

The need to professionalize forensic anthropology

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SUMMARY

As the discipline of forensic anthropology continues to grow and expand in scope and depth, it is necessary to define the discipline within the greater framework for a forensic science profession. This paper aims to review the current state of forensic anthropology as a profession, focusing on the structural characteristics of education and training as well as the practice of forensic anthropology through the concepts of qualifications, ethical codes, guidelines, and standards. As a profession, the concepts of expertise, ethical practice, and societal need of forensic anthropology are discussed. The current system for certification of forensic anthropologists is outlined in addition to the need to define qualifications and to create standards for forensic anthropological practice. Additionally, the need for professional organizations to lead the charge in ethical practice, defining qualifications and adopting and creating standards, is discussed.

Finally, the societal needs fulfilled by forensic anthropology are reviewed.

Key words: Forensic Anthropology – Professionalism – Ethics – Scientific integrity – Conflicts of interest – Expertise – Certification – Best practice

INTRODUCTION

The scope and breadth of forensic anthropology have continued to increase since its introduction over 80 years ago, stemming from a publication by Krogman (1939), which focused on identification efforts of unknown human remains. The discipline has since grown to include the analysis of trauma and taphonomy, as well as the recognition of the importance of forensic archaeology and the inclusion of forensic anthropologists into leadership roles in large-scale investigations of missing and disappeared individuals (e.g., Christensen et al., 2019; Dirkmaat, 2012; İşcan, 1988; Snow, 1982). More recently, practitioners have begun to recognize the importance of ethics in forensic anthropology. This ethical consideration extends to not only the proper treatment of human remains, but also the professionalization of the discipline, in addition to the conduct of forensic anthropologists themselves (Christensen et al., 2015; France, 2012; Márquez-Grant et al., 2019; Passalacqua et al., 2019; Passalacqua and Pilloud, 2018; Passalacqua and Pilloud, 2020; Pilloud and Passalacqua, in press; Walsh-Haney and Lieberman, 2005).

These important ethical considerations have led to larger discussions about the need for certification of individuals, accreditation of laboratories, formalized education/training

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programs (Passalacqua and Pilloud, 2020), the further development of standards and guidelines in the practice of forensic anthropology, and possible licensure in order to practice (Langley and Tersigni-Tarrant, 2020). Further, it has been argued that the ethical codes presently applicable to most forensic anthropologists are lacking, if present at all (Passalacqua and Pilloud, 2018). Taken together, these issues demonstrate that, while forensic anthropology is more important and widespread than ever (Boyd and Boyd, 2018; Cattaneo, 2007; Christensen et al., 2015; Dirkmaat and Cabo, 2012; Dirkmaat et al., 2008), it is also lacking a foundation for its practitioners, both present and future.

The goal of this paper is to briefly review the current state of forensic anthropology as a profession, focusing on the structural characteristics of education and training as well as the practice of forensic anthropology through the concepts of qualifications, ethical codes and guidelines, and standards. To avoid confusion, we have included a short glossary at the end of this article with the definitions of terms used (many also used in Passalacqua and Pilloud, 2018 and Passalacqua and Pilloud, 2020).

NEED FOR PROFESSIONAL ETHICS

Generally, a professional is someone who (1) possesses a body of special knowledge (i.e., expertise); (2) practices within an ethical framework (i.e., adheres to a code of ethics and avoids conflicts of interest); and (3) fulfills a societal need (Passalacqua and Pilloud, 2018; Pellegrino, 2002). Based on these criteria, we can consider forensic anthropologists to be professionals working within the broader profession (i.e., paid occupation) of forensic anthropology. Below we will discuss the concepts of expertise, ethical practice, and societal need in regard to forensic anthropology in more detail.

Expertise

Forensic anthropology is “the application of anthropological method and theory to matters of legal concern, particularly those that relate to the recovery and analysis of the human skeleton” (Christensen et al., 2014b). While education in

broad anthropological concepts is crucial for the practice of any form of anthropology, forensic anthropologists are unique experts in the analysis of contemporary human skeletal remains in order to contribute to establishing an individual’s identity. Additionally, forensic anthropologists contribute to determination of cause and manner of death through the reconstruction of the death-event via the analysis of skeletal trauma and archaeological/taphonomic evidence (Passalacqua and Pilloud, 2018). In the United States, many forensic anthropologists also have expertise in forensic archaeology, or the application of archaeological method and theory to matters of legal concern (Christensen et al., 2014b). However, outside of the United States, individuals are often experts in *either* forensic anthropology *or* forensic archaeology, as anthropology and archaeology educational programs are often separate, thus producing independent experts.

