

CalDIT

California Dental Identification Team

Operations Manual

DRAFT – March 2003

Endorsed by the California Society of Forensic Dentistry

PREFACE

California has more forensic odontologists than any other state in the nation. Most serve local law enforcement agencies and Coroners or Medical Examiners in their local area assisting in dental identification of deceased persons who cannot be identified by other means.

This document serves as a framework of operations for the forensic odontologists of California to assist neighboring jurisdictions and the Governor's Office of Emergency Services via the Coroner's Mutual Aid Agreement in the event of a mass disaster that might require a large number of dental identifications.

The "team" represented in this document is referred to as CalDIT (California Dental Identification Team). Team members are actively involved in the field of forensic odontology.

CalDIT is intended to provide support to a jurisdiction that may be overwhelmed during a mass disaster involving a large number of deceased persons. In all cases, CalDIT serves at the pleasure of the local Coroner or Medical Examiner and serves to support the forensic odontologist that serves that area.

Forensic odontology is ever changing, as are other disciplines in dentistry and the forensic sciences. This manual is meant to be a dynamic document that will be continuously reviewed and updated as information becomes available. Any comments or suggestions are appreciated. Only through interactions with all individuals concerned with the identification process will a current, state of the art protocol be developed.

A well organized, well trained team can provide the most efficient and professional services for the communities involved in a mass disaster. In addition, this manual will serve as a vehicle for education of various state, local, and private organizations about the capabilities and organization of CalDIT. It also serves to highlight the need for liaison between CalDIT and other agencies involved with disaster planning.

CalDIT Composition

CalDIT is composed of the following sections

1. Administrative Section
2. "GO TEAM" Section
3. Body Recovery Section
4. Antemortem Section
5. Postmortem Section
6. Comparison Section
7. Team Support Section

CalDIT Director:	James D. Wood, DDS
Northern California Deputy Director	George Gould, DDS
Southern California Deputy Director	Rick Cardoza, DDS
Antemortem Section Chief	Janice Klim-Lemann, DDS
Postmortem Section Chief	Greg Golden, DDS
Comparison Section Chief	Raymond Johansen, DMD

The composition of each section will vary depending upon the size of a given mass disaster. In all cases, an experienced forensic odontologist will be the leader of each section. In addition, trained forensic odontologists will work at a minimum in pairs in the Antemortem, Postmortem, and Comparison Sections. Additional support personnel such as dentists, dental

hygienists, and dental assistants may serve at the discretion of the Director after consultation with the local forensic odontologist.

ADMINISTRATIVE SECTION

The Administrative Section is responsible for the activation, training, and general organizational duties of CalDIT as a team. The Section is headed by the CalDIT DIRECTOR. It also includes the two DEPUTY DIRECTORS and the TEAM SUPPORT LEADER.

The **CalDIT DIRECTOR** is solely responsible for the management and coordination of CalDIT. His/her additional responsibilities include:

1. The activation of CalDIT and determination of the manpower requirements specific for each activation.
2. The activation of the CalDIT GO TEAM
3. Liaison with other agencies present at a mass disaster. The Director will be solely responsible for the release of information concerning CalDIT or will authorize a PUBLIC INFORMATION OFFICER to act in his behalf.
4. The selection, appointment and termination of individuals assigned to CalDIT.

The **DEPUTY DIRECTORS** act on behalf of the CalDIT DIRECTOR whenever he/she is unable to carry out his/her duties. Other responsibilities include:

1. Leader of the CalDIT GO TEAM (for example, an event in Southern California would have as a GO TEAM leader, the SOUTHERN CALIFORNIA DEPUTY DIRECTOR)
2. Leader of the TEAM SUPPORT SECTION

The **TEAM SUPPORT LEADER** coordinates all ancillary services CalDIT may require during a mass disaster. This may involve:

1. Food Service
2. Communications Systems
3. Housing, Transportation
4. Documentation of CalDIT activities (including time sheets)

This responsibility goes to the DEPUTY DIRECTOR whose region was not directly impacted by the event that causes the activation of the team. For example, an event in Northern California would have a TEAM SUPPORT LEADER who is the DEPUTY DIRECTOR for Southern California

GO TEAM SECTION

The GO TEAM is a first response team functioning to:

1. Evaluate the disaster situation in order to determine manpower requirements and begin to notify the appropriate CalDIT members
2. Establish a liaison with the local Coroner/Medical Examiner and local forensic odontologist
3. Provide assistance with body recovery procedures to insure that dental evidence is not lost or damaged
4. Assess the disaster morgue location to determine the most suitable site for the CalDIT team to operate, and make determination of what equipment and support will be needed to operate.

