

OSAC 2023-N-0025 Standard for Education and Training in Forensic Odontology

*Forensic Odontology Subcommittee
Medicine Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science*

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DRAFT OSAC Proposed Standard

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Prepared by
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Disclaimer

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Foreword

This document is a draft of a standard developed by the Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science.

The following applies to this document:

The term '**shall**' indicates that a provision is mandatory and can be audited for compliance.

The term '**should**' indicates that a provision is not mandatory but recommended as good practice.

All hyperlinks and web addresses shown in this document are current as of this Standard's publication date.

Keywords: forensic odontology, training, education, minimum requirements

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1 **Background**
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3 There are currently no regulatory mandatory educational requirements for practicing forensic
4 odontology within the field of dentistry. In addition, because there are so few graduate-level
5 programs within the field, advanced education is acquired through multiple educational
6 channels, in service, training, and experience. The goal of the document is to outline the
7 minimum educational topics and prerequisites that should be covered/achieved to allow the
8 practitioner to obtain the necessary baseline knowledge required to practice components of
9 forensic odontology successfully.

10
11 **1. Scope**
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13 This document specifies the minimum educational requirements needed to practice forensic
14 odontology.

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16 Note to Scope: This document does not define legal requirements, best practices,
17 implementation, certification, or proficiency testing in forensic odontology.
18

19 **2. Normative References**
20

21 There are no normative references.
22

23 **3. Terms and Definitions**
24

25 **3.1 Education**
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27 Process by which an individual or group of people conveys, transfers, or obtains knowledge
28 about a subject or concept (ISO 30422:2022).
29

30 Note 1 to entry: Education generally refers to an academic form of learning that is distinct from
31 training (3.4), which generally refers to work-related learning processes.
32

33 **3.2 Experience**
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35 Knowledge or skill acquired over time through practical contact with and observation of facts
36 or events (ISO/TS 10303-1243:2004).
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38 **3.3 Qualification**
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40 Demonstrated education, training, and work experience, where applicable (ISO/IEC
41 17024:2012).
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3.4 Training

Development of skills and/or understanding through procedurally defined learning activities focused on a specific application (ISO/IEC 2382-36:2008).

3.5 Credential

Prerequisite issued evidence for the entitlement of, or the eligibility for, a role (ISO 22600-2:2014).

3.6 License

Permission or proof of permission granted to a system participant by a competent authority to exercise a right which would otherwise be disallowed or unlawful (ISO 19132:2007).

3.7 Forensic Odontology

Part of dentistry which deals with the examination, interpretation, and presentation of dental and oral evidence for legal purposes (ISO 1942:2020).

3.8 Dentist

A person licensed by a regulatory body to practice dentistry (ISO 1942:2020).

4. Forensic Odontologist, US

A dentist licensed by a regulatory body to practice *forensic odontology*.

5. The Practice of Forensic Odontology

The application of dentistry to legal issues including but not limited to:

- a) Human identification by comparative dental analysis
- b) Analysis of the suspected pattern(s) of dental origin
- c) Human age assessment by dental analysis
- d) Dental litigation (fraud, malpractice, personal injury)
- e) Oral and facial injuries
- f) Human abuse and neglect

The practice of *forensic odontology* is a discipline of dentistry that involves the following:

- a) Maintenance and management of dental information pertaining to all aspects of the *forensic odontology* casework
- b) Identification of human remains by source comparison of antemortem and postmortem dental information

- 89 c) Assessment, collection, and documentation of evidence for suspected patterned injuries
- 90 of dental origin
- 91 d) Assessment, collection, and documentation of evidence for oral and perioral
- 92 manifestations of human abuse
- 93 e) Dental age assessment of an individual
- 94 f) Evaluation and reporting of dental evidence as an expert witness
- 95

