

Deadline for 21-Jan-19
 Document Number: ASB BPR 089
 Document Title: Best Practice Recommendation for Facial Approximation in Forensic Anthropology

Note: a specific Proposed Resolution must accompany each comment or it cannot be considered.

#	Section	Type of Comment (E-Editorial, T-Technical)	Comments	Proposed Resolution	Final Resolution
1	throughout	E, T	Debated nomenclature/definition: approximation	See below under entries 1, 2	See response to comment #2
2			'This best practice recommendation was developed to provide guidance to practitioners for producing facial approximations from skeletal remains. Facial approximations (historically, but inappropriately referred to as facial reproduction or facial reconstruction)'... Of the three terms described here, co-signatories to this document prefer the term 'reconstruction' to approximation as it is the most commonly understood, historically and in the literature, and has made its way into the general public for this reason. It is no less 'inappropriate' than 'approximation' or 'reproduction', for the reasons we set out under section 3: Terms and Definitions below . In general, the difficulty with reconstruction vs approximation seems to come down to those practitioners who foreground the qualitative objective of these facial images (recognition) versus those who prioritise quantitative methodologies. We suggest all be replaced with the general term DEPICTION throughout.	This best practice recommendation was developed to provide guidance to practitioners for producing facial depictions from skeletal remains. Facial depictions from the skull (also referred to as facial reconstruction, approximation or reproduction or facial reconstruction)...	Reject: Facial Approximation is the term used in this document. Facial depiction is not a commonly enough used term.
3				Approximation: Proposed (and argued for) as more 'appropriately' reflecting the reality versus claims-to-accuracy of facial depiction from the skull. Yet 'approximation' undervalues the primary objective of the task, which is to produce as close a likeness as possible to a living person based on robustly tested methods, not an 'approximate guess'. The arguments for approximation can be easily countered: in the first instance, 'accuracy' is poorly understood given how these images are intended to function. Many variables affect their 'success' beyond the ability to predict soft-tissue morphology based on skull anatomy.	Reject: Definition is provided in 3.1
4			provide more detailed and informed explanation/rationale of the semantics of the terms employed	Reconstruction: the most widely accepted and popularly understood term to describe the depiction of living likeness from the skull. It has attracted criticism with detractors arguing that reconstruction implies a level of accuracy that the method cannot claim. This is questionable and can be argued otherwise, in many ways. A strong reason for reconsidering this term is because it produces confusion with surgical reconstruction of facial anomalies and traumatic injury in the living, although the qualifier 'forensic' may mitigate this confusion.	Reject: Reconstruction refers to reconstructing the bones in the face when bones are broken/reconstruction of material.
5				Reproduction: a face cannot exactly be 'reproduced' (not even with genetic material) nor is this the objective with forensic facial depiction. 'Reproduction' implies copy or facsimile, which requires the availability of an 'original', which of course we do not have (and why the work needs doing in the first place). An outmoded historical term.	Reject: Term is not widely used and is not included in this document.
6	3.1	E, T		Depiction: meaning a (characteristic) representation, usually visual, regardless of method, technique or media employed. It is an inclusive term, accounting for both the scientifically-informed and artistically interpretive demands of the task, without making overstated claims to exactitude.	Reject: Term is not widely used and is not included in this document.

7	4.2 E, T		<p>Clarification is required for the following statement: 'The scientific and anatomical soundness of these methods should be used to evaluate their effectiveness'.</p>	<p>None of us understands what this statement means. What does this mean? What is anatomical soundness? Effectiveness for what? The method/technique selected depends on many different factors (ranging from the condition of the remains, to the equipment or skill set of the contracted forensic artist). Is this suggesting future research to support practical methods? Practitioners should be transparent regarding the method(s) used to arrive at the final image (tissue depth dataset, feature prediction methods). "Effectiveness" does not necessarily equate to 'accuracy': it relies heavily on the investigating agency making the image widely available to the public, and that image being seen by the right person (familiar face recognition). A "successful" or "effective" reconstruction/approximation sparks recognition in a family member or friend who knew the person in life, and compels them to pick up the phone to call the investigating agency.</p>	<p>Accepted with modification: the sentence was deleted.</p>
8	4.2 E, T		<p>Clarification is required for the following statement: '<i>Facial approximation images should be carefully evaluated against the skeletal evidence by all relevant specialists before they are publicly disseminated.</i>'</p>	<p>What does this mean? How should it be "evaluated?" Is this statement meant to suggest that casework should be peer-reviewed by a knowledgeable colleague? We support the inclusion of a clear statement about peer-review of casework, which should seek to assess whether the facial image produced depicts the most likely facial morphology, characteristic features, age-appropriate facial textures and other relevant information, based on the skull anatomy, associated biological profile and other relevant information provided by the investigating officials; and that it is presented according to best-practice guidelines derived from face perception/recognition studies (See Wilkinson 2015, Davy-Jow 2012)</p>	<p>Accepted with Modification: 3rd sentence in section 4.2 was revised to better explain the intention.</p>
