BIOLOGICAL EVIDENCE

INTRODUCTION

The Washington State Patrol Biochemistry/DNA section is responsible for the forensic biochemical analyses of body fluids, stains, and cellular material (not associated with bodily fluids) and the DNA typing of biological evidence.

Many examinations begin with a screening procedure to identify the presence of biological material on items of evidence. When biological material has been identified from the screening process, a sample of the material can be taken for DNA analysis. Biological screening can involve a series of chemical tests to indicate the presence of a bodily fluid (serology), detecting the presence of male DNA for certain sexual assault kit samples (Y-screening), or may be as simple as swabbing an item that has been reportedly touched or contacted in some way. The WSP crime lab system can perform presumptive and confirmatory tests for blood and semen, and presumptive tests for saliva.

Human DNA analysis (or typing) is the only type of DNA testing performed by the WSP Crime Laboratory. DNA typing is a process that involves chemically removing DNA from cells and applying molecular biology techniques to obtain a DNA profile that can be compared to other profiles. DNA profiles may be obtained from biological evidence items and from reference samples collected from known individuals. DNA can be obtained from many biological sources (such as blood, semen, saliva, hair, organs, skin, urine, and feces). DNA typing performed on biological evidence can be used to support the inclusion or exclusion of a known individual as a possible source of the profile. DNA profiles may also be searched in the Combined DNA Index System (CODIS) to identify potential contributors.

DNA can be recovered from items that may have been touched and no body fluids are present, however this kind of evidence can present interpretation challenges. These types of samples are commonly referred to as trace DNA. Samples that are likely to have been handled by multiple sources or have been limited in handling/touch by the suspect can result in complex mixtures of DNA from multiple donors or limited information. Analysis of trace DNA samples often leads to limited or inconclusive conclusions regarding inclusion or exclusion of a particular person of interest. In addition, it is not possible to conclude that an item was touched by an individual, when DNA was deposited on an item, or how DNA was deposited on an item. Trace DNA samples will not be analyzed if they are considered unsuitable and/or other evidence with a higher potential for developing a probative profile is available.

The conclusions drawn from DNA evidence by DNA analysts can help law enforcement investigators:

- Identify a potential perpetrator
- Exclude individuals not involved in a crime
- Reconstruct the events related to a crime
- Locate a crime scene
- Establish paternity in criminal cases
- Identify missing persons and unidentified remains

CASE ACCEPTANCE GUIDELINES FOR BIOLOGICAL EVIDENCE

The following case acceptance guidelines were established to improve efficiency, promote analysis of evidence that is most likely to yield results, and prioritize the testing of evidence submitted in more serious crimes (homicides, assaults, sexual assaults). These guidelines will support efforts to improve customer service by reducing the backlogs and providing timely investigative information.

Case Acceptance Criteria for Sexual Assault Kits:

- The first laboratory submission is limited to the sexual assault kit box and reference samples from the survivor, suspect, and recent consensual sexual partners. The request must be submitted using the *Request for Laboratory Examination (RFLE) Sexual Assault Kit Submission* form(Form 3000-210-032). The SAK-RFLE must be completely filled out for the evidence to be accepted at the crime laboratory.

- Additional items may only be submitted after discussion with the DNA scientist or DNA supervisor. If approved, additional items are submitted using the following forms:

    - *Request for Laboratory Examination*
    - *DNA Case Supplemental Information*
    - *Authorization for Consumption of DNA Evidence*

A case summary or copy of the incident report and, if applicable, the *Sexual Assault Kit Report* from the hospital should also be submitted. The case information should contain a brief description of where or who the evidence items came from. A forensic scientist may still contact you for additional information about the case.

Case Acceptance Criteria for Other Evidence:

- The first request for analysis is limited to five evidence items, not including reference samples. These items must be listed on the required *DNA Case Supplemental Information* form in order of requested priority. The customer should contact the laboratory to discuss prioritization of evidence if there is a need to submit more than five items.

  The WSP Crime Lab requires the submitting agency or a prosecutor provide *Authorization for Consumption of DNA Evidence* when requested. Every effort is made to preserve at least half of the evidence; however, when dealing with limited samples, it may be necessary to consume the entire sample.

