



# Physical Evidence Bulletin

---

## Collection of Evidence in Sexual Assault Investigations

---

**Purpose** The Physical Evidence Bulletin is a guideline intended for law enforcement agencies to follow in order to submit evidence to BFS Laboratories. Physical Evidence bulletins are not intended to be used in lieu of training in the collection of evidence.

---

**Analysis and results that may be obtained** The Bureau of Forensic Services (BFS) provides analytical support to law enforcement agencies through the identification of physical evidence in sexual assault cases. Physical evidence in sexual assault cases can assist in establishing elements of the crime, help to identify or eliminate a suspect, and can be used to corroborate or dispute statements. The evidence most often encountered in sexual assault cases includes not only biological evidence (e.g., semen) but also fingerprints, impression evidence (e.g., shoeprints), and trace evidence (e.g., hairs/fibers).

### Goals of Biological Evidence Collection

- Collect as much sample as possible from a single source.
  - Keep biological evidence stain concentrated.
  - Ensure that the sample is not inadvertently mixed with other biological samples (e.g., contaminated).
  - Wear gloves and change them on a regular basis or between items. Change gloves if they become stained with any biological sample.
  - Do not talk over any biological evidence sample or consider wearing a face mask.
  - Handle the sample in a manner, which minimizes deterioration of the sample.
  - When dealing with items for DNA analysis, do not touch your face, etc. with gloved hands. This can inadvertently transfer your DNA to the items.
  - Air-dry the sample as fast as possible, preferably in a stream of cool air.
- 

**Minimum evidence required** Submit to the laboratory appropriate reference samples for all individuals involved in the case. This can include suspect, victim, and consensual partner references, as well as users of items swabbed for touch DNA. DNA database (CODIS) samples are not evidentiary and therefore not suitable for use as a reference sample in an evidentiary case. The DNA database is for investigative leads in cases of unknown suspects. Also submit appropriate evidence items or swabs, substrate controls, water blanks in the case of trace DNA (touch DNA) samples, and sexual assault evidence kits.

---

## Collection, marking, and packaging

### General Crime Scene

- Collect all items at the scene having possible evidentiary value
  - Anything which might have originated from the suspect/victim (depending upon the nature of scene [e.g., victim's or suspect's residence])
  - Anything that may provide information about what occurred.
- Process the crime scene systematically for evidence:
  - Photos: To record the scene and identify items of evidence.
  - Sketches: To establish spatial relationships.
  - Latent Prints: Best evidence for identification of the suspect(s) should always be considered. Focus on anything that may have been handled or touched by assailant(s).
  - Shoepprints, Tire Tracks, Toolmarks: Impression evidence that may serve to link suspect(s) to a crime scene.
  - Biological Evidence - Biological evidence includes blood, hair, saliva, semen, other body fluid stains, and trace DNA. Any of this evidence may be important and should be collected. All stains collected should be accompanied by a control sample from an unstained area near the collected stain. A forensic light source (e.g., *Polilight or Woods lamp*) may be of assistance in locating biological stains.
  - Bedding: Collect bedding upon which the assault occurred. If wet stains are located, indicate their location with a piece of tape or circle with a waterproof pen, allow to air dry, and then package by folding the edges toward the center and place in a paper bag.
  - Other Physical Evidence: Collect all other items at the scene having possible evidentiary value. This includes anything which might have originated or been in contact with the assailant(s) or provide information about what occurred. Depending upon the type of scene being examined (e.g., suspect's residence), collect any evidence possibly originating from the victim (e.g., clothing items). Evidence that could be useful in sexual assault investigations includes: fibers, hairs, saliva swabbed from a bite mark, lubricants or foreign objects used in the assault, or discarded clothing.

### Stains Found at Crime Scene

- All biological evidence is subject to deterioration. The careful collection and storage of this evidence will help ensure that this evidence is preserved so that useful information can be obtained from its analysis.
- The pattern of bloodstain evidence may sometimes contain important information. If the bloodstain pattern is determined to be important, it should be documented with appropriate sketches and photographs.
- Finally, biological evidence can contain infectious organisms (e.g., hepatitis virus) that can be transmitted to any person who contacts it. For these reasons, it is important to take proper safeguards to ensure the safety of all personnel.

### Recommendations for collecting biological evidence stains:

- Handle the evidence stains as little as possible. **When possible, submit the item with the stain.** This is the easiest and best method to collect biological evidence. If the stain is on a smooth, non-porous surface and can be easily dislodged, protect it from contact with other objects (e.g., immobilize in box).
- If the stain is on a large object with a porous surface (wood or carpet), the area with the stain can be cut out and packaged in paper (e.g. paper bag or wrapped in paper). Be sure to include a portion of the unstained material as a control.

