



## OSAC Research Needs Assessment Form

**Title of research need:** Critical Comparison of Dental Age Assessment Methods

**Keywords:** Dental age, chronologies, maturity scale, atlas, stages, development, post-developmental changes, subadult, adolescent, adult

**Submitting subcommittee(s):** Odontology **Date Approved:** 8/23/2016

*(If SAC review identifies additional subcommittees, add them to the box above.)*

### Background information:

#### 1. Description of research need:

Questions: Are commonly-used dental age assessment methods, based on reference populations from the mid-20<sup>th</sup> century, applicable to contemporary populations? What information can the methods provide, and what are the limitations of the methods currently in use? Do we need new studies? What are the error rates of these methods?

#### 2. Key bibliographic references relating to this research need:

\*AlQahtani SJ, (2008). Atlas of tooth development and eruption. Barts and the London School of Medicine and Dentistry. London, Queen Mary University of London. MClinDent.  
\*Cameriere R, Ferrante L, Cingolani M, Precision and reliability of pulp/tooth are ratio (RA) of second molar as indicator of adult age. [Erratum appears in J Forensic Sci. 2005 Mar; 50(2):486. Jour Forensic Sci. 49(6):1319-23, 2004 Nov.  
\*Demirjian A, Goldstein H, Tanner JM (1973): A new system of dental age assessment” Human Biology, 45 211-227  
\*Mincer HH, Harris EF, Berryman HE. The A.B.F.O. study of third molar development and its use as an estimator of chronological age. J Forensic Sci 1993; 38(2): 379-90.  
\*Moorrees CFA, Fanning EA, Hunt EE Jr, “Age Variation of Formation Stages for Ten Permanent Teeth” Jour Dent Res V42 #6 1963, 1490-1502  
\*Moorrees CFA, Fanning EA, Hunt EE Jr, “Formation and Resorption of Three Deciduous Teeth in Children” Am Jour Physical Anthropology V21 #2 June 1963, 205-213  
\*Phillips VM, van Wyk Kotze TJ, Testing Standard Methods of Dental Age Estimation by Moorrees, Fanning and Hunt and Demirjian, Goldstein and Tanner on Three South African Children Samples, J Forensic Odontostomatol 2009; 27:2:20-28.  
\*Smith BH, “Standards of Human Tooth Formation and Dental Age Assessment” in Advances in Dental Anthropology, pp. 143-168, 1991 Wiley-Liss,

#### 3a. In what ways would the research results improve current laboratory capabilities?

To guide the odontologist in selecting the most appropriate dental age assessment methods for the subject in question.

3b. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

To provide guidelines and standards for the selection and application of dental age assessment methods specific to each case, as well as the scope and limitations of conclusions drawn and opinions rendered.

3c. In what ways would the research results improve services to the criminal justice system?

To educate the relevant legal/governmental agencies to the appropriate applications and limitations of the dental age assessment process and the resulting age estimates. To facilitate understanding by authorities on the strength or limitations of estimated chronological age as a criterion for decision-making.

4. Status assessment (I, II, III, or IV): II

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	<b>I</b>	<b>III</b>
Existing current research is being conducted	<b>II</b>	<b>IV</b>

*This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.*

Subcommittee

Approval date:

*(Approval is by majority vote of subcommittee. Once approved, forward to SAC.)*

SAC

1. Does the SAC agree with the research need? Yes  No

2. Does the SAC agree with the status assessment? Yes  No

*If no, what is the status assessment of the SAC:*

Approval date:

*(Approval is by majority vote of SAC. Once approved, forward to NIST for posting.)*