G20   UT-Age 2018: An Updated Tool for Third Molar Development Age Assessment

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Learning Overview: After attending this presentation, attendees will understand the advantages of using the automation, report formatting, and data storage features of a computer program for third molar age assessment cases. Updates to one such program, UT-Age, will be discussed and demonstrated.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing insight into the use of a computer program, UT-Age, to standardize, automate, and create databases for third molar age assessment cases. UT-Age 2018 now incorporates censored Stage H data, the ability to calculate probability for varying jurisdictional legal ages of majority, and now permits report editing in Microsoft® Word®.

UT-Age was originally developed in 2002 as a Microsoft® Access®-based application and database. In 2008, UT-Age was updated to a .NET Framework using Microsoft® Access® as the database. In 2018 .NET framework provides a large body of pre-coded solutions to common program requirements and manages the execution of programs written specifically for the Microsoft® operating system. UT-Age 2018 continues the use of .NET Framework and therefore is intended for use on Windows® operating systems.

UT-Age 2018 incorporates many of the same features as previous versions of UT-Age. This computer application archives data for third molar age assessment cases, cataloging the subject's case number, name, ancestry, sex, facial photographs, stated date of birth, and radiograph(s). Based on the user-entered stage of morphologic development of the third molars present, the program calculates the average mean estimated age of the individual, and the average age interval to two standard deviations. Previous versions of UT-Age calculated the average empirical probability of the individual having attained her/his 18th birthday only. However, UT-Age 2018 now allows the investigator to select the target age for which empirical probability will be calculated.

These UT-Age features can: (1) assist by providing information to those involved with human trafficking cases, (2) provide information to those charged with helping to protect juveniles in custody from being incarcerated with adults (or adults with juveniles), (3) provide information to assist with the defense of criminal and/or civil prosecution of undocumented individuals, and (4) provide information for other cases involving adolescents or young adults (with third molars) regardless of the situational or jurisdictional questioned age.

Publications and presentations, including at the American Academy of Forensic Sciences, have reported the importance of censoring the terminal morphologic developmental stage of the Dimirjian staging system (Stage "H"). Censored Stage "H" data for Kasper et al., 2009; Blankenship, Lewis and Senn, 2010; and Mincer et al., 1993, has been recently published.[1] UT-Age 2018 includes updated statistical population data intended to improve the reliability of the reported age estimations for individuals that have third molars that have reached the terminal stage "H."

The UT-Age 2018 application will be available by February 2019 for online download on two websites: utforensic.org and gsm.utmck.edu/dentistry/fellowship.cfm#forensic.

Reference(s):
[1]   Lewis, J.M. and Kasper, K.A. Assessment of Dental Age. In: *Forensic Odontology: Principles and Practice.* Ed. David T. J. and Lewis J.M. 2018. Elesevier. London. Pp. 145-171.

Dental Age Assessment, UT-Age, Third Molar