American Journal of Biological Anthropology

WILEY

AMERICAN JOURNAL OF BIOLOGICAL ANTHROPOLOGY

BRIEF COMMUNICATION

The Development of Standards for the Ethical Use of Human Skeletal Remains for Education, Research, and Training in Forensic Anthropology

Nicholas V. Passalacqua[1] | Eric Bartelink[2] | Wendy E. P. McQuade[3] | Dawnie Steadman[4] | Donna Boyd[5] | Kate Spradley[6] | Kelly Sauerwein[7] | Ranee Ho[8]

[1]The Ohio State University, Columbus, Ohio, USA | [2]California State University, Chico, California, USA | [3]Center for Human Identification, University of North Texas Health Science Center at Fort Worth, Fort Worth, Texas, USA | [4]University of Tennessee, Knoxville, Tennessee, USA | [5]Radford University, Radford, Virginia, USA | [6]Texas State University, San Marcos, Texas, USA | [7]National Institute of Standards and Technology, Gaithersburg, Maryland, USA | [8]Onondaga County Center for Forensic Sciences, USA

Correspondence: Nicholas V. Passalacqua (passalacqua.19@osu.edu)

Received: 8 January 2024 | **Revised:** 6 February 2025 | **Accepted:** 15 February 2025

Keywords: education | ethics | human remains | research | training

ABSTRACT

We present a proposed standard regarding the use of contemporary human skeletal remains in education, training, and research contexts in forensic anthropology. This document was generated by the Anthropology subcommittee of the Organization of Scientific Area Committees for Forensic Science and is currently under review for publication by the American Academy of Forensic Sciences', Academy Standards Board as a joint venture. The OSAC is federally funded and charged with drafting standards documents for various aspects of forensic science in the United States, while the ASB is an accredited Standards Development Organization which reviews and publishes proposed standards documents. The use of real human skeletal remains is crucial for students to learn how to identify human remains and develop various competencies as part of their education and training on their path to becoming professionals; they are also required for research. However, many recent transgressions have highlighted the need for the standardization of practices for the ethical treatment of human remains. We argue that the foundations of the ethical treatment of human remains are: informed consent, deathcare, and service to communities. This document provides a framework for informed consent based on the remains' origin (donated, unclaimed, or unidentified) and how obtained permissions dictate the ethical use of human remains from different contexts. Guidance is also provided for the use of information associated with remains (e.g., images, measurements), data associated with the remains, and their final disposition.

1 | Introduction

This paper summarizes a proposed standard for forensic anthropology concerning the use of *human remains* for *education*, *research*, and *training*, which has implications for anthropology more broadly for the general usage of human remains within those contexts. The use of real human skeletal remains is crucial to various aspects of anthropology, including education, training, and research (Caffell and Jakob 2019). Not only do aspiring students need to learn how to identify human remains as part of their education, but they must also demonstrate competence in various analytical methods on their path to becoming professionals. Forensic anthropology practitioners rely on human remains to maintain competence in medicolegal investigations, develop and validate methods to advance the discipline, and serve as known comparative exemplars. Likewise, the study of human remains lies at the core of much research in biological anthropology, including bioarchaeology, evolutionary anthropology, and forensic anthropology. The acquisition, curation, and/or use of human remains

have not always been ethical, transparent, or consistent. Recently publicized transgressions regarding the (mis)use of human remains (Bronwen 2022; Flaherty 2022; Helmore 2023) have highlighted the need for standardization of practices, which must be ethical and based on a more humanist approach (Christensen 2006; Biers 2019; Caffell and Jakob 2019; Ubelaker and Khosrowshahi 2019; Rosenblatt 2010; Moon 2014; Dreyfus and Anstett 2016; Passalacqua and Pilloud 2018, 2022; Monteiro 2023; Squires et al. 2019).

At a minimum, we argue that models for the ethical treatment and use of human remains should address:

- Obtaining *informed consent* (i.e., consent) for the use of human remains
- Providing *deathcare* to the individuals under our stewardship by treating their remains with care, dignity, and respect.
- Serving communities through improved quality of forensic anthropological examinations as part of medicolegal investigations by using human remains to
  - contribute to method development and/or evaluation
  - develop practitioner competence through education, training, and research.

Ongoing discussions about best practices for the use of human remains in education, research, and training (George et al. 2022; Passalacqua and Pilloud 2018; Squires et al. 2019) have highlighted the importance of codifying these principles into a published, publicly available standards document. This spurred the creation of a formal task group within the National Institute of Standards and Technology (NIST) administered Organization of Scientific Area Committees (OSAC) for Forensic Science's Forensic Anthropology Subcommittee, with the goal of generating a proposed standard that provides guidance to educators, researchers, curators, and practitioners in their use and treatment of contemporaneous human remains. This paper provides a summary and explanation of that proposed standard and the process used to develop it through an accredited standards development process. Finally, a glossary of terms highlighted in this text is provided at the end of this manuscript.

2 | The Need for Standards in Forensic Science

Without standards documents, the policies and practice of forensic science can vary significantly among jurisdictions in the United States, even for seemingly fundamental concepts (e.g., whether accreditation of crime laboratories and/or certification of practitioners are required). A more detailed discussion of this problem is presented in the National Research Council's (NRC) 2009 publication, *Strengthening Forensic Science in the United States: A Path Forward*. This report critically evaluated the state of forensic science in the United States (e.g., identifying weaknesses, challenges, and research needs) and provided recommendations for improvement. One of the many findings of this report was that uniformity is key to establishing and maintaining the quality and credibility of forensic science practice across local, state, and federal jurisdictions (NRC 2009); accordingly, the development, adoption, and implementation of discipline-specific forensic science standards documents is necessary and has become a priority that has been funded at the federal level via the creation of the OSAC in 2014.

3 | Standards Development and Forensic Anthropology

While the development and use of standards documents are not common in anthropology in general, such documents have become increasingly commonplace in US-based forensic anthropology due to its unique interface between science and the legal system. In the United States, there are a number of organizations that have been involved in developing standards documents for forensic anthropology. For the discipline of forensic anthropology, organizations engaging in standardization efforts include—but are not limited to—independently operating and discipline-specific Scientific Working Groups (SWGs), the Organization of Scientific Area Committees for Forensic Science (OSAC), and the American Academy of Forensic Sciences' (AAFS), Academy Standards Board (ASB).

In 2008, the Scientific Working Group for Forensic Anthropology (SWGANTH) was established through a partnership between the Federal Bureau of Investigation (FBI) and the Joint POW/MIA Accounting Command (JPAC), both of which had federally funded forensic anthropology laboratories. SWGANTH members met in person twice each year, once at each laboratory location. SWGANTH's goal was to develop consensus-based standards documents for the practice of forensic anthropology in the United States. In 2014, many SWGs were abandoned, and their members transitioned to OSAC, although not all SWGs chose to shut down and shift to this new model. The 21 documents created by the SWGANTH during its period of activity were made available on the OSAC website as "legacy documents" or historic, but meaningful documents related to standards development in forensic anthropology.