The GO TEAM will be composed of the DIRECTOR, DEPUTY DIRECTOR, and 3 other members of CalDIT appointed by the DIRECTOR. The GO TEAM members will function in the following capacities:

- CalDIT Director
- CalDIT Deputy Directors
- Postmortem Section Leader
- Antemortem Section Leader
- Comparison Section Leader

POSTMORTEM SECTION

The POSTMORTEM SECTION is responsible for the completion of the dental examination of the remains and preparation of the postmortem record. Members may also be asked to act as **body recovery team members as needed**.

The postmortem section is assigned the task of documenting dental data from the deceased individual as accurately as possible for the purpose of comparison with antemortem records for possible identification. This documentation includes photographs, radiographs, and charting of all dental structures and restorations

ANTEMORTEM SECTION

The ANTEMORTEM SECTION is responsible for transcribing all available clinical information onto an antemortem record. This section will also assist with the procurement of the clinical dental record or any other pertinent dental identification information. This documentation includes radiographs, written record of treatment, and charting of all dental structures and restorations.

The CalDIT Request for Clinical Information Form will be used to assist the law enforcement agencies obtain the **complete** dental records.

Members of the ANTEMORTEM SECTION will assist the COMPARISON SECTION when all dental records have been obtained and translated.

COMPARISON SECTION

The COMPARISON SECTION section has the responsibility of comparing the antemortem and the postmortem dental records for the purpose of identification. This can all be done digitally if all the data has been correctly recorded and transferred.

The use of computers and the dental identification software WIN ID may be used as the size of the disaster indicates.

Identifications are not considered confirmed without the approval of the CalDIT Director or his designee.

TEAM SUPPORT SECTION

The TEAM SUPPORT SECTION will be responsible for the smooth operation of CalDIT by providing basic physical comforts as well as equipment and information procurement.

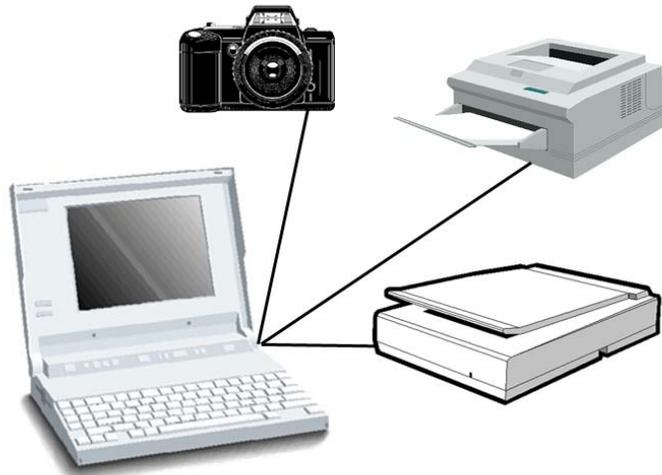
COMPUTER PROTOCOL

Postmortem Section

The postmortem section is assigned the task of documenting dental data from the deceased individual as accurately as possible for the purpose of comparison with antemortem records for possible identification. This documentation includes photographs, radiographs, and charting of all dental structures and restorations.

The computer hardware and software needed for these tasks are listed below...

- A mid-range computer, monitor, and keyboard or laptop. This computer should be equipped with a CD drive and burner and zip (100 or 250 MB) drive for data transfer and archiving.
- Digital camera and port for both memory card and USB input of images.
- Scanner with both document and film scan capability.
- Printer.
- Software to include installation disks and drivers for all peripheral hardware, Windows 98 or newer versions, WinID3, Microsoft Access, Adobe Photoshop (to label, change formats, size and resolution of images).



Postmortem Section

Photographs

Digital photographs are taken of all dental remains. These photographs are saved on the postmortem computer's hard drive.

Radiographs

Radiographs of the dental remains can be taken either in a conventional manner (film and chemical processing) or digitally. If conventional radiographs are taken they will then be digitized using a film scanner. The digital images of all radiographs will be saved on the postmortem computer's hard drive. These radiographs should be taken of all teeth present as periapicals and bitewings to facilitate comparison with whatever type antemortem radiographs are obtained.

