B81 The World Trade Center DNA Special Projects Team

Sheila E. Dennis, MS, Zoran Budimlija, MD, PhD, and Jose Pineda, BS, New York Office of the Chief Medical Examiner, Department of Forensic Biology, 520 First Avenue, New York, NY 10016; Bianca Brandon, MA, Staten Island Technical High School, 485 Clawson Street, Staten Island, NY 10306; and Mechthild K. Prinz, PhD, New York Office of the Chief Medical Examiner, Department of Forensic Biology, 520 First Avenue, New York, NY 10016*

The goal of this paper is to discuss scenarios where outsourced high throughput DNA testing needed to be supplemented by optimized and fast in house analysis in order to respond to rush requests or resolve quality assurance issues for the World Trade Center Disaster.

This presentation will impact the forensic community and/or humanity by assisting the forensic community in learning how to handle rush requests or resolve quality assurance issues for DNA identification during a mass dis- aster. They will also hear about lessons learned from this team as a result of this mass disaster.

The World Trade Center (WTC) DNA Special Projects was formed in order to perform optimized and expedited DNA extraction and testing on post- mortem and reference samples. While the majority of samples were extracted and tested in large batches (on site and by contract laboratories) there was a need to either re-test samples with previously negative or partial profiles, resolve quality concerns such as labeling or commingling issues, or quickly confirm identifications made by other means. The group consisted of four members of the NYC OCME Forensic Biology Laboratory and received special requests from OCME administrators, anthropologists and the DNA identification team. Four examples of special projects cases are described below.

Case Study 1 (quality assurance issue) consisted of two bone fragments with very similar case numbers. The correct case number for each sample could not be determined because each tube had two printed barcode labels one with each case number. The case number of each of these bone samples was established by re-sampling from the remains and additional DNA testing.

Case Study 2 (expedited identification and commingling) consisted of a mandible identified by dental x-ray with associated remains that were not articulated. All of the remains were found inside the member of service (MOS) uniform. Members of service notified the family before the identifi- cation of the additional remains had been established. Since the family was aware that their missing person had been found, testing was expedited in order to be able to release the remains. DNA testing was completed and con- firmed that 4 out of the 5 samples in the uniform matched the MOS. A bone sample from the foot did not match the victim.

Case Study 3 (expedited identification) involved a bone possibly from a child. The OCME anthropologist contacted the WTC DNA Special Projects team with a tentative name after performing an anthropological exam. The toothbrush from this child had been previously submitted and multiple attempts at testing gave no results. The child's father had submitted buccal swabs, but the mother was also a victim, identified by dental x-ray. Therefore a tissue sample from the mother's remains was tested as a family reference. The child's bone sample had to be extracted tested several times in order to yield enough STR data for adequate kinship statistics.

Case Study 4 (commingling, split case) was an individual whose major remains consisted of a right foot, left hand, right and left femur, and portions of an arm. DNA testing linked additional body parts to this individual. Upon anthropological review, the additional remains included another right foot. The Special Projects team sampled bones from the major remains and split them into new, separate case numbers. The team also sampled bones from the two right feet. DNA testing was performed on all original and new case numbers. The right foot from the additional remains was linked to the first individual. The right foot from the major remains was linked to a second individual. Seven of the fourteen new case numbers were linked to the original individual, while the rest were linked to the second individual.

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 ** Presenting Author*