Unfortunately, in the current paradigm, the ability to demonstrate expertise in forensic anthropology (and/or forensic archaeology) is not straightforward. Expertise is typically generated and evaluated via qualifications, or the education and/or training an individual has received in a particular discipline/subject-matter area. Education and training are documented via credentials (e.g., transcripts, certificates). While there are a number of best practice guidelines or other documents that discuss education, training, and/or qualifications in forensic anthropology (discussed more below), none of these are currently widely accepted or required in order to develop qualifications for forensic anthropology expertise in the United States or abroad (Passalacqua and Pilloud, 2020).

Recently, Passalacqua and Pilloud (2020) surveyed practicing forensic anthropologists in the United States and found wide variability in terms of education and training experiences. Individuals reported taking many different courses while they were in graduate school. However, when asked about what knowledge areas should be required to practice forensic anthropology, a number of areas were supported by general consensus (in this case meaning greater than 50% of individuals) (Table

1). Similarly, when asked about education level and training experiences that should be required to practice forensic anthropology, consensus was reached for few items (Table 2).

Certification was only considered to be required to practice forensic anthropology by 50% of respondents; thus, it did not quite achieve consensus support. Similarly, having a doctoral degree as a requisite to practice forensic anthropology was only supported by 45% of respondents. When asked, “what makes you qualified to be a forensic anthropologist?”, experience and education were by far the most

common responses. Similarly, when asked what would make someone *unqualified* to practice forensic anthropology, responses focused on a lack of experience, training, and/or education; this finding is noteworthy as it suggests individuals believe their personal education/training experiences make *them* qualified to practice forensic anthropology. At the same time, there is no consensus on how to demonstrate that an individual has the proper qualifications to practice forensic anthropology, which would be achieved through certification. Nor are there any accepted best practice guidelines or standards

Table 1. Knowledge areas respondents think should be required to practice forensic anthropology

Topic	Frequency	Percent
Human osteology	169	97%
Forensic anthropology methods	164	94%
Skeletal trauma	164	94%
Archaeological methods	161	93%
Taphonomy	155	89%
Human variation	151	87%
Human decomposition	145	83%
Bone biomechanics	140	80%
Gross anatomy	138	79%
Statistics	138	79%
Introduction to forensic anthropology	137	79%
Dental anthropology	134	77%
Growth and development	133	76%
Paleopathology	127	73%
Ethics	125	72%
Research methods	117	67%
Radiology	113	65%
Zooarchaeology	112	64%
Bioarchaeology	108	62%
Laboratory management	92	53%

Table 2. Education/training experiences respondents think should be required for an individual to practice forensic anthropology.

Experience	Frequency	Percent
Some period of work supervised by a certified forensic anthropologist	128	74%
Master’s degree in anthropology	104	60%
Graduate education supervised by certified forensic anthropologist	100	58%
Some amount of continuing education	98	57%
Membership in relevant professional organization	95	55%
Advanced applied training	92	53%

for qualifications in forensic anthropology. When asked about developing standards for education and training in forensic anthropology, and about developing accreditation for forensic anthropology educational programs, 98% and 96%, respectively supported these concepts (Passalacqua and Pilloud, 2020). In fact, a recent report by the National Institute of Justice (within the United States) identified forensic anthropology as one area of academic study that could be subject to accreditation by the Forensic Science Education Programs Accreditation Commission (National Institute of Justice, 2019).

Standardization

The reason to pursue the development of best practice guidelines and standards documents is outlined in the findings of the National Research Council report (2009). In which the authors state:

Standards and best practices create a professional environment that allows organizations and professions to create quality systems, policies, and procedures and maintain autonomy from vested interest groups. Standards ensure desirable characteristics of services and techniques such as quality, reliability, efficiency, and consistency among practitioners. Typically, standards are 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 (National Research Council, 2009).

The need to follow available standards is also part of the Daubert criteria for courtroom admissibility (Christensen et al., 2014a; Daubert, 1993). Further, while the publication of standards is important because it sets a minimum for how various tasks are to be performed by a disciplinary professional, published standards are also used to inform outside certifications and accreditations, meaning that the criteria used to certify individuals or accredit laboratories are (in theory) based on published standards.

