

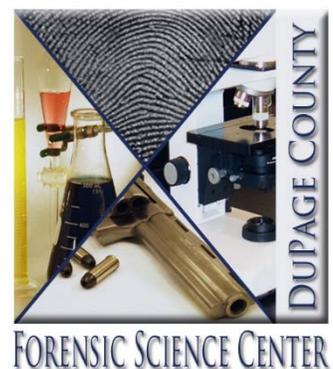
# Forensic Science Handbook

*Twenty-second Edition*

*A Practical Guide to the Proper Packaging, Transport, and Submission of Evidence to the DuPage County Forensic Science Center*



JAMES MENDRICK  
DUPAGE COUNTY SHERIFF



# Forensic Science Center DuPage County, Illinois

*A Division of the DuPage County Sheriff's Office*

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**Honor \* Integrity \* Quality**

The DuPage County Forensic Science Center is accredited by the ANSI National Accreditation Board (ANAB) to the ISO/IEC 17025:2017, the ANAB 17025:2017 Forensic Science Testing and Calibration Laboratories Accreditation Requirements and the FBI Quality Assurance Standards for Forensic Testing Laboratories:2011, certificate number: FT-0241.

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Some excerpts of this handbook were quoted or paraphrased from the FBI [Handbook of Forensic Services](https://www.fbi.gov/file-repository/handbook-of-forensic-services-pdf.pdf/view), which can be found at <https://www.fbi.gov/file-repository/handbook-of-forensic-services-pdf.pdf/view>

## ***Our Mission***

The mission of the DuPage County Forensic Science Center is to support the criminal justice system with accurate, efficient, ethical, and professional scientific services that contribute to a higher quality of life for the citizens of DuPage County. Five main objectives to achieve the mission are:

- Maintaining proper facilities for casework and the receipt of evidence.
- Employing and training highly qualified scientists.
- Adhering to scientifically accepted procedures and laboratory quality assurance standards.
- Reporting analytical findings coherently and efficiently.
- Clearly articulating analytical findings in courts of law.

Scientists working within the center have access to state-of-the-art instrumentation, training opportunities, current literature, and a network of professional peers with which to exchange pertinent information. Collectively, these resources enhance the scientific reliability and accuracy of information reported by our laboratory.

## ***What all Agencies Must Know***

This handbook is an official communication put forth by the DuPage County Sheriff's Office for the benefit of all users of its forensic science services. Nonconformity to laboratory policies may result in the return of evidence to the submitting agency without analysis or the inclusion of language in a testing report or expert testimony that describes the nonconformity and its potential effect on evidence examinations.

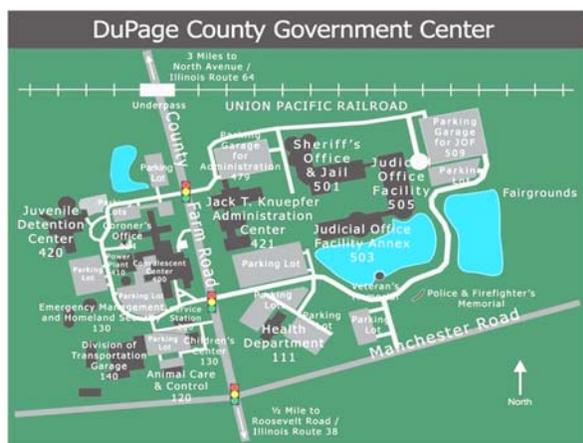
It is critical that all participants in the DuPage County criminal justice system understand that the laboratory employs a complex quality-management system that includes carefully documented methods, scientifically validated procedures, and quality-control policies. They are in place to protect the integrity of the laboratory's work product and to prevent complications to ongoing investigations and court. Each agency that works with the laboratory is, in essence, a part of this quality-management system. As such, each agency should strive to adhere to the guidelines and requirements set forth in this handbook.

## ***Communication***

In addition to communicating with your agency the laboratory communicates with all users of its forensic science services. Staff discuss analysis requests with members of the State's Attorney's Office and participate in pre-trial meetings with prosecutors and defense attorneys. The laboratory complies with subpoena duces tecums, FOIA requests and Illinois Supreme Court Ruling 417 by providing copies of testing reports, note packets, submission information (including tendered police reports) and other laboratory generated documents in accordance with the law.

## Directions & Appointments

The laboratory is located at the DuPage County Government Center, situated on the east side of North County Farm Road approximately one half-mile north of Roosevelt Road (Route 38) in Wheaton. Located in the James "Pate" Philip Forensic Science Center, the laboratory is on the second floor of the 501 building. Follow signs to the Sheriff's Office / Jail and park at the west end of the 501 building.