Although SWGANTH and other SWGs produced many important standards documents, the SWG system had its flaws. Notably, "The SWGs generate voluntary guidelines and protocols, which carry no force of law" (NRC 2009, 202). Thus, there was no incentive for laboratories (i.e., forensic science service providers [FSSPs]) or forensic science practitioners to implement SWG standards documents, nor was there any deterrence for nonconformity to SWG standards documents. As such, among its 13 recommendations, the NRC's (2009) report includes: "Congress should authorize and appropriate funds to...the National Institute of Standards and Technology (NIST), in conjunction with government laboratories, universities, and private laboratories, and in consultation with Scientific Working groups, to develop tools for advancing measurement, validation, reliability, information sharing, and proficiency testing in forensic science and to establish protocols for forensic examinations, methods, and practices. Standards should reflect best practices and serve as accreditation tools for laboratories and as guides for the education, training, and certification of professionals" (Recommendation 6, NRC 2009, 24–25) and "laboratory accreditation and individual certification of forensic science professionals should be mandatory" (Recommendation 7, NRC 2009, 25). In response

to these recommendations, and after years of planning, the NIST-administered OSAC for Forensic Science program was created in 2014.

In the OSAC's mission to facilitate the development of discipline-specific standards documents for forensic science in the United States (Jones et al. 2023; Passalacqua and Pilloud 2022), it is currently organized into seven Scientific Area Committees (SACs). These encompass 22 discipline-specific subcommittees, with the Forensic Anthropology Subcommittee housed within the Medicine SAC. All of these committees and subcommittees are overseen by the Forensic Science Standards Board (FSSB). It is important to note that the OSAC cannot publish standards documents; rather the OSAC is responsible for generating *proposed* standards which are submitted to an independent, *Standards Development Organization* (SDO) to complete their formal consensus process resulting in publication. Under the OSAC's current Registry Approval Process, proposed standards are generated by discipline-specific subcommittees (e.g., Anthropology). Once a document is published by an accredited SDO, the document may be placed on the OSAC's Registry, which acts as a public seal of approval for published standards documents for forensic science. In order for a document to make it onto the OSAC Registry, it must be vetted and approved by multiple levels of the OSAC (subcommittee, SAC, and FSSB), determining whether it reaches an appropriate level of detail and quality and thus should be implemented by relevant laboratories and practitioners. In the last decade, the OSAC has placed 182 standards documents on the OSAC Registry. In total, OSAC currently has over 160 proposed standards under development and an additional 100 proposed standards currently under review for publication at various SDOs (see https://www.nist.gov/organization-scientific-area-committees-forensic-science for more information).

The AAFS ASB was specifically created to support the OSAC and is currently the only SDO publishing standards for forensic anthropology. The ASB is accredited by the American National Standards Institute (ANSI); all standards published by ASB are vetted in a consistent and transparent manner and are considered American National Standards (ANS). ANSI SDO accreditation is based on conformance to the ANSI Essential Requirements (ANSI 2024), which clarify due process for the generation of standards documents to ensure: openness, lack of domination, balance, coordination and harmonization, notification of standards development, consideration of views and objectives, consensus vote, appeals, written procedures, and compliance with normative ANS policies and administrative procedures (ANSI 2024).

Similar to the OSAC's subcommittees, the ASB is currently made up of 14 consensus bodies (CBs), including the Anthropology Consensus Body. These consensus bodies are responsible for the evaluation, review, creation, and publication of standards documents. Most standards documents published by the ASB Anthropology CB were first drafted by the SWGANTH, then updated and turned into proposed standards by the OSAC. However, as an SDO, the ASB does have the ability to create its own standards documents, make changes to proposed standards documents provided by the OSAC, or consider standards documents submitted by organizations other than OSAC. In other words, while the OSAC is currently reliant on the ASB to get its proposed standards documents published, the ASB is not reliant on the OSAC to create proposed standards documents. At present, the ASB Anthropology CB has published 12 standards documents, four of which have been approved to be on the OSAC Registry (Table 1). Specifically for this proposed standard on the ethical use of human remains, the OSAC and the ASB

TABLE 1 | Published ASB standards documents for forensic anthropology, current as of August 2024.

ANSI/ ASB standard #	Document name	Currently approved for OSAC Registry
045	Standard for stature estimation in forensic anthropology	No
089	Best Practice Recommendation for facial approximation in forensic anthropology	Yes
090	Standard for sex estimation in forensic anthropology	No
132	Standard for population affinity estimation in forensic anthropology	No
133	Standard for age estimation in forensic anthropology	No
134	Standard for analyzing pathological conditions and anomalies in forensic anthropology	Yes
135	Scene detection and processing in forensic anthropology	Yes
146	Standard for resolving commingled remains in forensic anthropology	Yes
147	Standard for analyzing skeletal trauma in forensic anthropology	No
148	Standard for personal identification in forensic anthropology	No
149	Standard for taphonomic observations in support of the postmortem interval	No
150	Standard for determination of medicolegal significance from skeletal remains in forensic anthropology	No

are working together as a joint venture to facilitate public comments, revision, and final publication of this document. Note that both the OSAC and the ASB are focused on promoting the development and use of standards documents within the United States specifically; therefore, international adoption or applicability is outside the scope of these documents.

4 | Standards Documents

Standards documents are meant to be high-quality, consensus-based guidance documents for forensic practitioners, their *institutions* (i.e., FSSPs), and their stakeholders (ASB 2023). They serve as objective quality assurance (QA) mechanisms across a variety of forensic science contexts (e.g., laboratories, medical examiner offices, academic institutions) by promoting "quality, reliability, efficiency, and consistency among practitioners" (NRC 2009, 194). There are multiple types of standards documents to include: Standards, Best Practice Recommendations, Guidelines, and Technical Reports (ASB Manual 2022). A *Standard* consists of a collection of minimum requirements for how to perform a particular task or process and typically provides rationale, definitions, and descriptive processes for that task. Standards rely on the use of multiple "shall statements" that convey mandatory requirements (e.g., when estimating stature from human skeletal remains, the practitioner shall use measurements in accordance with their description). If a laboratory follows a Standard, then unauthorized deviations from that standard are typically considered quality assurance failures, which are expected to be "...enforced through systems of accreditation and certification wherein independent examiners and auditors test and audit the performance, policies, and procedures of both laboratories and service providers. In addition, requirements for quality control can be imposed on entities receiving federal funds, and professional groups can develop codes of ethics and conduct to serve as measures against which performance can be assessed" (NCR 2009, 194). These documents are designed to be integrated into a laboratory's *standard operating procedures* (SOPs) and quality control/quality assurance systems.

