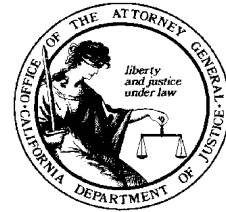




CALIFORNIA DEPARTMENT OF JUSTICE  
BUREAU OF FORENSIC SERVICES  
**PHYSICAL EVIDENCE BULLETIN**



**COLLECTING EVIDENCE FROM HUMAN BODIES**

**INTRODUCTION**

The collection of evidence from the body of a deceased person requires the cooperation of the Coroner's Office (Public Administrator) and all law enforcement agencies. Typically, the Coroner's office has jurisdiction over the body and property of the deceased. It is important that any evidence collected from the deceased be collected with the knowledge and permission of the Coroner's Office. Advise the Coroner's office of what was taken and ensure that any evidence collected be made available to the pathologist.

This bulletin will describe the types of evidence that might be recovered from human remains. It is important to note that some evidence will be much better preserved if it is collected at the crime scene rather than at the morgue. Evidence that can be lost or altered during transport includes: bloodstain patterns, saliva residues from bite marks, gunshot powder residues, and loosely adhering trace evidence. When necessary, remove clothing at the scene. In addition, biological evidence (e.g. semen evidence taken by swabs from body cavities) may be better preserved if collected as soon as possible, dried and stored frozen. Although it may be desirable to collect such evidence at the crime scene, it may not always be possible due to conditions at the scene or the policies of a particular Coroner's Office. In these cases, photographs must be used to capture important pattern, position and location information before the body is moved. Ensure that intermediate (from different angles) and close-up photographs are obtained to adequately document evidence.

**General considerations for the collection and handling of evidence**

- ◆ Safeguards while handling biological samples include:
  - Treat all biological samples as infective material. Follow your agency's Bloodborne Pathogen Plan.
  - Wear gloves.
  - Keep any contaminated surface (e.g. gloved hand) away from face to prevent contact with mucosal membranes (e.g. eyes, nose).
  - After dealing with evidence, properly dispose of gloves and wash hands with germicidal soap.
- ◆ Photography - Close-up photography
  - Maintain the film plane parallel to object being photographed
  - Fill the frame with the subject matter and appropriate scale
  - Use appropriate ruler or scale/sometimes it may be important to also take a photograph without a scale.
  - Take photographs as examination/autopsy proceeds. Insure that overall photographs of all body surfaces are taken before and after the body is unclothed and cleaned up. Insure that both the outside and inside surface of both hands and the tops and bottoms of both feet are photographed.

- ◆ Package and handle evidence to minimize potential contamination or cross-transfer
  - Change gloves and thoroughly clean implements (e.g. tweezers, razor blades, saws) when collecting samples from different sources
  - Use separate containers for individual items
  - Use sheets of paper to minimize contact between different surfaces of the same evidence item
- ◆ Biological evidence will deteriorate rapidly if not handled appropriately
  - Dry samples as soon as possible
  - Package biological evidence in paper (not plastic) bags. Samples of bone or tissue can be packaged in plastic but should be immediately stored in the freezer.
  - Freeze biological evidence (except for vials of liquid blood which should be refrigerated)
- ◆ Label all evidence containers appropriately with an indelible marker
  - Include adequate description of what the object is and location it was found
  - Include case number
  - Include name of person collecting evidence and when it was collected
  - Keep track of all evidence items through the use of item numbers and an evidence list
  - Seal each container with tape. Mark seal with date and initials of collector.

## ISSUES TO CONSIDER

### Identification of Deceased

- ◆ Fingerprint the deceased. Ensure that any rolled fingerprints or palm prints are legible before releasing the body. Depending upon the condition of the body, it may be necessary for the pathologist to remove either the fingers or the friction ridge skin from the fingers.
- ◆ If the fingers are decomposed, palms can be used for identification purposes.
- ◆ Take identification photos of the deceased's face (from several different views) and any identifying marks such as scars or tattoos.
- ◆ It may sometimes be necessary to rely upon a forensic dental examination and may be necessary to take appropriate x-rays or remove and retain jaw structure.