Dental Charting

All teeth and restorations obtained from the remains will be charted (after the postmortem radiographs are available). This charting will be done by three qualified individuals: two to observe and report on each tooth and restoration and one to enter the data into the WinID postmortem record.

In other events the postmortem charting was first done manually onto a postmortem form and then entered into the WinID postmortem record. This method is both cumbersome and time consuming (in essence you are entering data twice). It is much more efficient to first enter the data into WinID and if a hard copy is desired simply print a copy of the record.

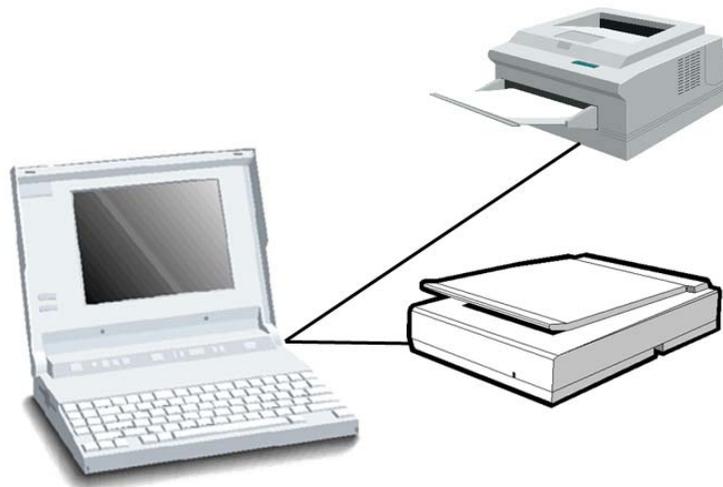
All the above data (photographs, radiographs, and charting) are put into a single postmortem folder for this individual and labeled.

Antemortem Section

The antemortem section is responsible for documenting all antemortem data received for an individual suspected perishing in the mass disaster for comparison to the postmortem data. This documentation includes radiographs, written record of treatment, and charting of all dental structures and restorations.

The computer hardware and software needed for these tasks are listed below...

- A mid-range computer, monitor, and keyboard or laptop. This computer should be equipped with a CD drive and burner and zip (100 or 250 MB) drive for data transfer and archiving.
- Scanner with both document and film scan capability.
- Printer.
- Software to include installation disks and drivers for all peripheral hardware, Windows 98 or newer versions, WinID3, Microsoft Access, Adobe Photoshop (to label, change formats, size and resolution of images).



Antemortem Section

Radiographs

All radiographs obtained from the antemortem records will be digitized using the scanner and saved on the antemortem computer's hard drive.

Written Record

All pages of the antemortem written record will be scanned and saved on the antemortem computer's hard drive.

Dental Charting

All teeth and restorations obtained from the antemortem radiographs and written record will be charted. As with the postmortem dental charting, this will be done by three qualified individuals: two to observe and report on each tooth and restoration and one to enter the data into the WinID postmortem record.

Again, in past events the antemortem charting was first done manually onto an antemortem form and then entered into the WinID antemortem record. It is recommended that the recording be done directly into WinID.

All the above data (photographs, radiographs, and charting) are put into a single antemortem folder for this individual and labeled.

File Transfer

Each individual antemortem and postmortem digital folder (containing all text and image data) must then be transferred to the Comparison Section. This can be accomplished by either networking antemortem, postmortem, and comparison computers or, if networking is not available, simply transferring data via removable zip disks.