Efforts to develop standards for many forensic sciences predate the 2009 report from the National Academy of Sciences (NAS) (National Research

Council, 2009), which were largely being pursued by various Scientific Working Groups (SWGs). These SWGs were all operating independently, following different procedures, and without oversight. In response to the publication of the NAS report in 2009, the United States National Institute of Standards and Technology (NIST) created the Organization of Scientific Area Committees (OSAC) for Forensic Science. The OSAC was originally organized into five scientific area committees (Biology/DNA, chemistry/instrumental analysis, crime scene/death investigation, digital/multimedia, and physics/pattern interpretation). These committees were further divided into 25 subcommittees. Anthropology is currently a subcommittee within the committee of crime scene/death investigation. In 2020, OSAC 2.0 was announced (with planned implementation in late 2020) as a reorganization of the OSAC structure. In OSAC 2.0, the upper-level OSAC resource committees would be directly integrated into the subcommittees, which would theoretically eliminate an internal level of bureaucracy and a bottleneck for documents. Additionally, in OSAC 2.0, the SACs and their subcommittees are also being reorganized, with forensic anthropology falling under the “forensic medicine” SAC (essentially a renaming of “crime scene/death investigation”).

The OSAC forensic anthropology subcommittee replaced the pre-existing SWG for Forensic Anthropology (SWGAnth), which went on hiatus in 2014. The SWGAnth was established in 2008 with the goal of developing standards for the practice of forensic anthropology in the United States. The SWGAnth generated 21 guidelines covering topics ranging from sex assessment, resolving commingled human remains, laboratory management and quality assurance, and a code of ethics and conduct. These documents are currently available on the NIST website at: <https://www.nist.gov/topics/organization-scientific-area-committees-forensic-science/anthropology-subcommittee> (Passalacqua and Pilloud, 2018).

The SWGAnth created consensus-based documents via committee, and then posted draft versions of these documents online for public

comment. After resolving public comments, the SWGAnth posted final versions of these documents online. Like other SWGs the SWGAnth operated independently from the larger standards community, which was in part why it was replaced by the OSAC. After the creation of the anthropology subcommittee of the OSAC, this organization took the pre-existing SWGAnth documents and began revising and formatting them into either best practice or standard documents. However, unlike the SWGs, the OSAC subcommittees submit their finalized documents to accredited Standard Development Organizations (SDOs), which act as third-party peer review and an independent publishing organization.

In the case of the Anthropology subcommittee of the OSAC, the SDO used is the American Academy of Forensic Sciences (AAFS), Academy Standards Board (ASB), which is accredited by the American National Standards Institute (ANSI). The ASB has its own anthropology consensus body made up of individuals each representing an interest category. These interest categories exist in order to ensure that the membership of the consensus body is diverse (i.e., not all academics), as well as to ensure that various stakeholders have input into the consensus body documents, which is also why documents are circulated for public comment. The current interest categories of the ASB are: Academics and researchers; Organizations; General Interest; Producer; User – Government; User – Non-Government; and Jurisprudence and Criminal Justice.

Once a document is submitted to the ASB from the OSAC, it is presented to the ASB's anthropology consensus body (ACB), who then works to create their own working group for each document. The ACB's working group revises the draft document from the OSAC (as needed), which is then posted online for a 30-day period for public comment. After public comments are received, the working group within the ACB works to resolve the public comments. The updated documents are then recirculated for additional public comments, or published depending on the amount of substantive changes made to the document during the public comment resolution process (Passalacqua and Pilloud, 2018). At the time of

writing, the ASB has published two standards in forensic anthropology: *Stature estimation in forensic anthropology* and *Sex estimation in forensic anthropology*. Future standards will further outline the practice of forensic anthropology to include the documentation of other aspects of the biological profile (i.e., ancestry, age); as well as pathological conditions and anomalies; scene detection and recovery; trauma analysis, etc. While there are currently no published standards for qualifications in forensic anthropology, the OSAC has revised the SWGAnth's "Qualifications" best practice document, into a standard and this revised document is working its way through the OSAC and ASB processes. Assuming this document is published, it has implications for education, certification, and the tasks individuals can perform at various qualification levels within forensic anthropology.