The other standards documents include (ASB Manual 2022):

- *Best practice recommendations* (BPR) which provide optimal procedures for how to perform a task or process, which means they articulate more stringent expectations than what is minimally acceptable in a standard. BPRs rely on the use of "should statements" (e.g., when estimating stature from human skeletal remains, the practitioner should use the Wilson et al. (2010) method, because Athey et al. (2019) demonstrated this method has a higher accuracy than other comparable methods). Deviations from BPR guidance *may be* acceptable based on the context of the task at hand.
- *Guidelines* that provide guidance and advice for how to implement and use a standard or BPR. Guidelines may provide recommendations, but do not establish best practices.
- *Technical reports* which provide information relevant to a task or process, which may or may not relate to a previously published standard. Unlike standards or BPRs, a Technical Report does not provide requirements or recommendations for tasks; instead, it is meant to be only informational and explanatory.

While the adoption and implementation of standards documents is typically voluntary, it is not uncommon for certifying and accreditation bodies to refer to, or track the implementation of, standards documents as part of their evaluation processes (Pierce et al. 2016). Additionally, the number of court cases that have referred to standards documents to assist with courtroom testimony and the admissibility of evidence has been increasing as these documents become more ubiquitous (Plourd 2023). Thus, the creation, implementation, and reliance upon standards documents within forensic science and the legal system of the United States has become an integral aspect of the medicolegal professional environment, so familiarity with, and implementation of, standards documents in forensic anthropology is strongly recommended and may eventually become required.

5 | Standard for the Ethical Treatment of Human Remains and Associated Data in Education, Research, and Training in Forensic Anthropology

The purpose of this proposed standard is to address the use of *contemporary human remains* in education, research, and training for forensic anthropology. While the current version of this document is written as a proposed standard, the initial working draft began as a BPR. This was because, originally, it was believed that much of what this document would discuss would be best described with "should statements." However, during the drafting process, it became clear that much of the content of this document was best stated as requirements, not recommendations. For example, consider the following two versions of this statement:

"All human remains *should* be treated ethically."—The use of "should" indicates a recommendation, not a requirement.

"All human remains *shall* be treated ethically."—The use of "shall" indicates a minimum mandatory requirement that must always be followed.

We argue that human remains must always be treated ethically, and there are no circumstances in which this recommendation could be ignored; thus, the content of this document was more appropriate as a standard.

This proposed standard clarifies what constitutes ethical treatment of human remains and their *associated data*. We argue that this minimally includes how *consent* was obtained and documented, how the remains and associated data are *curated* (i.e., minimum level of deathcare), and how the remains can be *used*, including their final disposition (i.e., community service). As clarified below, these criteria will vary according to the contextual nature of human remains and their associated data—whether they are *donated*, *unclaimed*, or *unidentified*. Consent and use of human remains and their associated data will depend on their contextual nature and will change as their context changes. Remains may first be encountered as an unidentified (i.e., active) forensic case, which could become identified and resolved but go unclaimed, only to be claimed by the next of kin

at some later date. Data associated with human skeletal remains are also included in this proposed standard because data derived from human remains are an important part of the informed consent agreement and ethical considerations regarding their use.

This document does not address the use and treatment of archaeological remains, as they fall outside of the document's scope (i.e., contemporary human remains which may or may not have medicolegal significance). However, the document notes that noncontemporary human remains are often subject to federal and state laws to include the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), and/or the African American Burial Grounds Preservation Act (AABGPA) (see Carter et al. 2022, for further discussion). Any human remains lacking provenance should be treated as *unidentified human remains* (i.e., an active forensic case and the *medicolegal authority* should be contacted). Anatomical skeletons purchased from legitimate biological supply companies are one notable exception to the proposed standard's provisions. Additional institutional consent to use anatomical skeletons for the purposes of education, research, and/or training is not necessary because the consent for use and sale was originally obtained by the authorized supplier. However, we acknowledge that for legacy anatomical teaching collections legally purchased decades ago, there is substantial debate regarding the ethics of their continued use for education, research, and training, given the lack of documented informed consent in their acquisition and the colonial framework from which they were obtained (D. G. Jones 2023; Agarwal 2024). Prior to the purchase of anatomical skeletons, institutions should attempt to verify and receive documentation of the ethical sourcing and sale of the human remains. Note that human remains can be purchased from a variety of "illegitimate" companies, many of which specialize in the trafficking of "oddities"—these should not be purchased or used for education, research, or training due to the ambiguity of their origin (Huffer and Charlton 2019; Huffer and Graham 2023; Graham et al. 2022).

Although the requirements set forth in the proposed standard apply to forensic anthropological practices commencing after the date of its publication, forensic anthropology institutions in possession of human remains and associated data that were acquired prior to the publication of this document are strongly encouraged to implement this proposed standard when feasible. This includes maintaining an inventory of all human remains, performing due diligence to determine their provenance, and facilitating their repatriation as necessary. A checklist has been provided to assist in the implementation of this proposed standard (Appendix).

5.1 | Educational, Research, and Training Uses of Human Skeletal Collections

Briefly, we want to clarify what we mean by education, research, and training. Education refers to learning that occurs within the classroom as part of formal coursework from an accredited academic institution. Research includes any systematic/structured scientific investigation with the goal of advancing knowledge. Training refers to formal, structured learning experiences that occur outside of the traditional academic classroom setting. Training in forensic anthropology includes continuing education programs and short courses often geared toward developing practical competencies. Note that while this proposed standard includes training using human remains within its scope, it does not cover instances where graduate students or other professionals may be trained through supervised, experiential casework by a qualified forensic anthropologist (e.g., on-the-job training). While applied experiential training is crucial to developing relevant competencies for practicing forensic anthropology, such training experiences can be quite varied depending on the context in which they occur. As such, the application of key components of this proposed standard (e.g., curation, consent) to those experiences may be difficult in, or incompatible with, some situations. When possible, practitioners are strongly encouraged to have official agreements (e.g., memoranda of agreement/understanding, contracts) in place with all relevant agencies prior to accepting casework, especially if training will be part of the casework process.

5.2 | Consent

The ethical use of human remains and associated data for education, research, and/or training requires legal informed consent. The party providing legal consent may vary depending on whether the human remains are donated, unclaimed, or unidentified (Table 2). Consent shall include written informed permission (e.g., consent forms, Memoranda of Agreement, Memoranda of Understanding), including clearly legible documentation of the date permission was provided and by whom. Consent shall be retained as long as the human remains and their associated data are curated and/or are available for use, unless otherwise noted. Parties with the legal authority to grant permission shall be provided with a written statement clearly indicating the proposed use of the human remains for education, research, and/or training purposes.

Concise and judicious descriptions in the consent documentation, easily understood by a layperson, shall include how and under what circumstances the human remains and associated data may be:

- Used in research. Specifically, *destructive activities* (e.g., trauma, thermal or taphonomic alteration, and sampling for chemical or biological analyses) shall be explained on the consent form. Explicit approval is needed to conduct destructive research when such research is allowable by law;
- Used for education and/or training;
- Distributed as images, scans, casts, models, etc. Consent should include explicit permission to use potentially identifying data or photos.
- Published, provided to external educators and researchers, and/or placed on open-access platforms.

