OSAC 2023-N-0013 Standard for Evidence Collection and Management for Sexual Assault Medical Forensic Examinations

Forensic Nursing Subcommittee
Medicine Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science

Draft OSAC Proposed Standard

Standard for Evidence Collection and Management for Sexual Assault Medical Forensic Examinations

Prepared by
Forensic Nursing Subcommittee
Version: 1.0
June 2023

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Foreword

This document provides standards for the collection and preservation of physical evidence during a medical forensic examination after a sexual assault. Proper collection and preservation of physical evidence ensures the integrity of the evidence is maintained from the point of collection to the presentation of the evidence in the courtroom.

This document should be utilized in conjunction with local regulations and any requirements set forth by relevant laboratories examining collected evidence to inform or augment policies relating to the collection and preservation of physical evidence.

This standard provides guidance on some safety issues associated with evidence collection but is not exhaustive. It is the responsibility of the appropriate agency responsible for collecting the evidence to develop a full health and safety plan.

All hyperlinks and web addresses shown in this document are current as of the publication date of this standard.

This document has been drafted by the Forensic Nursing Subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science through a consensus process.

Key words: Evidence, Collection, Chain of custody

1. Scope

This document specifies requirements for the collection and preservation of biological, physical, and toxicological evidence from a living sexual assault patient presenting at a medical facility. This document provides specific guidance for the collection of evidence during the examination procedure through long term storage of evidence. This document does not address the collection and preservation of evidence from patients other than those receiving care following sexual assault in a medical facility environment.

2. Normative References

a. National Institute of Justice. *National best practices for sexual assault kits: A multidisciplinary approach*. US Department of Justice, National Institute of Justice, 2017.

b. Ballou, Susan, et al. *The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers*. NIST Interagency/Internal Report (NISTIR), National Institute of Standards and Technology, 23 April 2013.

c. U.S. Department of Justice. *A National Protocol for Sexual Assault Medical Forensic Examinations: Adults/Adolescents (2nd Ed.)*. U.S. Department of Justice, Office on Violence Against Women; 2013.

3. Terms and Definitions

a. Biological Evidence: Biological evidence refers to evidence items containing biological material, such as hair, tissue, bones, teeth, blood, semen, or other bodily fluids (Normative Reference B).

b. Chain of Custody: Chronological record of the handling and storage of an item from its point of collection to its final return or disposal (OSAC Lexicon).

c. Druggist Fold: A folding pattern used on paper that encloses small amounts of physical evidence such as a powder, hairs or fibers. Also referred to as a bindle. (Bell).

d. Medical Forensic Examiner/Practitioner: A health care provider who applies medical knowledge and practices to the investigation of the medicolegal aspects of death, injury, neglect, or behavior (adapted from National Commission on Forensic Sciences 1).

e. Long-term storage: Location that is designated to secure evidence for longer than seventy-two hours.

f. Physical Evidence: Any and all physical objects that can be collected, including clothing, hairs, fibers, stains, photos of physical injuries.

g. Sample: A portion of physical material collected during the course of a sexual assault examination.

h. Sexual Assault Kit (SAK): A collection of items used by medical personnel to collect and preserve physical sexual assault evidence that can be used in a criminal investigation (OSAC Lexicon).

i. Short-term storage: Location that is designated to temporarily secure evidence for less than seventy-two hours.

j. Swabbing: Sampling using a dry or solvent-wetted solid substrate, such as cotton wool, fabric, or synthetic fibers (OSAC Lexicon).

k. Trace Evidence: Small particles such as hair, foreign debris (vegetable material, soil, etc.), fibers, paint, glass, lubricant, etc.

l. Universal precautions: An approach to infection control to treat all human blood and body fluids as if they contain bloodborne pathogens (OSHA, 2019).

4. Patient History to Facilitate the Collection of Evidence

The following minimum information shall be documented when disclosed by the patient in order to facilitate the collection of evidence for crime laboratory processing. The medical facility shall have a protocol to provide this necessary data to the crime laboratory for processing and/or analyzing the evidence. Additional patient medical history elements are addressed in Examination Standard.

a. Patient Medical History

i. Unique patient identifier.
ii. Patient's biological sex at birth and current gender identity.
iii. Patient date of birth.
iv. The date(s) and time(s) the patient had any sexual contact within the relevant time frame(s) (see Section 5c), including ejaculation and/or condom use.
v. If applicable, whether the patient was menstruating during the incident(s), at the time of the exam, or any time in between.