### **Evidence Submission BY APPOINTMENT ONLY**

Monday through Friday

7:00 AM to 11:30 AM

12:30 PM to 3:30 PM

**Please contact Mary at:**

(630) 407-2111

**OR**

[mary.dastych@dupagesheriff.org](mailto:mary.dastych@dupagesheriff.org)

## Contacting our Staff

<b>Managing Scientists</b>	<b>Section Contacts</b>
<b>Laboratory Director / Quality Manager</b> (630) 407-2101	<b>Evidence Receiving</b> (630) 407-2111
<b>Drug Chemistry Technical Leader / Chemistry Supervisor</b> (630) 407-2103	<b>Chemistry Section</b> (630) 407-2099
<b>DNA &amp; Forensic Biology Technical Leader / Supervisor</b> (630) 407-2151	<b>Forensic Biology/DNA Section</b> (630) 407-2104
<b>Latent Print Technical Leader</b> (630) 407-2110	<b>Criminalistics Section – Latent Prints</b> (630) 407-2112

## ***It's Your Forensic Science Laboratory***

Since 1969, the citizens of DuPage County have benefited from the services provided by the laboratory, which are available to all law enforcement agencies in the county.

To maximize the benefits of these services, each agency within the DuPage County Criminal Justice System must work in partnership with their laboratory in the following ways:

- Have a full understanding of the laboratory's capabilities and limitations.
- Be specific when requesting services. The role of a forensic science laboratory is to answer questions. The more specific the questions are, the more specific our answers will often be.
- Submit evidence with ample case information such as a copy of an incident report, summary of the incident, or other narrative describing the crime scene, incident, and persons involved.
- Be familiar with your evidence and the case so that laboratory personnel can ask questions if necessary.
- In the event of a change in case status, for example, adjudication or charges dropped; contact the laboratory for cancellation of the testing request.
- The laboratory evaluates all requests for testing to include a determination that the request is a reasonable use of resources.

In the interest of this on-going partnership, the laboratory offers a number of services to enhance professional awareness of its capabilities:

- The *Introduction to Crime Laboratory Services Seminar* for submitting agencies.
- The *Forensic Science Handbook* – a practical guide to the proper packaging, transport, and submission of evidence to the DuPage County Forensic Science Center.
- A website, [www.dupageforensics.org](http://www.dupageforensics.org) that allows 24-hour-a-day access to information about our laboratory.

Ultimately, efforts to enhance this partnership will pay dividends, helping to make DuPage County safer for our citizens and the police officers that work day and night to keep them safe.

## ***Understanding Testing Reports***

The laboratory reports its results and conclusions in the form of a testing report with a unique identifier. The unique identifier is the laboratory case number followed by a sequential digit, e.g. 20-0093-03 where:

- 20 is the year, 2020, in which the case was created.
- 0093 represents the ninety-third case accepted by the lab in 2020.
- 03 represents the third testing report issued for case number 20-0093.

The results communicated in a laboratory testing report contain observations, results, and conclusions rendered by a scientist who has the requisite training to conduct the analyses. Laboratory staff are available to answer questions regarding reports, are available for pre-trial conferences with both prosecution and defense and will testify in court when needed.

## ***Complaints***

The law enforcement community of DuPage County is strongly encouraged to voice any dissatisfaction with our forensic science services or personnel as soon as possible. Feedback forms are available at the submission desk. Additionally complaints can be made to the director by phone (630) 407-2101 or in writing [claire.dragovich@dupagesheriff.org](mailto:claire.dragovich@dupagesheriff.org). If it is necessary to bypass the director, direct complaints to Sheriff James Mendrick at (630) 407-2001.

## General Submission Procedures

This section provides basic instructions for the submission of evidence to the laboratory. No set of instructions, however, can encompass every possible scenario that may arise. Use common sense in the collection, preservation, and transport of evidence. Be sure to read the section titled “Special Considerations” for each service for more information.

