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Evidence Handling, Submission & Collection Manual

LSD&FC Property

Version 3.0

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Evidence Handling & Submission Manual

Introduction

The need for proper recognition, collection, and handling of physical evidence is vital to the preservation, analysis and admissibility of the evidence in court. Physical evidence can directly or indirectly lead to solving a crime. Legal decisions may be affected by the quality of the physical evidence supporting the case.

LSD&FC Laboratory Overview

Lagos State DNA Forensics Center (LSDFC) is a Lagos State government owned Forensic Laboratory that was established in 2017. The laboratory is located at 48 Broad Street, Lagos Island, Lagos, Nigeria. The laboratory was established to provide forensic support, serology and DNA Identification services to Lagos State in particular and Nigeria in general.

Purpose

The purpose of this manual is to provide the training, information and support for the collection, preservation and handling of forensic evidentiary and reference materials.

Limitations

This manual is not intended to cover every type of evidence that can be encountered. Rather, it is a generalized guide outlining best practices for collecting and preserving physical evidence.

Scope

This Evidence Handling & Submission Manual applies to all staff of LSD&FC who perform evidence collection and handling activities.

Location

The **Lagos State DNA & Forensic Center (LSD&FC)** is located at:

48 Broad Street, Lagos Island,
 Lagos, Nigeria.
 Email: info@lsdfc.org
 Website: www.lsdfc.org

Evidence & Reference Intake Hours

Hours of Intake
Monday through Friday (except public Holidays) 9 am to 3 pm
After Hours contact: info@lsdfc.org +234 0905 552 4745

Contact Information

Points of Contact for LSD&FC include:

	LSD&FC
Center Inquiries	Dr Richard Somiari, PhD Center Director r.somiari@lsdfc.org +234 (0)807 553 7342
Forensic Inquiries	Annette Alchin, MFS Technical Leader a.alchin@lsdfc.org +234 (0)705 393 9366

Services Provided

1. Case Consultation
2. Evidence Collection, Handling & Preservation

3. Physical Evidence Screening
4. Alternate Light Source Evidence Examination
5. Photodocumentation
6. Serological Analysis for Blood & Semen
7. DNA Analysis (STR and Y-STR)
8. Relationship Analysis (Paternity, Maternity, etc.)
9. Missing & Unidentified Persons Database (N-MAUI)
10. Training

Evidence Handling

1. In any criminal investigation, the validity of information derived from examination of the physical evidence depends upon the care with which the evidentiary item(s) have been protected from the introduction of exogenous DNA during the handling process.
2. It is important that item(s) of evidence be collected, preserved and handled in a way that will ensure their integrity. In doing so, the likelihood is increased that useful forensic information will be obtained by analysis and that the item will be considered admissible in a court of law.

Health & Safety

1. The handling of item(s) contaminated with human fluids and stains presents biological hazards due to the possible presence of bloodborne pathogens.
2. Hepatitis B (Hep B) and AIDS (HIV) are of particular concern to those handling liquid blood or bloodstained items.
3. Special care must be taken when handling such materials.
4. Universal precautions should be used when handling biological specimens or stains (i.e., working under the assumption that the material contains a dangerous pathogen, particularly HIV or Hepatitis B, and proceed accordingly).
5. Using appropriate personal protective equipment, such as face, body, eye, hand, and shoe protection.
6. Pointed and sharp-edged objects must be handled with extreme care.
7. The evidence collector/crime scene investigator must not place their hands into any space which has not first been visually inspected.
8. Eyes protection must be worn if splashes are likely to occur.
9. Eating, smoking, and the drinking of beverages at the crime scene are prohibited.
10. Shoes should be protected from blood on the floor or grounds.

11. The tracking of blood or body fluid beyond the borders of the crime scene must be avoided. If you stepped on any body fluid at a crime scene, remove your boot covers before leaving the crime scene.
12. Careful processing of the crime scene will minimize the risk of contamination of evidence and biological hazard health risks to the investigator.
13. Good personal hygiene must be observed.
14. The hands should be washed thoroughly after the removal of gloves, even if the gloves are not cut or punctured.
15. Protective gear utilized at the crime scene must be disposed of properly.
16. Any questions regarding Health & Safety with the case submission should be directed to LSD&FC for assistance.

