

22-Mar-21
ASB Standard 133, Standard for Age Estimation in Forensic Anthropology.

#	Section	Type of Comment (E-Editorial, T-Technical)	Comments	Proposed Resolution	Final Resolution
3	Title	E	It is unclear if this document is implying that forensic anthropologists should not estimate age in living individuals as is stated in Section 4.2.6 paragraph 4, if that is accurate, then consider changing the document title to reflect this.	Change title to , "Standard for Age Estimation of Skeletal Remains in Forensic Anthropology".	Reject: Skeletal remains is implied as that is what Forensic Anthropologists look at.
2	Forward	T	Clearly there is overlap between Forensic Anthropology and Forensic Odontology when it comes to age assessment by dental means. As a published ADA TR (In ASB terms A Best Practice Report) it is vital that the two documents align and so that both documents are used by both specialties. The ABFO has already adopted ADA TR 1077 as their Standard in the Diplomates Reference Manual.	If synchronization of the two documents can be met then we would like to see the ASB use Published ADA TR 1077: Human Age Assessment by Dental Analysis as a "Normative Reference" for dental age assessment. In addition, the ASB document will be referenced in the ADA document in the next revision.	Reject with modification: Verbiage has been added to the foreword for clarification (see paragraph 3). Also, the Scope (section1) was modified to specify this document is specific for forensic anthropologists.
1		Note this comment is a note to coments (1-14)	Please Note That All Comments Relating To Age Assessment Are Exclusively For Age Assessment By Dental Means. We Do Not Know If It is Applicable To Other Methods However We Believe That It May Be The Case.		Thank you. We took this note into consideration when addressing comments #1 #14.
29	Forward	E	"In the forensic setting, the estimated age interval of an unidentified individual is often compared to the age listed in a missing persons report and may be used as a basis to either include or exclude the individual "	This is one use of age estimation, but it is also used in other ways for various medico-legal and criminal cases depending on the type of identification being made/sought; or specific questions asked by the court/prosecutor/court order/investigating agency etc. Age ranges may be wider or more narrow if it is for a presumptive or positive identification? Or as seen in international cases of war crimes when the demographic profile of a group of victims is presented as evidence. Or in cases when the court requests living person age estimates to determine identification etc. The point is that there are different ways this info is used and so may be wide/broad as a result. It is not only for missing person cases.	Reject with modification: We have deleted this sentence, modified the following sentence, and moved it into "General" so that it is no longer part of the "Forward."
22	1 (this comment pertains to Forward not scope)	T	"...accuracy in certain parts of other biological parameters, such as the lifespan may be improved through the use of ancestry and/or sex-specific methods."	The more significant issue for age estimation is the type of statistical model used to develop point estimates. This is not included but needs to be added here. It should be added that the type of statistical model used, the specific type of regression changes the outcome. Preference should also be given to Bayesian approaches. Further, likelihood ratios could be used to provide level of confidence to estimated range or values. These issues will be far more significant than lifespan or ancestry.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques. Also 2nd paragraph in the foreword was updated for clarity.
23	1	T	"Age is one of several biological parameters that can be estimated from skeletal material or medical imaging"	Should be "Skeletal and dental material".... Should be radiographic images (Not medical imaging)	Reject: See definition 3.9 that includes dental tissues. The entire ASB Anthropology Consensus Body discussed the terminology and agreed that medical imaging is the preferred term for this group and most appropriate for this document.
4	Section 3	T	Consider adding definition for Biologic Age. There is a difference from chronologic age and I do not believe this difference is addressed in the document.	Biologic Age: The age corresponding with the development, degenerative, biochemical or isotopic status of an individual. Note: The rate at which organ systems age may differ from the individual's chronologic age.	Reject: The term biologic age does not occur in this document. However, age estimation is used in this document and is defined in section 3.
5	Section 3	T	Consider adding a definition for "Estimated Age Interval"	The estimated age interval expresses the mathematically determined minimum and maximum associated age range at a particular level of uncertainty.	Reject: The provided definition is inconsistent with the practice of age estimation in forensic anthropology. Additionally, the use of interval is not unique to the practice of forensic anthropology.
