G49 Dental Encoding Translator Applications Suite (DEnTAS) — Universal Dental Code Translator

Kenneth W. Aschheim, DDS, 44 E 67th Street, New York, NY 10065; and Bruce Bandini, MS*, NIST, 100 Bureau Drive, Gaithersburg, MD 20899*

After attending this presentation, attendees will better understand the DEnTAS 1.1.0 program.

This presentation will impact the forensic science community by being the first step in allowing for the universal translation of dental codes between major dental forensic identification software packages utilizing the American National Standards Institute/ National Institute of Standards and Technology-Information Technology Laboratory (ANSI/NIST-ITL) biometric data exchange's Extensible Markup Language (XML).

DEnTAS 1.1.0 is the first version of the software that supports translation and data exchange of dental codes used by major dental forensic identification software products. Based on the ANSI/NIST-ITL 2013 Dental Supplement, it creates an intermediary Type 12 (forensic dental and oral data) and Type 22 (imagery) XML file that can easily translate the dental codes. Case examples will be used to highlight how: (1) the DEnTAS program acquires native codes from major dental forensic identification softwares such as WinID and U-Dimension (UDIM); (2) the source dental codes from the identification software are translated into an intermediary XML file; and, (3) the intermediary XML file codes are exported into all the supported destination formats.[1-3]

Dental data has a long history as a primary identification modality. Unfortunately, the lack of standardization in the coding between forensic dental identification software packages and practice management software makes the electronic transfer of these data virtually impossible. The inclusion of the forensic dental data into the 2013 Dental Supplement ANSI/NIST-ITL Forensic Standard and the adoption of the National Information Exchange Model (NIEM) encoding for biometrics data is the foundation for the intra-operability between software packages. Currently, exchange of this type of data: (1) is prone to error and subjective interpretation; (2) is time consuming; and, (3) requires manual translation of dental codes by users of different dental programs.

DEnTAS 1.1.0 is the first version of a free, publicly available software package that will allow the translation of this information. The basic program consists of an input and output section and a "translation" engine. The lynchpin of the DEnTAS program is the dental code translation table. This editable table translates the Forensic Identification Software or Practice Management Software data into an intermediate ANSI/NIST-ITL file (Type 12 and Type 22 data) as an XML-compliant file. The presence of multiple translation tables allows the DEnTAS software to input one set of data, translate it into the ANSI/NIST-ITL file, then take that output file and retranslate it into a second software package of forensic dental data.

An example would be a situation in which dental data was originally recorded using UDIM, and a WinID User wants to import these data. Prior to the DEnTAS software, a new record in the WinID program first had to be manually created. Then, the dental codes from UDIM had to be translated into the WinID code set and manually entered into WinID. The DEnTAS program removes the translation and manual entry steps in the data exchange process. DEnTAS automates the entry and translation process and supports a subset of the dental codes and their corresponding (software) programs.[4]

The final goal of this project is to create numerous translational tables for an infinite number of translations. Ultimately, the goal would be that the Odontology Subcommittee of the Crime Scene/Death Investigation Scientific Area Committee (SAC), under the Forensic Science Standards Board (FSSB), would be responsible for the maintenance and certification of these tables.

Reference(s):

1. Wing B. (Ed). *American National Standard for Information Systems - Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information*. NIST Special Publication 500-290 Rev 1. 2013. Retrieved August 1, 2015, from National Institute of Standards and Technology Web site: http://biometrics.nist.gov/cs_links/standard/ansi_2012/Update-Final_Approved_Version.pdf.
2. ANSI/ADA Standard No. 1058 for Forensic Dental Data Set.
3. www.niem.gov.
4. Table 86, Dental System Codes of NIST SP 500-290 Rev 1. 2013.

Forensic Odontology, Dental Codes Translation, UDIM

Copyright 2016 by the AAFS. Unless stated otherwise, noncommercial *photocopying* of editorial published in this periodical is permitted by AAFS. Permission to reprint, publish, or otherwise reproduce such material in any form other than photocopying must be obtained by AAFS.

*Presenting Author