Institutions accepting human remains and/or associated data shall have policies and SOPs outlining whether next of kin or other legal authorities can revoke consent or request reclamation of donated remains. In addition, these institutions should have a publicly available and easily understood statement outlining these policies and SOPs. In the case of human decomposition facilities, consent should include discussions of the potential for damage and loss of skeletal remains due to environmental factors.

5.3 | Curation

There is rich literature on museum studies and curation practices that includes discussions of best practices for the curation

TABLE 2 | Consent and use of human remains and associated data.

	Consent	Use of human remains and associated data	Curation of human remains and associated data
All remains	With regard to research usage, a concise and judicious description of the types of uses to be conducted shall be included with the consent statement, which should be understandable by a layperson. Specifically, destructive research (e.g., trauma, thermal or taphonomic alteration, and sampling for chemical or biological analyses) should be defined on the consent form. Explicit approval is needed to conduct destructive research when such research is allowable by law. With regard to educational usage, a concise and judicious description of the types of educational activities which the remains may be used in shall be included with the consent statement, which should be understandable by a layperson. With regard to distribution of images, scans, casts, models, etc. of remains or associated data, a concise and judicious description of the potential uses shall be included with the consent statement, which should be understandable by a layperson. Consent should include explicit permission to use potentially identifying data or photos. Notification provided to consenting authority shall indicate that *deidentified decedent data* provided or obtained could be published, provided to external educators and researchers, and/or placed on open-access platforms freely available for download. Institutions curating human remains, *samples*, and/or associated data prior to the publication of this document shall develop and implement policies and procedures describing how to attempt to obtain appropriate permissions, as well as how to document attempt(s) and their outcomes. Any institution accepting human remains, samples, and/or associated data shall have accessible policies and procedures to allow next of kin or anyone with legal authority to revoke consent or reclaim donated remains. Note that samples derived from unidentified human remains, including those derived from non-research based applications (e.g., DNA testing or isotope testing undertaken in an attempt to identify remains, etc.) shall follow the appropriate consent recommendations. These procedures, including consent forms, shall be legally compliant with all applicable institutional and jurisdictional regulations and should be reviewed by legal counsel to ensure compliance.	Human remains and associated data may be used for research and/or education depending on the permissions given in the relevant consent forms. Institutions shall develop and implement policies and procedures related to the ethical treatment and use of human remains. This begins with respect for the decedent and their remains and includes careful and respectful handling of all human remains, maintaining the integrity of the remains and their identifying information, and avoiding commingling. Unless explicitly permitted by individual consent forms and institutional policies and procedures, institutions and researchers shall not share or distribute images of human remains or associated data publicly, especially on social media. Institutions shall develop and implement policies and procedures for approval of use of human remains and associated data for specific purposes. Institutions shall limit access to human remains and associated data to those with appropriate permissions. Individuals accessing human remains held by an institution shall follow that institution's policies and procedures. Data (e.g., measurements) originally obtained from an institution via a research request shall not be shared without documented permission from the original institution. Approved uses of human remains and associated data vary by the categories listed below	All institutions in possession of human remains and their associated data shall curate them in an ethical manner. The ethical curation of human remains and associated data ensures preservation of the remains as well as long-term traceability of the remains and their procurement, use, and disposition. Additionally, access to human remains and associated data shall be defined in institutional policies and procedures and controlled to limit access to parties only with relevant permissions. With regard to the curation of human remains, policies and procedures for their storage shall facilitate their safekeeping, both from environmental factors (such as exposure to UV radiation, water, temperature and humidity, including rapid fluctuations and extremes, fire and smoke, pests, and contaminants [pollution, pesticides, etc.]) and human agents (e.g., accidental breakage, vandalism, displacement, theft, and neglect). Human remains and associated data shall be identified by a unique numbering system and be documented in records containing associated data. Human remains associated with a single decedent shall be stored individually. If human remains are separated for research use, they shall be tracked with the unique identifier to facilitate re-association. All individual accessions shall have unique identifiers and all materials associated with a unique identifier shall be labeled. All individuals handling human remains shall wear appropriate personal protective equipment as defined by institutional policies and procedures in order to protect both the remains and themselves. Institutions should only curate human remains with documented consent. Recognizing that institutions may be in possession of human remains that lack documentation supporting consent (i.e., "*legacy collections*"), institutions shall maintain an inventory of all human remains and perform due diligence to determine their provenance and facilitate repatriation as necessary. Examples of due diligence include documentation of all items, assigning unique catalog number(s), contacting of previous institutional personnel, contacting of relevant authority (e.g., *medicolegal authority*, state historic preservation office), reanalysis of remains, and contribution of information to NamUs. Institutions shall maintain documentation of all due diligence efforts.
Donated human remains	Written informed consent shall be obtained from the prospective donor prior to their death or from the legal next of kin or other *legal proxy* after death Donation forms should include opt-in/opt-out clauses for specific levels of consent based on various uses of the remains and/or their associated data.	All uses shall conform to the permissions granted through individual consent forms and institutional policies and procedures. This may include nondestructive and *destructive activities*.	

(Continues)

TABLE 2 | (Continued)

	Consent	Use of human remains and associated data	Curation of human remains and associated data
Unclaimed human remains	Consent shall be obtained from the appropriate legal jurisdictional authority for any use of the remains for research. If *unclaimed human remains* become claimed but the remains and/or their associated data continue to be curated, then new consent forms shall be obtained following the policies and procedures for *donated human remains* and associated data, as appropriate with the next of kin.	All uses shall conform to the permissions granted through consent from the legal authority and institutional policies and procedures. This shall include nondestructive activities only.	
Unidentified human remains (i.e., active forensic cases being curated by an institution)	Consent shall be obtained from the appropriate legal jurisdictional authority for any use of the remains and/or associated data. Consent shall be explicit in that it covers all information generated during the course of the examination as part of the technical record which would be considered either public records and/or subject to Freedom of Information Act (FOIA) requests. If unidentified human remains become *identified human remains*, new consent forms shall be obtained following the policies and procedures for donated or unclaimed human remains and associated data, as appropriate with the next of kin.	All uses shall conform to the permissions granted through consent from the legal authority and institutional policies and procedures. Unidentified human remains shall not be used for education or training. Associated data from nondestructive activities that were collected during the course of a forensic anthropological examination may be used only if the data are deidentified and/or aggregated. Any representations of the human remains outside of the public record (e.g., images, casts, three-dimensional scans, etc.) shall be de-identified and not be used without the appropriate legal consent. No destructive activities shall be performed unless they are in support of attempts to identify the decedent and are expressly permitted by the medicolegal authority.	

and treatment of human remains (Cassman et al. 2007; Roberts and Mays 2011; Curtis 2011; Giesen 2013; Monza et al. 2019; Squires et al. 2019; Hayflick and Robbins 2021; Kralick et al. 2023). For example, institutions that curate human remains and associated data should have a collection management *policy* that details the purpose and use of the collection (Malaro 1998). As such, all institutions curating human remains shall develop and implement *policies* and SOPs in support of the respectful treatment and use of human remains and their associated data. In this case, these SOPs should consider that ethical treatment of the dead means curating human remains and associated data in a way that maintains their integrity (e.g., prevents damage or loss, ensures long-term *traceability* and provenance), preserves their dignity, and specifies what constitutes their appropriate use and disposition. In order to operationalize these concepts, at a minimum, the following shall be considered for SOPs related to the curation of human remains and their associated data:

1. Handle human remains with care (e.g., using padded examination tables, a stabilizer for the cranium, and personal protective equipment (PPE));
2. Safely transfer human remains in the laboratory or field using evidence containers designed to prevent damage or deleterious changes;
3. Package and store human remains for maximal contextual integrity. This includes the use of protective containers that are clearly labeled and designed to prevent damage or deleterious changes;

4. Curate human remains in a secure facility (e.g., a laboratory secured via keycard, physical key, or other security measure);
5. Restrict access to associated data and *administrative donation records* using encryption software, password protection, and locked file cabinets.
6. Use caution in the presentation or display of human remains and associated data. For example, preserve the dignity and anonymity of the decedent through the judicious use of imagery, particularly on social media and other public domains (Biers 2019).