### Clothing

- ◆ If there is any evidence that will be altered or lost if the clothing is not collected at the crime scene, the clothing from the decedent should be removed at the crime scene (with the permission of the Coroner's Office) and properly packaged. Otherwise, it can be collected at the autopsy.
- ◆ Collect any loosely adhering trace evidence (e.g. hairs, fibers, gunpowder, and botanical material) before removing clothing from body. Note the location of this evidence and package in paper bindles before placing into evidence envelope.
- ◆ Carefully collect all garments to avoid disturbing this evidence. Fine tipped forceps and transparent or masking tape can be used to collect trace evidence such as hairs and fibers before clothing is removed. The tape can be placed onto clear, plastic sheet protectors or into smooth, plastic petri dishes. When removing clothing, try to remove it without cutting. If cutting the clothing cannot be avoided, do not cut through bullet holes, stab holes or important bloodstain patterns.
- ◆ Allow all items to air dry, wrap separately in clean paper (using sheets of paper to separate different surfaces of garment) and package in paper bags. Evidence with potential biological evidence should be stored frozen.

## Trace Evidence

- ◆ Collect samples of any adhering material (e.g. hair, fibers, glass, paint, gunshot residue, and particulate matter from a vehicle) from the front and back of the body before body is washed. This evidence may be collected with fine tipped forceps or by taping. Separate pieces of tape can be used to collect trace evidence from each different part of the body (e.g. right leg, left leg, etc.) and the tape then placed onto clear, plastic sheet protectors or inside clear plastic, petri dishes.
- ◆ The decedent's fingernails can be examined for damage or foreign material such as tissue, fibers, or hairs. Collect any foreign material from fingernails with a toothpick and place in paper bindles labeled with information about the location of this evidence. If the nails are sufficiently long, they should be clipped and the clippings placed into paper bindles.
- ◆ In the case of a suspected sexual assault, combings can be taken of the decedent's pubic area.
- ◆ Examine the body for the presence of bloody fingerprints. If bloody fingerprints are detected, consider enhancing these prints (after first photographing them) using appropriate reagent spray.
- ◆ If the victim has broken fingernails (including artificial nails), consider removing the remaining portion so that it could be compared with any nail fragments recovered from another location.

## Document Wounds/Injuries

- ◆ Insure that intermediate and close-up photos are taken of all wounds (including defense wounds) before and after cleanup. Consider numbering multiple wounds.
- ◆ Bite marks should be carefully photographed with a scale. Take photographs using both available light and flash. Hold the flash unit at oblique angles to capture all impression information. Consider using specialized lighting (e.g. UV/IR) to enhance any impression information. Collect saliva from bite mark using a swab slightly moistened with water. Be sure that a control is taken from an area unlikely to have saliva. Consideration should be given to casting the bite mark by using an appropriate casting material (e.g. microsils) to preserve any three dimensional information.
- ◆ Examine the body for imprints that might have originated from the crime (e.g. ligature or shackle marks, shoe sole impressions or vehicle tire /component marks). Carefully photograph any imprint with and without a scale. To reveal more detail, consider using a specialized light source to illuminate any such area. These areas should then be taped to collect any trace evidence. Place the tape on a plastic sheet protector or large surface, plastic petri dish.
- ◆ Gunshot wounds: photograph and describe all wounds. Record and collect any loosely adhering gunshot powder residue. For distance determinations on bare skin (to preserve the powder pattern), press a piece of white filter paper (soaked with white vinegar) against the skin containing the gunshot powder residue. Allow this to dry and carefully package in cardboard box. Ensure that the pathologist collects any foreign inclusions within the wound track.
- ◆ After the pathologist has made a preliminary assessment of the wound track (using external wound penetration location/determination of associated entrance/exit wounds), the wound track can be photographed before and after insertion of dowel by pathologist. When possible, specify entrance and exit wounds. In the event that the wound is covered by the decedent's hair, it will be necessary to shave the hair, wash the site and then photograph the wound.
- ◆ If bloodstain pattern interpretation is likely to be important in the investigation, ensure that the pathologist documents any damage to major blood vessels and the pooling of blood in thoracic or abdominal cavities.