1. **Place evidence exhibits in appropriate containers.** Contact the laboratory when needing to submit large and bulky items that do not easily lend themselves to packaging.
2. **Seal each container** with tamper-indicating tape.
3. **Handwrite your initials and the date** across the tape and onto the surface of the package.
4. **Mark each package** with the agency name, case number and a unique identifier if there are multiple packages for the same case number (e.g. Package 1 of 2, Package 2 of 2).
5. **Complete an Evidence Submission Form.** Sample forms are available to assist you in completing this form. ALTERNATIVELY, for agencies that utilize the BEAST evidence management software print a copy of the lab submission sheet.
6. **Complete a DNA Evidence Submission Form.** This form must accompany all forensic biology/DNA submissions: <http://dupageforensics.org/documents/LAB-F.15%20FBDNA%20Analysis%20Request.pdf>
7. **Write or include a summary of the incident.** The length and detail of the summary should be commensurate with the complexity of the case.
8. **Transport your evidence and documentation to the lab.** You must schedule an appointment with Evidence Intake prior to transporting evidence to the laboratory.
9. **Retrieve evidence from the laboratory.** Upon receipt of testing report, retrieve evidence from laboratory. The laboratory mails or hold testing reports for pick-up. Reports are available electronically to the DuPage County State’s Attorney Office.

### ***Describing Your Evidence***

When listing evidence on the submission form, it is not necessary to give lengthy descriptions or describe secondary containers. For example:

- “DNA buccal swab from Victim Jane Doe”
- “White powder (from John Doe)”
- “Latent lift from exterior rear window”

The purpose of an evidence submission form is to inventory what is in the package and (in some cases) from whom or where it was recovered.

### ***Laboratory Evidence Routing***

Forensic science laboratories process evidence in a specific order. The following is the routing policy of the laboratory:

*The sequence in which the laboratory processes evidence can have a significant impact on the integrity of the evidence. The following is the recommended sequence unless case specifics dictate otherwise:*

1. *Forensic Biology*
2. *Latent Fingerprints*
3. *Controlled Substances*

*By virtue of their expertise, analysts will assess how and if a specific analysis may compromise the suitability of the evidence for analysis by subsequent disciplines. When such circumstances are present, the analysts from the corresponding sections of interest will confer and act accordingly.*

### **Selecting Your Packages**

The packages or containers selected for evidence will often depend on the evidence itself. Evidence packages fall under two broad categories: *External Packaging* and *Secondary Packaging*. An external package is the outermost container. A secondary package is one or more that is inside of the external package. An evidence technician's goal in selecting a suitable package for evidence is to protect the evidence from loss or damage, to allow for a proper seal and the ability to utilize the original packaging for repackaging after analysis.

### **Sealing Your Packages**

The purpose of a seal is to accomplish the following:

- Prevent loss of evidence
- Prevent cross-transfer of evidence or evidence samples
- Prevent deleterious change or degradation resulting from exposure to air or ambient conditions
- Render the package *tamper evident* making it impossible to access the interior of the package without causing obvious damage to it
- Identify the person who created the seal and the date it was sealed

Make a seal with tamper-indicating tape when possible, with the officer's initials, badge number, and date written across the tape and onto the package itself. Manufacturer/factory seals such as those found on envelopes are considered sealed and need not be marked or over-sealed in any way.

It is vitally important that law enforcement officials be aware of how to properly package and seal their evidence for submission to the laboratory.

### **Marking Your Packages**

There are many different kinds of evidence packages and containers. Some have pre-printed fields for completion by the submitting agency. Not all packages, however, have such fields. At a minimum, the following information should be marked on the external package when submitted: *Agency Name, Agency Complaint Number and a unique identifier when multiple packages exist.*

Refer to forensic disciplines in the table of contents for more specific evidence packaging procedures.

## **Major Case Reviews**

It may be necessary to conduct a major case review on cases requiring multidiscipline analysis and/or with large amounts of items for testing. The review typically includes laboratory staff, representatives from the investigating agency and representatives from the DuPage County State's Attorney Office. This process provides a means for all parties to discuss which evidence to test and staging submissions.

To schedule a major case review contact Mary at 630.407.2111 or via email at [mary.dastych@dupagesheriff.org](mailto:mary.dastych@dupagesheriff.org).

# **Controlled Substances**

## ***Description of the Science***

Utilizing microscopical, instrumental, chemical and other techniques, unknown substances in various forms including, but not limited to, plant material, powders, tablets/capsules, paper and liquids, are analyzed for the presence of controlled substances and cannabis as defined in the Illinois Controlled Substances Act. Illinois Compiled Statutes. §720 ILCS 570; the Kratom Control Act. Illinois Compiled Statutes. §720 ILCS 643; and the Cannabis Control Act. Illinois Compiled Statutes. §720 ILCS 550.