9	4.2 E, T		<p>Further qualification/clarification for the statement: '<i>Morphologically accurate copies of skeletal material and not the skeletal material itself should be used as the physical base for sculpted approximations.</i>'</p>	<p>Despite many practitioners in the US continuing to work directly onto the skull, from an international perspective we cannot foresee any case where the invasive and high-risk route of working directly onto a skull is preferable in the case of a 3D manual reconstruction. Non-destructive methods should be used whenever possible. Even the act of creating a mold for a plaster or resin copy can damage the skeletal remains, which in a forensic case, constitute evidence. If it is not possible to create a morphologically accurate copy by cast or 3D scan, the practitioner should rather produce a 2D depiction, using the least damaging, reversible adhesive be used in small quantities to apply tissue depth markers to the actual skull for photography in the 2D method.</p>	<p>Accepted with Modification: 4th sentence in section 4.2 was revised to better explain the intention.</p>
10				<p>In addition: we would also recommend here that, whenever possible, the artist be afforded the opportunity to examine and document the actual remains, prior to beginning the reconstruction (rather than relying on another person's photographs or scans). It is necessary to examine the surface of the skull for evidence of muscle attachments, location of the palpebral ligament attachments, asymmetries, and anomalies that may affect the facial appearance of the person. These characteristics may not always be apparent in photographs. We would also recommend samples for DNA testing and isotope testing (if needed from the skull) be taken from the skull/mandible before the skull is provided to the artist. Photos should be taken of the skull, before those bone or tooth samples are removed, in order to document the missing pieces. All available photos of the remains (scene photos, morgue photos-before and after clean up) should be made available to the artist along with clothing photos (including sizes), and photos of any remaining hair (facial hair and head hair).</p>	<p>Accepted with Modification: 5th sentence added in section 4.2 to better explain the intention.</p>

11	4.2	E, T	Further definition required for the statement: <i>b) The production of facial approximations without the requisite input from anthropological analyses. Likewise, practitioners should not attempt facial approximations without requisite skill and training in forensic art.</i>	How is this defined? The most relevant training for a forensic artist, or forensic anthropologist who wishes to produce facial images/depictions from skeletal remains, is craniofacial anatomy, along with traditional and/or digital art techniques. 'Skill and training' is contentious: not all training contexts are created equal; no formal degree or diploma exists in the USA (there is only one internationally, in Dundee, Scotland); most practitioners therefore learn 'on the job' supported by workshops and/or other continuing professional development programmes. Should there be an attempt to quantify min. number of training hours plus field experience for those without formal training, relative to practical work (cases) covered in the professional degree for a practitioner to have a reasonable skills baseline? Do we define levels of expertise? Certification takes cases/hours into account, but it is obtainable only if you have a certain number of "hits" on your work. This is a catch-22 not unlike the situation with the ABFA. Further, it may take years before the person is identified, due to the complex factors already described above.	Reject: The sentence is general as a best practice recommendation for use across countries regardless of university training programs.
12	4.3	E, T	Qualification required for 'accuracy' as used in the following statement: <i>'Facial approximations are not meant to represent the exact likeness of an individual. Given the difficulty in scientifically assessing the variation in human faces and developing tissue depth measurements, statements regarding the accuracy of facial approximation methods should be carefully presented.'</i>	Since there's not many ways (or at least much research about how) to objectively assess "accuracy," this term demands very careful qualification. Face shape (morphology, measurable) and facial texture (qualitative, interpretable) provide different kinds of information that come together in forensic facial depiction. These should serve recognition , which is the primary objective of this work. An 'accurate' and 'realistic' depiction may never be recognised if not seen by the right person. Does this mean it is 'unsuccessful'? Of course, it depends on the question. Forensically, it fails as it won't provide a lead to identification, but in a controlled experimental situation like an in vivo study, it may be considered successful, if you can metrically show morphological agreement and recognizability.	Accept with modification: the sentence was revised and the word "success" as added.
13	4.4	E,T	Expand on the existing statement	No forensic facial image should be released/provided to an investigative agency/disseminated without a clear statement of purpose accompanying it. This statement should read along the lines of: "This facial depiction [<i>could insert more detail here as to method e.g. forensic sketch, digital image, DNA-derived facial image</i>] is the most likely appearance of the person in life, based on available information. It is not intended to be an exact likeness or portrait.'	Accept with Modification: 2nd paragraph added to section 4.4. as suggested.
14	Annex A: Bibliography	T	Add additional entries	Primary sources 1. Davy-Jow, S., 2013. The devil is in the details: a synthesis of psychology of facial perception and its applications in forensic facial reconstruction. <i>Science & Justice</i> , 53(2), pp.230-235. 2. Wilkinson, C. 2015. 'A review of forensic art.' <i>Research and Reports in Forensic Medical Science</i> . DOI: 10.2147/RRFMS.S60767 3. Wilkinson, C. and Rynn, C. eds., 2012. <i>Craniofacial identification</i> . Cambridge University Press. 4. Wilkinson, C.M., 2006. <i>Facial anthropology and reconstruction</i> . <i>Forensic Human Identification</i> , pp.231-256.	Reject: The references given in the document are sufficient original sources.

