Zobozdravstvo - Terminologija za forenzične ortodentalne podatke (ISO/DIS 20888:2019)

Dentistry - Terminology for forensic oro-dental data (ISO/DIS 20888:2019)

Zahnheilkunde - Terminologie für forensische orodentale Daten (ISO/DIS 20888:2019)

Médecine bucco-dentaire - Ensemble de données bucco-dentaires pour médecine légale (ISO/DIS 20888:2019)

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Foreword

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This document was prepared by Technical Committee ISO/TC 106, Dentistry, Subcommittee SC 3, Terminology.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The establishment of a positive identification of an unidentified individual by the comparative dental analysis of a forensic odontologist requires submission of supporting documentation from the dental professionals who treated the patient. This information includes dental treatment records, radiographs, photographs and dental casts, should be submitted to the appropriate authority and is referred to as *antemortem dental data* (AM). Currently, the vast majority of *antemortem dental data* and associated attachments are submitted on paper and by radiographic film, however, the ultimate goal is to create a standardized electronic format for the transfer of this data. Due to varying methods of documentation and recording systems an organized list of standardized dental terminology would be useful. Submission of ambiguous information due to a lack of harmonization can increase the time required to establish the identification through dental means.

The Disaster Victim Identification (DVI) community, due to the number of victims and the number of countries of origin of the victims, will benefit from this international standardized *forensic dental data*, by using standardized terminology of useful concepts.

Background

Current odontological comparison software is based on the concept of restoration comparison. Utilizing each tooth as a field, comparison and/or elimination queries and advance sorting algorithms creates a ranking of possible matches to aid the Forensic Odontologist in the initial records comparison. Biometric, familial, radiographic and visual information support the likelihood of a match. By standardizing the descriptors used to describe this information the likelihood of identifying an individual based on the Forensic Odontologists data increases.

Principle

Characteristics of the oral cavity can be grouped in three sets of data:

Tooth data set describing teeth one by one, together with periodontal tissues

Mouth data set describing intra and extra oral characteristics of the mouth with the exclusion of teeth, *dental prosthesis* and *dental orthoses*

Prosthesis and orthoses data set describing *dental prosthesis* and *dental orthoses* appliances

For each data set, characteristics are organized with increasing precision in the description of an attribute, allowing to find a match independently of the granularity of the information. For example, if an antemortem record informs that such tooth is restored, without any precision on the material used and the surfaces concerned, a postmortem record describing the same tooth with all the characteristics of the restoration i.e.: surface(s) and material(s), it is still a match at the broader level (*restored tooth*).

Many descriptors of a tooth are determined from radiographic interpretation; certain "similar" radiographic attributes are grouped together into single unified descriptors. This should allow unambiguous interpretation of a tooth attribute and ensure that a radiographic attribute may be described by a single unified attribute. Generally, consistency of assigning a single attribute to a radiographic feature is utilized in this standard in order to create unambiguous descriptors even at the expense of combining similar, but not identical, attributes.

The permanent dentition takes priority when both the primary and permanent teeth are present if both are concurrently visible in the mouth however the presence of the primary tooth should also be noted.

The pertinence of these descriptors should be weighted with the time differences between the date of the records and the presumptive date of recording of the current data.

If a descriptor involves multiple teeth, then that descriptor shall be utilized for all the teeth involved.

The *tooth data set* descriptors may be utilized for both *antemortem data* and *postmortem data*. The purpose of this data set is to define a common nomenclature to common attributes of a tooth. Because no data set may completely describe all unique attributes of a tooth, additional fields have been added

to allow for the description of less common attributes. Care should be exercised in the use of these additional fields since there is no guarantee that they would be understood by software that would be utilized postmortem.

The *mouth data set* descriptors may be utilized for both *antemortem data* and *postmortem data*. The purpose of this data set is to define a set of descriptors for "mouth specific" information. This should include all skeletal findings not included on the tooth data set as well as any appliances that either restore teeth or correct or stabilize orthodontic or skeletal abnormalities. It should also include biological structures (excluding supernumerary teeth that are dealt with in the *tooth data set* descriptors) that are outside dental norms, as well as any other information that should aid in identifying individuals.

The *prosthesis data set* descriptors may be utilized for both *antemortem data* and *postmortem data*. The purpose of this data set is to define a set of descriptors to describe a *dental prosthesis* (3.7) and *dental orthoses* (3.8) separately from the underlying tooth structure.

Rationale

A great deal of information is gathered during the course of dental evaluation and treatment. Forensic Odontologists charged with the task of identifying individuals requires comprehensive information in order to prove or disprove identification. While much of the information gathered by the dentist may not aid in claims adjudication, it is not possible to predict in advance what item or items in the dental record might be conclusive in identification. Although no standard exists to establish documentation requirements for the submission of antemortem dental information for identification, this standard is designed to fill that void.