The laboratory performs testing to identify compounds controlled by the acts listed above. If a reported compound is not controlled or it is not clearly listed in the Illinois Compiled Statutes as a controlled substance, the laboratory will include the control status in the testing report.

The laboratory does not conduct quantitative analysis nor analysis to determine the presence of a clandestine laboratory.

## ***Special Considerations***

Submissions for controlled substance analyses come in a wide range of sample types and sizes. Packaging and submission procedures are dependent upon the specific items submitted. Testing is limited based upon the controlled substances that would reasonably be expected to be found in the form of the item submitted. Although a sample may contain a mixture of controlled substances, the laboratory may only report the component with the highest schedule or the component positively identified.

## ***Susceptibility to Contamination***

Possible sources of contamination include the unintentional introduction of a controlled substance by sample cross-contamination. This can result from careless handling or improper packaging.

## ***Safety Hazards***

Exposure to substances of unknown origin represents a significant health and safety hazard. This exposure may be through ingestion, respiration, or absorption through direct contact with the skin or mucous membranes.

## ***Submission Restrictions***

As part of the laboratory's ongoing management of its case volume, it is common for the laboratory to return evidence on adjudicated cases. The purpose for such action is to clear our caseload so that our chemists can devote their time to open investigations/pending prosecution.

The following submission policies apply to controlled substance cases:

1. The laboratory does not accept cases where there is no suspect. An exception includes overdose deaths, which may result in drug induced homicide charges. The laboratory will accept an initial submission of one item for analysis. Contact the laboratory to request analysis of additional items.
2. The laboratory does not test cannabis pipes for drug paraphernalia charges unless accompanied by a request from the State's Attorney's Office.
3. Syringes, liquid from syringes and any part of a syringe (barrel, needle) are not accepted.
4. The laboratory reserves the right to decline testing of residues subjected to field-testing by police personnel.
5. The laboratory will not conduct analysis of evidence in cases limited to violations of local ordinance.
6. Effective January 1, 2020, the laboratory does not accept evidence for quantities of cannabis that are legal to possess per the Cannabis Regulation and Tax Act (410 ILCS 710).

***Proper Packaging and Submission***

Adhere to the following whenever possible. If circumstances arise that cannot be addressed by this list, contact the laboratory immediately.

- Do not submit field test kits.
- Submit cannabis plants in a dry state, packaged in paper or cardboard. If the plants are found growing, remove from their containers and remove as much dirt as possible, leaving the root system intact. A plant is considered 'plant material' when there is no attached root system. Allow the plant to air dry before packaging.
- Remove growing mushrooms from their growing media and air dry, prior to packaging in paper or cardboard.
- Submit liquid evidence in a leak-proof container. (Refrigerator during storage). If the original container leaks when tipped, transfer the contents to a new container (jar, vial, etc.).
- For controlled substance analysis of liquids, submit the entire sample. The laboratory does not conduct alcohol analysis.
- Please note on the submission form if the case is a garbage pull and, if so, mark it as a biohazard. Garbage pulls are prioritized for obtaining search warrants. The laboratory does not accept garbage pulls if a search warrant has been obtained or executed.
- Please note on the evidence and/or submission form, the retrieval location and associated suspect for each item. Additionally note if an item was the probable cause to search.
- Inform the laboratory when submitting suspected PCP as the solvent may be flammable.
- If the evidence is from a controlled buy, please indicate if it was an informant buy (agency designation A, B, C etc.), or an agent controlled buy (agency designation 1, 2, 3 etc.).
- Testing of pharmaceutical tablets and capsules will be limited to the highest schedule.
- Electronic cigarettes should have their batteries removed prior to submission to the laboratory
- Upon exposure to potential body fluids, affix biohazard stickers to outer packaging. Examples include evidence located in a toilet, found in a person's underwear.
- DO NOT use biohazard stickers to indicate the presence of toxic chemicals such as LSD, PCP, Fentanyl and other potent synthetic opioids. Document this information on the submission form.
- When multiple items of e-cigarette cartridges or vape pens are collected, submit one for analysis. After the analysis of one cartridge/pen is completed and upon consultation with the State's Attorney's Office, additional analysis may be requested by contacting the Chemistry Supervisor at 630-407-2103.

***Latent Prints******Description of the Science***

Utilizing visual, photographic, and chemical processing techniques, the laboratory is able to compare the fingerprints of known individuals with latent fingerprints recovered from or developed at a crime scene. The basis for the science of fingerprint examination is that friction ridge patterns present on the human fingers, palms of the hands, and bottoms of the feet are both persistent and unique to an individual.