Outside of the United States, various other codes of practice exist; however, there are no published best practice or standard documents. A code of practice is essentially a best practice document, used by an individual organization, which only applies to its members. The Royal Anthropological Institute (RAI) has a published "Code of Practice for Forensic Anthropology" in conjunction with the Forensic Science Regulator. This 20-page document provides guidelines on how to "establish the professional standard of performance within the field of forensic anthropology in the UK" (Royal Anthropological Institute of Great Britain and Ireland, 2018). The document generally focuses on response and documentation at the scene and at the morgue, as well as report writing. Methods of analysis are not generally discussed. Further, the document specifically states that it does not address education or research in forensic anthropology. This document is not published by an accredited SDO, and is to be considered a stand-alone document that is not aligned with International Standards (thus only applying to members of the RAI). As such, it is separate from the Forensic Science Regulator's Codes of Practice and Conduct, which follows ISO/IEC 17025 and is a standard for testing and calibration laboratories. However, the RAI's code of practice is in general alignment with International Laboratory

Accreditation Cooperation (ILAC) G19:08/2014, Modules in a Forensic Science Process, which is a general guideline for laboratories that perform forensic analysis and examination according to ISO/IEC 17025 published by the ILAC.

Certification

Certifications are credentials that exist to demonstrate expertise in a knowledge area and/or skill. Within forensic anthropology, there are currently four organizations that provide some form of certification: the American Board of Forensic Anthropology (ABFA), the RAI, the Forensic Anthropology Society of Europe (FASE), and the Asociación Latinoamericana de Antropología Forense (ALAF). While these certifications exist relatively regionally (United States, United Kingdom, Europe, and Central/South America, respectively), all of these certifications are open to anyone who meets their application requirements. However, currently the ABFA is the only certifying body that is accredited (in their case, by the Forensic Specialties Accreditation Board [FSAB]). Independent accreditation of a certifying body is important, as it demonstrates that an organization's certification procedures follow a standard and are transparent, fair, and consistent. Without accreditation, there is no assurance that an organization is operating in an unbiased or systematic manner.

Presently, in order to apply for certification by the ABFA, an individual must have: 1) completed a PhD in anthropology or a closely related field (demonstrated via academic transcripts), 2) experience in forensic anthropology (demonstrated by submitted case reports authored by the applicant in addition to letters of recommendation), and 3) knowledge of forensic anthropology (demonstrated through the successful completion of the ABFA certification exam). If an individual's application is accepted, they are allowed to sit for the two-part ABFA certification exam. This exam consists of a written and a practical portion and is offered once a year. Examinees must achieve an 80% or greater on both portions of the exam to pass. If one or both portions are not passed, they may be retaken the following year. Once an individual

passes both portions of the exam, they have met all requirements of the ABFA and are a certified Diplomate of the ABFA. In order to maintain certification, ABFA Diplomates must submit a re-certification document every three years which documents their continuing education. Since its inception in 1977 to 2020, 146 individuals have been certified by the ABFA (Boyd et al. 2020).

In the United Kingdom (UK), there is a certification process overseen by the RAI. This organization has a certification procedure that recognizes three different levels of practitioner: Forensic Anthropologist III, Forensic Anthropologist II, and Forensic Anthropologist I. Forensic Anthropologist III is the entry-level practitioner. For this level, applicants must have an Honors degree, have attended two professionally relevant conferences, be a fellow or student fellow of the RAI, and have demonstrated professional experience for two years after graduation. In addition to documenting these qualifications, applicants must also include two letters of reference, at least one of which must be from a Forensic Anthropologist I. Two examiners, as determined by the RAI, then review this application and determine if the applicant is eligible for certification. A Forensic Anthropologist III is expected to work under the supervision of a Forensic Anthropologist I or II.

To apply to become a Forensic Anthropologist II, applicants must demonstrate participation in a minimum of five cases; an understanding of health and safety protocols; knowledge of osteology/anatomy, skeletal biology, population variation, human identification, and statistics; continuing education or training; two years of experience after attaining Forensic Anthropologist III; attendance at two additional relevant professional conferences; and membership in a professional organization beyond the RAI. Additionally, two letters of reference must be submitted, at least one of which must be from a Forensic Anthropologist I. The applicant then must demonstrate theoretical knowledge, either via documentation through casework or other documents, or a written examination. Additionally, there is a practical portion that involves writing a case report on a mixed skeletal assemblage. Candidates have

three hours to take appropriate notes and photographs. They then have two additional weeks to complete and submit a final report with all relevant accompanying documentation. A Forensic Anthropologist II is meant to work under the direction of a Forensic Anthropologist I.