- If it is not possible to collect the object or cut out the stain, the stain may be collected by using a slightly moistened (with distilled water) cotton swab. While collecting the stain, an effort should be made to **concentrate it onto a small area on the swab**. A substrate control sample of an unstained area close to the biological evidence stain should also be collected using the same distilled water and type of swab that was used to collect the evidence. Also submit a water blank swab of the water used for collection of the biological stains. Allow the swabs to air-dry, then package individually in appropriately marked paper envelopes or folded paper bindles.
- The size of the stain should influence the size of a substrate used to collect the stain. Thus, use a small part of a swab or a micro swab to collect a small stain. Do not smear a small stain over a large surface.

**Small biological evidence stains (e.g., 2 mm size bloodstain) need special handling:**

- Put on a fresh pair of gloves before collecting these samples.
- Wear a face mask to avoid contaminating the sample with your own DNA.
- If the entire item can be submitted to the laboratory, then it should be packaged and submitted to the laboratory. If the entire item cannot be submitted, then the stained portion of the item can be cut out using a new or disposable tool and packaged for submittal to the laboratory. If the stained portion cannot be cut out, then a sterile swab is probably the best sample collection device.

**Trace (touch) DNA samples need special handling:**

- Trace DNA is material that can be deposited by touching or handling an item; however, just handling an item does not mean that trace DNA will be found.
- Trace DNA is a cumulative material. Subsequent handling of an item does not eliminate previous DNA that is already there. In most cases, trace DNA results in complex mixtures of DNA. Also, trace DNA has no context. There is no way to tell when the DNA has been deposited or how it was deposited.
- Put on a fresh pair of gloves before collecting these samples.
- Wear a face mask to avoid contaminating the sample with your own DNA.
- If the entire item can't be packaged for submittal to the laboratory, then a sterile swab is probably the best sample collection device. Lightly moisten 2 sterile swabs with distilled or sterile water and hold them together while thoroughly swabbing the surface.
- Submit a water blank swab (a swab moistened with the same water source used for the sample) for a control in cases of trace DNA.

**Try to minimize the amount of time a stain is kept wet.** Air-dry all wet stains as soon as possible. Do **not** expose to heat or sunlight in an attempt to dry the stain.

In cases of fetal tissue, contact the laboratory for packaging and submittal requirements. **Do not use any preservatives** and place the fetal tissue in a clean container.

**Medical Personnel**

- Victim - Refer to the California Medical Protocol for Examination of Adult Sexual Assault Victims and Child Sexual Abuse Victims for evidence collection guidelines.
- Ensure that all clothing worn during or immediately after the assault is collected. Package in separate paper bags.

## Medical and/or Law Enforcement Personnel

- Suspect - use a Suspect Sexual Assault Evidence Kit to collect relevant evidence and follow kit instructions:
  - All Clothing Worn By Suspect at the time of assault: Package separately in paper bags (not plastic).
  - Pubic Hair Brushing: Place a paper towel or piece of paper under the area being brushed. Brush the pubic region. Wrap the brush in the piece of paper and place into a paper envelope. Always collect pubic hair brushing before collecting pubic hair reference standards.
  - Pubic Hair Reference Standards: Pull or cut close to the skin a minimum of 20-30 hairs from different areas.
  - Head Hair Reference Standards: Pull or cut close to the skin approximately 20-30 hairs taken from several areas to include front, back, sides, and top.
  - Other Body Hairs: Take additional hair samples if case indicates.
  - Reference Samples: Collect at least one blood sample, approximately 5cc, in a lavender-stoppered tube [containing EDTA]. The crime laboratory should be informed if the subject had recently received a blood transfusion of any kind. The tubes should be placed into a labeled envelope. Alternatively, an oral (mouth) swabs (e.g., swabs of the inside of cheek) can be used as a reference sample. If oral samples are obtained, take 2 swabs and vigorously rotate the swab on the inside surface of the subject's cheeks. It is imperative that these samples be dried as soon as possible. When the samples are dry, they may be placed into a labeled paper envelope or bag. The evidence envelope/bag should be labeled and taped sealed.
  - Sample for Blood Alcohol or Drug Analysis - Collect this sample in a gray-stoppered tube [containing potassium oxalate/sodium fluoride].
  - Penile Swabs: If indicated by the case history and time frame of case, penile swabs may be taken. Using swabs moistened with distilled water hold the swabs together as a unit and swab the glands, shaft, and base of the penis with a rotating motion to ensure uniform sampling. Air-dry swabs, package, label, and tape seal.
  - Scrotal Swabs: If indicated by the case history (this evidence may be especially important if assailant wore a condom) scrotal swabs may be taken. Using swabs moistened with distilled water, hold the swabs together as a unit and swab the scrotum in a rotating motion, focusing on area in closest in proximity to penis. Air-dry swabs, package, label, and tape seal.
  - Extra Swabs - These swabs can be used to collect other semen, blood, or saliva stains on the skin. Slightly moisten the swabs with distilled water and swab the suspected stain. A substrate control swab should also be made by swabbing an unstained area adjacent to the stain. Label the swabs indicating the location from which it was taken. Air dry and package in paper carton. If digital penetration is alleged, then swabs of the fingers should be collected.
  - Miscellaneous – Fingernail cuttings can be collected. Using clean scissors or nail clippers, cut each nail as close to the quick as possible. Package the cuttings from each hand in separate paper bindles and place into the appropriate containers. Alternatively, fingernail debris can be collected using a toothpick to scrape each nail, or a swab for each nail. Place all five toothpicks or swabs from the right hand into appropriate container and label. Repeat for left hand. Collect any other foreign material, place in paper bindle, and package in envelope. Label and tape seal the envelope.