16	3.1	T		The definition for accuracy is inadequate. Consider using a definition from the OSAC lexicon or develop a more comprehensive definition that mentions measurement value proximity to known or standard values.	Reject with modification: The document was modified to no longer use the word "accuracy" and therefore the definition was removed from section 3.
28	3.3	T	"Means or other measures of central tendency from multiple methods shall not be averaged."	This is why it is important to point using Bayesian statistical methods and max. likelihood ratios.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.

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17	4.1 (appears as though commenter intended to reference 4.2.1)	T/E	The change made to 4.1 is not adequate. An unvalidated method should not be used under any circumstances.	Revise this sentence: "Relevant, published methods shall be followed, and validated methods should be given preference." to "Relevant, reliable, validated, published methods shall be followed." New documents must be developed that explain and describe all relevant, reliable, validated methods that can be used for age estimation based on skeletal remains.	Reject: There are no published or widely accepted standards addressing method reliability or validity, thus it cannot be added as a requirement.
6	Section 4.1	T	Age estimation shall be made independently of suspected or presumptive identification to minimize "cognitive" bias. Cognitive bias is one of a multitude of types of bias. I think this should be kept more general.	This is one of our concerns about ASB 133 being a standard which would need to take into account all types of bias. Regardless, it should at least mention that there is a multitude of bias or normative reference a document that does. Consider adding "Age estimation shall be made independently of suspected or presumptive identification to minimize bias. It is beyond the scope of this document to outline the numerous types of biases."	Reject: While we acknowledge the many forms of bias, conducting blind analyses directly mitigates cognitive bias.
7	Section 4.1	E	"If one or more bones required to apply a specific method are absent, the method shall not be used" is not exclusive to principles using bones. The same parameter holds true for teeth.	Consider editing the statement to include teeth. "If one or more bones or teeth required to apply a specific method are absent, the method shall not be used."	Accept with modification: If "one or more bones" was changed to skeletal material which includes dental tissue. See 3.8.
24	4.2.2.	T	Infancy age	Add neo-natal line for determination if live birth. Also add methods commonly used that seem omitted: bone length/size (cranial elements included not just long bones), and clarify there is the use of development and fusion of skeletal elements.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.
27	4.2.2.	T	"... analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropologists should not estimate age in living individuals to answer any question that involves a point estimate of age."	This is highly problematic for the following: 1) forensic anthropologists routinely estimate living person age through radiographic assessments. Personally I have also presented findings in Federal Court. There are other precedents as well. A broad statement designed to help define standard practices should not deny the entire method/practice without cause. There are significant legal ramifications at stake. 2) It should be noted here and throughout this document that we are talking about skeletal AND DENTAL methods. 3) In the legal cases I mentioned, Forensic Dentists have also been asked to assess living age. They use anthropological methods for tooth development and incorrectly apply concepts of variation. These methods come from anthropological research and should remain in the domain of Forensic Anthropology, not other fields. 4) The statement here is incorrect as it is not usually a point estimate, rather it should be recommended that likelihood estimates be calculated based on the traits present and what is known about population parameters etc. to provide a qualified level of certainty. As mentioned above, age estimation is an issue of statistical methods more than anything and that needs to be addressed in all levels of casework and care reporting. It depends on the question the court is asking, are they asking for an age estimate or are they asking to differentiate between two possible suspects based on age? There are many questions that get asked in criminal cases, this is what needs to be considered. The best response is to use the appropriate method and statistical model to answer the question.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.
25	4.2.3.	T	Childhood age	1) Add long bone length. 2) Note that skeletal and dental remains should be clear of (or take into account) evidence of long term neglect, malnutrition or disease as these all affect growth and age significantly.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.

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18	4.2.3, 4.2.4	T	Remove the phrase "dental and" from 4.2.3 and remove section 4.2.4 entirely; replace with a statement in the forward or another appropriate place directing to consult ADA TR 1077: Human Age Assessment by Dental Analysis for guidance involving any work involving dental examination.	Because ADA TR 1077: Human Age Assessment by Dental Analysis is now published, it should be referred to for guidance involving any work involving dental examination. This can be accomplished by adding ADA TR 1077: Human Age Assessment by Dental Analysis to the Normative References section. If this is not added, all references to age estimation based on dental development should be removed from these sections.	Accept with modification: See updated forward. Reference was added to the forward with an explanation.