Finally, to become a Forensic Anthropologist I, an individual must have completed at least an MSc, but ideally a PhD. Applicants are to have been a Forensic Anthropologist II for at least three years and submit their application with two letters of reference, at least one of which should be from a mentor and the other from a relevant professional. The applicant is to supply five case reports, which demonstrate a range of knowledge and conform to the standards of the UK criminal justice system. The examination then consists of an expert witness oral examination based on these reports. It is also possible to apply for direct entry if an applicant is able to demonstrate a minimum of five co-authored/sole-authored peer-reviewed case reports demonstrating a range of knowledge, participation in continuing education or training, evidence of expert witness testimony, an understanding of health and safety protocols, attendance at two relevant conferences, and membership in the RAI and one other professional organization. All information regarding examination of the RAI is from the following website: https://www.therai.org.uk/images/stories/Forensic/Practitioner_Levels.pdf. According to the RAI website (at the time of writing), eight individuals are certified as Forensic Anthropologist I, there are currently five individuals at the level of Forensic Anthropologist II, and 21 at the level of Forensic Anthropologist III.

The FASE also recognizes tiered certification with two levels – Level II and Level I. For FASE certification Level II, a candidate must have a master's degree and be a member of FASE. They need to provide documentation of training and continuing education in forensic anthropology, proof of assisting with casework, and a letter from a supervisor. Once materials are reviewed, applicants are allowed to sit for both a practical and written examination. Examinees must achieve at least an 80% on both portions of the exam to pass. If one section of the exam is failed, examinees are allowed to retake only the failed portion.

To achieve FASE certification Level I, applicants must have a PhD or MD. They then must demonstrate training and continuing education in forensic anthropology, submit two case reports, provide a list of at least 20 forensic anthropology case reports, and provide evidence of at least five years of experience. They then take the same written and practical examination as the examinees at FASE certification Level II; however, they must also complete an oral examination that focuses on two mock cases. It is also possible for practitioners with over 15 years of experience to obtain certification via *honoris causa* based on a review of the curriculum vitae, qualifications, professional experience, or academic status. All information regarding FASE certification obtained from the FASE website at: <http://forensicanthropology.eu/>.

Certification in Latin America is overseen by the ALAF and the Directorio Latinoamericano de Antropología Forense (DLAF). The first certification exam was conducted in 2012 at the AAFS annual scientific meeting and was overseen by Douglas Ubelaker, Jose Luis Prieto, and Steve Symes. To apply to become certified by the DLAF, one must be a current member of the ALAF and demonstrate at least five years of experience within forensic anthropology. If accepted to sit for the exam, it now takes place during the ALAF annual meeting and consists of two days of theoretical and practical exams. The theoretical portion is multiple choice and the practical portion consists of analysis and report writing of two cases in addition to multiple stations with additional questions (pers. comm. Derek Congram, 2020). Recertification occurs every three years through documentation of activity in the discipline. According to the ALAF website (at the time of writing), thus far, 20 individuals have been certified by the ALAF.

Accreditation

In forensic anthropology, accreditation currently exists for certifying bodies (such as the ABFA) and laboratories (such as the Laboratory of the Defense POW/MIA Accounting Agency [DPAA]). Organizations seek accreditation as a formal recognition that they are following

a set of standards and are thus competent to carry out specific tasks (Taverniers et al., 2004). Accreditation then, is an effort to demonstrate that an organization meets minimum standards of quality. Accreditation must be conferred by an independent accrediting body, such as the FSAB. These accrediting organizations essentially enforce particular protocols that must be followed by the organizations they accredit. These protocols are theoretically based on published standards, if applicable.

As discussed above, there are no accreditations for forensic anthropology education/training programs, and the only certifying body for forensic anthropology that is currently accredited is the ABFA. For forensic laboratory accreditation, the largely accepted international standards are those overseen by the International Organization for Standardization (ISO). This non-governmental agency housed in Switzerland produces international consensus-based standards. Accrediting bodies then administer accreditation according to these published standards. The largest accreditation body in North America is the American National Standards Institute (ANSI) National Accreditation Board (ANAB). The ANAB has accredited three forensic anthropology laboratories under one of two ISO standards. At the time of writing, these are the only accredited forensic anthropological laboratories of which we are aware. These include: the DPAA forensic anthropology laboratories in both Hawaii and Nebraska (ISO/IEC 17025 - effective through 3/31/2020), the Harris County Institute of Forensic Sciences Forensic Anthropology Division (ISO/IEC 17020:2012 - effective through 10/31/2022), and the New York City Office of Chief Medical Examiner – Forensic Anthropology Unit (ISO/IEC 17020 - effective through 3/31/2023). This information was found at the ANAB website (<http://search.anab.org>).