15			Add additional entries	<p>Secondary sources</p> <ol style="list-style-type: none"> 1. De Greef, S. and Willems, G., 2005. Three-dimensional cranio-facial reconstruction in forensic identification: latest progress and new tendencies in the 21st century. <i>Journal of Forensic Science</i>, 50(1), pp.JFS2004117-6 2. Lee, W.J., Wilkinson, C.M. and Hwang, H.S., 2012. An accuracy assessment of forensic computerized facial reconstruction employing cone-beam computed tomography from live subjects. <i>Journal of forensic sciences</i>, 57(2), pp.318-327. 3. Munn, L. and Stephan, CN, 2018. Changes in topography from supine-to-upright position – And soft tissue correction values for craniofacial identification. <i>Forensic Science International</i>, 289, pp 40-50. 4. Parks, CL, Richard, AH, Monson, KL, 2014. Preliminary assessment of facial soft tissue thickness utilizing three-dimensional computed tomography models of living individuals. <i>Forensic Science International</i>, 237 pp 146.e1-146.e10. 5. Wilkinson, C., 2005. Computerized forensic facial reconstruction. <i>Forensic Science, Medicine, and Pathology</i>, 1(3), pp.173-177. 6. Wilkinson, C., 2010. Facial reconstruction–anatomical art or artistic anatomy? <i>Journal of anatomy</i>, 216(2), pp.235-250. 7. Wilkinson, C., Rynn, C., Peters, H., Taister, M., Kau, C.H. and Richmond, S., 2006. A blind accuracy assessment of computer-modeled forensic facial reconstruction using computed tomography data from live subjects. <i>Forensic science, medicine, and pathology</i>, 2(3), pp.179-187. 	Reject: The references given in the document are sufficient original sources.
16	Title; Throughout	E	"Recommendation" should be pluralized, as the document itemizes many best practice recommendations.	Change the word "recommendation" to recommendations"	Reject: ASB style is used and this is a Best Practice Recommendation.
17	Forward	E, T	It was/is neither inappropriate nor archaic to use the term "facial reconstruction" when referring to the process of developing a visage from skeletal remains. In fact, that is exactly what is happening: the facial features are actually being re-built, whether in a two- or three-dimensional format, or digitally. The word "reconstruction" in and of itself is neutral regarding any sense of accuracy; it is simply describing a procedural method. We do agree, however, that the term "facial reproduction" does exude an exacting nature - inferring a closer visual likeness, (i.e., a copy), when such may not be true. "Facial reproduction" as a term should be discontinued.	Remove the words "but inappropriately"	Accept
18	Foreword; 4.2 Procedure	E	The term "computer-based" insinuates computer-generated. The computer does not develop the image; the forensic artist using the computer does, physically and intellectually - whether utilizing a program or developing the facial image completely by hand, simply using a stylus & tablet as opposed to graphite & paper. Automated systems for producing facial imagery are not supported or recommended.	The term, "computer-based" should be changed to the word, "digital" or the term, "digitally-produced."	Accept: Revisions were made to this sentence.

19	Throughout	E, T	Continuing disagreement on use of terminology: "facial reconstruction" vs. "approximation" vs. "depiction". If there is concern over public confusion or misinterpretation with regard to medical procedures on live patients, preceding the term with the word 'forensic' or 'historic' would suffice: "a forensic facial reconstruction image; "a historic/archaeological facial reconstruction image." The word 'approximation' intimates a higher level of accepted vaguery, bordering on a "best guess," which is disrespectful to the research, the experts involved, and the previous successes. When developed in accordance with the standards and guidelines proposed via the IAI's published document (https://www.theiai.org/docs/ForensicArtGuidelinesSGFAFI1stEd.pdf), as well as this draft document's best practices, the end resulting facial image is certainly not guesswork, as the word "approximation" infers...	Let the term "facial reconstruction image" remain - it is the most widely used, accepted, known, and understood by practitioners, researchers, forensic professionals, law enforcement, and the general public. The word "depiction" is also a universally known, neutral descriptor word which would accurately and easily settle the matter, while remaining appropriate.	Reject: Facial Approximation is the term used in this document. Facial depiction is not a commonly enough used term. Reconstruction refers to reconstructing the bones in the face when bones are broken/reconstruction of material.
20	Throughout	E, T	Regardless of terminology inevitably decided upon ("reconstruction / approximation") - those are simply terms used to describe the process for the final result, which is a noun: an IMAGE or a depiction . The end result of developing a face from the skull (regardless of chosen media) is a facial reconstruction image . Similar to another genre of Forensic Art (aging the long-term missing), the resulting artwork is not simply an age-progression, as that is describing the <i>process</i> . It is properly labeled an "age-progressed image ."	Consistently add the word (noun) "image" following the use of the term 'facial reconstruction/approximation'	Reject: The use word "image" is not appropriate when a 3D method (e.g. sculpturing) is used and applied.
