



**ILLINOIS STATE POLICE
Division of Forensic Services
Forensic Sciences Command**

ESH Appendix 1 SUBMISSION OF FORENSIC BIOLOGY/DNA EVIDENCE

I. INTRODUCTION

The following information regarding biological evidence is designed by the Forensic Sciences Command (FSC) to assist in providing the necessary analysis on cases received in the Forensic Biology/DNA section of any Illinois State Police (ISP) laboratory. The submitting agency will be encouraged to provide as much information as possible into Prelog for the Laboratory Information Management System (LIMS) to facilitate analysis. Should information provided be insufficient, the analyst will contact the submitting agency and obtain the necessary information.

II. SUBMISSION GUIDELINES

A. General Information

1. Cases submitted for analysis must be the subject of a current or prior criminal investigation and are expected to contain probative biological stains. Samples from missing persons, relatives of missing persons, and unidentified human (remains) may be submitted to the laboratory even if they are non-criminal in nature, as authorized by law.
2. Cases in which the investigating agency has determined a crime has occurred, but for which the state's attorney's office has not yet filed charges, should be submitted to the laboratory.
3. Generally, the priority of case analysis will be crime against persons cases followed by property crimes, however, the user agency needs will also be taken into consideration when assessing priority of case analysis. Missing person's cases and unidentified human (remains) cases will be prioritized to meet Public Act 95-0192. The agency must inform the laboratory of any special needs (e.g., rush request, impending court date, etc.) which exist.
4. Analysis will not be conducted on cases which the investigating agency has determined and/or indicated to the laboratory that no crime has occurred.
5. **Evidence collected in sexual assault cases must be submitted within ten (10) business days of receipt, in accordance with the Sexual Assault Evidence Submission Act (Public Act 96-1011, effective 9-1-10).** It is imperative that all other biological evidence be submitted to the laboratory as soon as possible after it has been collected if it is to be of evidentiary value.
6. Cases should be submitted for analysis in accordance with the information in II.A. regardless of whether the identity of the suspect is known/unknown, or whether standards from the suspect have yet to be obtained.

7. To maximize available resources, submissions to the FB/DNA section will be based on a tiered approach. The number of exhibits accepted by the laboratory will be limited depending on the nature and type of case submitted. Agencies must consider that multiple items contained in one exhibit may be sub-exhibited and counted accordingly. Swabs taken from separate items or areas at a crime scene must be packaged individually.
 - A. Tier One Submissions (Without laboratory consultation.)
 1. Homicides
 - a. Up to five exhibits/sub-exhibits or any combination thereof.
 - b. Appropriate DNA Standards.
 2. Sexual Crimes
 - a. Sexual Assault kit, appropriate DNA standards, and the one most probative item (if not the kit).
 - b. If no kit; up to three exhibits/sub-exhibits or any combination thereof and appropriate DNA standards.
 3. All other Crimes Against Persons
 - a. Up to four exhibits/sub-exhibits or any combination thereof.
 - b. Appropriate DNA Standards.
 4. Property Crimes
 - a. Up to two exhibits/sub-exhibits or any combination thereof.
 - b. Appropriate DNA Standards.
 5. **If probative information is obtained from Tier One analysis, no further submissions will be accepted without approval of the Laboratory Director or other designated laboratory manager.**
 - B. Tier Two Submissions (Requires consultation with the assigned case analyst or the supervisor if the case analyst is not available or a major case review, if appropriate.)
 1. Homicides - Up to five additional exhibits/sub-exhibits or any combination thereof.
 2. Sexual Crimes - Up to two additional exhibits/sub-exhibits or any combination thereof.
 3. All Other Crimes Against Persons - Up to two additional exhibits/sub-exhibits or any combination thereof.
 4. Property Crimes - Up to two additional exhibits/sub-exhibits or any combination thereof.
 - C. Additional Submissions
 1. If no probative information is gained from the analysis of either the Tier One or Tier Two submissions, a conference will be necessary before any further submissions will be considered.
 2. The conference must include, at minimum, the case investigator, the assigned laboratory analyst, and an appropriate laboratory manager.
 - D. Exceptions
 1. All exceptions to this policy must have the approval of the Laboratory Director or other designated laboratory manager.
8. If an agency is considering DNA analysis, the agency should let the laboratory know this at the time of submission. The laboratory will determine the best order of analysis in multi-section cases.

B. Blood

1. Suspected bloodstains may be analyzed to determine if blood is indicated. Further testing may be conducted to determine if the material is of human origin. Suspected bloodstains of non-human origin may also be analyzed to determine the species of the material if necessary.
2. Bloodstains in a wound area of a suspect or victim will not be examined unless valid evidential information is provided.