***Submission Restrictions***

Lift cards may contain multiple latent prints; therefore, contact the laboratory prior to submission of more than 10 lift cards.

***Special Considerations***

Fingerprints are primarily made of water and therefore are inherently fragile. Protect them from accidental contact and from environmental conditions such as precipitation and extreme temperatures.

The laboratory does not accept evidence related to burglary from motor vehicle unless there are extenuating circumstances. Contact the laboratory director for approval prior to submission.

### ***Elimination Prints***

The laboratory requires comparison of elimination prints to latent prints prior to Automated Biometrics Identification System (ABIS) searches. This conserves time and better utilizes laboratory resources. Elimination prints are **record prints of an individual who had legitimate access to a crime scene or who is known to have touched a particular item in question.** It is required that elimination fingerprints of all such individuals be submitted along with questioned evidence in any latent print cases in which ABIS searches are requested.

### ***Susceptibility to Contamination***

Contamination can occur by the unintentional deposition of fingerprints on items prior to examination, often by first responders or other law enforcement personnel. In order to prevent contamination, wear gloves when handling all questioned evidence for latent prints.

### ***Safety Hazards***

There are no specific safety hazards associated with this kind of evidence; however, utilize universal precautions when necessary.

### ***Proper Packaging and Submission***

Package latent print evidence in paper or cardboard. If possible, secure the item within the package to minimize movement and prevent the destruction of any latent prints.

### ***Comments***

Agencies may submit digital images for analysis. Preferred file formats are lossless and uncompressed (e.g., TIFF and RAW) with a minimum resolution of 1000 ppi. Other file formats and resolutions will be considered on a case-by-case basis. Photographs of latent prints must include a scale. If investigating agencies choose to process evidence prior to submission to the laboratory, document the method of processing on the submission record. In addition, investigating agencies should be aware that any processing done prior the submission might affect the capability of the laboratory to process the item further. Agencies are encouraged to contact the laboratory with questions prior to processing any items for submission.

In some instances, an analyst will defer examinations subsequent to a probative identification. The needs of the investigating agency along with case-specific circumstances will dictate whether deferral is appropriate. The testing report indicates any deferred examinations. Agencies should contact the laboratory in the event additional examinations will significantly aid in the investigation.

## **Firearms (Ballistics)**

***The laboratory does not conduct firearms analysis. The laboratory does accept firearms evidence for latent print and DNA analysis.***

### ***Safety Hazards***

Firearms pose a significant safety hazard, the possibility for an accidental discharge warrants the exercise of extreme caution.

Firearm evidence often introduces a biological hazard, particularly in suicide cases or when exposed to bodily fluids. Bullets that pass through bodies are a biological risk, and often have sharp jagged edges that can puncture the skin if handled carelessly.

Guns that are bloody or bear a potentially biohazard residue should be secured in a box with punch holes and then further wrapped in a paper bag. This will prevent biological material “falling” out of the punch holes from contaminating external surfaces.

***Proper Packaging and Submission***

Submitters must ensure that firearms are unloaded at the time of submission and indicate the barrel direction on the package. Contact the laboratory prior to submission of a suspected loaded weapon.

The laboratory inspects firearms at time of submission to ensure they have been rendered safe.

Package evidence bullets individually in small cardboard boxes, envelopes, or film canisters. Bullets may be rinsed clean of bodily fluids to preserve the markings used for comparison; however, it is not recommended brushes or abrasive materials be used to remove substances from the surfaces of bullets as this may affect the integrity of toolmarks used during the comparison process.

Package cartridge cases in a single container; however, package multiple cartridge cases according to their location at a scene and marked accordingly. This often aids reconstructing the crime scene, particularly when multiple shooters are involved.

Package firearms recovered from a body of water in a container with water from where the firearm was located. This will prevent rapid rusting of the firearm.

## **Forensic Biology & DNA**

***Description of the Science***

Forensic Biology (FB) searches for the presence of body fluids and trace evidence. FB currently provides presumptive tests for blood, semen, and saliva, and a confirmatory test for semen. In the case of contact with skin (see “contact DNA” below), the Forensic Biologist is limited to preparing the submitted item for a DNA analyst to test.