According to the ANAB, both ISO/IEC 17025 (requirements for the competence to perform tests or calibrations) and 17020 (requirements for the operation of inspecting bodies) are standards for forensic accreditation (<https://anab.ansi.org/en/forensic-accreditation>). Based on ANAB documents for requirements for accreditation,

both ISO/IEC 17025 and 17020 outline guidelines for laboratory management, competency and proficiency testing, method validation, evaluation of measurement uncertainty, technical review, reporting of results, equipment calibration, maintaining chain of custody, and quality assurance (ANAB, 2019a; ANAB, 2019b). Of note is that in the more recent revisions of these ANAB documents (ANAB, 2019a; ANAB, 2019b) there is also a requirement for a code of ethics, which was not in an older version of the ANAB requirements for ISO/IEC 17025 (ANAB, 2017). According to Bencivenga (2015), both standards are equally respected internationally and both have very similar management requirements (largely based on ISO 9001 for quality management systems). Where the two standards differ is where most focus is placed. In ISO/IEC 17025 more weight is given to validation, traceability, and measurement uncertainty; whereas, ISO/IEC 17020 focuses more on limiting bias and confidentiality (Bencivenga, 2015).

The lack of accredited forensic anthropology laboratories is due to a variety of factors. For example, many forensic anthropology laboratories often fall under the accreditation of the medical examiner office in which they are housed. Other labs may find that accreditation is either too expensive, and/or that accreditation is not possible due to the small size/caseload of the laboratory. Further, many accreditations are a poor fit for small university-based forensic anthropology laboratories due to the required quality assurance protocols, which are unfeasible to implement due to staffing/time restrictions, as these labs are typically overseen by faculty who have teaching, research, service and advising responsibilities in addition to overseeing forensic anthropological casework. Further, these laboratories tend to be underfunded without the resources to hire full-time laboratory managers.

Ethics

Ethics are formalized (i.e., written/codified) guidelines for the behavior (i.e., conduct) of individuals within a specific profession or discipline (Bowen, 2009). Generally, ethical codes are a set of rules regarding the behavior

of individuals, which have been agreed upon by members of a professional organization (e.g., the ABFA). Different professional organizations' ethical codes may vary in terms of the types of behaviors discussed, but all are used in order to ensure that members avoid unprofessional behaviors and thus maintain the credibility of the profession and professional organization.

There are different forms of ethical codes: aspirational and preventative (Harris, 2013). Aspirational ethical codes are meant to promote human wellbeing and present a number of guiding and/or motivational behaviors that an organization *would like* its members to follow/achieve. Typically, aspirational codes are longer than preventative ethical codes, but also more general/vague and lack enforcement. Within the context of forensic anthropology, the American Association of Physical Anthropologists (AAPA) and the Society for American Archaeology (SAA), are examples of organizations with aspirational ethical codes. Preventative ethical codes, sometimes called ethics statements, are rules for professional behavior that *must* be followed. Preventative ethical codes are enforced by an adjudicating committee within the organization that performs an investigation when a complaint is filed alleging that an individual acted unethically (i.e., performed professional misconduct). Individuals who are found to have committed an act of misconduct may be subject to various actions, such as warnings, sanctions, censure, or loss of membership/certification. Unfortunately, while most professional organizations have their own ethical codes, one issue with having ethical codes attached to specific organizations is that individuals can simply withdraw from the organization rather than face repercussions for their actions. There is currently no oversight body to track or manage ethical complaints or unethical behavior (Murphy, 2000), which makes all organizational ethical codes more or less unenforceable.

Current Ethical Guidelines

At present, the discipline of forensic anthropology has no overarching ethical code that is accepted by all practicing forensic

anthropologists (within the United States or abroad). Many relevant professional organizations have their own ethical codes to which members are expected to adhere. Such organizations with ethical codes include the AAPA, the AAFS, the ABFA, the Society of Forensic Anthropologists, the British Association for Forensic Anthropology, the RAI, and the British Association for Biological Anthropology and Osteoarchaeology. Some of these organizations have aspirational codes. For example, the AAPA provides aspirational guidelines for ethical conduct in biological anthropology, but the ethics committee of the AAPA is not an adjudicating body, meaning that the organization does not enforce these ethical guidelines. Rather, the AAPA's ethics committee is primarily used to educate and promote ethics in biological anthropology generally.

The ABFA and AAFS on the other hand have preventative ethics codes, and adjudicating ethical bodies to enforce these codes on their memberships. For both organizations, breaches of ethical conduct are largely related to misrepresentation of self and ones' analytical findings. These codes are summarized on each organizations' website and in Passalacqua and Pilloud (2018), so they will be not discussed in detail here. However, as noted in Passalacqua and Pilloud (2018), both ethical codes fail to mention/enforce many unprofessional forms of misconduct, including discrimination and harassment.

