

## **Personal Identification**

### **1.0 Principle, Spirit and Intent**

A personal identification results from the comparison of antemortem and postmortem information. Forensic anthropologists should evaluate and compare antemortem and postmortem skeletal information in a systematic manner for the purpose of facilitating a scientifically reliable identification using appropriate techniques.

### **2.0 Purpose and Scope**

The postmortem identification process is an integral aspect of the medicolegal death investigation, and identifying human remains is important for both legal and humanitarian reasons. Forensic anthropologists frequently assist in the identification of human remains through the comparison of antemortem and postmortem skeletal information. The extent to which the forensic anthropologist is utilized in making or assisting with a personal identification differs based on jurisdiction, as well as the needs and constraints of the laboratory with which they are associated.

This document presents guidelines for anthropological contributions to the personal identification process. Practitioners of forensic anthropology should implement these guidelines to the fullest extent as applicable, practical and appropriate. In the absence of specific guidelines or procedures, or in the case of conflicting procedures, the principle, spirit and intent should be met.

### **3.0 General Principles**

Forensic anthropologists contribute to identification at two levels. The first level is through methods that establish positive identification. The second level is through methods that contribute to an identification by limiting potential matches to the individual.

When appropriate, forensic anthropologists should consider consulting other experts including odontologists, pathologists, radiologists, and imaging experts.

Consideration should be given to the temporal interval between the antemortem and postmortem information.

## 4.0 Methods of Positive Identification

A positive identification can be made in cases when the antemortem and postmortem information match in sufficient detail to conclude that they are from the same individual to the exclusion of all other reasonable possibilities. For forensic anthropology, these methods may include comparative radiography and the comparison of surgical implants. Conclusions that can be reached are: identification, exclusion, and insufficient evidence.

### 4.1 Comparative Radiography

Radiographic images taken during life as part of diagnostic procedures may capture skeletal features useful for identification. Comparative radiography is an identification technique involving the direct (side-by-side) comparison of antemortem radiographs of a missing person with those obtained from the remains.

The procedure for identification by comparative radiography typically involves obtaining antemortem radiographs of the suspected deceased, producing postmortem radiographs that simulate the antemortem radiographs in scope and projection, and performing a point-by-point comparison, looking for consistencies and inconsistencies in (for example):

- Bone morphology
- Trabecular patterns
- Orientation and placement of foreign materials, including bullets, shrapnel, surgical implements
- Skeletal anomalies, pathological conditions, and trauma including healed fractures, surgical intervention, enteric accretions
- Skull features, including paranasal sinuses, sella turcica, cranial sutures, mandibular canal
- Dental features, including morphology, restorations, pathologies, missing teeth

There is not an established minimum number of points of concordance or a threshold for the quality of consistencies necessary to support a positive identification. The antemortem and postmortem radiographs should match in sufficient detail to conclude that they are from the same individual with no unexplainable differences. Consideration should be given to the uniqueness or populational frequencies of particular skeletal features, if known.

### 4.2 Surgical Implants

Although not their specific purview, forensic anthropologists may provide information regarding surgical implants as part of their skeletal analysis.

Surgical implants (e.g., surgical implements, artifacts, appliances) often have serial numbers and stamps of the manufacturer, and may be linked with an individual or associated with a particular shipment of surgical implements that can be tracked to a specific area during a certain time period.

The procedure for identification using surgical implants typically involves locating and identifying the manufacturer's symbol along with unique serial number from the device, and contacting local/national registries or the manufacturer for information associated with that number. In some cases, it is possible to link the device to a specific individual.

In other cases, surgical implants may only be useful in narrowing the search (or as one of multiple lines of evidence), since not all devices have a unique serial number and registries may not necessarily provide adequate information to associate the surgical implement with a particular individual.

## **5.0 Methods Contributing to Identification**

Forensic anthropologists may also contribute to identification through methods that are not generally considered sufficient for positive identification. The more distinctive or unusual the characteristics, or the greater the number of corresponding factors, the stronger the contribution is to an identification.

Conclusions that can be reached from these methods are: consistent with, or not consistent with.

### **5.1 Biological Profile**

In some cases there is no basis for assumption of identification and no circumstantial clues to suggest identity. In these cases, an anthropological (skeletal) analysis may be used to assess biological information about the individual including the age, sex, ancestry, and living stature of an individual to lead to a tentative identification. For best practices in generating the biological profile, refer to the corresponding SWGANATH guidelines.

This assessment, though useful in narrowing the pool of potential candidates in the search for identity, is not a positive identification. The biological information is compared to documented information or databases of missing persons, and based on fit with the biological profile, individuals may be included or excluded from further consideration. A biological profile consistent with documented information about the presumed victim, in addition to other corresponding lines of evidence, can provide corroborative evidence of identification.