8	Section 4.2.5	T	Adult Age estimation deserves more clarity. Biochemical and nuclear dating techniques are used in many fields including anthropology and odontology. Adult age estimation is the only method listed that does not suggest teeth can be used for aging a skeleton and teeth can be used post development often times with a more narrow age interval than skeletal parameters.	Consider: Adult age estimation shall be based on skeletal and dental maturation, degeneration, macroscopic, microscopic, histologic, biochemical and nuclear(isotopic) features.	Reject: This section was not included in the redline (ASB guidance suggests: "Please note that comments on a re-circulation will only be accepted on revised sections of a document, comments made to text not revised from the previous public comment period will not be accepted.")
19	4.2.6	T	This document does not discuss specific methods. This section still only provides vague statements regarding how the specified factors should be used in the analysis, or what it means to "be aware of their potential impacts."	In the newly developed documents described in the comment pertaining to section 4.1, provide more guidance regarding how the practitioner should incorporate these considerations into the analysis.	Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.
31	4.2.6	T	"In practice however, due to biological variation as well as method error, forensic anthropologists should not estimate age in living individuals to answer any question that involves a point estimate of age."	I strongly disagree with this statement, and many practicing forensic anthropologists do this sort of work. The standard should be written such that "caution" is taken when constructing these estimates, and not "should not be done," as legally, the ASB then could be putting anthropologists into jeopardy. Further, there are many individuals that have ALREADY testified in a court of law about this issue, and this standard would be going against precedent. Please carefully evaluate this point prior to publishing the standard.	Reject with modification: last paragraph revised to read: "In theory, age-estimation protocols can also be used to analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropological age estimates should not be used to answer any question that involves a point estimate of age—either in the living or in the deceased."
26	4.2.6.	T	Issue of stats methods as described above.		Reject: Please see 2nd paragraph in the scope. This document does not address specific methods and techniques.
9	Section 4.2.6	T	Both sex-based and population-based variation exists in dental and osteological development. When prioritizing method selection, consider potentially confounding factors, such as socio-economic status, secular change, pathological conditions, trauma, taphonomy, and biomechanical demands on the skeleton. Age predilection of some pathological conditions may offer insights into age estimations. The age estimate shall consider intrinsic or extrinsic variables for which there is evidence that may impact age estimation during the anthropological analysis.	This section is valid and is one of the reasons we feel it suggests that the document should be a "Best Practice Document" and not a standard. You allude to many requirements and then "potentially confounding factors" and "intrinsic or extrinsic variables for which there is evidence that may impact age estimation during the anthropological analysis." First much of the evidence is theoretical and not peer reviewed. In addition, because it is discussed in general terms it does not give guidance on how to resolve these issues. Finally you conclude that "individual practitioners cannot directly resolve these issues, but should be aware of their potential impacts." which places the whole concept of it being a standard in doubt.	Reject: This document contains a set of requirements, therefore it is a standard.
10	Section 4.2.6	T	Methods used to age younger individuals typically result in more narrow intervals than those for older individuals. With increasing chronological age, the variation produced by environmental factors and life history tends to increase.	Is this true? Do younger age individuals have narrow age intervals because there is more rapid development or is it due to environmental factors. Is this true for all age estimation techniques. Again these are non-peer reviewed observations which suggest that this should be a BPR. Suggest rewording to align with TR 1077 as is acceptable to Anthro CB	Reject: Typically, yes, this is true based on peer-reviewed anthropological sources. This document contains a set of requirements, therefore it is a standard.
11	Section 4.2.6	T	In theory, age-estimation protocols can also be used to analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropologists should not estimate age in living individuals to answer any question that involves a point estimate of age.	Unclear why the modifier "living individuals" is included. Is there peer reviewed evidence that this technique is less accurate on living individuals than skeletal remains? If not the application on living individuals is a legal and moral issue and not a scientific question. This again raises the issue of why this is a standard since it implies that following these procedures will lead to universally applicable forensic results. Suggest rewording to align with TR 1077 and changing to a BPR	Reject with modification: last paragraph revised to read: "In theory, age-estimation protocols can also be used to analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropological age estimates should not be used to answer any question that involves a point estimate of age—either in the living or in the deceased."