Deoxyribonucleic acid (DNA) is a chemical that provides the instructions for a person’s physical characteristics. A person is made of trillions of various kinds of cells. Each cell containing DNA has a complete and identical copy of DNA in its nucleus (i.e., nuclear DNA). Additional locations of DNA exist for example, mitochondrial DNA. Taken as a whole, each person’s DNA is unique (with the exception of identical twins). Forensic DNA only examines a few portions of uncorrelated DNA, resulting in a high level of discrimination. DNA collected from a crime scene can either link a person to the evidence or eliminate them as the source of DNA. DNA can show familial relationships. The DNA database (known as CODIS), is used to compare DNA from crime scenes to DNA of convicted offenders or with DNA left by the perpetrators at other crime scenes.

DNA results can be obtained from evidence that is decades old. However, several factors can affect the DNA left at a crime scene, including environmental factors (e.g., dilution, sunlight, and bacteria). Not all DNA evidence will result in useful DNA results, generally, there needs to be several cell’s worth of DNA to obtain useful DNA results.

***Special Considerations***

When transporting and storing evidence that may contain DNA it is important to keep the evidence dry, and at room temperature (or lower). Paper or other breathable packaging is preferable. However, freeze (without thawing) any evidence that may contain DNA that is stored in plastic bags, metal cans, Styrofoam, or glass. Do not expose evidence to direct sunlight and avoid places that may get hot, such as a police car without air conditioning.

Per the statutory requirements of the Illinois Sexual Assault Evidence Submission Act, Illinois Compiled Statutes. §725 ILCS 202 (2010.), evidence submitted for analysis must include a certification that the evidence is submitted in connection with a criminal investigation and must be submitted to a laboratory within ten business days of the law enforcements’ receipt of consent to test.

Cases do not have a monetary minimum dollar loss and do not require a known suspect.

The laboratory does not accept evidence related to burglary from motor vehicle unless there are extenuating circumstances. Contact the laboratory director for approval prior to submission.

### ***Susceptibility to Contamination***

Due to the sensitivity of the tests used by our laboratory, take extra care to prevent contamination. Contamination can occur when someone sneezes or coughs over the evidence or touches his/her mouth, nose, or other part of the face and then touches the area that may contain the DNA to be tested. It can even happen by leaning over the evidence because skin cells could be unknowingly deposited on its surface. The DNA testing process will copy whatever DNA is present in the sample; it cannot distinguish between the original DNA and contamination DNA. However, the DNA tests are semi-quantitative, so if there is a preponderance of DNA from one person, the DNA from another person may not even be detectable. If a mixture is detected, it may be possible to attribute the portion of results attributed to a particular person.

### ***Safety Hazards***

Biological evidence samples and materials may contain hazardous pathogens. Use universal precautions upon collection and submission of blood or other body fluids. Mark all evidence thought to contain body fluids with a biohazard label.

### ***Proper Packaging and Submission***

Investigators and laboratory personnel should work together to determine the most probative pieces of evidence and to establish priorities. Useful information includes (but not limited to):

- finding blood or other body fluid with the victim's DNA profile on the suspect, something in the suspect's possession, or something associated with the suspect
- Finding blood or other body fluid with the suspect's DNA profile on the victim, something in the victim's possession, or something associated with the victim.

How to Collect Questioned Samples - When samples are small and easily transportable, such as a cigarette butt, they can be collected and packaged whole. In most instances, it is better for the crime scene investigator to collect the stain via swabs or cuttings. The method chosen will vary depending upon the absorbency of the surface. For an item that is absorbent, such as a carpet, the best collection method may be to cut out the stained portion. Non-porous surfaces, such as a glass window, are amenable to swabbing. Do not handle the stained area directly. Wear gloves when collecting stains.

To collect dried stains, use distilled water to moisten a swab made of cotton (preferable) and rub this across the stain. Make the stain as concentrated as possible on the swab, but be sure to collect the entire stain. Air-dry wet stains at room temperature before packaging. Do not fan or heat-dry stains. If multiple swabs of a single stain are collected, it is good practice to number the swabs in the order they were collected. A **control** sample is not necessary due to the sensitivity of DNA and the semi-quantitative nature of DNA results.

**PLEASE DO NOT USE FLOQ SWABS.** Due to the many different manufacturers of FLOQ swabs, the Forensic Biology & DNA Section no longer recommends the use of FLOQ swabs for the collection of evidence. Do not use FLOQ swabs for collection of a standard (see below).

How to Collect Known Samples - To collect a **standard** (a DNA sample witnessed to have come directly from a person, and used for the purposes of comparing to DNA results from evidence), blood or saliva (i.e., buccal) samples may be submitted. For buccal swabs, be sure to use a sterile cotton swab. Do not let the subject eat, drink, or place anything in their mouth, except for water, for approximately 15 minutes prior to collection. It may be helpful to have the subject rinse their mouth with water before collecting the sample. Rub the inside of either cheek a few times. It is not necessary or helpful to swab the subject's tongue, teeth, throat or lips, or to collect different areas of the mouth.