It is worth noting, that of the four certifying bodies discussed here (ABFA, RAI, FASE and ALAF), only the ABFA and RAI have published ethical codes, whereas FASE and ALAF have not. Rather, according to the FASE website, one of their missions is to "encourage and promote adherence to high standards of ethics, conduct and professional practice in forensic anthropology" (<http://forensicanthropology.eu/about-fase/>); without a provided document. Further, ALAF discusses in their published statutes that one of their goals is to "establish ethical and professional criteria for the practice of forensic anthropology to guarantee the quality of practice" (<https://alafforense.org/es/quienes-somos/estatutos>); however, again no document is provided.

Recently, Passalacqua and Pilloud (2018) presented an aspirational ethical code for forensic anthropologists, stating that all forensic anthropologists should: “(1) follow all forensic, legal, medical, and evidentiary requirements (i.e., *truth-telling*), (2) not misrepresent themselves or their findings (i.e., *truth-telling*), (3) treat remains, casework, colleagues, and invested parties with professional and cultural respect (i.e., *respect for persons*), (4) only perform tasks they are competent to do, and avoid conflicts of interest (not misrepresenting themselves or their qualifications), (5) do no harm (i.e., *non-maleficance*), (6) follow the scientific method (*maintain scientific integrity*), (7) document actions in a traceable manner (*maintain transparency*), (8) avoid and report misconduct (act in an ethical manner), (9) maintain confidentiality of materials (i.e., *respect for persons*), (10) avoid intellectual, personal, and/or emotional biases (i.e., *avoid conflicts of interest*), and (11) conduct research in an ethical manner.” As part of this aspirational code, it is important to highlight that scientific integrity and transparency are essential to the practice of all professional science. Identifying and avoiding misconduct and conflicts of interest are key to maintaining scientific integrity (discussed in detail in Passalacqua et al., 2019). Further, Passalacqua and Pilloud (2018) noted that a national or international preventative ethical code for forensic anthropologists, such as the National Code of Ethics and Professional Responsibility for the Forensic Sciences (NCEPRFS) generated by the National Commission on Forensic Science (2017b), should be established to provide universal guidance, enforcement, and monitoring.

Societal Need

As medicolegal professionals, forensic anthropologists fulfill a societal need in their assistance-resolving medicolegal investigations. Additionally, as humanitarian professionals, forensic anthropologists fulfill a societal need in identifying unknown individuals and bringing closure to families and communities. In the current model in the United States, there are very few full-time staff forensic anthropologists working on recent medicolegal cases. Rather,

much of this work is done by consulting forensic anthropologists in various capacities. While the number of full-time forensic anthropologists employed at medical examiner/coroner (ME/C) offices is not tracked anywhere, various estimates indicate that the number in the United States is less than 40 (Tersigni-Tarrant and Shirley, 2013; theabfa.org). This estimate does not attempt to take into account that there are a number of individuals trained as forensic anthropologists at the master’s degree level, working in ME/C offices as autopsy technicians or death investigators who will also perform forensic anthropological analyses as needed.

Not only is there a growing need for forensic pathologists (National Commission on Forensic Science, 2017a; Swgmd, 2012), particularly in the United States; we also argue that there is also a growing need for full-time employment of forensic anthropologists at ME/C offices throughout the United States and abroad. Forensic anthropologists have a unique expertise, which improves or may be required for many death investigations. However, few jurisdictions have access to a forensic anthropologist on staff. While more jurisdictions have access to case-by-case contracted forensic anthropologists, this gig-economy model is not appropriate for a death investigation, nor does it attract the most qualified individuals. As we move to professionalize, standardize, and improve the forensic sciences, we must push to expand the range of services offered by forensic anthropologists, and include forensic anthropologists as full-time professionals staffed in ME/C offices alongside forensic pathologists, as our skillsets are complementary and essential for the scientifically valid resolution of death investigations (Christensen et al. 2015).

Recent work by Passalacqua and colleagues (2020) found that, forensic anthropologists in the United States earn around 1/3 the annual salary of forensic pathologists. This finding is in spite of the fact that many of these forensic anthropologists also have extensive and advanced training holding a doctorate in anthropology. This disparity in salaries hints at the undervaluation of forensic anthropological work. More work is needed in the regulation and oversight of how this professional

service is provided to the community. Much of this oversight can be achieved through the further ethical practice of professionalization of forensic anthropology. Professional organizations can, and should, be at the forefront of this process.