Case Acceptance Policy

1. Within Lagos, Nigeria, LSD&FC will receive and examine forensic evidence and reference specimens submitted by representatives of law enforcement, military, embassies, judiciary, and public safety agencies (e.g. the Lagos State Domestic and Sexual Violence Response Team, fire departments, police agencies, Department of Health, registered Non-Government Organizations and private security organizations) or the Office of the Attorney General.
2. Outside Lagos, Nigeria, LSD&FC may receive and examine forensic evidence and reference specimens submitted by representatives mentioned above (No. 1) upon approval by the Center Director and the execution and approval of a signed contract that includes financial reimbursement for the services provided.
3. LSD&FC will **NOT** accept the following:
 - a. Evidentiary or reference material that has been compromised, rendering the biological material(s) invalid.
 - b. Requests for forensic services directly from private individuals unless ordered and approved by the Lagos State Attorney General.
 - c. Evidence previously submitted for purpose of conducting a re-examination unless the customer requests a different type of analysis from the one originally performed and, under the condition, that this analysis would provide added value to the case.
 - d. Evidence previously examined by another laboratory unless reviewed and approved by the Center Director.

Case Submission Policy

1. When submitting new or additional evidence, it is required to use the LSD&FC Case Submission Form.
2. This request form provides information required by LSD&FC's policies and procedures for case records and ensures testing of the most probative items of evidence and selection of the most appropriate type of analytical method.
3. The case submission form must be legible if hand written.
4. If there are special circumstances (e.g. rush analysis needed for court) this should be noted on the case submission form.
5. It is recommended that any additional information such as photos, crime scene report, or other notes be submitted as an addendum to the case submission form.
6. Assistance with completion of the case submission form can be provided by contacting LSD&FC.
7. The case submission form contains the following information:
 - a. Name of the submitting agency
 - b. Agency case number
 - c. Submitting Agent name, address, phone number, and email
 - d. Case type
 - e. Victim name(s)
 - f. Suspect name(s)
 - g. Description of evidentiary item(s)
 - h. Description of reference item(s)
 - i. Examinations requested
 - j. Court date, if known
 - k. If submitting additional evidence, this should be indicated on the form. Listing the laboratory case number assigned to the previous submission will avoid any delays in the examination process.
 - l. Responsible person to receive report
 - m. Responsible person to receive the bill (if applicable)
 - n. Responsible person to receive returned evidence

General Evidence Collection & Handling Guidelines

1. Wear the appropriate PPE (Personal Protective Equipment) to:

- a. Protect yourself
 - b. Maintain the integrity of the item(s) being handled
2. Provide guidance to others in order to protect them and the integrity of the item(s) being collected.
 3. Consider all types of items as potential forensic evidence.
 4. Document the item & its location by notation, sketches and/or photo documentation.
 5. Initiate the chain of custody which begins at the time of receipt.
 6. Mark evidence and/or packaging with the LSD&FC case number, item number, your initials, the date and time of collection, and the item description.
 7. Allow wet item(s) to air dry prior to packaging.
 8. Use packaging that is appropriate for the specific type of evidence such as paper bags, envelopes, plastic bags, cardboard boxes, tamper-proof sealing, etc.
 9. Package each item separately.
 10. Obtain the necessary reference items for comparison as applicable.

Evidence Collection

There are (3) three methods of biological evidence collection recommended by LSD&FC:

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

Collecting the Entire Item

1. The ideal way to collect an item of biological evidence is generally to collect the entire item.
2. This method of collection allows the laboratory to process the evidence with the potential involvement of several forensic disciplines (e.g. latent prints, trace evidence analysis).
3. It is critical to collect articles of clothing which were worn during a crime immediately after the crime has occurred.
 - a. These may not be the clothing on the victim at the time of the investigation.
 - b. In some cases, it may be important to collect the clothes the suspect was reportedly wearing at the crime scene.