21	Throughout	E, T	Absent throughout this entire document is any mention of the important concept of recognition . This goal is almost the sole purpose for developing facial reconstruction images in unidentified deceased (forensic) cases. We are very careful in the field of Forensic Art to not state that our work results in identifications. Rather, we know that its purpose is to trigger RECOGNITION and/or a memory within someone who has/had familiarity with the person depicted in the evidentiary art image ... whatever the media or genre. That recognition is then followed up by further investigation. Official (legal) identification is usually only accepted via three standards: fingerprints (obviously not usually available in said cases), dental analysis, and/or DNA comparison.	Add information re: provoking recognition as being the main goal of a FORENSIC facial reconstruction image (Clearly not applicable in historical facial reconstruction/approximation contexts).	Accept with modification: Last sentence of the 1st paragraph in foreword was edited.
22		3.2 E, T	The term "personal identification" lends itself to something along the lines of a document (i.e., driver's license, passport) as opposed to the solving of a forensic case. "The association of a set of [human] remains to a known individual" as a definition would be more in line with an official or legal identification.	Change 3.2 to read " Official (or legal) identification: The association of a set of human remains to a known individual. "	Reject: The definition was taken from the NIST/OSAC Lexicon. However, this suggestion was used to modify the last sentence in 1st paragraph of the foreword, in 4.2.a. and section 4.4.
23	4.2, Procedure	E, T	It is not always physically or financially possible for a forensic artist and/or the agency under which s/he works to have a "copy" made of the skull for the facial reconstruction work. More often than not, the above-mentioned do not have access to CT information, 3-D laser scanners & printers, etc. Although we agree that it is ideal to work on a replica of the evidence, it is simply not an available procedure to the majority of practitioners (at least in the U.S. and Canada). Even when it is a practice that is able to be implemented, it is advised that the actual evidentiary skull remain present for study by the practitioner during the development of the facial reconstruction image. Minute information can be afforded in this manner way via constant visual and tactile reference that may otherwise not be afforded in the often monochromatic 3-D skull evidential reproductions.	Re-phrase 4.2, paragraph 5 to read, "Whenever possible, morphologically accurate replicas of skeletal material..." It may also be prudent to suggest if a practitioner is not able to use a replica skull for a three-dimensional facial reconstruction project (sculpture), then a two-dimensional method (drawing) should be used in lieu of sculpting on top of the evidentiary skull.	Accepted with Modification: 4th sentence in section 4.2 was revised to better explain the intention.
24	4.3, Considerations	E, T	The phrasing, "facial approximations are not meant to produce the exact likeness of an individual" reads too broadly and a bit contrary to the original purpose of a forensic facial reconstruction: for the target person to be recognized and then identified. The reconstruction process actually IS meant to produce a facial likeness as close to the individual in life as is possible , under the given set of circumstances for each set of unidentified human remains. A medium-to-high degree of visual similarity is entirely possible many times. The level of sameness is a separate issue based on a multitude of factors, but doesn't change the PURPOSE of the facial reconstruction efforts.	Re-phrasing similar to: "Facial reconstruction images are meant to produce the best possible facial likeness of an individual, using an amalgamation of the information and evidence afforded in each separate case." Not all cases have equal factors. The level of interpretability of said evidence will vary...	Accept with modification: The first sentence was edited to better explain the intent.

25	4.3, Considerations	E, T	Following the above, an accompanying "caveat statement" stating something similar to the above IS appropriate. Many law enforcement agencies, public information officials, missing & unidentified persons websites/databases, and state clearinghouses are already doing so.	It's possible "best terminology" for the statement accompanying the dissemination of a facial reconstruction image should be discussed between Boards and practitioners to aim toward unification.	Reject: Section 4.3 was modified based on comment #24 and the intent is clearly explained.
26	Not clarified	E, T	We believe there should be a separate mention within this document addressing facial reconstruction images being developed solely for historical/archaeological contexts (museum work, etc.). They are very similar to forensic cases in that the same experts may be employed, who use the same data, skills, and knowledge used in investigative cases, however these projects should not be termed as "forensic" work.	Add a few sentences addressing this subject matter. State the separation between historic vs. forensic - should not be mixed together, either in verbiage or in purpose/goals.	Reject: Historical and archeological facial approximations are beyond the scope of this document.
27	Forward; 4.4	E, T	Continuing the concept as above: Since recognition of forensic art products can lead to recognition of the target subject, and then that recognition can then be verified via stronger scientific analyses, it stands to reason that the facial reconstruction/approximation images actually CAN be (and are) "used as evidence contributing to ... identification." The key word is, "contributing." The evidentiary artwork is just one part of the whole investigation, but to downplay its role or its importance in moving an investigation forward would be insufficient and belittling to the collaborative work of all the experts involved.	Change the sentence in the Forward, as well as in 4.4, Reporting, to read: ". . . facial approximation/reconstruction images are solely for investigative purposes and may be used in part as evidence contributing to an official identification."	Reject: Please refer to section 4.3 that summarizes facial approximation limitations and this sentence included in the foreword: "Facial approximations are generated to elicit recognition of an individual and are solely for investigative purposes and should not be used as evidence contributing to identification of unidentified remains."