The curation of human remains and associated data must facilitate their safekeeping from deleterious environmental factors (e.g., exposure to UV radiation, water, rapid fluctuations and/or extremes in temperature and humidity, fire and smoke, pests, and contaminants [pollution, pesticides]), as well as human agents (e.g., accidental damage, vandalism, *displacement*, theft, neglect) (Cassman et al. 2007). Part of ethical curation is the use of a tracking system. This includes the use of a unique accession/catalog identifier for each individual and their *administrative donation records* (which may include *case files* and *technical records*), as well as separate, clearly labeled containers for each accession. In addition, the administrative donation records for each accession, as well as any deaccessioned material, must also be retained indefinitely with controlled access, as records typically contain personal identifiable information (PII). Finally, human remains and their administrative donation records must never be stored in private residences or other unsecured locations.

Note that the ethical curation of human remains and associated data also encompasses control of personnel in contact with these remains. Access to these remains shall be restricted to authorized persons only, ideally with a tracking system to record access. Furthermore, these authorized persons shall wear appropriate PPE when handling the remains to protect both the living individuals and the human remains.

5.4 | Use

The use of human remains and associated data is predicated on legally obtained informed consent and associated permissions (see Table 2). Importantly, unidentified human skeletal remains, including those being retained as evidence (i.e., active forensic cases), shall not be used for education or training unless the training is experiential and in support of a medicolegal investigation to facilitate case adjudication under the supervision of a qualified forensic anthropologist, which falls outside the scope of this proposed standard. Data associated with a medicolegal investigation (e.g., images, measurements, casts, 3D scans/prints) shall only be used for education, research, or training either with additional, appropriate consent from the medicolegal authority, or if they are sufficiently *deidentified* and/or aggregated to ensure that the individual is not identifiable. All data originally obtained from an institution via a research request shall not be reused or shared without updated, documented permission from the curating institution. Unapproved sharing and further use of data may violate original use consent and/or research request approvals.

5.5 | Final Disposition

Institutions shall have policies and SOPs addressing the disposition of retained human remains, *samples*, and associated data. A succession plan shall be in place to ensure continuity and retention of all administrative donation records, human remains, and associated data. This plan should include consideration of long-term collection operation and accessioning (i.e., how long the collection will be in use and expanding) as well as final disposition (to include potential deaccessioning) of the collection (i.e., if the institution can no longer support the collection, what should be done with the administrative donation records, human remains and associated data). This is especially crucial in cases where a single individual is responsible for a skeletal collection and where there may be little institutional memory following their departure from the position.

Unidentified forensic anthropology cases represent evidence; as such, the long-term retention of active forensic anthropology casework requires a quality assurance system to manage the *chain of custody* and ensure the evidentiary materials are properly curated. Forensic anthropology *institutions* (i.e., FSSPs) are therefore encouraged to return remains to the relevant medicolegal authority associated with the forensic anthropology casework after a forensic anthropology report is issued (Goldstein et al. 2022; Passalacqua et al. 2022).

With regard to forensic cases, prior to accepting any human remains for donation and/or analysis, institutions shall have an agreement with the medicolegal authority about the final disposition of any unused samples generated from casework analyses (e.g., unconsumed bone samples for isotopic analysis, DNA analysis). Any remaining unused samples should be returned to the medicolegal authority. If the return of the unused sample is not possible, the sample shall be retained as evidence with the rest of the forensic case or destroyed following relevant laws regarding tissue retention. The medicolegal authority may provide updated consent for additional use or destruction of the unused samples. Unused samples shall not be used for additional education, research, and/or training without specific consent from the appropriate authority.

6 | Discussion

Scholars have noted that research using human subjects not only produces risk for those human subject participants, but also their potential exploitation (Emanuel et al. 2000; De Castro 1995). Recent calls, largely from sociocultural anthropology, particularly those surrounding the Decolonization (Mogstad and Tse 2018; Pels 2018) and Radical Humanism (Glazier 2020; Jobson 2020; Thomas and Clarke 2023) movements, have made similar arguments about the (potential) exploitation of research subjects by anthropologists. Historically, privileged (e.g., White and Western) anthropologists have benefited from their research subjects (e.g., marginalized individuals). The risk of potential exploitation transcends death. In the United States, the mass collection of skeletons from Native American cemeteries (Lambert and Walker 2019; Redman 2016; Lippert 2006), African American burial grounds (Clinton and Jackson 2021),

and the unclaimed dead during the 19th–20th centuries (de la Cova 2019; Watkins 2018) attests to the potential exploitation and lack of regard for the voices and wishes of descendant communities (Stantis et al. 2023).

This proposed standard attempts to provide a way forward for the ethical treatment and use of contemporary human skeletal remains within the contexts of education, research, and training for forensic anthropology. Human skeletal remains are the biological tissues of individuals, and the care they receive reflects our humanity towards the people to whom those remains belong. Because human remains are not considered human subjects, they fall outside of regulatory requirements and protections of the Protection of Human Subjects (Common Rule, 45 CFR §46 n.d.) and Institutional Review Board (IRB) review and approval, and there are currently no other widely accepted mechanisms for oversight of such collections. Consent and use of the remains of the deceased are even more complex than with the living because it may not always be clear what the wishes of the deceased were and/or what challenges the next of kin may be facing when choosing whether, where, and how to donate the remains of their loved one. In such circumstances, we must prioritize our role as deathcare professionals assisting with mortuary options for grieving family members first and secondarily consider the potential consented uses of human remains (Emanuel et al. 2000).

7 | Conclusions

When we fail to treat the skeletal remains of others with humanity, we fail to respect our own humanity while also implying that humanity is something easily lost (Hershovitz 2022, 84). Biological anthropology, including forensic anthropology, cannot exist without the use of human remains and their associated data as part of its education, research, and training. We are confident that biological and forensic anthropologists can do so within an ethical and humanitarian model that conforms to the three major tenets outlined in the beginning of this article: consent, deathcare, and service to communities. This proposed standard on the use of contemporary human remains and associated data for forensic anthropology is an important first step toward a more transparent and equitable model for the ethical treatment of human remains and their associated data. Its requirements will assist in the ethical long-term curation and use of contemporary human remains and their associated data, thereby preventing our current collections from becoming *legacy collections* in the future (American Association for Anatomy 2023).