Collecting a Portion of the Item

1. If the entire item cannot be collected because the item is too large (i.e., walls, concrete, flooring etc.), a portion of the entire item may be removed.
2. This method is preferred if it is necessary to preserve a stain pattern on a large item.
3. A sufficient area on the outer perimeter of the stain/pattern should be taken to avoid contact between the cutting instrument and the evidentiary biological material.
4. The entire area should be photographed prior to removing the region of forensic interest.

Removing the Biological Material

Visible Biological Material

1. If the item (or a portion of the item) cannot be collected, the visible stain may be transferred off the object by swabbing(s) or scraping.
2. **Double Swabbing Technique:**
 - a. **First**, moisten a sterile cotton swab with sterile water (not saturated, lightly moistened to dissolve the stain) and rub the stain by rolling the tip of the swab over the surface of the stain using moderate pressure and circular motions. Next rotate the same swab on its long axis over the surface of the stain. Allow the swab to air dry.
 - b. **Second**, with a dry swab using similar pressure and movements as the first swab to recover any remaining biological material present.
3. If the stain is small, collect it on a small area of the swab.
4. Collect larger stains on as many swabs as necessary.



5. **Scraping:**

- a. 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.
- b. If more than one stain is to be collected, use a new/sterile blade for each scraping. Present day testing is so sensitive that contamination of the blade from the previous stain may be detected.
- c. Use a paper fold to collect the evidence
- d. Tape the paper closed.

Non-Visible Biological Material

1. If the item (or a portion of the item) cannot be collected, but a non-visible stain or cellular/contact material is suspected to be present, the area may be swabbed.
2. Consider the presence of fingerprints for latent print analysis before an area is generally swabbed. Avoid swabbing areas with fingerprint(s) prior to examination, documentation and photographing of the fingerprint.
3. If the stain is not visible, utilize the double swab technique to collect the biological material.

DNA Preservation

Bacterial action, mold, sunshine, moisture, and warm temperatures can damage the evidentiary value of biological evidence due to the degradation or destruction of DNA.

DNA Degradation

1. Conditions of biological materials inside the body are controlled. Outside the body changes begin to take place.
2. DNA is packed tightly in the chromosomes of a cell. Outside the body these cells become fragile and are subject to degradation.
3. Degradation of DNA is a process that does not change the DNA from one type to another. Rather the sample is changed from obtaining a full profile to a partial profile to no profile.
4. The DNA breaks into smaller pieces. The more severe the degradation, the smaller the fragments become.
5. Degradation can be slowed by **removing the moisture, avoiding exposure to sunlight, and lowering the temperature.**

Chain of Custody

1. The chain of custody of evidence is a record of individuals who have had physical possession of the evidence. Documentation is critical to maintaining the integrity of the chain of custody. Maintaining the chain of custody is vital for any type of evidence. In addition, if laboratory analysis reveals that DNA evidence was contaminated, it may be necessary to identify persons who have handled that evidence.
2. In processing the evidence, the fewer people handling the evidence, the better. There is less chance of contamination and a shorter chain of custody for court admissibility hearings.

Factors that Influence the Probability of Recovering the DNA

1. Type of specimen.
2. Age of the specimen.
3. Environmental conditions especially temperature and humidity.
4. Microbial exposure: (Microbes secrete chemicals which degrade the DNA).
5. Chemical exposure.
6. Exposure to sunlight.
7. The way the evidence is packaged.

Proper Packaging

1. Each item, should be packaged separately in order to avoid transference of materials between items.
2. 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.
3. Do not use plastic bags or containers when items are wet or known to contain moisture. The presence of moisture enhances bacterial growth.
4. Because resealing generally uses up some of the volume in a bag, do not package objects placed into bags tightly; leave room so the packages can be resealed after examination.
5. 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.