96 6. Education and Training in *Forensic Odontology*

97

98 The American Dental Association's Commission on Dental Accreditation (CODA) serves
99 the public and the profession by developing and implementing accreditation standards that
100 promote and monitor dental education programs' continuous quality and improvement.
101 Currently, CODA has not set specific guidelines for *forensic odontology*. Therefore, those
102 who render a *forensic odontology* opinion shall have the additional *education, experience,*
103 *qualification, training, credentials, and licensing* requirements to render such an opinion.
104

105 The required elements are taught under the direction of competent and qualified entities,
106 following approved educational guidelines. Training should be conducted with
107 representatives of both the prosecution and defense bar.
108

109 When the term "knowledge" is used below, a compliant education and training program is
110 expected to provide the trainee with a deeper understanding of each required element rather
111 than just a cursory knowledge of each required element's existence. Therefore, the
112 competent and qualified entities teaching these required elements shall equip the trainee
113 with the proper knowledge level—whether it be factual, conceptual, procedural, or self-
114 awareness—as determined by the qualified teaching entity.
115

116 This document outlines specific coursework topics but does not specify the didactic or
117 practical portion of the curriculum. In addition, these educational requirements could be
118 applied to other dental care providers. However, the services they provide are limited by
119 state licensure regulations.
120

121 7. Knowledge of Forensic Odontology Foundational Skills:

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- 123 a) Foundational skills in general dentistry
- 124 b) Knowledge of the scope and history of *forensic odontology*
- 125 c) Knowledge of current approved standards/guidelines/policies in forensic odontology
- 126 d) Knowledge of other forensic science disciplines
- 127 e) Knowledge of the legal system
- 128 f) Knowledge of electronic resources (internet, databases, etc.)
- 129 g) Knowledge of photographic techniques
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8. Knowledge of the Use of Forensic Odontology Equipment Protocols:

- a) Knowledge of the use of dental radiography
- b) Knowledge of the use of dental photography
- c) Knowledge of the use of dental and *forensic odontology* computer hardware
- d) Knowledge of the use of dental and *forensic odontology* computer software
- e) Knowledge of cybersecurity protocols and secure messaging techniques

9. Knowledge of Craniofacial Anatomy, Anthropology, and Pathology:

- a) Knowledge of craniofacial anatomy, anthropology, and pathology
- b) Knowledge of cultural/environmental/socioeconomic effects on orofacial structures
- c) Knowledge of biological profile techniques and methods

10. Knowledge of Gathering, Documenting, and Maintaining Forensic Odontology Evidence:

- a) Knowledge of how to maintain the chain of custody
- b) Knowledge of how to recognize and manage forensic evidence
- c) Knowledge of how to create case documentation
- d) Knowledge of how to create a *forensic odontology* case report

11. Knowledge of Human Identification by Comparative Dental Analysis:

- a) Knowledge of craniofacial identification
- b) Knowledge of antemortem and postmortem data collection and dental autopsy techniques
- c) Knowledge of dental numbering, charting, and coding systems
- d) Knowledge of dental identification software and matching algorithms
- e) Knowledge of how to evaluate, assess, and report of dental source conclusions

12. Knowledge of Participating in Mass Fatality Incident Management Protocols:

- a) Knowledge of the mass fatality identification team and chain of command
- b) Knowledge of inter-agency interaction
- c) Knowledge of scene protocols and organization of tasks

13. Knowledge of Suspected Pattern of Dental Origin:

Note: The admissibility as evidence of suspected patterns of dental origin varies from jurisdiction to jurisdiction. The inclusion of this knowledge requirement should NOT be considered an endorsement of the practice but rather to ensure that the odontologist is aware of failures concerning bitemarks. To appropriately respond to the recognition of these pattern injuries, the forensic odontologist must understand the theory and techniques involved to assess the usefulness and limitations of the procedures.