### **5.2 Charts and Notes**

Written or charted medical and/or dental records may contain documented features or patterns useful for identification. The procedure for identification by written records comparison typically involves obtaining antemortem medical or dental charts and/or notes on the suspected deceased, and comparing them to features of the skeletal remains, looking for consistencies and inconsistencies. In some cases, a measured value of uniqueness of result may be used (e.g., OdontoSearch).

Note that medical and dental charts and notes are not necessarily accurate or current representations of an individual's medical or dental record. Problems may arise due to insufficient recording, mistakes in recording, insurance fraud, or the passage of time. There may also be differences in the recording systems used.

### 5.3 Anomalies and Pathological Conditions

Records of injuries, pathological conditions, and anomalies may also be very useful for identification. Identification proceeds by describing and differentially diagnosing the trait, lesion, defect or wound on the skeleton, and conducting appropriate research or comparisons. The more uncommon the pathological condition or anomaly, the more potential it may have in contributing to identification. For best practices in documenting and reporting skeletal pathological conditions and anomalies, refer to the corresponding SWGANTH guidelines.

Be cautious in excluding individuals due to the absence of the condition in the medical record. Identified skeletal conditions may have been subclinical and therefore undocumented at the time of death or at the time the medical record was prepared. Conversely, if the medical records indicate a pathological condition in the skeleton (such as a fracture) and no condition can be found, this could be the result of complete osseous remodeling or may be the basis for excluding an identification.

### 5.4 Skull-Photo Superimposition

Skull-photo superimposition (also known as photographic superimposition or video superimposition) involves the superimposition of a photograph of a known individual with skeletal remains.

Comparisons should be made between structures visible in both the antemortem and postmortem materials. Although techniques for these comparisons vary, standards for scaling, positioning, lighting, perspective, and angle should be used to ensure proper comparison.

If differences are found, they should be evaluated to determine if they represent structural differences or can be explained by variances in methodology. If structural differences are found, they should be evaluated to determine if they can be explained by chronological factors. Other differences should be carefully considered as a possible basis for exclusion. If shared structures are found, their probative value must then be carefully evaluated as a possible basis for identification.

Given the difficulty in scientifically assessing the uniqueness of human faces, statements regarding the power or value of craniofacial superimpositions should be carefully presented so as to properly present the probative value of the information. Craniofacial superimposition is often hampered by inadequate antemortem photograph quality that can affect the structural comparisons and influence the nature of the final conclusions.

## 5.5 Comparative Photography

Antemortem photographs may be utilized in a direct comparison with the skeletal portion, or a photograph of that skeletal portion. Antemortem photographs, such as those showing marked asymmetry of the face in relation to the cranial vault and antemortem photographs of disfigured limbs due to poorly set osseous fractures, can each be utilized. In cases where these patterns or features can be considered unique to a particular individual, this comparison may be sufficient as a single line of evidence.

There are cases when antemortem photographs may be utilized in a direct comparison with the skeletal portion, or a photograph of that skeletal portion, much in the same way as described above with radiographic comparisons. Examples of these photographic comparisons include the use of antemortem photographs of the occlusal surfaces of the dentition (utilizing the morphology of cusps, restorations, sealants, or tori) and antemortem facial photographs which show the facial surfaces of individual teeth and/or missing teeth.

## 6.0 Additional Considerations

### 6.1 Personal Effects and Other Material Evidence

Valuable information can be gleaned from the material evidence and personal effects that are associated with human remains. Because of their training, forensic anthropologists can provide insight into analysis and interpretation of this evidence to work towards an identification. Such information may not typically be included in the anthropology report, but should be included in the case notes.

### 6.2 Facial Approximation

The practice of facial approximation is intended to capture public attention in regards to a case, and to suggest persons to whom the remains might belong when all other scientific leads have been exhausted. *Facial approximation should NOT be used as a means of personal identification.* For best practices, refer to the SWGANTh guidelines on Facial Approximation.

### 6.3 Identification of the Living

Some forensic anthropologists may be involved in identifying living persons through forensic image analysis (often utilized in cases involving criminal perpetrators or children). These techniques can involve the comparison of morphological features, facial proportionality, and quantitative biometric analyses. Refer to FISWG guidelines for further information.

#### 6.4 Databases

Forensic anthropologists with appropriate authority should contribute the results of their analyses of unidentified individuals to national databases of missing and unidentified persons (e.g. NamUs, NCIC). For identified skeletal remains, information should be provided to the *University of Tennessee Forensic Databank*.