool greatly simplifies what otherwise is a challenging and complex case tracking task. This is vital in the mortuary examination of Srebrenica remains as the "building" of individuals involves multiple reassociations, in some situations from twelve different commingled cases, each of which requires a clearly retrievable case history and chain of custody. Furthermore, this database

allows for the addition of appropriate analytic methods, with population-specific standards, as they become available.

Srebrenica, Anthropology, Mortuary Database