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Dentistry — Terminology for forensic oro-dental data

1   Scope

This international standard provides dentists and forensic dental experts with an organized system of concepts to describe the distinctive characteristics of an individual's mouth. The chosen system is based on a forensic approach of a mouth's characteristics, with many concepts specifics to the identification domain that are not defined elsewhere in ISO dentistry vocabularies (e.g. "*present tooth*").

The hierarchical structure of the standard is designed to describe attributes of a tooth, the mouth and a prosthesis/orthosis with increasing levels of discriminative characteristics (e.g. material characteristics, *restored tooth* surface…) and the possibility to connect any level of description of an attribute with the most comprehensive concept.

This standard is intended to be used for data exchange between antemortem and postmortem files, without any ambiguity on the terms used to describe an individual's mouth.

2   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1942:2009, *Dentistry — Vocabulary*

ISO 3950:2016, *Dentistry — Designation system for teeth and areas of the oral cavity*

ISO 8601:2000, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 16443, *Dentistry — Vocabulary for dental implants systems and related procedure*

3   Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

—   ISO Online browsing platform: available at https://www.iso.org/obp

—   IEC Electropedia: available at http://www.electropedia.org/

Terms and definitions describing teeth, pathology or anomaly of teeth or tooth restorations will be limited to ISO 3950 oro-dental codes that map to individual teeth.

Terms and definitions describing multiple teeth, jaw or mouth conditions, pathologies, relationships, or prostheses will be limited to ISO 3950 oro-dental codes that map to those entities.

Terms and definitions which are limited to other specific ISO 3950 oro-dental locations will be in annotated accordingly in the accompanying notes to those terms.

Terms and definitions describing dental devices, pathologies, or entities that do not have a specific location will be limited to ISO 3950 codes 00.

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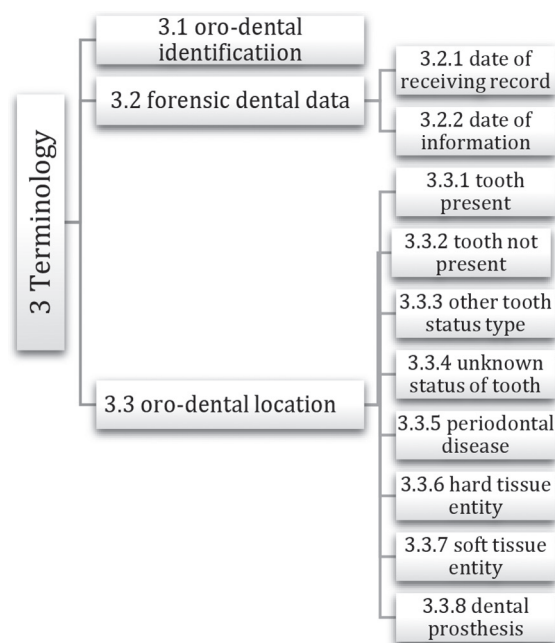
Figure 1 — Overview of the main elements of Terms and definitions

3.1
oro-dental identification
science and art of comparing *antemortem dental data* with *postmortem dental data* (3.2.2.1) to help determine the identity of an individual

3.2
forensic dental data
recorded information describing the oral cavity and surrounding tissues for legal purposes

3.2.1
date of receiving record
date, using ISO 8601, when the forensic information is recorded in the forensic record

3.2.2
date of information
date, using ISO 8601, when the forensic information was created

3.2.2.1
antemortem dental data
historical *forensic dental data* (3.2)

3.2.2.2
postmortem dental data
current *forensic dental data* (3.2)

3.3
oro-dental location
ISO 3950 designation code for teeth or and areas of the oral cavity of the forensic information

Figure 2 — Overview of the main elements of 3.3.1 tooth present

3.3.1
tooth present
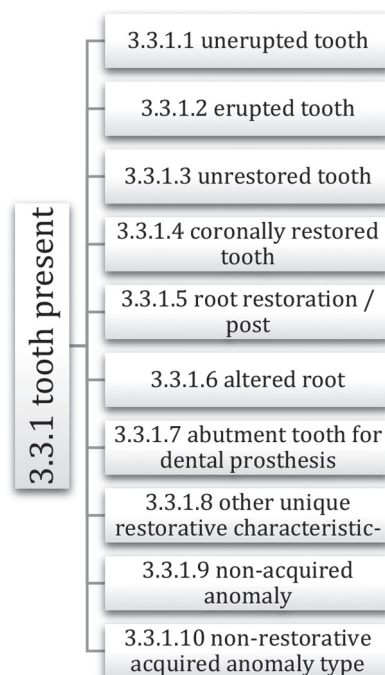tooth or substantial part of a tooth visible in clinical or in radiologic examination, or reported present in the dental record

Note 1 to entry: If only a portion of the root remains, and the coronal portion of the tooth has been replaced by a *dental prosthesis* (whether fixed or removable) that is not anchored by the remaining root the tooth is not considered present.