28	General Remarks		<p>Drawing up an agreed set of standards for facial reconstruction/approximation (preferred term is 'depiction') has a long and contentious history. It is not helpful to rehash this history, suffice to say that standards do already exist for forensic facial reconstruction as described in a document drawn up by Richardson et al: https://www.theiai.org/docs/ForensicArtGuidelinesSGFAFI1stEd.pdf</p> <p>These standards include recommendations for practices that we recognise are not relevant to this document. However, to ignore these is to ignore a history of professional conversation in this field many decades long. In the interest of recognising this context and interdisciplinary relationship, particularly between Forensic Art and Facial Identification, some contextual detail is provided below.</p> <p>The signatories to this document question why the AAFS, which offers no formal recognition of Forensic Art as a membership, accreditation or certification discipline, would find it helpful or necessary to draw up Best Practice Standards for a discipline it does not directly serve or represent?</p> <p>A document that makes a claim for outlining Best Practices should offer protocols and procedures that are clearly articulated, accessible and practically implementable by the broadest range of practitioners of a given discipline. This is not yet at that stage.</p>	This recommendation applies to all of the "General Comments". In summary, we suggest this draft is withdrawn, and a new version is drafted, taking into consideration comments received from this round of consultation. Then, a second round of professional consultation should be undertaken with experienced practitioners, some of whom may also have qualifications in bioanthropology, or are anthropologists who work very closely with forensic artists, and can thus offer perspective from both sides of the art/science conversation. The signatories to this document are willing to be contacted in this regard.	Reject: This document is produced following ASB procedures (approved by ANSI). This document was shared publicly and comments were received from many practitioners, inclusive of members of the original SWGANTH committee.
29	General Remarks		<p>We applaud this draft for acknowledging the range of methods and practices employed in the prediction of a living appearance from skeletal remains, and we appreciate that the current draft is therefore open to developments in the field (genetic phenotyping, for example) which are inevitable. We also recognise that this document is therefore sensitive to different contexts and professional cultures, where access to certain resources may be a determining factor in how the work is carried out.</p> <p>We appreciate and advocate for openness, i.e. well-motivated and articulate inclusivity vs ambivalence/ambiguity, and we offer these inputs to that end. However, it is our position that the current document errs on the side of vagueness and lack of clarity, which will produce confusion, and work against its own intentions.</p>		Reject: No proposed resolution was provided.

30	<p>General Remarks - Forensic Art and Facial Identification: Current OSAC Structures and other Professional Organisations</p>	<p>Distinguishing between Facial Reconstruction and Facial Identification is critical, based on the respective objectives of this work. These two areas, closely connected in the past, have recently been formally separated as each progresses in the face of new technologies, and as the specific objectives and skill-sets required for each are better understood and articulated. Any practitioner standards should be developed (or updated) with this in mind.</p> <p>These two practices are complementary but distinct. A baseline skill is understanding facial anatomy, but the key differences are in the objectives of the work, and biometric quantification.</p> <p>Forensic Art produces facial depictions to <i>trigger recognition</i> in the mind of someone who is <i>already familiar</i> with the face depicted. This is the key objective of this work, whether it is a face produced from skeletal remains, from genetic phenotyping or from an eyewitness account. These depictions are produced to generate investigative leads. They have no claim on confirming legal identification.</p> <p>Facial Identification is an image-comparison process that uses the face as a biometric technology. Unlike Forensic Art, the practitioner is required to make a value judgement whether to include or exclude candidates against the target face.</p>		<p>Reject: General comment no proposed resolution was provided. However, this information is included in relevant sections of this document.</p>
31	<p>General Remarks - Forensic Art and Facial Identification: Current OSAC Structures and other Professional Organisations</p>	<p>Within the current OSAC structure, Facial Identification resorts under Digital/Multimedia as a subcommittee. The Anthropology subcommittee resorts under Crime Scene/Death Investigation. In practice, the work of forensic facial imaging has one foot in each area, yet forensic art has no formal representation in either area.</p> <p>Prior to the formation of the OSAC, FISWG (Facial Identification Scientific Working Group) was the most relevant working group for facial depiction, yet no documents/standards relate specifically to facial depiction from the skull.</p> <p>A version of Richardson et al's original document (mentioned above) informs the International Association of Identification's (IAI) Forensic Art Disciplinary subcommittee's code of practice and certification process. The IAI is the only international body that offers certification in Forensic Art, with a specialisation in facial reconstruction (the majority of forensic art practitioners in the US seek certification in facial composites, aka eyewitness sketches).</p>		<p>Reject: General comment with no proposed resolution was provided. Facial identification as defined by NIST/OSAC is a completely separate forensic discipline and unrelated to facial approximation.</p>

32	General Remarks - Forensic Art and Facial Identification: Current OSAC Structures and other Professional Organisations	<p>BAFA (British Association of Forensic Anthropology) in the UK offers three levels of accreditation for forensic anthropologists. Level III is entry-level and based on training, Continuing Professional Development and UK-based casework evidence. The organisation recognises craniofacial specialisation within forensic anthropology, and specific evaluation conditions exist for Level 1 accreditation, which requires examination in order to qualify. Prof. Caroline Wilkinson, a signatory to this document, is the only practitioner to hold this accreditation (craniofacial specialisation). No specific evaluative conditions for craniofacial identification have yet been set for Level II, which also requires examination in order to qualify.</p> <p>FASE (Europe) resorts under the International Academy of Legal Medicine (IALM). FASE offers two levels of certification (http://forensicanthropology.eu/activities/fase-certification/), and a helpful overview of similar certification schemes worldwide: http://forensicanthropology.eu/activities/fase-certification/existing-certification-schemes/</p> <p>The newly constituted SAAFS (South African Academy of Forensic Sciences) is following the OSAC structure; so facial depiction has no specific representation but they recognise the relationship between facial identification (which is represented) and forensic art.</p>		Reject: General comment, no proposed resolution was provided.
