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**Standard for Analyzing Pathological Conditions and  
Anomalies in Forensic Anthropology**

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## Standard for Analyzing Pathological Conditions and Anomalies in Forensic Anthropology

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## Foreword

This document is intended to assist practitioners when documenting pathological conditions and anomalies from complete or partial human skeletal material. It recognizes identification and description of pathological conditions and anomalies as an important component of the forensic anthropology examination.

This document was revised, prepared, and finalized as a standard by the Anthropology Consensus Body of the AAFS Standards Board. The draft of this standard was developed by the Anthropology Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science.

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All hyperlinks and web addresses shown in this document are current as of the publication date of this standard.

**Keywords:** *forensic anthropology, pathology, anomaly.*

## Table of Contents

1	Scope.....	1
2	Normative References .....	1
3	Terms and Definitions .....	1
4	Requirements .....	1
4.1	General.....	2
4.2	Procedure.....	2
	Annex A (informative) Bibliography .....	4

DRAFT

# Standard for Analyzing Pathological Conditions and Anomalies in Forensic Anthropology

## 1 Scope

This standard sets forth techniques and approaches for describing, documenting, interpreting, and reporting pathological conditions and anomalies from skeletal and dental material and/or radiographic images.

This document does not provide guidance for distinguishing between anomalies and normal skeletal variation, nor does it address cause and manner of death classification or skeletal trauma.

## 2 Normative References

There are no normative references. Annex A (Bibliography) contains informative references.

## 3 Terms and Definitions

For purposes of this document, the following definitions apply.

### 3.1

#### **anomaly**

A skeletal deviation from normal. It is typically nonlethal or nondisruptive to function; it may or may not have clinical or forensic significance.

### 3.2

#### **antemortem skeletal feature**

A skeletal condition, defect, or anomaly that occurred before an individual's death, with evidence of a biological reaction.

### 3.3

#### **congenital defect**

A characteristic present at birth.

### 3.4

#### **differential diagnosis**

A process through which all possible causes of a skeletal or dental anomaly/abnormality are considered. Through a careful process of elimination, only the most likely causes remain to aid in the identification of the pathological or anomalous condition(s) of the skeleton.

### 3.5

#### **gross examination**

Visual (macroscopic) assessment of skeletal and dental materials.

### 3.6

#### **histological examination**

Cellular level assessment of skeletal and dental materials.

### 3.7

#### **pathological condition**

Skeletal and/or dental abnormality resulting from disease processes.

## **4 Requirements**

### **4.1 General**

Pathological conditions and anomalies are important antemortem skeletal and dental features that can be observed on remains or in radiographic images. They are useful for personal identification purposes.

### **4.2 Procedure**

#### **4.2.1 General**

The completeness and preservation of the skeleton and/or individual bone shall be described.

Skeletal and dental material shall be examined in a systematic manner for the purpose of documentation. The practitioner shall document all observations of pathological conditions and anomalies that are likely to have probative value. Documentation shall include a written description and supporting images (e.g., photographic, radiological, sketches, and/or diagrams) of the location, distribution, pattern, and characteristics of the pathological condition(s). Pathological descriptions shall be documented using standard osteological/anatomical terminology and shall be of sufficient detail to allow for independent interpretation, replication, and verification of the work performed and the conclusions drawn.

Pathological conditions and anomalies shall be assessed in concordance with exemplars (if available) and standard diagnostic medical, clinical or anthropological literature, and/or the paired antimere bone, when possible. While gross observation should suffice for differential diagnosis of many conditions, the use of radiography, microscopy, and histological analysis should be utilized for differential diagnosis, as needed.

Any proffered interpretation of findings shall be supported by the scientific and/or medical/clinical literature. Reasonable alternative interpretations shall be documented as part of the differential diagnosis.

#### **4.2.2 Considerations**

Temporal, geographical, and cultural differences in disease prevalence shall be considered when interpreting alterations in bone.

Skeletal alterations due to habitual activities shall be considered in interpretations of pathological conditions. Taphonomic changes and cultural modifications that may mimic pathological conditions shall also be considered.”

Some pathological conditions or anomalies may offer insights into, or may confound estimations of parameters of the biological profile.

If a differential diagnosis is not possible, results shall be reported as such. No conclusion shall be offered as a clinical diagnosis.

### **4.2.3 Reporting**

The report shall include a summary of the probative pathological conditions and anomalies when present. When appropriate, primary interpretations and reasonable alternative interpretations (as part of the differential diagnosis) shall be discussed in the report.

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## Annex A (informative)

### Bibliography

The following bibliography is not intended to be an all-inclusive list, review, or endorsement of literature on this topic. The goal of the bibliography is to provide examples of publications addressed in the standard.

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