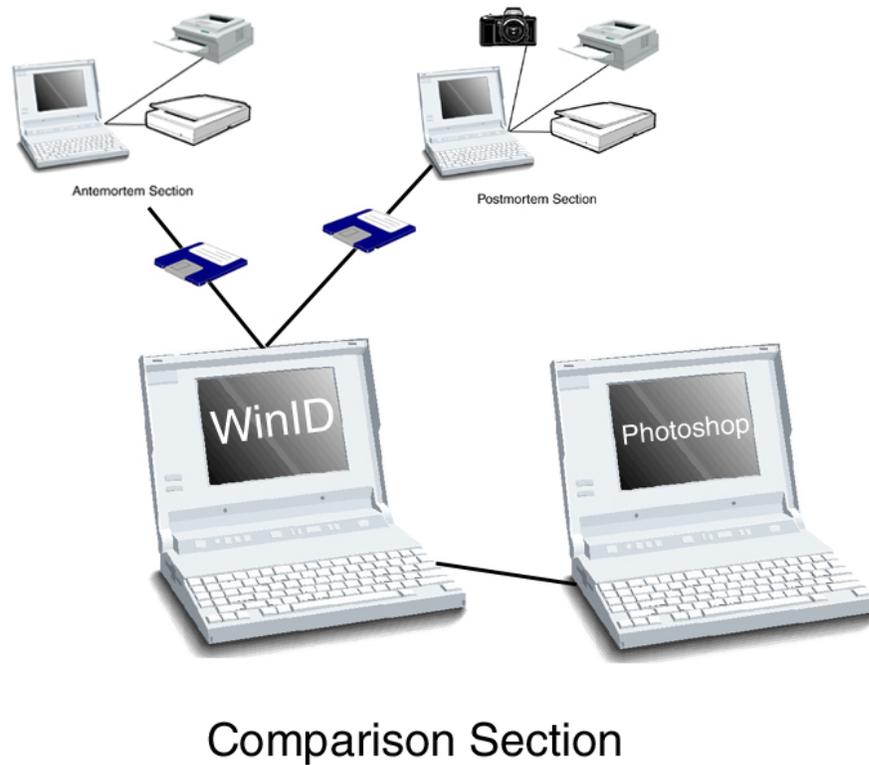
Once file transfer has been accomplished, redundant file saving is also in place. That is, the antemortem file is saved on the antemortem computer's hard drive, the postmortem file is saved on the postmortem computer's hard drive, and both files are saved on the comparison computer's hard drive. If a removable zip disk was used for file transfer it can be a separate source of file archiving.

Comparison Section

The comparison section has the task of comparing the antemortem and the postmortem records for the purpose of identification. This can all be done digitally if all the data has been correctly recorded and transferred.

The computer hardware and software needed for these tasks are listed below...

- **Two** mid-range computers, monitors, and keyboards or laptops. These computers should each be equipped with CD drives and burners and zip (100 or 250 MB) drives for data transfer and archiving. These computers are hardwired together for instantaneous image file transfer.
- Printer.
- Software to include installation disks and drivers for all peripheral hardware, Windows 98 or newer versions, WinID3, Microsoft Access, Adobe Photoshop.



Comparison Section

All antemortem and postmortem data files will be first imported into the main comparison computer. Here WinID can be used to compare the two files. Hopefully, most of the identifications can be made in the following manner...once WinID has identified possible matches, the linked radiographic images can be compared on the monitor for identification.