## Firearms Related Evidence

- ◆ X-rays are of considerable value in locating bullets or metal fragments. The pathologist should not use metal forceps or probes to remove projectiles. Allow any biological material to dry and package into an appropriate container (e.g. small cardboard box or paper bundle).
- ◆ Gunshot residue on hands: until examined, protect decedent's hands with clean paper bags secured at the wrists with tape or rubber bands. Examine hands for visible particulate material. Gunshot residue can be collected using the recommended procedure in your jurisdiction (e.g. sticky tape on aluminum GSR collection discs).
- ◆ Powder patterns associated with gunshot wounds are important in distance determinations. They should be carefully photographed (film plane parallel to wound surface) with and without a scale. Collect and retain any loosely adhering gunshot powder/residues in a paper bundle.

## Biological Evidence

- ◆ In the case of suspected sexual assault, collect multiple (e.g. 4 swabs, each) vaginal, oral and anal swabs. Prepare at least two slides from each category of swabs. Air-dry the swabs as soon as possible and store frozen. Sexual Assault Evidence Kits can be used to collect this evidence.
- ◆ Examine the body for the presence of semen; saliva or any other body fluid stains which may have been transferred from the assailant(s). A forensic light source (e.g. Polilight/Woods lamp) may aid in visualizing these samples. Collect any suspected stains with a swab slightly dampened with water. Collect a control in a similar fashion. Label swabs and air-dry. Consider the possibility that blood from the assailant might be present on the victim's body (e.g. an isolated single stain from a victim who did not bleed extensively). Consider taking breast, neck, thigh or penile swabs for possible saliva testing. Collect a control from an adjacent area that is unlikely to have saliva.

## Reference Specimens

- ◆ Hair specimens should be pulled from representative areas (e.g. temples, crown, and nape) of the head (include beard hair) and at least four areas of the pubic region. At least 10-12 hairs from each area should be taken.
- ◆ Reference Blood Samples- Blood samples should be obtained from non-body cavity areas such as heart or major internal blood vessels. Collect two separate blood samples (approximately 5cc each), one in a yellow-stoppered tube [**containing ACD solution B**] and one in a lavender-stoppered tube [**containing EDTA**]. The crime laboratory should be notified if the subject has received a blood transfusion. The subject's bloodstained clothing may be useful as a reference in this case. Air-dry and freeze these items.
- ◆ If the body has decomposed, in addition to the blood sample, **collect as many of the following specimens as possible**: a portion of deep muscle tissue, certain organ tissue (e.g. heart or brain/**not** liver or kidney), 2-4 intact, upper molar teeth (if identification is an issue, ensure that mouth x-rays have been taken), and a sample of compact bone (e.g. femur). The specimens collected should be **away from site of injury** (i.e. if head injury, do **not** take sample of brain tissue). **Immediately freeze specimens**, do **not** place in any preservative (e.g. formalin).
- ◆ In order to conduct toxicology tests, collect at least 8 cc each of blood [in a gray stoppered tube which contains potassium oxalate/sodium fluoride] and urine. If possible, separate collections of at least 8 cc of heart blood and 8 cc of peripheral blood is preferable. Liver, bile, brain, vitreous humor and stomach contents may also be retained. Where poisons might be involved, collect at least 25 cc of blood and 25 cc of urine. Organ samples and stomach contents may also be required for this analysis.

**SUBMIT A COPY OF THE POLICE REPORT (AND IF AVAILABLE, THE AUTOPSY REPORT) TO THE CRIME LABORATORY WITH ANY EVIDENCE SUBMITTED.**

**CONTACT YOUR LOCAL BFS CRIMINALISTICS LABORATORY IF YOU HAVE ANY QUESTIONS.**