

American Dental Association  
**Technical Report No. 1088**

# Human Identification by Comparative Dental Analysis

**ADA** American  
Dental  
Association®

**Standards Committee on Dental Informatics**

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ADA Technical Report No. 1088 – January 2017

## **AMERICAN DENTAL ASSOCIATION TECHNICAL REPORT NO. 1088 FOR HUMAN IDENTIFICATION BY COMPARATIVE DENTAL ANALYSIS**

The ADA Standards Committee on Dental Informatics (SCDI) has approved American Dental Association Technical Report No. 1088 for *Human Identification by Comparative Dental Analysis*. Working Groups of the ADA SCDI formulate this and other specifications and technical reports for the application of information technology and other electronic technologies to dentistry's clinical and administrative operations. The ADA SCDI has representation from appropriate interests in the United States in the standardization of information technology and other electronic technologies used in dental practice. The ADA SCDI confirmed approval of ADA Technical Report No. 1088 on January 26, 2017.

This technical report was prepared by the National Institute of Standards and Technology (NIST) Crime Scene/Death Investigation Scientific Area Committee Forensic Odontology Subcommittee Dental Identification Task Force, in conjunction with the American Dental Association Standards Committee on Dental Informatics (SCDI) Joint Working Group 10.12 on Forensic Odontology Informatics, a joint working group with Working Group 11.1 on Standard Clinical Data Architecture at the request of Jonathan Knapp, chairman, SCDI Subcommittee on Information Exchange.

The ADA SCDI thanks the members of the NIST Crime Scene/Death Investigation Scientific Area Committee Forensic Odontology Subcommittee's Dental Identification Task Force and the organizations with which they were affiliated at the time the technical report was developed:

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The ADA Standards Committee on Dental Informatics thanks the Observer Members of Joint Working Group 10.12 on Forensic Odontology Informatics and the organizations with which they were affiliated at the time the technical report was developed:

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The ADA Standards Committee on Dental Informatics thanks Mark Diehl, chairperson, Working Group 11.1 on Standard Clinical Data Architecture, who contributed to the development of ANSI/ADA Technical Report No. 1088.

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**FOREWORD**

(This Foreword does not form a part of ADA Technical Report No. 1088 for Human Identification by Comparative Dental Analysis).

In 1992, there was interest in the standardization of clinical information systems related to electronic technology in the dental environment. After evaluating current informatics activities, a Task Group of the ANSI Accredited Standards Committee MD156 (ASC MD156) was created by the ADA to initiate the development of technical reports, guidelines, and standards on electronic technologies used in dental practice. In 1999, the ADA established the ADA Standards Committee on Dental Informatics (SCDI). The ADA SCDI is currently the group that reviews and approves proposed American National Standards (ANSI approved) and technical reports developed by the standards committee's working groups. The ADA became an ANSI accredited standards organization in 2000.

The scope of the ADA SCDI is:

*"The ADA SCDI shall develop informatics standards, technical reports and guidelines and interact with other entities involved in the development of health informatics standards aimed at implementation across the dental profession.*

## AMERICAN DENTAL ASSOCIATION TECHNICAL REPORT NO. 1088 FOR HUMAN IDENTIFICATION BY COMPARATIVE DENTAL ANALYSIS

### INTRODUCTION

The establishment of a positive identification of unknown human remains or an unidentified living individual by comparative dental analysis requires both the submission of supporting documentation from the dental provider (s) who treated the patient as well as careful documentation of the unidentified remains or an unidentified living individual. Human Identification by dental analysis is the comparison of oral maxillofacial structures. The procedures to reconcile this information (e.g., radiographs, charts, and progress notes) have been outlined by numerous forensic organizations including the American Board of Forensic Odontology (ABFO), American Society of Forensic Odontology (ASFO), British Association of Forensic Odontology (BAFO), Disaster Mortuary Operational Response Team (DMORT), Interpol's DVI Steering Committee Forensic Odontology Subcommittee as well as many others.

The goal of this technical report is to provide the best available current information to forensic odontologists, forensic pathologists, medical examiners and coroners, law enforcement personnel, dental schools, emergency planners and others on the best practices recommended by the forensic odontology community. It includes guidelines on how to obtain comparative forensic dental data as well as the recommended methodologies to reconcile that data in order to establish an identification by comparative dental analysis.

### 1 BACKGROUND

In the United States, the identification of unidentified living individuals is the responsibility of local, state or federal law enforcement agencies. The Medical Examiner or Coroner (ME/C) has the statutory responsibility and judicial authority to identify the deceased. Although it is ultimately these agencies that certify the identification it is the responsibility of the forensic odontologist to provide their opinion on the identity as it relates to forensic odontology. Those opinions are based on a standardized set of guidelines established by the forensic odontology community and are based on scientific best practices.

The positive identification of an individual is of critical importance for multiple reasons that include:

#### **For unidentified living individuals:**

- A positive identification is vital to reunite an unidentified living individual with their family members.

#### **For the human remains:**

A positive identification is vital to help family members progress through the grieving process, providing some sense of relief in knowing that their loved one has been found.

- A positive identification and subsequent death certificate is necessary in order to settle business and personal affairs.

Disbursement of life insurance proceeds, estate transfer, settlement of probate, and execution of wills, remarriage of spouse and child custody issues can be delayed for years by legal proceedings if a positive identification cannot be rendered.

Criminal investigation and potential prosecution in a homicide case may not proceed without a positive identification of the victim.

Since the consequences of a misidentification can have emotional and legal ramifications the use of other identification modalities include ridgeology, DNA, or other scientific methods of identification (see Section 6 Scientific Methods Of Identification below) should be considered especially if there is any ambiguity in the comparative dental analysis.

## 2 RATIONALE

Forensic odontologists are responsible for identifying unknown human individuals by comparative dental analysis. This process requires comprehensive collection and processing of dental data in order to prove or disprove a human identification. The goal of this technical report is to establish current best practices for this process based on the most up to date technology. The intent of this technical report is not to supersede local, state, or federal jurisdictional guidelines but serve as a tool for the development of those guidelines.

## 3 SCOPE

The scope of this technical report is to develop a recommend set of guidelines for the process of identifying humans by comparative dental analysis. A goal of this technical report is to create awareness and education for the dental practitioner on the forensic odontology identification process as well as understand what information may be required should the need for them to participate occurs.

## 4 NORMATIVE REFERENCES

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1942 Dentistry – Vocabulary

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

ANSI/ADA 1058-2010, Forensic Dental Data Set

(ANSI/ADA standards and ISO standards for dentistry are available from the American Dental Association, Standards Department, 211 E. Chicago Ave., Chicago, IL 60611 or [www.adacatalog.org](http://www.adacatalog.org)).

ANSI-NIST ITL 1-2011 Update 2015 NIST Special Publication 500-290 Rev2 (2015)

(NIST publications are available from [www.nist.gov](http://www.nist.gov))

ASTM E1732 – 12 Standard Terminology Relating to Forensic Science

ASTM E1459 – 13 Standard Guide for Physical Evidence Labeling and Related Documentation

ASTM E1188 – 11 Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator

ASTM E678 - 07(2013) Standard Practice for Evaluation of Scientific or Technical Data

ASTM E620 – 11 Standard Practice for Reporting Opinions of Scientific or Technical Experts

(ASTM Standards are available from ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428 or [www.astm.org](http://www.astm.org)).