- Current laboratory resources limits the processing of all “trace DNA” samples collected specifically for skin cells from handling objects. Examples of trace DNA samples include firearms evidence (bullets, magazines, cartridge cases, and firearms), swabs collected from firearm evidence, and samples collected from surfaces which have been in routine contact with many people. “**Wearer** DNA” samples collected to obtain the DNA profile of an individual who may have worn a clothing item are generally not included in this category. Exceptions may apply for cases involving violent crimes, if there is no other evidence, if applicable reference(s) are provided at the time of submission, and if

Authorization for Consumption of DNA Evidence is granted. Submissions of trace DNA cases should include discussions between customers and DNA staff.

- Property crime submissions are limited to 2 items collected from the crime scene and will require *Authorization for Consumption of DNA Evidence* at the time of submission. Evidence items suitable for submission include items that are known to be left behind by or items containing body fluids from the perpetrator(s). For vehicle theft cases, steering wheel swabs may only be submitted in conjunction with DNA reference samples from the vehicle's owner/primary driver(s) for elimination purposes. Items collected from handled or touched objects for analysis of "trace DNA" will not be routinely accepted. Additional items may be warranted and can be submitted with advanced agreement from a DNA supervisor.

- The customer must provide contact information on the Request for Laboratory Examination Form. Please return any inquiry calls or emails within 14 days to avoid cancellation of the lab request and return of the evidence.

The firearms, materials analysis, and latent print sections remain unaffected by this policy. For cases involving multiple examinations, this policy will only apply to evidence on which DNA analysis is requested.

Required At the Time of Initial Submission

To improve the quality of customer service, we require the following items with initial case submissions:

- For SAK evidence submissions:
  - A *Request for Laboratory Examination Sexual Assault Kit Submission*

- For other evidence submissions:

  - A *Request for Laboratory Examination* form

  - A *DNA Case Supplemental Information* form. Please indicate the evidence priority on this form. If you cannot provide reference samples, please indicate the reason on this form.

  - A case summary or copy of the incident report and, if applicable, the *Sexual Assault Kit Report* from the hospital. The case information must contain a brief description of where (or who) evidence items came from. A forensic scientist may still need to contact you to obtain additional information about the case.

  - *Authorization for Consumption of DNA Evidence* form is required for all property crime submissions and may be required upon request for other submissions

  - Reference samples from victims, suspects, and elimination/consensual partners are required at the time of submission if possible

TECHNOLOGY UTILIZED

The Washington State Patrol Crime Laboratory does not currently offer mini-STR typing, mitochondrial DNA typing (mtDNA), single nucleotide polymorphism (SNP) technology, animal

DNA typing, or plant DNA typing. The WSP laboratory should be contacted if any of these services are required, and the laboratory may be able to provide assistance to the agency in determining alternative laboratory facilities for testing.

The WSPCLD offers human DNA typing using national best practices recognized by the forensic community. DNA is first chemically removed (or extracted) from biological cells. Real Time (RT) polymerase chain reaction (PCR) instruments determine the quantity, quality, and ratio of DNA present in the sample (quantitation). Molecular biology techniques are then applied to obtain a DNA typing profile. A specific amount of DNA is amplified using the PCR process, which targets a core set of short segments of DNA that are repeated numerous times, also known as short tandem repeats (STRs). The amplified DNA is then run on a capillary-based gel electrophoresis instrument, resulting in a DNA type for each locus. The typing results at each locus are compiled into what is referred to as a DNA profile.

If the amount of DNA in a sample appears insufficient to obtain a profile, the analyst has discretion to halt testing. If multiple samples with similar probative value are quantitated, the analyst may choose which samples to amplify based on case approach considerations, which may include discussions with the submitting agency and/or prosecutor.

Robotic liquid handling systems are used by the laboratory and may be employed during certain steps of the analysis process.

Autosomal STR Analysis:

The 20 core STR loci tested by the WSPCLD are those recommended by the FBI and recognized by the Combined DNA Index System (CODIS). Amelogenin is tested for sex determination and several additional loci are tested for higher discrimination. A total of 27 loci are tested, although it may not be possible to obtain results at all loci for every sample.