**Package all biological evidence in paper bags or envelopes. Do not use plastic:**

- Allow stains to air dry as much as possible before placing in paper bag or envelope.
  - Package the "unstained control" separately from the evidence stain.
  - Package different evidence items in separate paper containers.
  - Ensure that paper container is large enough to allow air circulation around evidence item.
  - Clean paper can be placed on (or in) a bloodstained garment and the garment folded so that the paper prevents contact between different stains. Ensure that while items are drying that the stain pattern(s) are not altered or the stain(s) cross-contaminated with other wet stain(s).
  - Metal or glass evidence item (e.g., knife or broken, glass bottle), should be secured with wire to the bottom of a cardboard box so that it does not pierce the sides of a paper container. If not secured, blood on a knife blade can become easily dislodged and lost. Do **not** freeze metal or glass evidence items with blood or other body fluid stains. Submit these items to the laboratory as soon as possible.
  - Condoms should be packaged in the following manner:
    - If the condom is dry, it can be packaged in a paper bag or envelope.
    - If the condom is slightly moist, it can be packaged in a leak proof container (e.g., plastic jar).
    - If the condom contains significant liquid, try to absorb as much of the liquid on swabs. Dry the swabs and package them in a separate envelope. Package the condom in a leak proof container.
  - Tape seal, initial, and date all packages.
- 

**CAUTIONS**

**Safeguards while handling biological evidence include:**

- Wear disposable (e.g., latex) 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.

**Care should be taken to ensure that biological evidence is not contaminated during its collection:**

- Wear clean gloves and consider wearing face masks. Change gloves between samples, especially if they become visibly stained.
- To avoid contamination, do not allow one evidence stain to come into contact with other biological samples.
- Minimize contact with sample. Do not talk or cough over biological evidence. Do not handle samples without using clean gloves.
- Each individual stain should be collected separately. Do not collect or package two separate samples together.
- Do not allow evidence samples to come into contact with any surface that contains residue from another biological sample (e.g., dirty tweezers, bloodstained glove, contaminated work surface).
- If tweezers must be used, use tweezers that have smooth, easy-to-clean working surfaces.
- Reusable tools (e.g., tweezers, scissors) must be cleaned by thoroughly rinsing

with a stream of fresh 10% bleach followed by a stream of distilled water. Wipe dry with a clean tissue.

### **Evidence Storage**

- Submit appropriate items to the BFS laboratory in your area as soon as possible. If there is a large amount of evidence, call your local laboratory and discuss the case prior to submitting the evidence.
  - If the evidence cannot be immediately submitted to the laboratory:
    - Refrigerate **liquid** blood samples. Do **not** freeze.
    - Air-dry all items that contain wet biological evidence. Do not subject to heat.
    - Until submission to the crime laboratory, **freeze** all items containing biological evidence **except** for any **metal or glass items** (e.g., knives or bottles). **Metal or glass** items should be **stored at room temperature** and submitted to the laboratory as soon as possible.
  - Evidence from the scene, suspect, and victim must be handled and packaged separately.
- 

### **The lab does not accept or process**

The laboratory does not accept syringe needles. Contact the laboratory prior to submission if there is a need for such items to be analyzed.

---

### **For further information and additional resources**

Please contact your regional BFS laboratory with any further questions that you may have.

For a list of regional laboratories please go to:

[http://ag.ca.gov/bfs/pdf/bfs\\_brochure.pdf](http://ag.ca.gov/bfs/pdf/bfs_brochure.pdf) or <http://ag.ca.gov/bfs/>

To locate the most current Physical Evidence Bulletins please go to:

<http://ag.ca.gov/cci/reference/reference.php#peb>

---