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12	Section 4.2.6	T	In theory, age-estimation protocols can also be used to analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropologists should not estimate age in living individuals to answer any question that involves a point estimate of age.	The assessment of age in a living individual has value and should not be discounted. It can be utilized in determining the appropriateness of medical treatment, legal issue concerning prosecution base on victim's age etc., Using on living individuals should not be ruled out. Suggest rewording to align with TR 1077 and changing to a BPR	Reject with modification: last paragraph revised to read: "In theory, age-estimation protocols can also be used to analyze skeletal development in living individuals, typically to address a question of whether an individual has reached the age of majority. In practice however, due to biological variation as well as method error, forensic anthropological age estimates should not be used to answer any question that involves a point estimate of age—either in the living or in the deceased."
13	Section 4.2.6 Section 4.2.7		In practice however, due to biological variation as well as method error, forensic anthropologists should not estimate age in living individuals to answer any question that involves a point estimate of age. And If a method produces a point estimate, that may be reported in addition to the interval.	Implies that it is acceptable to use a method to produce a point estimate, while TR 1077 strictly forbids reporting of a "point estimate", requiring an "age interval" with additional limitation "because of biological variation and method error." The document as a standard does not mention anything concerning the "SHALL" of reporting age interval and we believe that there is no Peer review articles to support the concept of a Point estimation of age (at least dentally) Suggest rewording to align with TR 1077 as is acceptable to Anthro CB	Reject: Section 4.2.7 explicitly states that an age estimate shall be reported as an interval. Further, it specifies that if a method produces a point estimate that may be reported but only in conjunction with the associated interval. This document contains a set of requirements, therefore it is a standard.
14	Section 4.2.7	T	We are concerned that as a standard there should be some guidance concerning the calculation of an "error rate" for the results/conclusions via validation studies discussed. We could not find definitive evidence in this document as written. As a Note, ADA TR 1077 started out to be an ADA Standard Document until this very issue forced us to change to a Technical Report. (The ASB equivalent of a Best Practice Report".)	Consider changing to an ASB Best Practice Document	Reject: This document contains a set of requirements, therefore it is a standard.
20	4.2.7	T/E	This document does not provide information on how to produce a point estimate.	The last sentence in this section should be removed. Any details about reporting point estimates should be included in a document that describes methods for making a point estimate.	Reject: Please refer to the scope. "Specific methods and techniques are not included in the standard." Point estimates are sometimes generated by age estimation methods, and may be included along with an interval.
30	4.2.7	T	All raw data, techniques, and interpretation shall be documented. Documentation should take the form of text and/or images and shall be recorded and maintained in accordance with agency or institutional policy. What happens if the individual doing the work does not belong to an agency or institution, or if either of those entities do not have a policy on documentation?	I think this needs clarification. The anthropologist should keep records, regardless of institution or agency, and if they are a private party, they definitely should keep records. Suggest that language is inserted having some sort of record keeping mechanism for all instances, and potentially with some time depth as well.	Reject: This is out of the scope of this document. This may be covered in a future quality assurance document.
21	Annex A	T/E		Having a standard without references is not appropriate. While members of the forensic anthropology community may have knowledge or access to publications that support what's described in this document, this information is not privy to stakeholders outside of the community that may need to access the standard. A bibliography with recent and relevant sources must be provided.	Reject: The Anthropology CB is in agreement not to include a bibliography for this document.
15	2/Annex	T	This document does not adequately address procedures to be used with respect to dental examination. That topic is addressed in a newly published Technical Report: ADA TR 1077: Human Age Assessment by Dental Analysis. This new TR should be a normative reference.	Add ADA TR 1077: Human Age Assessment by Dental Analysis to the Normative References section	Reject: This document is for forensic anthropologists and the ADA TR 1077 is used by forensic odontologists and therefore it does not conform to the practice of forensic anthropology. See Foreword, 3rd paragraph.
32	Bibliography	From CB ballot	However, I do want to register a strong objection to the removal of the Bibliography from this document. I feel that the committee should provide some sources that typify the methodological recommendations defined in the standards document.		Reject: The Anthropology CB is in agreement not to include a bibliography for this document.