Y-STR ANALYSIS

Y-STR analysis is similar to STR analysis but focuses exclusively on male DNA. The Y-STR loci tested by the WSPCLD are found on the non-recombining region of the Y chromosome, allowing the amplification of only human male DNA. 23 Y-STR loci are examined. The alleles at each locus are inherited as one linked block of genetic information that is passed down through a paternal lineage.

Y-STR testing is applicable to the following scenarios, please contact the laboratory to request Y-STR testing when needed.

- Samples where large quantities of female DNA may be obscuring the smaller male DNA component. Examples of appropriate cases and samples include:
  - Sexual assault cases where only digital penetration or penile penetration without ejaculation (or with use of a condom) occurred or when only oral assault occurred.
  - Sexual assault cases where the perpetrator has a low sperm count or is vasectomized.
  - Fingernail clippings from female victims, especially homicide victims, when it is expected that the perpetrator was male and that some sort of struggle may have occurred.
- Cases where a reference sample from a male victim or suspect is unavailable, but a sample from a male relative from the same paternal line is available.

- May be considered for use on cold cases that were previously unsuccessful with standard DNA typing. Please check with the lab that conducted the original testing. The original DNA extracts and/or additional suitable evidence items from the case must be available.
- To supplement conventional STR results obtained for a sample with additional genetic information.

The following are limitations of Y-STR testing:

- All males with the same paternal lineage will have the same profile and thus will be indistinguishable from one another (A Y-STR profile is not unique and cannot identify a specific, single individual).
- Y-STR profiles are not eligible for CODIS. Relevant reference samples must be submitted for comparison to any profiles.
- Statistical weight of a Y-STR profile is significantly lower than standard DNA testing. All other samples in a case that are potentially suitable for standard DNA testing should be exhausted before Y-STR testing is attempted.
- The Y-STR analysis of samples originating from more than one male donor may be inconclusive. The submission of elimination references, if applicable, will help profile interpretation.

The following criteria are generally utilized to determine if a case is eligible for Y-STR analysis. Since Y-STR analysis is a specialty examination, it will not be conducted on every case and is limited to applicable samples submitted in violent crime (e.g. homicide, sexual assault, assault) and paternity or identity cases only. Consultation with the laboratory is encouraged before requesting this testing.

- If a probative autosomal (standard STR) DNA profile has already been developed in the case, Y-STR analysis will generally not be conducted.
- If there are multiple suspects in the case and they are paternally related, Y-STR analysis will generally not be conducted.
- For Y-STR requests involving victim's clothing: Y-STR analysis will generally not be conducted without a serology result if the suspect co-habitates with the victim or processes laundry with the victim.
- The investigation must have a suspect identified and an available suspect reference sample. A suspect reference sample is required to conduct Y-STR analysis for comparisons, since there is no state Y-STR DNA profile database.
- Y-STR analysis often involves limited amounts of DNA. Authorization to consume the evidence may be required by the laboratory.

HANDLING BIOLOGICAL EVIDENCE

The handling of biological fluids and stains presents hazards due to the possible presence of pathogens. All evidence items submitted for biological testing must be handled using universal precautions. Treat all evidence objects as sources of pathogens and take appropriate protective actions while handling biological evidence.

Gloves must always be worn when handling potential biological evidence. Gloves must be changed frequently and always between handling evidence items to avoid contamination between

items. Additional personal protective equipment including Tyvek® suits, boot covers, and masks may be needed to protect the collector and the evidence. No smoking, eating, or drinking should be done around potential biological evidence items. Do not touch your face, clothing, or personal items (such as a cell phone) while wearing gloves. Change gloves immediately afterward if you inadvertently contaminate your gloves. To reduce the risk for contamination, do not cough, sneeze, spit or talk over or around potential biological evidence. Face masks that cover the nose and mouth are highly recommended when collecting evidence, especially for trace DNA samples.

Good personal hygiene must be observed. The hands should be washed thoroughly after the removal of protective gloves, even if the gloves are not cut or punctured. Used protective gear should be removed when exiting the crime scene and must be disposed of properly.