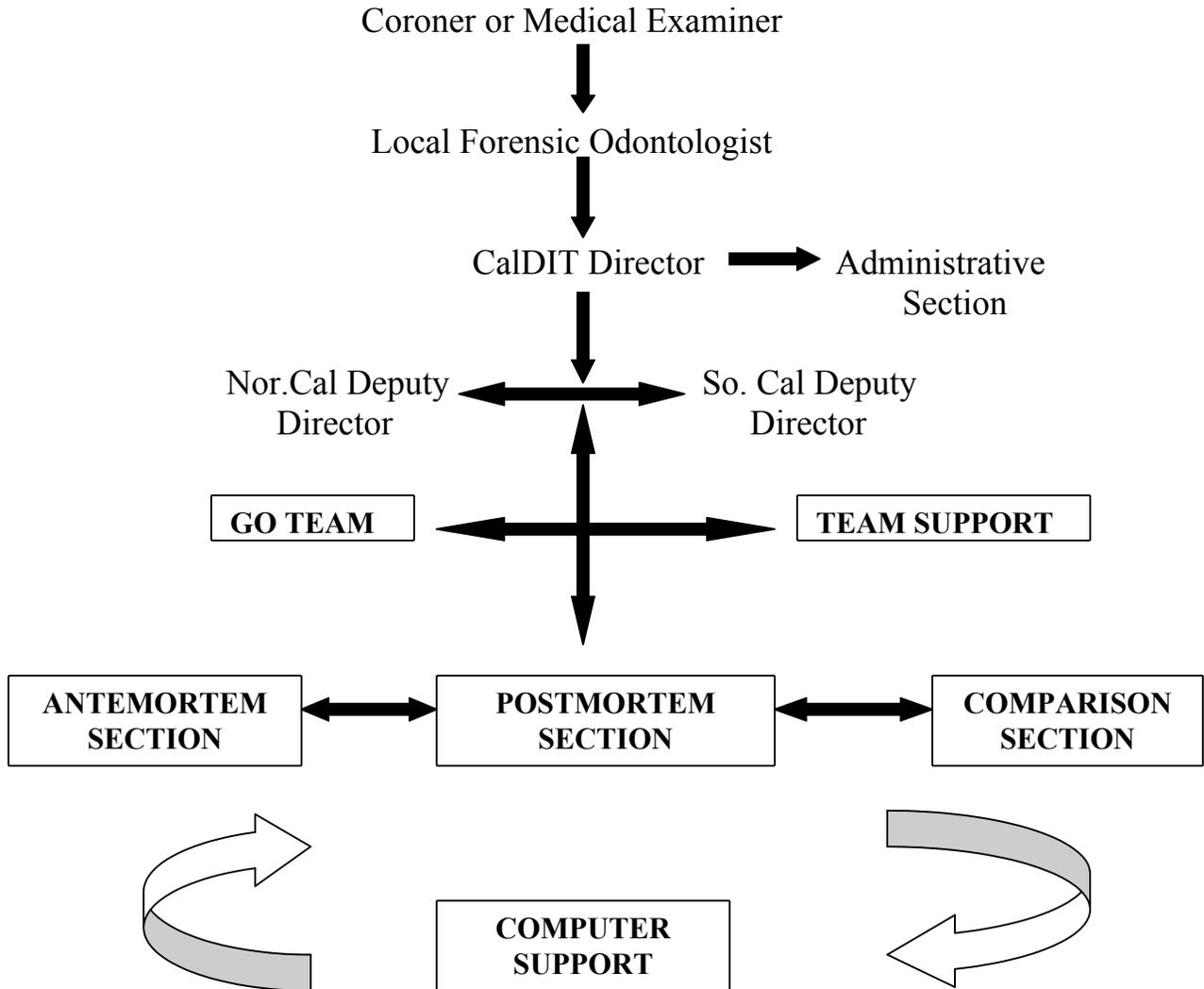
In cases where identification is not obvious and further analysis (possibly metric) is necessary, the antemortem and postmortem images are transferred (via hardware) to the adjacent computer for analysis of the images using Photoshop. Often, when there is very little postmortem dental evidence or few restorations are present, it is necessary to perform more in depth analysis for which Photoshop is ideal. Using two separate computers for these comparisons (instead of just two monitors) allows both routine WinID comparisons and Photoshop image analysis to be carried out simultaneously.

Notice that the antemortem, postmortem, and comparison sections are all separated and can operate independently of one another. There are many advantages to this scheme...

- There is no need to tie up the antemortem computer data entry when postmortem data entry is necessary. Similarly, comparisons can be carried out without the stoppage of antemortem and/or postmortem data entry.
- If one system were to fail, one of the two remaining systems can be used to backup as each system has a nearly identical setup.
- When one of the systems is not being used for data entry and/or transfer it can be used for other tasks (word processing, database setup, printing, etc.).

- Each of the three sections do not need to be physically near each other reducing the possibility of inadvertent mixing of data (radiographs, forms, etc.).

CalDIT Organizational Chart



Dental Materials Necessary During a Mass Disaster

1. **Dental Charts** – previously printed – for antemortem and postmortem charting , using 2 different colors.
2. **Equipment**
 - scrubs
 - Mouth Mirrors
 - Explorers
 - 35mm or digital cameras
 - film or data cards
 - zip-lock freezer bags
 - Non-sterile rubber gloves (thick)
 - Non-sterile surgical gloves
 - Surgical masks
 - Portable Dental X-ray unit
 - Dental X-ray film
 - Automatic dental x-ray film processor
 - X-ray processor chemistry
 - Millimeter scales
 - Large scissors
 - Toothbrushes – large
 - Soap (liquid)
 - Flashlights
 - Tongue blades
 - Dental x-ray film mounts
 - Bite-wing film tabs
 - Envelopes – large manilla
 - X-ray light view boxes
 - Lead apron
 - Stryker autopsy saw
 - Pruning shears
 - Retractors
 - Scalpel handles and blades (#10 and #15)
 - Large hemostats
 - Clip Boards
 - Magic markers
 - Coin envelopes
 - Alphabetical Index for filing charts

- Boxes for filing charts
 - Containers for resected jaws and/or fragments
3. **Computer System** (if indicated) – the components were previously noted in discussion of section operations. Other items listed below may be needed
- Extension cords
 - Surge protectors
 - Printers with extra printer ink cartridges
 - Paper for computer print outs

Note** This is partial, basic list of materials necessary to begin operations for a mass disaster ID team requiring more than 25 identifications.