6. Additional items produced during the examination (e.g. dried DNA extracts, microscope slides, etc.) may be included in the item's original packaging or packaged separately.
7. Label each item with a case number, item number, date, item description, source and/or location.
8. Evidence tape should be used to seal all openings. Initial and write the date and time across the tape.
9. All packaging should have tamper proof evidence tape over all openings to ensure that small particles are not lost, and package is secure. Only tamper proof evidence tape should be used.
10. DO NOT lick envelope flap to seal.
11. Never use staples to seal a package.
12. Evidence must be properly packaged and sealed to prevent any loss, contamination or tampering.

Proper Drying & Preservation

1. Evidence items, stains, and swabs must be thoroughly dried at room temperature without the use of heat.
2. Partially dried items will be subject to bacterial action and mold, destroying their value as evidence.
3. Generally, the best way to preserve biological evidence is dry and frozen. Although freezer storage is preferred, DNA typing results can be obtained from properly dried evidence stored refrigerated or at room temperature for an extended period of time. If freezing or refrigeration is not an option, biological evidence should be stored in a cool, dark, and dry place.
4. Some items that require special packaging consideration are:
 - a. Bottles/containers with liquid:
 - The liquid should be removed from the container before packaging by using a clean pipette or by poking a hole in the bottom, if possible, to drain the container.
 - 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 suitable sealable bottle or plastic container for testing.

b. 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.

c. Metal objects/rocks: guns, knives, rocks, aluminum baseball bats, etc. should not be frozen, as condensation forms upon removal of these objects from the freezer. These objects should be stored in a cool, dark, dry place.

Guidelines to Avoid Contamination

It is recommended to take the following precautions in order to preserve the integrity of the biological evidence and avoid the introduction of exogenous DNA (contamination):

1. Wear gloves while collecting and handling evidence.
2. Change the gloves often and between different items of evidence.
3. Use disposable instruments or clean them thoroughly before and after handling each sample.
4. Avoid touching the area where you believe DNA may exist.
5. Avoid talking, sneezing, and coughing over evidence.
6. While wearing gloves, avoid touching your face, nose, and mouth when collecting and packaging evidence.
7. Air-dry evidence thoroughly before packaging.
8. Place dry evidence into new paper bags or envelopes, not into plastic bags. Do not use staples.

General Packaging Guidelines

1. Proper packaging, sealing and identification of the biological evidence is vital to its preservation and integrity.
2. The likeliness of laboratory personnel obtaining the maximum evidential value from the submitted evidence is increased when proper collection techniques are followed.

3. Remember that those collecting and packaging materials may be a potential source of contamination. It is crucial to wear latex or nitrile gloves when handling evidence. Keep in mind to change gloves between handling different items of evidence.
4. Evidence should be packaged separately so that cross contamination between items does not occur.
5. Evidence should be packaged in its entirety. This will protect from further contact with other objects and to possibly prevent loss of trace evidence.
6. Evidence should be submitted dry (e.g. bloody clothing, plant material).
7. Evidence should be protected to avoid breakage and/or leakage.
8. Only submit items that need analysis.
9. Always use new packaging material when preparing evidence to be submitted to the LSD&FC. This will avoid the possibility of the evidence encountering a contaminant within the previously used material.
10. Packaging material is available in a variety of shapes and sizes. Choose a size that is appropriate for the evidence (e.g. coin envelopes for trace items). Appropriate packaging includes but is not limited to: paper bags or envelopes, sturdy cardboard boxes, plastic bags, metal cans, and plastic vials.