Questions regarding health and safety should be directed to local health authorities or to the Industrial Safety and Health Division, Department of Labor and Industries, Olympia, Washington, at www.lni.wa.gov; Safety and Health Hot Line, 1-800-423-7233.

COLLECTION, PRESERVATION, AND SHIPPING OF BIOLOGICAL EVIDENCE

Collection

Evidence may be recovered from many sites: from the crime scene, from an evidence dump site, from a vehicle involved in the crime, from the suspect's body and clothing, and from the victim's body and clothing. In sexual assault cases, evidence such as penile swabbings from a suspect, the suspect's underwear, and fingernail/hand samples may be useful evidence. When appropriate, as much evidence as possible should be collected as quickly as possible from the bodies of the victim and suspect. Transitory evidence should be collected as the first priority. Biological evidence is fragile and can easily be destroyed. The recognition and recovery of such evidence must be performed properly by the investigator in order to make the best use of it. Please call your local laboratory for case specific recommendations.

The DNA laboratory may be contacted before any biological evidence is delivered for processing. The first submission of DNA evidence is limited to five items plus reference samples (except sexual assault cases, which should only include the SAK and references). The laboratory can help determine what evidence should be delivered and how that evidence should be processed to provide the best forensic examination possible. When several forensic disciplines are involved with one item of biological evidence, the item may be shipped between WSP laboratories for the examination to be completed in the appropriate order for that item.

It is imperative that the victim receive immediate medical attention. Promptness of an examination will also permit medical personnel to retrieve any physical evidence before being lost through washing or cleansing. Commercial kits are available to assist medical personnel in collecting specimens and controls required by the crime laboratory. The examination should be conducted in a manner which avoids the loss of evidence. The preferred sequence of the examination by medical personnel is to first examine and collect the clothing, then the external areas of the body, and finally the internal areas of the body.

The Harborview Abuse and Trauma Center has established guidelines for sexual assault medical evaluations and evidence collection for adults, adolescents, and children.

There are generally three methods of collection recommended by the WSP Crime Lab:

1) Collect the entire item.

2) Collect a portion of the item.
3) Remove the biological material from the item.

Collecting the entire item

The best way to collect an item of biological evidence is to collect the entire item. This method of collection allows the laboratory to process the evidence with the potential involvement of several forensic disciplines (e.g. latent prints, materials analysis). After a sexual assault in which the suspect has deposited body fluid evidence on the victim, it is critical to immediately collect articles of clothing worn during the assault. These may not be the clothing items the victim wears to the hospital. In some cases it may be important to collect the clothes the suspect was reportedly wearing at the crime scene.

If latent blood detection methods (such as luminol) or alternate light sources are used to locate stains at the crime scene, an effort should be made to mark those areas on the evidence prior to collection (e.g. a potential semen stain on a blanket observed on the bed at a crime scene).

If collecting fired cartridge cases from the crime scene and subsequent DNA analysis is anticipated, handling should be limited to preserve DNA that may be present. One way to limit handling is to collect the fired cartridge case with the aid of the stick end of a swab inserted into the inner portion of the cartridge case, or by the use of other sterile collection tools such as sterile plastic forceps. To optimize the chance of sufficient DNA recovery, it is preferred that the cartridge case not be swabbed or processed for latent prints prior to submission to the laboratory for DNA testing.

Collecting a portion of the item

If the entire item is not able to be collected because the item is too large (e.g. walls, concrete, flooring), a portion of the item may be removed. This method is preferred if it is necessary to preserve a stain pattern on a large item. A large enough area around the stain/pattern should be taken to avoid having the cutting instrument come in close contact with the biological material.

Removing the biological material from the item

Do not submit swabs previously used for presumptive blood testing for DNA analysis. A separate swab should be used for sampling DNA evidence after a stain has given a positive presumptive test for blood. The chemicals in the presumptive tests interfere with DNA testing.

Visible staining: If the item (or a portion of the item) is not able to be collected, the visible stain may be transferred off the object by swabbing(s) or scraping.