33	General Remarks - Broader consultation with experienced forensic art practitioners required	<p>The Foreword contains the following statement of intent: 'This document is intended to assist forensic anthropologists and forensic artists when producing facial approximations from skeletal remains.'</p> <p>Further, under 4.1 General (p.1): 'The production of facial approximations should be a joint effort among experts from the fields of anthropology, anatomy, and forensic art.'</p> <p>This acknowledges the interdisciplinary character of this work; it is a team effort, relying on the input and expertise from a range of disciplines. The final facial image could be understood to represent a synthesis of all this expertise, scientific and artistic, presented to optimise the potential for recognition.</p> <p>However, we do not believe forensic artists have been adequately consulted in drawing up these draft standards, yet we are largely responsible for carrying out the work these standards hope to guide. We cannot accept that we may be driven or inhibited by a set of best practice standards that we have had little hand in shaping. The document should be as much a reflection of this 'joint effort' as the work it plans to guide.</p>		Reject: This document is produced following ASB procedures (approved by ANSI). This document was shared publicly and comments were received from many practitioners, inclusive of members of the original SWGANTH committee.
34	General Remarks - Broader consultation with experienced forensic art practitioners required	<p>As co-signatory Teresa V. Wilson (LSU FACES Lab, Baton Rouge) explains: "If the document as it is presented on the ASB website is presented before the anthropology section of the AAFS, I will not be able to support it because we (anthropologists) are not the 'gatekeepers' of forensic art or facial reconstruction/approximation/depiction. As I am neither a practitioner nor a researcher in the field of forensic art, I do not feel equipped to give any sort of opinion on the qualifications or best practices of the field. Actually, I am going to be honest and say that I do not feel that it is appropriate for the AAFS (specifically the anthropology section) to unilaterally make a document about forensic art, facial reconstruction/approximation/depiction, or the practitioners of the field. It is odd to me that forensic anthropologists would feel that it was appropriate to make a 'best practices' document at all. I hope that [these] collective comments are considered carefully by the ASB and I am here to support you in any capacity that I can."</p>		Reject: This document is produced following ASB procedures (approved by ANSI). This document was shared publicly and comments were received from many practitioners, inclusive of members of the original SWGANTH committee.

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37	Foreword	E, T	Of the three terms described here, co-signatories to this document prefer the term 'reconstruction' to approximation as it is the most commonly understood, historically and in the literature, and has made its way into the general public for this reason. It is no less 'inappropriate' than 'approximation' or 'reproduction', for the reasons we set out under section 3: Terms and Definitions below . In general, the difficulty with reconstruction vs approximation seems to come down to those practitioners who foreground the qualitative objective of these facial images (recognition) versus those who prioritise quantitative methodologies. We suggest all be replaced with the general term DEPICTION throughout.	This best practice recommendation was developed to provide guidance to practitioners for producing facial depictions from skeletal remains. Facial depictions from the skull (also referred to as facial reconstruction, approximation or reproduction or facial reconstruction) ...	Reject: Facial Approximation is the term used in this document. Facial depiction is not a commonly enough used term.