Packaging Materials: Paper

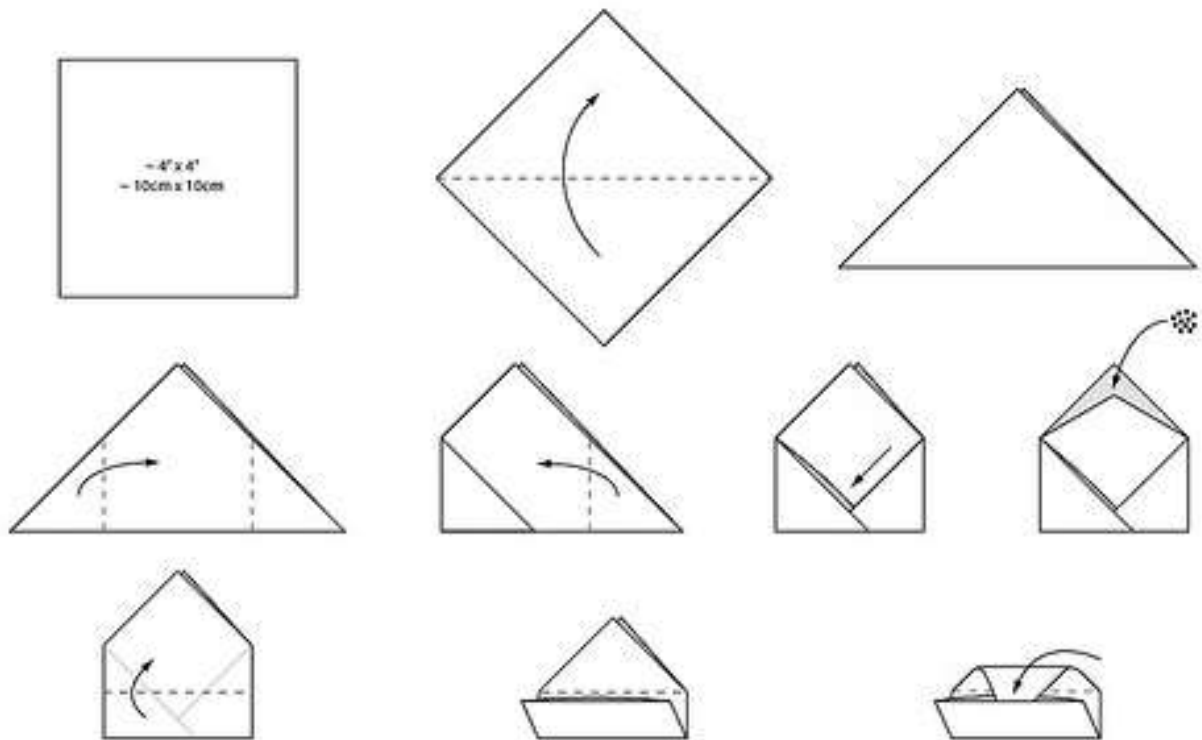
1. Paper material is suitable for a variety of evidence given its porous property which allows residual moisture to escape.
2. Paper bags are appropriate to use when submitting clothing evidence.
3. Manila envelopes are the preferred material when submitting trace samples or swabs.
4. Envelopes with windows allow for the evidence to be viewed without disturbing the seals.





Paper packaging is available in a variety of sizes and types. Padded envelopes may also be used if necessary to prevent an item from breaking. LSD&FC recommends having a variety of paper evidence package types on hand in order to ensure proper packaging.

How to make a Paperfold

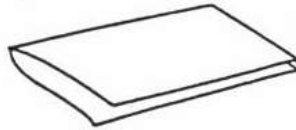


Paperfold Envelope

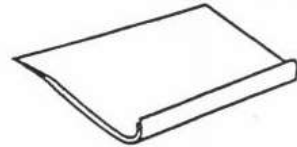
1. Place sample in center of paper.



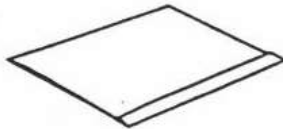
2. Carefully fold paper over.



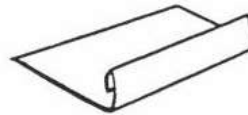
3. Fold both free ends over.



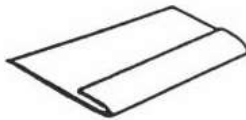
4. Press flat.



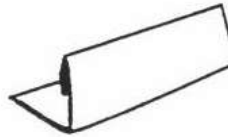
5. Secure by making a second fold-over.