- Swabbing: Moisten a sterile cotton swab with clean water* (not dripping wet, just moist enough to dissolve the stain) and rub the stain. If the stain is small, collect it on a small area of the swab. Collect larger stains on as many swabs as necessary. Use a dry swab afterward to collect any remaining residue. Both the wet and dry swab should be packaged together as one item.
- Scraping: This should be performed as a last resort since flakes can create contamination. If the body fluid can be easily flaked off a surface, use a new/sterile scalpel or razor blade and scrape it onto a clean piece of paper. If more than one stain is to be collected, use a new/sterile blade for each scraping to prevent cross-contamination. Fold and tape the paper closed.

Non-visible biological material: If the item (or a portion of the item) is not able to be collected, but a non-visible stain or cellular/contact material is suspected to be present, the area may be swabbed. Latent print analysis may need to be considered before an area is generally swabbed**.

- If the stain is not visible or to collect cellular/contact material from an item, moisten a sterile cotton swab with clean water* (not dripping wet) and swab the area on the item. Use a dry swab afterward to collect any remaining residue. This technique is referred to as the "wet/dry technique". Both the wet and dry swab should be packaged together as one item.
- The wet/dry swabbing technique should be used for swabbing areas on the body that may have been licked, kissed, or bitten.

Lotions or lubricants: Collect large deposits of oils, lubricants, creams or ointments in a glass test tube or vial. Otherwise, wipe the area of the deposit with a sterile damp swab(s) and follow it with a sterile dry swab(s). Sterile gauze may also be used to collect the deposit. A substrate control may be collected from a deposit-free area, adjacent to the deposit.

*It is always preferable to use sterile, deionized water to moisten swabs. If this is not possible, clean water should be used. Commercially bottled water may be an appropriate option. A control swab, moistened with the water used then air dried, may be collected, however these controls are not generally processed at the crime laboratory.
**For collection of evidence that yields limited DNA, such as touch/handler/wearer cellular samples and small stains, certified DNA-free swabs should be used. Swabs labeled only as 'sterile' may contain contaminant DNA from the manufacturer and can produce DNA profiles that are not forensically significant. For further information on certified DNA-free swabs, contact the crime laboratory.

M-Vac® Collection

The M-Vac® is a wet-vacuum DNA collection system. It is possible to use this device to collect DNA from a variety of porous and non-porous materials. M-Vac® collection for DNA analysis is available in each DNA laboratory within the WSP Crime Lab system. The WSP Crime Lab recommends agencies contact their local WSP Crime Lab if this service is requested.
Due to the potential for removal of trace evidence and mixing of discrete stains present on an item, the WSP Crime Lab recommends M-Vac® collection be performed at the WSP Crime Lab, and not at individual agencies. The M-Vac® has the ability to collect trace amounts of DNA from the substrate, and as such, complex mixtures, and contaminant profiles may be detected in DNA extracts produced from this collection method. If an agency prefers to perform M-Vac® collection at their location or on scene, with subsequent submission of the M-Vac® product (dried filter/filter device) to the WSP Crime Lab for DNA analysis, an elimination sample from the M-Vac® operator/collector *must* be submitted along with the evidence.

Preservation

Bacterial action, mold, sunshine, moisture, and warm temperatures can damage the evidentiary value of biological evidence due to the damage or destruction of DNA. All biological evidence must be dried and packaged according to these guidelines before submission to the laboratory.

Proper packaging:

- Each item, including each article of clothing, should be packaged separately. Transfer of materials between items must be avoided.

- Use clean paper bags, envelopes, cardboard boxes, or some other breathable packaging material to package evidence to avoid the accumulation of moisture inside the package. Do not use plastic bags or containers. The presence of moisture enhances bacterial growth.
- Comforters, blankets, pillows, coats, and other large items should be packaged in a way that allows them to be repackaged easily at the end of the forensic examination.
- Label each item with a case number, item number, date, item description, source and/or location.
- Evidence tape or other nonremovable tape should seal any openings. Initial across the tape. The date may also be appropriate to add across the seal. All packaging should have tape over any openings to ensure that small particles are not lost. Only tape or self-adhesive seals should be used. No envelopes should be licked to seal.
- Evidence must be properly packaged and sealed to prevent any loss or contamination.