Author Contributions

Nicholas V. Passalacqua: conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (lead), writing – review and editing (lead). **Eric Bartelink:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal). **Wendy E. P. McQuade:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal). **Dawnie Steadman:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal). **Donna Boyd:** conceptualization (equal), investigation (equal), methodology (equal), writing – original draft (equal), writing – review and editing (equal). **Kate Spradley:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal). **Kelly Sauerwein:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal). **Ranee Ho:** conceptualization (equal), investigation (equal), methodology (equal), project administration (equal), writing – original draft (equal), writing – review and editing (equal).

Acknowledgments

Thank you to the NIST OSAC Program Office and ASB for supporting the creation of the proposed standard as well as this publication. Thank you to everyone that has provided input on the proposed standard. We would also like to acknowledge the multiple reviewers at NIST and AJBA for their feedback on this manuscript.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author.

References

Academy Standards Board (ASB). 2022. "Manual and Style Guide for ASB Standards, Guidelines, Best Practice Recommendations, and Technical Reports." ASB Guide 001, 3rd Edition. https://www.aafs.org/sites/default/files/media/documents/ASB%20Manual%202022%20revision.pdf.

Academy Standards Board (ASB). 2023. "Who We Are." https://www.aafs.org/academy-standards-board/about-asb.

Agarwal, S. C. 2024. "The Bioethics of Skeletal Anatomy Collections From India." *Nature Communications* 15: 1692.

American Association for Anatomy. 2023. *Policy on Legacy Anatomical Collections*. American Association for Anatomy.

American National Standards Institute (ANSI). 2024. "ANSI Essential Requirements: Due Process Requirements for American National Standards." https://share.ansi.org/Shared%20Documents/About%20ANSI/Current_Versions_Proc_Docs_for_Website/ER_Pro_current.pdf.

Athey, S. C., M. Walls, K. R. Klales, and H. M. Garvin. 2019. "A Comparative Analysis of Stature Estimation Methods for Application in Forensic Anthropology." In *Proceedings of the American Academy of Forensic Sciences 71st Annual Meeting*.

Biers, T. 2019. "Rethinking Purpose, Protocol, and Popularity in Displaying the Dead in Museums." In *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*, edited by K. Squires, D. Errickson, and N. Márquez-Grant, 239–264. Springer. https://doi.org/10.1007/978-3-030-32926-6_11.

Bronwen, D. 2022. "She Was Killed by the Police. Why Were Her Bones in a Museum?" https://www.nytimes.com/2022/10/19/magazine/philadelphia-move-bombing-katricia-dotson.html.

Caffell, A., and T. Jakob. 2019. "'The Dead Teach the Living': Ethical Considerations Concerning the Management of Collections of Human Remains in Universities." In *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*, edited by K. Squires, D. Errickson, and N. Márquez-Grant, 179–210. Springer. https://doi.org/10.1007/978-3-030-32926-6_9.

Carter, M. L., J. L. Newman, R. M. Seidemann, and E. A. Reedy. 2022. "Review of United States Laws Pertaining to the Recovery and Analysis

of Human Skeletal Remains." *Journal of Forensic Sciences* 67: 1876–1889. https://doi.org/10.1111/1556-4029.15082.

Cassman, V., N. Odegaard, and J. Powell. 2007. *Human Remains: Guide of Museums and Academic Institutions*. AltaMira Press.

Christensen, A. M. 2006. "Moral Considerations in Body Donation for Scientific Research: A Unique Look at the University of Tennessee's Anthropological Research Facility." *Bioethics* 20, no. 3: 136–145.

Clinton, C. K., and F. L. Jackson. 2021. "Historical Overview, Current Research, and Emerging Bioethical Guidelines in Researching the New York African Burial Ground." *American Journal of Physical Anthropology* 175, no. 2: 339–349.

Curtis, N. G. W. 2011. "Human Remains: The Sacred, Museums and Archaeology." *Public Archaeology* 3, no. 1: 21–32. https://doi.org/10.1179/pua.2003.3.1.21.

De Castro, L. D. 1995. "Exploitation in the Use of Human Subjects for Medical Experimentation." *Bioethics* 9, no. 3: 259–268.

de la Cova, C. 2019. "Marginalized Bodies and the Construction of the Robert J. Terry Anatomical Skeletal Collection: A Promised Land Lost." In *Bioarchaeology of Marginalized People*, edited by M. Mant and A. Holland, 133–155. Academic Press.

Dreyfus, J.-M., and E. Anstett. 2016. *Human Remains and Society: Curation and Exhibition in the Aftermath of Genocide and Mass-Violence*. Manchester University Press.

Emanuel, E. J., D. Wendler, and C. Grady. 2000. "What Makes Clinical Research Ethical?" *JAMA* 283, no. 20: 2701–2711.

Flaherty, C. 2022. "Much More Than Bones. Inside Higher Ed." https://www.insidehighered.com/news/2022/02/15/anthropologist-says-shes-being-punished-views-bones.

George, R. L., K. Zejdlik, D. L. Messer, and N. V. Passalacqua. 2022. "The John A. Williams Human Skeletal Collection at Western Carolina University." *Forensic Science* 2: 362–370. https://doi.org/10.3390/forensicsci2020026.

Giesen, M. 2013. *Curating Human Remains: Caring for the Dead in the United Kingdom*. Boydell Press.

Glazier, J. 2020. *Anthropology and Radical Humanism: Native and African American Narratives and the Myth of Race*. Michigan State University Press. https://doi.org/10.14321/j.ctvthhcrz.

Goldstein, J. Z., M. E. Moe, E. L. Wiedenmeyer, P. M. Banks, S. R. Mavroudas, and M. D. Hamilton. 2022. "Humanitarian Action in Academic Institutions: A Case Study in the Ethical Stewardship of Unidentified Forensic Cases." *Forensic Sciences Research* 7, no. 3: 358–365. https://doi.org/10.1080/20961790.2022.2035063.

Graham, S., D. Huffer, and J. Simons. 2022. "When TikTok Discovered the Human Remains Trade: A Case Study." *Open Archaeology* 8: 196–219.

Hayflick, E., and H. A. Robbins. 2021. "Toward a Twenty-First-Century Model for the Collaborative Care and Curation of Human Remains." In *Working With and for Ancestors: Collaboration in the Care and Study of Ancestral Remains*, edited by C. H. Meloche, L. Spake, and K. L. Nichols. Routledge. https://doi.org/10.4324/9780367809317.

Helmore, E. 2023. "Four Indicted Over 'Appalling' Theft of Body Parts From Harvard Medical School." https://www.theguardian.com/us-news/2023/jun/15/stolen-body-parts-harvard-medical-school.