38				Approximation: Proposed (and argued for) as more 'appropriately' reflecting the reality versus claims-to-accuracy of facial depiction from the skull. Yet 'approximation' undervalues the primary objective of the task, which is to produce as close a likeness as possible to a living person based on robustly tested methods, not an 'approximate guess'. The arguments for approximation can be easily countered: in the first instance, 'accuracy' is poorly understood given how these images are intended to function. Many variables affect their 'success' beyond the ability to predict soft-tissue morphology based on skull anatomy.	Reject: Definition is provided in 3.1
39			provide more detailed and informed explanation/rationale of the semantics of the terms employed	Reconstruction: the most widely accepted and popularly understood term to describe the depiction of living likeness from the skull. It has attracted criticism with detractors arguing that reconstruction implies a level of accuracy that the method cannot claim. This is questionable and can be argued otherwise, in many ways. A strong reason for reconsidering this term is because it produces confusion with surgical reconstruction of facial anomalies and traumatic injury in the living, although the qualifier 'forensic' may mitigate this confusion.	Reject: Reconstruction refers to reconstructing the bones in the face when bones are broken/reconstruction of material.
40				Reproduction: a face cannot exactly be 'reproduced' (not even with genetic material) nor is this the objective with forensic facial depiction. 'Reproduction' implies copy or facsimile, which requires the availability of an 'original', which of course we do not have (and why the work needs doing in the first place). An outmoded historical term.	Reject: Term is not widely used and is not included in this document.
41		3.1 E, T		Depiction: meaning a (characteristic) representation, usually visual, regardless of method, technique or media employed. It is an inclusive term, accounting for both the scientifically-informed and artistically interpretive demands of the task, without making overstated claims to exactitude.	Reject: Term is not widely used and is not included in this document.

42	4.2 E, T		<p>Clarification is required for the following statement: 'The scientific and anatomical soundness of these methods should be used to evaluate their effectiveness'.</p>	<p>None of us understands what this statement means. What is anatomical soundness? Effectiveness for what? The method/technique selected depends on many different factors (ranging from the condition of the remains, to the equipment or skill set of the contracted forensic artist). Is this suggesting future research to support practical methods? Practitioners should be transparent regarding the method(s) used to arrive at the final image (tissue depth dataset, feature prediction methods). "Effectiveness" does not necessarily equate to 'accuracy': it relies heavily on the investigating agency making the image widely available to the public, and that image being seen by the right person (familiar face recognition). A "successful" or "effective" reconstruction/approximation sparks recognition in a family member or friend who knew the person in life, and compels them to pick up the phone to call the investigating agency.</p>	<p>Accept with modification: the sentence was deleted.</p>
43	4.2 E, T		<p>Clarification is required for the following statement: '<i>Facial approximation images should be carefully evaluated against the skeletal evidence by all relevant specialists before they are publicly disseminated.</i>'</p>	<p>What does this mean? How should it be "evaluated?" Is this statement meant to suggest that casework should be peer-reviewed by a knowledgeable colleague? We support the inclusion of a clear statement about peer-review of casework, which should seek to assess whether the facial image produced depicts the most likely facial morphology, characteristic features, age-appropriate facial textures and other relevant information, based on the skull anatomy, associated biological profile and other relevant information provided by the investigating officials; and that it is presented according to best-practice guidelines derived from face perception/recognition studies (See Wilkinson 2015, Davy-Jow 2012)</p>	<p>Accepted with Modification: 3rd sentence in section 4.2 was revised to better explain the intention.</p>
44	4.2 E, T		<p>Further qualification/clarification for the statement: '<i>Morphologically accurate copies of skeletal material and not the skeletal material itself should be used as the physical base for sculpted approximations.</i>'</p>	<p>Despite many practitioners in the US continuing to work directly onto the skull, from an international perspective we cannot foresee any case where the invasive and high-risk route of working directly onto a skull is preferable in the case of a 3D manual reconstruction. Non-destructive methods should be used whenever possible. Even the act of creating a mold for a plaster or resin copy can damage the skeletal remains, which in a forensic case, constitute evidence. If it is not possible to create a morphologically accurate copy by cast or 3D scan, the practitioner should rather produce a 2D depiction, using the least damaging, reversible adhesive be used in small quantities to apply tissue depth markers to the actual skull for photography in the 2D method.</p>	<p>Accepted with Modification: 4th sentence in section 4.2 was revised to better explain the intention.</p>
45				<p>In addition: we would also recommend here that, whenever possible, the artist be afforded the opportunity to examine and document the actual remains, prior to beginning the reconstruction (rather than relying on another person's photographs or scans). It is necessary to examine the surface of the skull for evidence of muscle attachments, location of the palpebral ligament attachments, asymmetries, and anomalies that may affect the facial appearance of the person. These characteristics may not always be apparent in photographs. We would also recommend samples for DNA testing and isotope testing (if needed from the skull) be taken from the skull/mandible before the skull is provided to the artist. Photos should be taken of the skull, before those bone or tooth samples are removed, in order to document the missing pieces. All available photos of the remains (scene photos, morgue photos-before and after clean up) should be made available to the artist along with clothing photos (including sizes), and photos of any remaining hair (facial hair and head hair).</p>	<p>Accepted with Modification: 5th sentence added in section 4.2 to better explain the intention.</p>

46	4.2 E, T		Further definition required for the statement: <i>b) The production of facial approximations without the requisite input from anthropological analyses. Likewise, practitioners should not attempt facial approximations without requisite skill and training in forensic art.</i>	How is this defined? The most relevant training for a forensic artist, or forensic anthropologist who wishes to produce facial images/depictions from skeletal remains, is craniofacial anatomy, along with traditional and/or digital art techniques. 'Skill and training' is contentious: not all training contexts are created equal; no formal degree or diploma exists in the USA (there is only one internationally, in Dundee, Scotland); most practitioners therefore learn 'on the job' supported by workshops and/or other continuing professional development programmes. Should there be an attempt to quantify min. number of training hours plus field experience for those without formal training, relative to practical work (cases) covered in the professional degree for a practitioner to have a reasonable skills baseline? Do we define levels of expertise? Certification takes cases/hours into account, but it is obtainable only if you have a certain number of "hits" on your work. This is a catch-22, not unlike the situation with the ABFA. Further, it may take years before the person is identified, due to the complex factors already described in line item 3 (section 4.2) above, and line item 7 below.	Reject: The sentence is general as a best practice recommendation for use across countries regardless of university training programs.