Special packaging considerations:

- Bottles/containers with liquid: The liquid should be removed using a pipette or by poking a hole in the bottom of the receptacle. Liquid should not be dumped out due to potential biological evidence around the opening/lip/mouth area of the container. The removed liquid may be preserved in a sealable plastic container. If an examination is needed for ignitable liquids, refer also to the Fire Debris section of this manual, or contact your local laboratory.
- Condoms: For condoms with a small amount of liquid, the liquid should be allowed to dry before packaging. If the liquid cannot be dried, the condom should be packaged so that the liquid cannot spill out of the condom. A new/sterile twist tie or clamp may be used so biological material from the inside of the condom is not mixed with the biological material on the outside of the condom. Secure the condom in packaging such as a plastic specimen jar or conical tube to keep it upright and leak proof, and then freeze the item.

Proper drying:

Evidence items and stains must be thoroughly dried at room temperature without the use of heat or fans. Partially dried items will be subject to bacterial action and mold, destroying their value as evidence. To avoid the possibility of cross-contamination, items from different areas of the crime scene, from different individuals (e.g. victim and suspect), and from unrelated cases should **not** be dried together at the same time. If an item is wet upon collection and cannot be adequately dried (e.g. soaked diaper, human tissue), consider freezing the item or call the lab for recommendations.

Proper storage:

For best practices related to the storage and preservation of DNA evidence, please reference the NIST Biological Evidence Preservation Handbook, available on our website. DNA typing results can be obtained from evidence stored refrigerated, frozen, or at room temperature for an extended period of time. If at room temperature, biological evidence should be stored in a cool, dark, and dry place.

- Do not freeze the following items: metal objects, rocks, guns, knives, aluminum baseball bats, or any item that has hard plastic, rubber, glass, or non-porous surfaces (e.g. shoes, belts etc.). These items should not be frozen, as condensation forms upon

removal of these objects from the freezer. These items should be stored dry at room temperature.

Shipping

Items must be packaged in a way that will allow them to be handled and transported safely. A few examples include:

- Knives/Firearms/sharp items: should be placed in a new cardboard box and secured with plastic zip-ties. (See the firearms section of this manual for shipping safety procedures for firearms).
- Glass: should be secured in a cardboard box, padded, marked “fragile” and “glass” on the outer packaging.
- Blood tubes: any glass tube packaged for shipping must be cushioned and protected from breaking (this includes tubes used to store sexual assault swabs). Wrap the tube in absorbent material (e.g., enough tissue paper or towels to absorb the contents if it should break) and place in a small, resealable plastic bag. Tape top edges together with evidence tape. Place the bag into a second bag and seal, and then place this into a Styrofoam mailing container and seal container. Styrofoam containers are commercially available. Blood tubes should never be frozen, they may be refrigerated. If liquid blood tubes are included in the sexual assault kit, they should be removed when the kit is placed in freezer storage. Samples received from the medical examiner should be checked to see if they contain liquid blood tubes to ensure proper storage conditions for different sample types.

Items should not be marked “biohazard” or “blood” on the outer packaging for shipping.

REFERENCE/KNOWN SAMPLES

A reference/known sample is taken from an individual under supervised circumstances. A chain of custody must be maintained on the sample from the time of collection. The DNA typing profile obtained from the reference sample is compared to any profiles from the evidence items. The reference sample may be collected by law enforcement, medical staff, or correctional staff. Offender DNA collection kits supplied by the WSP CODIS Crime laboratory should not be used for the collection of DNA reference samples in criminal cases. The reference sample should be shipped to the WSP laboratory doing the analysis on the evidence items in the case. Reference samples that arrive separate from and later than the other evidence may cause a delay in the processing of the case. If reference samples are not submitted with the initial laboratory request, the request may be cancelled unless other arrangements have been made in advance or sufficient justification is provided on the *DNA Case Supplemental Information form*. Sufficient justification may include an inability to obtain reference samples.

A “secondary” reference sample is a personal item (e.g. toothbrush, hairbrush, comb) that is believed to be from an individual. On rare occasions, this type of reference may be used when a “primary” reference is not available. Contact the crime laboratory for more information on submitting secondary reference samples.