Collect standards from suspects whenever possible. Submit elimination standards from anyone not suspected to be the perpetrator, such as a victim, consensual sexual partner, family member who recently

drove the stolen vehicle, and for any individual who had legitimate access to the crime scene and may have deposited their DNA on the evidence.

Other Considerations - Items submitted for DNA analyses are categorized and prioritized as follows: (1) associative analysis, (2) corroborative analysis, and (3) crime recreation. Analyses will not be conducted for the sole purpose of crime recreation when a suspect has been identified and case information provides no compelling indication that additional suspects were involved. Visible stains will be screened and tested for DNA only when the questioned contributor had no legitimate or innocent access to those surfaces.

'Contact DNA' - The laboratory will strive to limit DNA testing to visible stains, residues (such as a fingerprint smudge), or materials. "**Contact DNA**" (or *touch DNA*) that is not discovered through an observable residue will be tested when the surface upon which the DNA is collected was in consistent or exclusive prolonged contact with the questioned contributor. For contact DNA evidence, the laboratory may opt to defer the analysis pending submission of elimination standards from emergency and police personnel who accessed the crime scene and anyone else who had legitimate access to the area.

**Contact DNA will be limited to 2 exhibits (swab/item) for theft/burglary cases (not including victim/elimination standards)**

Auto Theft:

- 1<sup>st</sup> choice: Steering wheel swab (swab steering wheel with maximum of 2 swabs), AND/OR,
- 2<sup>nd</sup> choice: Item left in auto by perpetrator(s) (e.g., cigarette butt, bottle, hat, gloves)

Residence/business burglary:

- 1<sup>st</sup> choice: Possible blood evidence, AND/OR,
- Clothing or object left by perpetrator (e.g., hat, gloves, mask, tool), AND/OR,
- Visible smudge on glass or windows at point of entry

## **CODIS**

The Combined DNA Index System, or CODIS, blends forensic science and computer technology into a tool for linking crimes. It enables federal, state, and local forensic laboratories to exchange and compare DNA profiles electronically, thereby linking serial crimes to each other and to known offenders. NDIS is the acronym for the "National DNA Index System" and is one part of CODIS—the national level—containing the DNA profiles contributed by federal, state, and local participating forensic laboratories.

CODIS contains DNA profiles from convicted felons, crime scene samples, unidentified human remains, and other sources. The database accepts profiles from evidence from a crime scene, evidence collected in relation to the crime, evidence probative to the crime, and evidence associated with the putative perpetrator but not seized directly from that person. For example, a swabbing of a gun taken directly from the suspect (i.e., person/suspect's residence/suspect's vehicle) or an item the suspect is wearing (e.g., clothing, backpack) is not eligible for NDIS. The database also accepts DNA profiles from standards lawfully collected from suspects.

No names or other personal identifiers of the offenders, arrestees, or detainees are stored using the CODIS software. Therefore, the DNA profile from a specific convicted offender based on name/DOB/SID# cannot be accessed and used for comparison purposes.

General rules for CODIS:

- 1.) Documentation that a crime has occurred
- 2.) Documentation that the DNA samples was recovered directly from the crime scene and attributable to the putative perpetrator
- 3.) Documentation that elimination samples have been requested/submitted if possible

The laboratory accepts cases with no known suspects if any potential profiles obtained from the exhibit are CODIS eligible.

### **Laboratory Consumption of DNA Evidence**

Unless specifically directed otherwise, the act of submitting evidence to the laboratory authorizes the laboratory to consume that evidence, or a portion of that evidence, during testing. The FB/DNA Section

attempts to preserve at least half of the evidence for re-testing; however, when, in the sole discretion of the analyst, dividing the evidence will potentially prohibit the laboratory from obtaining the most complete result possible, the entire evidence may be consumed.

Visual observation of the DNA chemical is not possible, but observation of a body fluid/tissue may infer its presence. Testing for body fluids/tissues may not occur either because no test for the assumed body fluid/tissue is available at this laboratory or because testing for a body fluid/tissue would likely consume the evidence to the point that it would impede or prevent efforts to obtain a complete DNA profile. DNA may be present with no observable body fluid/tissue, but because the laboratory has no other way to observe DNA, the laboratory may not be able to detect or recover the entire probative DNA on an item. The laboratory will attempt to collect DNA from where it would reasonably be expected to occur. DNA may be left on the item, the collection may not occur over the entirety of the item, and the collection is not expected to recover 100% of any DNA present.