6. Press double fold flat.



7. Fold in half.



8. Press flat.



9. Tuck one end into the other.
Be sure the end is tucked between the two outermost layers.



10. Seal with tape.
Tape must completely encircle the fold at the seam.



11. Label – case number, exhibit number, description, date, initials.
12. Place sealed fold into a bag or envelope and seal.

The Pharmaceutical Fold

Packaging Materials: Cardboard

1. Cardboard boxes are often utilized for items that are large and bulky items. These boxes are commonly used for firearms and knives.
2. Cardboard (excluding those with a wax coating) is a porous material like paper and will allow residual moisture to escape.



Cardboard box packaging supplied by Arrowhead.



Cardboard forensic evidence storage boxes are available in a variety of sizes and types. LSD&FC recommends having a variety of box types on hand in order to ensure proper packaging.

Packaging Materials: Plastic Bags

1. Plastic is a suitable packaging material given its strength and its transparency. It allows laboratory personnel to easily observe the contents of the package.
2. Note: It is however, not appropriate for all types of evidence.
3. Make sure the evidence is completely dry before placing it in the plastic bag. Items placed into plastic which contain moisture will cause damage to the DNA evidence. If the item was not properly allowed to dry it will become moldy within a plastic bag.



Plastic packaging is available in a variety of sizes and types. LSD&FC recommends having a variety of plastic evidence bag types on hand in order to ensure proper packaging.

Packaging Materials: Plastic Containers

1. Plastic containers are a suitable packaging material ideal for liquid samples. Ensure that the container has a lid that is securely fitted and sealed to protect from leakage.
2. Note: It is however, not appropriate for all types of evidence.
3. Make sure the evidence is completely dry before placing it in the plastic bag. Items placed into plastic which contain moisture will cause damage to the DNA evidence. If the item was not properly allowed to dry it will become moldy within a plastic bag.



Plastic container packaging is available in a variety of sizes and types. LSD&FC recommends having a variety of plastic container types on hand in order to ensure proper packaging.

Sealing Evidence

1. Evidence must be properly sealed prior to acceptance by LSD&FC.
2. Evidence is properly sealed when its packaging is secured to prevent loss, cross-contamination, cross-transfer, other deleterious change, and/or unauthorized access to the contents would be detectable.
3. An acceptable seal covers the entire opening on the packaging container. **Manila envelope clasps, resealable zipper plastic bags, and staples alone do not constitute an acceptable seal.** They must be accompanied by a tape or heat seal.
4. A proper seal includes the initials of the sealer. Initials must be permanent in nature.
5. It is not always practical or necessary to seal evidence in a container in order to protect it from loss, cross contamination or deleterious change. Oversized items of evidence which are impractical for placement into a sealable package (e.g. cars, doors, furniture, etc.) need to have at minimum the region of forensic importance covered to protect the area from damage or evidence alteration.
6. If it is determined that evidence cannot be accepted by LSD&FC for examination due to an improper seal, the submitting agency will be contacted immediately to notify them of the need to return the evidence.

Marking Evidence

1. A marking or unique identifier must be in place so the item of evidence can later be shown to be the item that was examined.
2. Identification of this sort can be accomplished using permanent or engraved markings, or with a unique number (i.e., serial number) attached to the item.
3. If the item of evidence does not lend itself to marking, the most proximal package should be labelled with the case and item number and initials of the collector.





Questions

Questions regarding proper evidence packaging should be directed to LSD&FC. Proper packaging, sealing of evidence and labeling is imperative to its preservation and integrity.



Procedure Review, Sign Off & Effective Date

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12/4/2018			Soraya McClung, M.S., MFS Director, DNA Technical Leader
12/4/2018			Richard I. Somiari, PhD Center Director
Revision History			
Date	Reason for Revision	Reviser	Version being changed
11/20/2018	Updated Case Acceptance Policy Updated Proper Seals and Marking Sections Grammatical Edits Updated Footer to include SOP Number	Soraya McClung	v1.0
12/4/2018	Changed "recommended" to "required" on Page 7 line 1.	Richard I. Somiari	v2.0
Review History			
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