C. Other Body Fluids/Samples

1. Suspected body fluid stains may be tested to indicate what kind of body fluid may be present (i.e., semen and saliva).
2. Small stains that may contain a limited amount of DNA, or those stains in which a body fluid is assumed to be present based upon the nature of the evidence (e.g., saliva on cigarette butts), may be considered for DNA analysis without prior biological screening. This will be at the discretion of the laboratory.
3. Other samples such as perspiration, fingernail scrapings, and bone may have probative DNA value. The agency should call their local laboratory for assistance.
4. Hair samples will not be routinely analyzed for DNA when there are biological stains/samples (e.g., semen, blood, tissue, etc.) available for analysis.
5. Tissue samples will not be routinely analyzed for DNA when there are biological stains/samples (e.g., semen, blood, tissue, tec.) available for analysis.

D. Sexual Assault Cases

1. Cases with circumstances involving issues of consent (e.g., “he said/she said” type cases in which both parties agree sexual contact occurred but dispute whether there was mutual consent) are to be submitted.
2. Effective September 1, 2010, sexual assault evidence must be submitted in accordance with the Sexual Assault Evidence Submission Act (Public Act 96-1011).
3. If probative evidence has been identified in the sexual assault evidence collection kit, the clothing of the victim will not routinely be examined for biological stains and trace evidence (i.e., hairs and fibers).
4. Seminal stains on the clothing or bedding of a suspect will not routinely be preserved for or undergo DNA analysis unless the agency provides information that warrants this analysis.
5. Fingernail scrapings will not routinely be examined by forensic microscopy unless the agency provides information that warrants this analysis.
6. Prior to submission of the Illinois State Police Sexual Assault Evidence Collection Kit, the law enforcement agency must ensure that all required signatures are obtained on the “Patient Consent: Collect and Test Evidence or Collect and Hold Evidence” form within the kit. Sexual assault kits that do not have the required consent and release signatures on file with the law enforcement agency cannot be accepted for laboratory analysis for either forensic biology or DNA. This form should not be submitted to the laboratory.

E. Miscellaneous Cases

1. Parentage analysis will be conducted on criminal cases only. The Illinois State Police will arrange for the DNA results to be interpreted for parentage by a private laboratory, as necessary.
2. Forensic Biology/DNA analysis will not be routinely conducted on drug packaging. All exceptions to the policy must be approved on a case by case basis by the Laboratory Director.

F. Standards

1. Blood standards must be submitted as drops of blood air-dried on a filter paper blotter card and sealed in a paper container. Two to five dime-sized drops will normally constitute an adequate sample. DNA analysis may not be conducted until standards from all potential contributors (victim(s), suspect(s), consensual partner(s), etc.) are submitted. Results of analysis of blood standards and evidence samples will be fully reported.
2. Buccal swab standards must be submitted as a swabbing of the inner cheek area of the inside of the mouth. **THE BUCCAL SWAB STANDARDS MUST BE SEMEN-FREE.** Two to four swabs constitute an adequate sample. The swabs must be air-dried and sealed in a paper container. DNA analysis may not be conducted until standards from all potential contributors (victim(s), suspect(s), consensual partner(s), etc.) are submitted. Results of analysis of buccal swab standards and evidence samples will be fully reported.
3. Only under very rare circumstances (when a blood standard or buccal swab standard is unobtainable or unsuitable for analysis) will a standard from another source (i.e., hair, bone, tooth, etc.) or a secondary standard (i.e., clothing, toothbrush, etc.) be used as a substitute for a proper known standard. Please contact the laboratory for questions regarding collection and submission.
4. If a consensual partner is identified in the course of the investigation of a sexual assault, an elimination standard should be submitted.
5. When a DNA profile is obtained which cannot be matched to known individuals such as a suspect or a victim, elimination samples may be requested from individuals involved in crime scene searches and evidence collection.

III. SPECIAL HANDLING REQUIREMENTS AND CLEAN TECHNIQUE

Due to the extremely sensitive DNA technology available, attention to extraneous DNA issues must be considered when collecting and processing evidence for DNA analysis. Extraneous DNA (DNA from sources apart from the original contributor(s) of the stain) can be deposited on the evidence when any individual sneezes, coughs, talks over, or touches the evidence. All individuals have DNA in their skin cells and in their body fluids. Care must be taken to prevent this DNA from mixing with the evidence DNA. In addition, transfer of DNA from one item of evidence to another (cross contamination) can occur. Proper handling of evidence will prevent these incidents from occurring.