3.3.1.1
unerupted tooth
tooth present that is not visible in the oral cavity

Note 1 to entry: If the unerupted tooth is also abnormally angulated it can be described under malpostioned angulation.

3.3.1.2
erupted tooth
tooth present that is partially or completely visible in the oral cavity

Note 1 to entry: If the unerupted tooth is also abnormally angulated it can be described under malpostioned angulation.

3.3.1.2.1
overerupted tooth
hypererupted tooth
tooth whose occlusal plane is significantly occlusal to the normal plane of occlusion

Note 1 to entry: This term is used regardless of the etiology of the overeruption.

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3.3.1.2.2
undererupted tooth
hypoerupted tooth
tooth whose occlusal plane is significantly apical to the normal plane of occlusion

Note 1 to entry: A tooth is considered hypoerupted versus impacted only when a substantial portion of the coronal portion of the tooth is in the oral cavity, the path of eruption is unobstructed, and the root apices are fully closed.

Note 2 to entry: This term is used regardless of the etiology of the undereruption.

3.3.1.2.3
malpositioned tooth
tooth that is not in the normal position or angulation relative to the dental arch

Note 1 to entry: The tooth must be an *erupted tooth.*

3.3.1.2.3.1
drifted tooth
use Annex A Drift /Malposition Table to describe the type of tooth drift

Note 1 to entry: The tooth must be an *erupted tooth.*

3.3.1.2.3.2
angulated tooth
use Annex B Impaction Angulation Table to describe the type of tooth that is visible at clinical examination and is at the plane of occlusion

Note 1 to entry: The tooth must be an *erupted tooth.*

3.3.1.3
unrestored tooth
tooth that does not have any visible or radiographic evidence of a *dental restoration* used to restore the coronal part of the tooth

Note 1 to entry: The tooth must be an *erupted tooth* (3.3.1.2).

Note 2 to entry: This entry is limited to ISO 3950 codes 01,02,03,04,05,06,07,08,10,20,30,40.

Note 3 to entry: Pit and fissure sealant is not a *dental restoration* (3.3.1.4.1).

3.3.1.4
coronally restored tooth
tooth that has any type of *dental restoration*

Note 1 to entry: A pit and fissure sealant is not a dental restoration.

3.3.1.4.1
dental restoration (multiple iterations allowed)
dental device that restores or replaces lost tooth structure

Note 1 to entry: Differs from ISO 1942 in that lost tooth and oral tissues are excluded, so that there is no ambiguity with the definition of a *dental prosthesis.*

3.3.1.4.1.1
direct *dental restoration* (multiple iterations allowed)
dental restoration that is placed directly onto or within a tooth

3.3.1.4.1.2
indirect *dental restoration* (multiple iterations allowed)
dental restoration that is fabricated outside the mouth and then luted or bonded into place

3.3.1.4.1.3
other *dental restoration* type (by report)
dental restoration whose origin is known and not covered by any of the other categories (by report)

3.3.1.4.1.4
number of *dental restoration*s
 number of parts of the tooth that have been replaced by a restoration

3.3.1.4.1.5
dental surfaces restored by *dental restoration*
 use Annex E Surface Table to describe the type of parts of the tooth that have been replaced by the *dental restoration*

3.3.1.4.1.6
material(s) used in *dental restoration* (multiple iterations allowed)
 use Annex F Restorative Dental Materials Table to describe the material utilized in the *dental restoration*

3.3.1.4.1.7
color(s) of *dental restoration* (multiple iterations allowed)
 use Annex G Restorative Dental Colors Table to describe the color utilized in the *dental restoration*

3.3.1.4.1.8
fracture of *dental restoration*
 tooth that exhibits a *dental restoration* that has a substantial portion of material missing due to factors other than normal wear

3.3.1.4.2
endodontically treated tooth
 Tooth with therapy performed on the endodontium

Note 1 to entry: This term can be used if there is definitive evidence of treatment regardless of the extent of treatment and the presence or absence of endodontic obturation material.