Hershovitz, S. 2022. *Nasty, Brutish, and Short: Adventures in Philosophy With My Kids*. Penguin Press.

Huffer, D., and N. Charlton. 2019. "Serious Enquiries Only, Please: Ethical Issues Raised by the Online Human Remains Trade." In *Ethical Approaches to Human Remains*, edited by K. Squires, D. Errickson, and N. Márquez-Grant, 95–129. Springer.

Huffer, D., and S. Graham. 2023. *These Were People Once: The Online Trade in Human Remains, and Why It Matters*. Berghahn Books.

Jobson, R. C. 2020. "The Case for Letting Anthropology Burn: Sociocultural Anthropology in 2019." *American Anthropologist* 122, no. 2: 259–271. https://doi.org/10.1111/aman.13398.

Jones, D. G. 2023. "Anatomists' Uses of Human Skeletons: Ethical Issues Associated With the India Bone Trade and Anonymized Archival Collections." *Anatomical Sciences Education* 16, no. 4: 610–617. https://doi.org/10.1002/ase.2280.

Jones, J. P., II, A. Getz, and D. Sirk. 2023. "Organization of Scientific Area Committees (OSAC) for Forensic Science." In *Encyclopedia of Forensic Sciences*, edited by M. M. Houck, vol. 4, 3rd ed., 17–33. Elsevier. https://doi.org/10.1016/B978-0-12-823677-2.00145-8.

Kralick, A. E., S. L. Canington, A. R. Eller, and K. McGrath. 2023. "Specimens as Individuals: Four Interventions and Recommendations for Great Ape Skeletal Collections Research and Curation." *Evolutionary Anthropology: Issues, News, and Reviews* 32, no. 6: 1–20. https://doi.org/10.1002/evan.22002.

Lambert, P. M., and P. L. Walker. 2019. "Bioarchaeological Ethics: Perspectives on the Use and Value of Human Remains in Scientific Research." In *Biological Anthropology of the Human Skeleton*, edited by M. A. Katzenberg and A. L. Grauer, 3–42. Wiley-Blackwell.

Lippert, D. 2006. "Building a Bridge to Cross a Thousand Years." *American Indian Quarterly* 30, no. 3/4: 431–440.

Malaro, M. C. 1998. *A Legal Primer on Managing Museum Collections*. 2nd ed. Smithsonian Books.

Mogstad, H., and L.-S. Tse. 2018. "Decolonizing Anthropology." *Cambridge Journal of Anthropology* 36, no. 2: 53–72.

Monteiro, L. D. 2023. "Open Access Violence: Legacies of White Supremacist Data-Making at the Penn Museum, From the Morton Cranial Collection to the MOVE Remains." SocArXiv. https://doi.org/10.31235/osf.io/bs2vt.

Monza, F., R. Ciliberti, R. D'Anastasio, and M. Licata. 2019. "Museums and Human Remains: Ethical Issues in Curating and Displaying." *Ethique & Santé* 16: 133–136. https://doi.org/10.1016/j.etiqe.2019.06.006.

Moon, C. 2014. "Human Rights, Human Remains: Forensic Humanitarianism and the Human Rights of the Dead." *International Social Science Journal* 65, no. 215–216: 49–63. https://doi.org/10.1111/issj.12071.

National Research Council. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. National Academies Press. https://doi.org/10.17226/12589.

Passalacqua, N. V., and M. A. Pilloud. 2018. *Ethics and Professionalism in Forensic Anthropology*. Academic Press.

Passalacqua, N. V., and M. A. Pilloud. 2022. "The Importance of Professional Organizations as Disciplinary Leaders and the Need for Meaningful Ethical Codes in Anthropology." *American Anthropologist* 124: 198–203. https://doi.org/10.1111/aman.13696.

Passalacqua, N. V., B. Spatola, R. Thomas, et al. 2022. "Response to Goldstein et al. (2022) Humanitarian Action in Academic Institutions: A Case Study in the Ethical Stewardship of Unidentified Forensic Cases." *Forensic Sciences Research* 7, no. 4: 826–829. https://doi.org/10.1080/20961790.2022.2107973.

Pels, P. 2018. "Anthropology Should Never Be Fully Decolonized." *Etnofoor* 30, no. 2: 71–76.

Pierce, M. L., J. M. Wiersema, and C. M. Crowder. 2016. "Progress in the Accreditation of Anthropology Laboratories." *Academic Forensic Pathology* 6, no. 3: 344–348. https://doi.org/10.23907/2016.036.

Plourd, C. 2023. "An Update on Standards Development Activities in Forensic Science: Legal Impacts Moving Forward." In *Proceedings of the American Academy of Forensic Sciences 75th Anniversary Scientific Conference*, XXIX:589.

Protection of Human Subjects. 45 CFR §46. n.d. "US Department of Health and Human Services." www.govinfo.gov/content/pkg/CFR-2016-title45-vol1/pdf/CFR-2016-title45-vol1-part46.pdf.

Redman, S. J. 2016. *Bone Rooms: From Scientific Racism to Human Prehistory in Museums*. Harvard University Press.

Roberts, C., and S. Mays. 2011. "Study and Restudy of Curated Skeletal Collections in Bioarchaeology: A Perspective on the UK and the Implications for Future Curation of Human Remains." *International Journal of Osteoarchaeology* 21: 626–630. https://doi.org/10.1002/oa.1175.

Rosenblatt, A. 2010. "International Forensic Investigations and the Human Rights of the Dead." *Human Rights Quarterly* 32, no. 4: 921–950. https://doi.org/10.1353/hrq.2010.0015.

Squires, K., D. Errickson, and N. Márquez-Grant. 2019. *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*. Springer. https://doi.org/10.1007/978-3-030-32926-6.

Stantis, C., C. de la Cova, D. Lippert, and S. B. Sholts. 2023. "Biological Anthropology Must Reassess Museum Collections for a More Ethical Future." *Nature Ecology & Evolution* 7, no. 6: 786–789.

Thomas, D. A., and K. M. Clarke. 2023. "Can Anthropology Be Decolonized?" Sapiens. https://www.sapiens.org/culture/can-anthropology-be-decolonized/.

Ubelaker, D. H., and H. Khosrowshahi. 2019. "Ethical Perspectives in Forensic Anthropology and Museum Curation in the United States of America." In *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*, edited by K. Squires, D. Errickson, and N. Márquez-Grant, 387–400. Springer. https://doi.org/10.1007/978-3-030-32926-6_17.

Watkins, R. 2018. "The Fate of Anatomical Collections in the US: Bioanthropological Investigations of Structural Violence." In *Identified Skeletal Collections: The Testing Ground of Anthropology?* edited by C. Henderson and F. Alves, 169–186. Archaeopress.

Wilson, R. J., N. P. Herrmann, and L. M. Jantz. 2010. "Evaluation of Stature Estimation From the Database for Forensic Anthropology." *Journal of Forensic Sciences* 55, no. 3: 684–689.