A. Personal Protective Equipment

1. Gloves - Use latex gloves during sample collection. Use caution when handling gloves to ensure the gloves do not come in contact with anything that could be transferred to the evidence. Check gloves periodically for contamination. Change them often. The wearer should not touch his/her bare skin (face, arms, etc.) with gloves.
2. Clothing - The use of disposable protective outer garments including mask, gloves, and disposable lab coats is recommended. Check clothing frequently for contamination. If blood or other debris is observed, the person collecting the evidence should leave the scene and replace the contaminated garment.

B. Evidence Collection Supplies

1. Tweezers - Use disposable tweezers. Use new tweezers for each sample collected. If using non-disposable tweezers, clean tweezers with 10 percent bleach (made fresh daily) between each sample. Never use ribbed tipped tweezers.
2. Scalpels - Use disposable scalpels only. Use a new scalpel for each stain collected.
3. Swabs - Use sterile packaged swabs for the collection of stains. Do not touch the cotton end of the swab. If the stain is dry, moisten the swab tip and then collect the sample. Use distilled water to moisten the swab. Air dry and package.

Note: Do not use micro-bacterial culture swabs for the collection of any type of forensic evidence.

4. Water used for collection - Use distilled, de-ionized water if possible. Never insert swab directly into water container. Use a dropper device to place water onto swab. Blot the excess water out of the swab using dry sterile paper or another swab. This prevents dilution of the stain, enhances the recovery of DNA material, and allows the stain to dry more rapidly.

C. Evidence Handling

1. Avoid touching the area of the stain.
2. Air dry wet stains at room temperature before packaging. Do not try to hasten drying with heat or sunlight.
3. If a liquid sample must be collected, place it in a clean container, using clean utensils. Dry some of the liquid on a piece of sterile gauze and let air dry. The remaining liquid should be sealed and refrigerated as soon as possible. DO NOT FREEZE. Also, do not dilute the liquid sample with water, saline, or any other liquid.
4. Submit the entire item, in preference to scraping the stain, whenever practical.
5. If scraping is unavoidable, scrape from surface with clean utensil into clean paper packet or cardboard pill boxes.
6. Package each stain or article separately in an unused paper bag or envelope. Mark each bag with pertinent data such as case number, date, item number, initials, etc.
7. Seal the container with tape and place initials and other marks across the tape.

8. Store unused packages in a closed condition. Unused packages should never be stored near evidence.
9. Knives and other sharp objects - In order to prevent contamination and/or injury to the evidence handlers, it is necessary to secure the item in the packaging and/or cover any sharp item which may break through the packaging or slide through the seams of the box.
10. Storage of biological evidence - Dry wet evidence before packaging. DO NOT PACKAGE IN PLASTIC. Biological evidence that has been packaged and appears to be leaking through the evidence package (paper bag/envelope) must be placed in another package to prevent unwanted transfer of biological fluids and to protect any individuals coming in contact with the evidence. Seal and initial storage containers immediately after collection of exhibit.
11. Evidence transport - Biological evidence from one scene must not be transported into another scene.

IV. DNA ANALYSIS RESULTS

The laboratory will attempt to obtain a DNA profile from the evidence submitted. This profile can be compared to DNA profiles from standards submitted with the case. Conclusions may be reached that either include or exclude individuals as potential contributors of the DNA from the evidence stain. In addition, a numerical value for frequency of occurrence is given which states how often a particular profile, or haplotype, would be expected to occur in the population. The ISP calculates these values for Caucasian, African-American, and Hispanic populations.

V. COMBINED DNA INDEX SYSTEM (CODIS)

As appropriate, a DNA profile obtained from the evidence may be entered into the Federal Bureau of Identification's (FBI) Combined DNA Index System (CODIS), a DNA database that is administered in this state by the Illinois State Police. CODIS is a computer based searchable database of DNA profiles developed from forensic casework samples and convicted offender samples. Eligible profiles are searched against local, state, and national databases. The system is similar to the Automated Biometric Identification System (ABIS) for fingerprint searching. This system allows law enforcement agencies to link serial crimes together as well as identify possible suspects even if no prior suspects existed.

A CODIS "hit" or "association" occurs when a DNA profile entered into the system is a potential match to a DNA profile in the database. All such potential matches will be reviewed by a forensic scientist, who will notify the appropriate law enforcement agency(ies) of any necessary follow-up.

Note: DNA profiles from most non-criminal cases cannot be entered into CODIS. Improper entry of cases can result in suspension of the Illinois State Police from participation in CODIS.

Each law enforcement agency should call its local Illinois State Police laboratory for answers to any questions regarding biological evidence collection, submission, and testing.