The reference samples that should be submitted are dependent on the case circumstances:

- Reference/known samples should be submitted from all victims and suspects.
- References may also be required for elimination purposes (e.g. a consensual partner of a sexual assault victim).

- Note: elimination samples from Law Enforcement or Crime Scene personnel may also be required if known or suspected unprotected contact between an individual and an item of evidence may have occurred (e.g. Officer touched weapon during collection safety check).
- In missing person's investigations, references may be requested from family members for comparison purposes.
- Currently the laboratory does not accept family reference samples for the sole purpose of upload and search in CODIS. These samples are referred to the National Missing and Unidentified Person System (NAMUS). For more information contact NAMUS at NamUs_West@rti.org.
- As a result of a mass disaster, it may be necessary that the laboratory process relative of missing persons samples for CODIS upload and search. Under these circumstances the family member reference samples shall be accompanied with a *Consent for Family Reference Sample Collection, Testing, and CODIS Entry* form (available on the WSP CLD website: https://www.wsp.wa.gov/forensics/crimlabs.htm). Please contact your local laboratory for more information.
- If an evidence sample profile matches to an offender profile in the CODIS database providing an investigative lead, a reference sample will be requested to confirm the "hit."

Methods of reference sample collection:

- A buccal (saliva) sample on swabs is the easiest method of collection for known/reference samples. When collecting a buccal sample, the individual's mouth should be free of food, tobacco, and other substances. It may be appropriate to have the individual rinse and spit before the collection of the sample. The buccal sample can be collected by using 2-4 swabs. Rub and roll the swabs inside the cheeks so that the sample collected has thoroughly coated the surface of the swabs. The swabs should be air dried and packaged for submission to the laboratory. The swabs must be labeled with the name of the person from whom it was collected and some case identifier to link the item to the individual.
- A blood sample on FTA® paper* may be collected. This type of sample is generally collected by medical staff using a finger lancet or blood draw. Liquid blood is blotted on the FTA® paper labeled with the name of the person from whom it was collected and some case identifier to link the item to the individual. The FTA® paper should be packaged for submission to the laboratory. This method of collection is recommended for a victim of sexual assault, especially when an oral assault is alleged.
- Liquid blood presents a biohazard for laboratory staff and is not a recommended method for reference sample submission. If liquid blood submission is the only available option, blood samples should be drawn into lavender-top tubes. (Grey-top tubes are used by the Toxicology lab for alcohol and drug screening. In some cases, typically vehicular assaults and vehicular homicides, you may need to collect blood samples in both types of tubes for separate submission to the crime laboratory and the Toxicology laboratory.). Both the tubes and the packaging must be labeled with the name of the person from whom the blood was drawn.
- Blood may be collected at autopsy. It is recommended that liquid blood be blotted on FTA® paper* for submission. If autopsy blood is not available or is in poor condition, other body tissues can be used for reference/known samples. The crime laboratory should be contacted for recommendations.

*FTA® paper is recommended for long term storage of blood reference samples. Other types of absorbent paper are acceptable, but not recommended.

Elimination Database Samples

The WSP Crime Laboratory maintains an elimination database which includes DNA profiles from WSP Crime Lab staff, law enforcement agency personnel, and other individuals that enter laboratory facilities, to screen for potential contamination of evidence profiles. The WSP Crime Laboratory highly recommends submission of elimination samples from detectives, crime scene technicians, and forensic staff who regularly handle items of evidence submitted for DNA analysis. Agency personnel may contact their local WSP Crime Laboratory for more information or to submit a DNA elimination sample.

RETURN OF ITEMS

All DNA work product produced during sample analysis, including remaining DNA extracts from evidence (reference DNA extracts will be discarded), microscope slides, and sample cuttings or cellular material not subjected to DNA extraction, will be returned to the submitting law enforcement agency in a new, separate item. As part of the DNA work product, DNA extracts will be in a preserved format and can be stored at room temperature or lower.

The DNA Crime Laboratory Report will indicate the name of the new item in which DNA work product is returned.

If you have any questions, please call your local crime laboratory. Phone numbers can be found in the introduction to this Forensic Services Guide.