



### F38 Utilization of the OdontoSearch Comparison Program to Support Identification in a Modern Identification Case

John P. Demas, DDS\*, 8814 Fort Hamilton Parkway, Brooklyn, NY 11209; Vincent Funaro, DDS, 2752 East 64th Street, Brooklyn, NY 11234; and Gerald Guzy, DDS, 259 Kinderkamack Road, Westwood, NJ 07675

After attending this presentation, attendees not already familiar with the OdontoSearch program will be introduced to it, and all attendees will understand its usefulness in establishing personal identification in modern identification cases in which dental information is available only in the form of the written treatment record or dental charting (i.e., sans radiographs).

This presentation will impact the forensic science community by demonstrating how dental identifications might, indeed, be made in cases where antemortem radiographs are not available (lost, misplaced, or non-existent) if the antemortem charting is adequate and the uniqueness of the dental restorative pattern is objectively found to be significant.

OdontoSearch is a software program, developed at the U.S. Army Central Identification Lab, Hawaii (CILHI). The program was developed by Dr. Bradley J. Adams et. al. and presented in the *Journal of Forensic Sciences*, May 2003, Vol. 48, No. 3. The program is not an identification program (e.g., Win ID, CAPMI, UDIM). It is a comparison program that allows the odontologist, when an association between postmortem remains and a specific individual has been made, to compare said dental restorative pattern to large reference datasets. The program then allows for the significance of the dental pattern match to be quantified. The results can be used to form an objective and quantifiable association between a missing individual and an unidentified set of remains. By attaching an empirically derived probability value (the expected frequency that a specific pattern would be found in the population), matches based on dental patterns can be quantified in a manner that is easily intelligible and defensible in a court of law.<sup>1</sup>

The case presented is as follows. A murder was alleged to have taken place in Brooklyn, New York in 2004 and was brought to the attention of the authorities in 2005. The supposed victim, an emotionally disturbed young man was allegedly abused, murdered, and dismembered by a family member. His remains were alleged to have been placed in several black trash bags and disposed of in multiple public trash receptacles along a main thoroughfare in the borough. The police were directed to a spot where several of the bags were purported to have been left. The police did, in fact, find three plastic bags, which contained human remains. Among the remains were an intact skull and mandible, with an intact dentition.

Dental records from the dental facility where the young man had received treatment were secured. The dental chart was legible and up to date. The treatment records were also quite legible and thorough. Unfortunately, however, no antemortem dental radiographs available.

Comparison of the antemortem dental record and two independently performed postmortem chartings revealed virtually identical dentitions. As no radiographs were used the opinion of positive identification based strictly on written records might raise some eyebrows. Prior to the introduction of OdontoSearch the strength of an antemortem/postmortem match based on non-radiographic evidence was "supported" by the subjective judgment of the odontologist. Such judgments were unsupported by statistical analysis. Statements such as "one in a million" and "nobody else on earth" are both unfortunate and totally without any basis in fact.

The restorative pattern of the remains were compared, both in generic and detailed form, to the datasets within OdontoSearch (both, combined and modern civilian). The results of the detailed search reinforced the opinion of a positive identification by demonstrating the uniqueness of the restorative pattern found.

In this particular case, had it been necessary, non-dental confirmation of identification would have certainly been possible (i.e., DNA). However, had that not been a viable option, without the objective analysis afforded by the OdontoSearch program the dental identification would be without any real numerical support which might have rendered it, at the very least suspect and at the very worst, without defense and not believable in a court of law, had it come to that.

#### Reference:

- 1 Adams, Bradley J. Establishing Personal Identification Based on Specific Patterns of Missing, Filled, and Unrestored Teeth. *J Forensic Sci* 2003; 48(3)

#### Dental Identification, Empirical Analysis, Non-Radiographic Based Identification