3.3.1.4.3
coronally endodontically treated tooth
pulpotomized tooth
endodontically treated tooth limited to the pulp chamber

3.3.1.4.3.1
coronally endodontically treated tooth obturation material
 use Annex I Endodontic Obturation Material Table to describe the type of material utilized in obturating the coronally endodontically treated tooth

3.3.1.4.4
fully endodontically treated tooth
pulpectomized tooth
endodontically treated tooth in both the pulp chamber and radicular portion of the tooth

3.3.1.4.4.1
number of canals obturated in fully endodontically treated tooth
 number of canals with the presence of an endodontic obturation material

Note 1 to entry: This term may be used even if lateral canals are present or the root canal system separates into additional distinct canals through small portions of the root.

3.3.1.4.4.2
material(s) utilized in obturating the fully endodontically treated tooth
 use Annex I Endodontic Obturation Material Table to describe the type of material utilized in obturating the fully endodontically treated tooth (Multiple iterations allowed)

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3.3.1.4.5
retrograde endodontically treated tooth
endodontically treated tooth resulting from an apical approach

3.3.1.4.5.1
number of apices treated with obturation of the retrograde endodontically treated tooth
 number of canals apices with the presence of an endodontic obturation material

Note 1 to entry: This term may be used even if lateral canals are present or the root canal system separates into additional distinct canals through small portions of the root.

3.3.1.4.5.2
material(s) utilized in obturating the retrograde endodontically treated tooth
 use Annex I Endodontic Obturation Material Table to describe the material utilized in obturating the apices

3.3.1.4.6
other endodontic entity (by report)
 endodontic entity not described by other descriptors

3.3.1.5
root restoration / post
 tooth that has a dental restoration that fills the root canal system of the tooth to serve as a restoration or aid in the retention of another dental device

3.3.1.5.1
number of canals which retain the root restoration
 number of canals that the *root restoration* substantially extends into

Note 1 to entry: This term may be used even if the tooth has not had *endodontic treatment*.

Note 2 to entry: This term may be used even if the tooth does not have a *core* restoration as part of the post system.

3.3.1.5.2
root restoration material utilized
 use Annex J Root Restoration Material Table to describe the material utilized in the root restoration

3.3.1.6
altered root
 tooth whose root system has been altered either by pathology or treatment intervention

3.3.1.6.1
root amputation
 multi-rooted tooth whose root system has been intentionally sectioned with at least one of the roots removed for therapeutic purposes

Note 1 to entry: This term may be used even if definitive restorations are *not present* on the tooth.

3.3.1.6.2
sectioned tooth
 tooth that has been intentionally separated into multiple sections with none of the roots removed for therapeutic purposes

Note 1 to entry: This term may be used even if definitive restorations are *not present* on the tooth.

3.3.1.6.3
retained instrument
 root canal instrument present in one or more canals

Note 1 to entry: This term may be used regardless of where any additional obturation materials coexist in the same or other canals of the tooth.

3.3.1.6.4
other-altered root (by report)
tooth whose root has been intentionally altered for therapeutic purposes and not covered by other descriptors (by report)

3.3.1.7
abutment tooth for dental prosthesis
tooth code that supports a part of a dental prosthesis

3.3.1.7.1
type of abutment device affixed to tooth
use Annex K Tooth Supported Component Abutment Type Table to describe the tooth supported component that supports the prosthesis

3.3.1.7.2
type of retainer on dental prosthesis
use Annex L Prosthesis Retainer Type Table to describe to describe the prosthesis supported component that supports the prosthesis

3.3.1.7.3
splinted to adjacent teeth
tooth with a *dental restoration* connected to another on an adjacent tooth

3.3.1.8
other unique restorative characteristic (by report)
unique restorative characteristic not covered by other descriptors

3.3.1.9
non-acquired anomaly (multiple iterations allowed)
use Annex C Congenital Tooth Anomalies Table to describe the type of tooth with a congenital abnormality

3.3.1.10
non-restorative acquired anomaly type (multiple iterations allowed)
use Annex D Non - Restorative Acquired Tooth Anomalies Table to describe the type of non-acquired anomaly of the tooth

Note 1 to entry: This entry is limited to ISO 3950 codes that map to individual teeth.
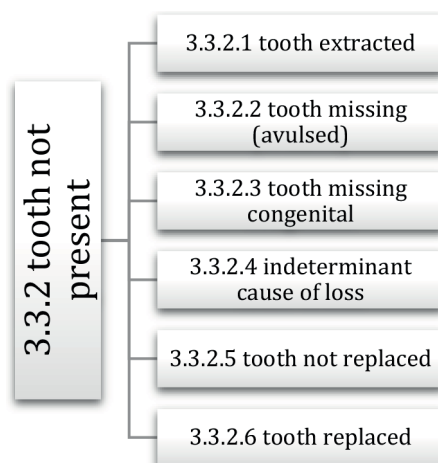

Figure 3 — Overview of the main elements of 3.3.2 tooth not present