CONCLUSIONS

Depending on how one views the discipline of forensic anthropology, it could be considered new and developing, or older and well-established. The science of forensic anthropology has been applied for almost 100 years (or more depending on when you want to mark the first instance of forensic anthropology; be it by casework or official publications). However, the actual practice of forensic anthropology is not well regulated or standardized. We consider forensic anthropology a profession, and its practitioners, professionals; however, when it comes to the three criteria of a professional (i.e., expertise, ethical practice, and societal need), forensic anthropology is lacking in structure.

The subject-matter areas of forensic anthropology have consensus (Passalacqua and Pilloud, 2020), but are not officially recognized in any way, and the practice of forensic anthropology currently lacks minimum published standards (although, more should be on their way to publication via the OSAC and ASB). Considering the ethical practice of forensic anthropology, preventative ethical codes are lacking and there are no overarching official ethical documents or databases to track misconduct. Finally, while the utility and societal need of forensic anthropology is apparent, forensic anthropologists are rarely found as full-time staff in ME/C offices, and based on salaries, their work is undervalued.

There is a need to professionalize forensic anthropology. Creating standards and structure for the qualification and practice of forensic anthropology, can provide a framework for how to be a forensic anthropologist, who to hire as a forensic anthropologist, when to use a forensic anthropologist, and what to expect from a forensic anthropological analysis. Wherever an individual practices, they should meet (when possible, accredited) consensus-based minimum standards

to ensure that they are competent and qualified to perform their work. However, these standards may not be universally applicable based on local legal/court requirements, and professionals should consider the varying requirement of different regions. Creating detailed preventative ethical codes with extra-organizational oversight/tracking will ensure that individuals practice forensic anthropology ethically and avoid misconduct. Demonstrating the societal value of forensic anthropology will increase the use and availability of forensic anthropological analysis (and staff positions).

GLOSSARY

Accreditation – A credential used to demonstrate that an organization (e.g., a university, medical examiner's office, forensic anthropology laboratory) meets a set of published standards.

Beneficence – to do something to benefit others (Appelbaum, 1997).

Certification – A credential provided by a professional organization demonstrating that an individual has met the knowledge and/or skills required to pass their certification process.

Competency - the application of knowledge, skills, and abilities to correctly complete specific *tasks*.

Conflict of interest – a violation of practitioner independence and are considered a type of professional misconduct.

Credential - verifiable document used to demonstrate completion of education and/or training (e.g., transcripts, licenses). Frequently used to “acknowledge, restrict, or protect the use of a title, and/or activities” (Pryzwansky, 1993).

Education - formal academic coursework from an accredited school, college, or university, resulting in a degree (Passalacqua and Pilloud, 2018; Swgtox, 2015).

Expert – an individual possessing authoritative knowledge or skill in a particular area (note that expertise is demonstrated via credentials such as certification) (Nichols, 2017).

Guidelines (i.e., best practice documents) – published documents providing recommendations

for how to perform a particular action or process. Guidelines are typically published and vetted by accredited organizations. Their content must be based on consensus of practitioners and stakeholders. Guidelines are typically more detailed/descriptive than standards, but are also open to interpretation.

IEC - International Electrotechnical Commission.

ISO – International Organization for Standardization.

Licensure – restricting practices and/or the use of a title without a license. Licenses are typically enforced via state or federal laws (e.g., practice and/or title acts) requiring an individual to have a license to perform a particular act or use a particular title.

Non-maleficance – to avoid doing harm if at all possible (Appelbaum, 1997).

Professional misconduct – behavior that is contrary to a professional code of ethics.

Proficiency - refers to levels of requisite competency to effectively complete work; a means to measure mastery of a subject area.

Qualifications – the education and/or training of an individual.

Scientific integrity – the “commitment to truthfulness, to personal accountability, and to vigorous adherence to standards of professional conduct” within the context of the scientific method (Warner and Weiss, 2004).

Standard (i.e., formal standards) – published documents providing mandatory rules for how to perform a particular action or process. Standards are typically published and vetted by accredited organizations. Their content must be based on consensus of practitioners and stakeholders.

Training – formal structured process of teaching and assessment at a laboratory or other non-educational institution, often resulting in a certificate (Passalacqua and Pilloud, 2018; Swgtox, 2015).

Transparency – the perceived quality of intentionally shared information (Schnackenberg and Tomlinson, 2016).

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