



A44 Commingling Among Unidentified Remains Stored at Mortuary Facilities in Bosnia and Herzegovina (BiH)

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After attending this presentation, attendees will be informed regarding the extent of commingling (and associated issues) among the unidentified human remains disinterred in the period of 1996-2016 and stored at mortuary facilities in Bosnia and Herzegovina.

This presentation will impact the forensic science community by providing information regarding commingling during exhumations as well as in mortuary facilities, particularly with regard to obtaining new identifications within the assemblage. The need for thorough analyses with regard to defining skeletal sets and establishing Minimum Number of Individuals (MNI) will be demonstrated, and the framework for re-association of skeletal elements based on DNA and skeletal morphology as assessed through standard osteological measurements will be discussed. Most importantly, the implemented system of meticulous case management will be discussed as a method for prevention of further commingling within the mortuary facilities.

In May 2013, the State Prosecutor of Bosnia and Herzegovina issued an order to commence the process of the anthropological examination of human remains stored within mortuaries and memorial ossuaries across Bosnia and Herzegovina. Through coordination of the International Commission on Missing Persons (ICMP) and state and regional participants, the No Name (NN) Project was created and implemented to ascertain the exact number of cases, review the history of each case, determine each case's current status, and issue recommendations for a national system for organization, storage, and management of all unidentified remains.

As of June 2017, a total of 2,548 cases containing a total of 5,673 skeletal sets have been reviewed by ICMP's anthropologists, indicating a pervasive level of commingling. Commingling in these cases was caused by a variety of factors: interment in caves or pits where numerous taphonomic forces were active; grave robbing and/or displacement (the repeated exhumation and reburial cycles intrinsic to secondary and tertiary mass graves); or through inadequate case management in the mortuary facility itself. In order to address the issue of commingling, the ICMP developed and implemented a thorough process of case review through the assessment of previously accumulated documentation and the use of scientific examination techniques for each case. Divided into several phases, ICMP's NN Project tackled the issue of commingling through determination of skeletal sets present in each case, defining them as a discrete set of remains belonging to one individual (ascertained through DNA matching, fracture matching, anthropological features, and visual pair matching) supported by additional findings. A total of 170 reviewed cases were determined to contain only skeletal elements designated as "ossuary," a category encompassing the commingled remains that cannot be associated with a skeletal set that has a successful or pending DNA sample and that will not be subject to DNA testing; these cases cannot be resolved currently, primarily due to the financial constraints of DNA testing.

Out of more than 2,000 DNA samples extracted from commingled or under-sampled skeletal remains during the project, 101 new matches with blood reference samples were obtained from 72 cases, out of which 39 cases had some degree of commingling. This number is likely to increase as many DNA samples are still pending extraction and processing. The examination phase of the project is scheduled to end in September 2017, when a complete summary of obtained results will be made available.

The NN project in Bosnia and Herzegovina illustrates the importance of a comprehensive and integrated approach to the analysis of commingled remains, fulfilling obligations to identify missing persons in the most meaningful and scientifically possible manner.

Commingling, Identification, Mortuary Review