Appendix

Human Remains (HR) Checklist

All entities in possession of (or anticipating possession of) HR and associated data shall ensure the following:

Policies and Procedures for Ethical Treatment of HR and Associated Data

Develop and implement legally compliant Policy and Procedures (P&P) for the ethical treatment of HR and associated data, addressing:

- Consent (seeking, obtaining, revoking) to use and/or curate HR and associated data, including legacy collections
- Methods, instrumentation, and facilities to achieve safe, secure, and ethical transfer, handling, and curation of HR
- Management of associated records
- Management of research requests, including loans of HR and/or associated data.
- A plan for the final disposition of HR and associated data

Consent

Use due diligence to seek and attempt to obtain legal consent from the donor (if still living), legal next of kin, legal proxy, or appropriate jurisdictional authority. Consent documentation shall include the following, at a minimum:

- Date permission granted and by whom, accompanied by signatures of the grantee and grantor
- Clear statement of agreed-upon permissible use of HR and associated data, addressing the following parameters:
  - Research (nondestructive; destructive; both)
  - Education and/or Training
  - Displays, viewings, or distribution of HR or their likeness (e.g., drawings, photographs, casts, models)
  - Publication and/or presentations of derived data (internal; external; open source)
- Agreed-upon policy for
  - Loaning/sharing of HR and/or associated data
  - Final disposition of HR and associated data
  - Circumstances for revocation of consent

Special considerations:

- Seek consent from the legal next of kin, proxy, or appropriate jurisdictional authority if Unidentified or Unclaimed HR ultimately becomes identified or claimed, respectively.
- Engage in due diligence in seeking and obtaining consent from legal next of kin, proxy, or appropriate jurisdictional authority if the entity inherits and/or curates "legacy" HR.

Transfer/Handling/Curation of HR and Associated Data

Treat HR and associated data in an ethical, safe, and secure manner, including the following:

- Safe transfer
- Careful and ethical handling
- Protection of HR and practitioners through the use of PPE
- Storage/curation in a secure facility with restricted/controlled and documented access
- Careful storage/curation maximizing contextual integrity
- Careful storage/curation limiting exposure to environmental hazards (e.g., floods, insects, mold, etc.)

- Return, if possible, to the contributing source at the conclusion of use, unless a documented donation.

Prohibitions

All entities in possession of (or anticipating possession of) HR and associated data shall NOT:

- Fail to seek (using due diligence) and obtain consent
- Fail to observe agreed-upon conditions of consent
- Store/curate HR in private residences and/or self-storage facilities
- Fail to de-identify HR and associated data
- Expose/subject HR and associated data to physical harm, including loss of contextual integrity
- Treat HR and associated likeness in an unethical, disrespectful manner
- Fail to document and retain documentation of HR and associated data in an entity's possession
- Use HR from open forensic investigations for education and/or training
- Loan HR from open forensic investigations
- Purchase HR from entities whose sources are ambiguous and/or illegitimate

Glossary

Associated Data

Information related to a particular set of human remains. Includes data resulting from postmortem examination and tests (e.g., DNA, isotope, histology), as well as demographic data, generalized health and activity information (e.g., antemortem conditions), biometric information, imaging, and reproductions (e.g., 3-D printings, casts).

Administrative Donation Records

Records that contain identifying information for the human remains or associated data, and/or their next of kin. This may include death certificates, donation consent forms, antemortem biological questionnaires, genetic information, technical records (specific to case investigations), case reports, and documentation of temporary or permanent changes to the disposition of the human remains. Administrative Donation Records contain personally identifiable information (PII).

Case File

All technical records, administrative material (e.g., submission, supporting, review, or tracking records), and a copy of the issued report, for a specific case investigation.

Chain of Custody

Chronological record of the handling and storage of an item from its point of collection to its final return or disposal.

Contemporary Human Remains

Human remains of recent origin, typically individuals that lived within the last 100 years.

Deathcare

The services and practices related to the treatment and care of the deceased, to include death investigations and funerary services.

Deidentified Data

Data lacking reasonable traceability to an individual identity. Deidentified data can be reassociated back to an identity by individuals with access to Administrative Donation Records.

Destructive Activities

Any activity that destroys, damages, and/or alters human remains.

Displacement

The misplacement or separation of human remains from their designated context.

Donated Human Remains

Donated human remains are individuals whose remains are bequeathed for the purpose of education, research, and/or training. Donated human remains have documentation either from the individual during life or their legal proxy.

Education

Formal academic coursework from an accredited school, college, or university.

Human Remains

Human soft tissue, skeletal remains, and/or samples thereof (e.g., hair, fingernails, cuttings for DNA or isotopic testing, extracts derived from a primary source).

Identified Human Remains

Human remains with a known or medicolegally determined identity.

Informed Consent

Documented permission granted after explicit description of the potential uses of the human remains, associated data, and any risks of participation.

Institutions

Individuals or entities serving as forensic anthropology service providers and/or curators of contemporary human remains and/or associated data. This includes independently operating forensic anthropologists, laboratories, curating agencies, offices of medicolegal authority, law enforcement agencies, museums, and academic organizations.

Legacy Collections

"Historical collections containing human tissue, including human remains where provenance is unknown or unclear or the informed consent of the individual has not been determined" (American Association for Anatomy 2023)

Legal Proxy

Next of kin, power-of-attorney, or another individual with legal authority to make decisions regarding the disposition of a decedent.

Medicolegal Authority

A person or agency charged by statute with conducting death investigations for the purpose of certifying deaths (e.g., Coroners, Medical Examiners, Justices of the Peace, etc.).

Policy

Broad guiding document for how an institution operates.

Research

A systematic investigation, including the generation and analysis of data, which advances scientific knowledge.

Sample

Any material derived from tissue (e.g., bone, hair, fingernails).

Standard Operating Procedure (SOP)

A written procedure which describes and standardizes how to perform routine tasks within an organization. SOPs are also used in order to implement organizational policies.

Standards Developing Organization (SDO)

"An organization focused on developing, publishing, or disseminating technical standards using a consensus-based standards development process." (Jones II et al. 2023:3)

Technical Record

All pertinent items created or used to support findings of a forensic anthropological examination. Technical records may be field and laboratory notes (e.g., inventories, observations, diagrams, sketches, charts) documenting tests undertaken, photographs, and medical imaging forming the basis for analysis or technical conclusions, test records, antemortem medical and dental records, and other documentation.

Traceability

The ability to verify the history, identity, location, reference, source, or usage of an item or individual through documentation.

Training

The formal, structured process, including continuing education, through which a practitioner reaches a level of competency after acquiring the knowledge, skills, and abilities (KSAs) required to conduct specific forensic analyses. This does not include on-the-job training during casework.

Unidentified Human Remains

Human remains determined to be of medicolegal significance but lacking a known or medicolegally determined individual identity. Unidentified remains are typically active/unresolved forensic cases.

Unclaimed Human Remains

Identified human remains whose next of kin cannot be located or whose next of kin do not/cannot accept responsibility for the disposition of the remains. Local and state statutes may allow for the donation of unclaimed human remains via legal proxy.