47	4.3 E, T		Qualification required for 'accuracy' as used in the following statement: <i>'Facial approximations are not meant to represent the exact likeness of an individual. Given the difficulty in scientifically assessing the variation in human faces and developing tissue depth measurements, statements regarding the accuracy of facial approximation methods should be carefully presented.'</i>	Since there's not many ways (or at least much research about how) to objectively assess "accuracy," this term demands very careful qualification. Face shape (morphology, measurable) and facial texture (qualitative, interpretable) provide different kinds of information that come together in forensic facial depiction. These should serve recognition , which is the primary objective of this work. An 'accurate' and 'realistic' depiction may never be recognised if not seen by the right person. Does this means it is 'unsuccessful'? Of course, it depends on the question. Forensically, it fails as it won't provide a lead to identification, but in a controlled experimental situation like an <i>in vivo</i> study, it may be considered successful, if one can metrically show morphological agreement and recognizability.	Accept with modification: the sentence was revised and the word "success" as added.
48	4.4 E,T		Expand on the existing statement	No forensic facial image should be released/provided to an investigative agency/disseminated without a clear statement of purpose accompanying it. This statement should read along the lines of: "This facial depiction [could insert more detail here as to method e.g. forensic sketch, digital image, DNA-derived facial image] is the most likely appearance of the person in life, based on available information. It is not intended to be an exact likeness or portrait."	Accept with Modification: 2nd paragraph added to section 4.4. as suggested.
49	Annex A: Bibliography	T	Add additional entries	Primary sources 1. Davy-Jow, S., 2013. The devil is in the details: a synthesis of psychology of facial perception and its applications in forensic facial reconstruction. <i>Science & Justice</i> , 53(2), pp.230-235. 2. Wilkinson, C. 2015. 'A review of forensic art.' <i>Research and Reports in Forensic Medical Science</i> . DOI: 10.2147/RRFMS.S60767 3. Wilkinson, C. and Rynn, C. eds., 2012. <i>Craniofacial identification</i> . Cambridge University Press. 4. Wilkinson, C.M., 2006. Facial anthropology and reconstruction. <i>Forensic Human Identification</i> , pp.231-256.	Reject: The references given in the document are sufficient original sources.

50			<p>Add additional entries</p> <p>Secondary sources</p> <ol style="list-style-type: none"> 1. De Greef, S. and Willems, G., 2005. Three-dimensional cranio-facial reconstruction in forensic identification: latest progress and new tendencies in the 21st century. <i>Journal of Forensic Science</i>, 50(1), pp.JFS2004117-6 2. Lee, W.J., Wilkinson, C.M. and Hwang, H.S., 2012. An accuracy assessment of forensic computerized facial reconstruction employing cone-beam computed tomography from live subjects. <i>Journal of forensic sciences</i>, 57(2), pp.318-327. 3. Munn, L. and Stephan, CN, 2018. Changes in topography from supine-to-upright position – And soft tissue correction values for craniofacial identification. <i>Forensic Science International</i>, 289, pp 40-50. 4. Parks, CL, Richard, AH, Monson, KL, 2014. Preliminary assessment of facial soft tissue thickness utilizing three-dimensional computed tomography models of living individuals. <i>Forensic Science International</i>, 237 pp 146.e1-146.e10. 5. Wilkinson, C., 2005. Computerized forensic facial reconstruction. <i>Forensic Science, Medicine, and Pathology</i>, 1(3), pp.173-177. 6. Wilkinson, C., 2010. Facial reconstruction–anatomical art or artistic anatomy? <i>Journal of anatomy</i>, 216(2), pp.235-250. 7. Wilkinson, C., Rynn, C., Peters, H., Taister, M., Kau, C.H. and Richmond, S., 2006. A blind accuracy assessment of computer-modeled forensic facial reconstruction using computed tomography data from live subjects. <i>Forensic science, medicine, and pathology</i>, 2(3), pp.179-187. 	<p>Reject: The references given in the document are sufficient original sources.</p>
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