Using this laboratory's DNA extraction procedure(s) collections are consumed. If sufficient DNA is recovered from the collections, then a portion of the DNA extract will be preserved by our laboratory; however, DNA extracts are laboratory work-product and are not the original evidence. Therefore, the laboratory may discard this work-product at any time.

The laboratory utilizes Short Tandem Repeat Polymerase Chain Reaction (STR PCR) analyses as described in the laboratory's current Technical Process Manual. The number and type of STR PCR methods used are at the discretion of the DNA analyst unless the submitting agency makes a specific analysis request.

This testing may preclude further testing by other methods such as analyses for human origin or human hemoglobin (to identify human blood), additional STR analyses, mitochondrial DNA analyses, specialized procedures for samples with few copies of DNA, analyses by this or another laboratory, or any other analyses. Additionally, DNA results may or may not be obtained from the DNA collection. Unless new techniques are implemented, no further testing will be possible at this laboratory.

If there is no indication of a biological tissue, no quantity of DNA observed in a DNA extract, and no DNA profile obtained, then all portions used for laboratory testing, which may include small portions from the item submitted, are typically discarded. All portions of standards (i.e., biological samples from known individuals), which may include small portions from the item submitted, will be discarded.

## **Intoxicating Compounds**

### ***Description of the Science***

Utilizing the scientific principles of chemistry, the laboratory is able to analyze unknown liquids for the presence of intoxicating compounds as defined under the Use of Intoxicating Compounds Act. Illinois Compiled Statutes. §720 ILCS 690. A comparison of analytical data generated by our instrumentation to known standards occurs, allowing the forensic chemist to identify the presence of these substances. The law prohibits the use of nitrite compounds for their intoxicating effects.

### ***Special Considerations***

Samples must be submitted as soon as possible due to the volatility of some compounds. The laboratory should be advised of how much time has passed between sample collection and sample submission.

### ***Susceptibility to Contamination***

Possible sources of contamination include the unintentional introduction of specific compounds by sample cross-contamination.

### ***Safety Hazards***

Exposure to substances of unknown origin represents a significant health and safety hazard. This exposure may be through ingestion, respiration, or absorption through direct contact with the skin or mucous membranes.

***Proper Packaging and Submission***

Submit liquid samples to the laboratory in a secured and sealed vial or bottle. Keep the sample refrigerated at all times. If concerned the original bottle/vial is leaking package in a vapor tight containers, for example an arson can.

## **Other Resources**

***Questioned Document (Handwriting Analysis), Soil Comparisons & Explosives***  
**Federal Bureau of Investigation (FBI) Laboratory**

Quantico, Virginia  
 Main Line: (703) 632-7690  
 Questioned Document Unit: (703) 632.8444  
 Soil Comparisons: (703) 632.8449  
 Explosives Examination Unit: (703) 632.7626  
 Glass Examination Unit: (703) 632.8449

***Questioned Document/Ink Analysis***  
**IRS National Forensic Laboratory**

525 W. Buren, Suite 400  
 Chicago, IL 60607  
 Questioned Document Section: (312) 542-7808

***Accidental Poison Identification***  
**DuPage County Health Department**  
 (630) 682-7400

***Cases involving possible intentional food or beverage contamination***

**Illinois Department of Public Health**  
 (312) 793-4758 or (217) 782-4977

**Poison Control Center**  
 (800) 222-1222

**SET Laboratories**  
 (847) 537-9221, Contact Bijan-Saeedi

***Soil Comparisons, Glass, Explosives & Lamp Filaments***

**Microtrace - Skip Palenik**  
 Elgin, Illinois  
 (847) 742-9909

***Counterfeit Money***

**Secret Service**  
 1050 Connecticut Avenue, NW  
 Washington, DC 20036  
 (202) 406-5708

**Illinois State Police Forensic Science Center at Chicago**

1941 West Roosevelt Road  
 Chicago, IL 60608  
 Main Line: (312) 433-8000

- Trace/Microscopy
- Toxicology
- Firearms/Toolmarks
- Criminalistics – Shoe & Tire

**Illinois State Police Joliet Forensic Science Laboratory**

515 East Woodruff Road  
 Joliet, IL 60432  
 Main Line: (815) 740-3543

- Criminalistics – Shoe & Tire