- a) Knowledge of suspected pattern(s) of dental origin terminology

- 177 b) Knowledge of assessing the alleged pattern of dental origin data and understanding its
178 limitations
179 c) Knowledge of DNA collection protocols
180 d) Knowledge of documenting, imaging, and assessing the suspected pattern of dental
181 origin characteristics protocols
182 e) Knowledge of documenting substrate information
183 f) Knowledge of assessing and documenting the presence of class characteristics
184 g) Knowledge of assessing and documenting the presence of individual characteristics for
185 non-comparative purposes
186 h) Knowledge of current prohibition of source conclusion in assessing the suspected
187 pattern of dental origin data
188 i) Knowledge of appropriate methodology for the collection of data from suspected
189 sources for source exclusion (*if applicable*)
190 j) Knowledge of reporting the evaluation and assessment of the suspected pattern of
191 dental origin and limitations of current techniques (*if required*)
192

14. Knowledge of Human Age Assessment by Dental Analysis:

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195 *Note: The techniques and admissibility of human age assessment by dental analysis: vary*
196 *from jurisdiction to jurisdiction. The inclusion of this knowledge requirement is neither an*
197 *endorsement nor a repudiation of the practice. It is simply a requirement that the forensic*
198 *odontologist understands the theory and techniques involved to assess the usefulness and*
199 *limitations of the procedures and, if applicable, their conclusions.*
200

- 201 a) Knowledge of human age assessment by dental analysis
202 b) Knowledge of the difference between age estimation and age assessment
203 c) Knowledge of the use of dental staging charts with respective published reference
204 studies
205 d) Knowledge of the recognized differences between identifiable human groups and
206 dental age estimation techniques
207 e) Knowledge of and the ability to demonstrate age estimation techniques as well as their
208 limitations
209 f) Knowledge of the use of multiple techniques for age estimation, when available
210 g) Knowledge of non-dental age assessment techniques
211 h) Knowledge of the appropriate reporting of human age assessment by dental analysis
212

15. Knowledge of Human Abuse:

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215 a) Knowledge of oral and perioral manifestations of abuse and neglect, including sentinel
216 injuries
217 b) Knowledge of how to evaluate, assess, and report oral and perioral manifestations of
218 abuse and neglect
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16. Knowledge of Function as an Expert Witness:

- a) Knowledge of the expert witness qualification under Rule 702 of the Federal Rules of Evidence or the expert witness rules in the case's jurisdiction.
- b) Knowledge of assessing the value of a case
- c) Knowledge of formulating claims, counterclaims, and defenses
- d) Knowledge of drafting discovery requests and responses
- e) Knowledge of reviewing legal documents as well as dental charts
- f) Knowledge of challenging the other side's experts
- g) Knowledge of developing and refining case strategy
- h) Knowledge of identifying, evaluating, and calculating damages
- i) Knowledge of evaluating and responding to opposing claims and theories
- j) Knowledge of aiding in fact finder through trial testimony

For training on what content should be included in case files and reports under this Standard, please review documents developed by the OSAC Legal Task Group on case file documentation and reports.

17. Knowledge of Professional, Ethical, and Legal Responsibilities:

Note: Forensic Science Service Providers should not take it upon themselves to determine the correct description of rules of evidence and case law. Instead, they should rely on legal experts to determine the content of this training.

- a) Knowledge of civil litigation case procedures
- b) Knowledge of criminal litigation case procedures
- c) Explain "expert's" roles and responsibilities
- d) Cite rules of evidence and case law (e.g., Daubert, Frye)
- e) Knowledge of Brady and other disclosure obligations in a criminal case
- f) Create trial exhibits
- g) Present sworn testimony
- h) Demonstrate knowledge of professional ethics
- i) Demonstrate knowledge of proper sworn testimony and the ethical limitations of allowable testimony
- j) Demonstrate knowledge of the ethical creation of trial exhibits
- k) Demonstrate professional media interaction
- l) Describe the importance of confidentiality
- m) Describe the importance of continuing professional education
- n) Recognize Standard of Care issues