b. Incident History

i. Alterations of patient mental status during the incident, at the time of the exam, or any time in between, shall be documented. If information is provided by someone other than the patient, the source shall be documented.
ii. Details of the incident(s) shall be documented when known by the patient. A patient's lack of recall of specific events should also be documented. Examples of relevant details include:
- The date and time the incident(s) occurred.
- History of bleeding resulting from injury during the incident(s), at the time of exam, or any time in between, including locations on the body.
- The number and gender of assailant(s).
- If penetration occurred or was attempted, the location, and the object used. If appropriate, condom use shall be documented.
- If applicable, whether ejaculation occurred and the location of ejaculation.
- Whether oral/genital contact occurred.
- Oral contact on any part of the patient's body where saliva might be present.
- Additional areas where prolonged, non-incidental, physical contact may have occurred, such as in cases of strangulation or restraint.

c. Post-Incident History

i. Details of the post-assault hygiene/activities shall be documented when disclosed by the patient:
- Whether the patient has showered, bathed, or douched since the incident.
- Whether the patient has brushed his/her teeth or used mouthwash.
- Whether the patient has eaten or drank.
- Whether the patient has used or discarded tampons, pads, or diapers.
- Whether the patient has urinated, defecated, or vomited.
- Whether the patient has wiped any area that might have biological fluid from another individual.
- Whether the patient has changed clothing.
- Whether the patient has been swimming.

- Other procedures, including additional medical care, that may have compromised potential physical evidence.

5. Collection of Evidence

Patient consent is required prior to the collection of physical evidence per local jurisdiction. The collection of all evidence shall follow universal precautions. All items of physical evidence shall be treated as though they are, or may contain, perishable biological materials. Gloves and masks shall be worn at all times samples are being collected and prior to being packaged. Gloves shall be changed after handling any item that could lead to cross contamination, such as touching the examiner's own person, a personal item, or when there is potential to transfer a foreign biological material from one part of the patient's body to another.

a. Minimum Supplies to Collect and Preserve Evidence

i. A standardized sexual assault kit (SAK) for the region shall be used when available.

ii. In the absence of a SAK, the following minimum supplies shall be available:
- Supplies sufficient to collect and preserve evidence.
- Swabs used to collect samples shall be sterile.
- Distilled water or sterile saline.

iii. Supplies for blood and urine collections for toxicology specimens.

iv. Short-term, temperature-controlled storage appropriate for the sample shall be available (see Normative Reference B).

v. Personal protective equipment (PPE).

b. Standards for Physical Evidence Collection:

Based on patient history of the incident, the examiner shall identify, collect, and preserve samples of potential evidence from the patient's body, clothing, and other available sources. Evidence types include trace evidence, toxicology specimens, biological evidence, and other physical evidence in the possession of the patient at the time of the exam.

When available, a medical provider may use an alternate light source (ALS) to screen the skin for areas of fluorescence (see Normative References A and C). Samples of these areas shall be collected based on patient and incident history, along with topical products used by the patient. Training specific to an ALS shall include, safety, optimal wavelengths and filters, limitations, and potential interference by topical and non-biological substances.

All physical items that may contain evidence shall be collected, when possible. Physical items can include the following: sanitary products, diapers/incontinence briefs, condoms, and clothing.

Trace evidence shall only be removed from a physical item if the physical item is not being collected itself or there is risk the trace evidence will be lost during packaging or transport. When appropriate, trace evidence removed for preservation shall be placed into a druggist fold in a small envelope sealed with tape.

After all obvious trace evidence has been collected, if indicated by the patient's incident history and post-incident history, the patient shall be asked to remove all clothing over a

clean sheet or paper in a manner that preserves the patient's privacy and dignity. The packaging of the clothing shall follow the guidelines in Section 5d. The sheet or paper shall either be collected or examined for any trace material following the collection of the clothing.

All facilities that conduct medical forensic exams should have a process for the collection, preservation, and submission of toxicology specimens based on local jurisdiction requirements.

Biological evidence is primarily collected from the patient's body by swabbing. There is currently limited research on best practices for swabbing. Some of the most recent empirical studies support the following approach (Hedman et al., 2020; Hedman et al., 2021; Kallupurackal et al., 2021; Pang & Cheung, 2007; Valentine et al., 2021). Swabbing samples from non-mucosal areas shall be collected using two lightly moistened sterile swabs concurrently. Swabs may be moistened with an appropriate liquid, such as sterile or distilled water or sterile saline, according to local protocols. Swabbing samples from mucosal areas shall be collected using two sterile swabs concurrently. Swabs shall be collected using firm pressure, rotating the swab head to deposit sufficient sample on the entire swab surface.

Separate swab samples shall be collected for different anatomical locations. Internal and external surfaces shall be considered separate anatomical sites for purposes of biological evidence collection (e.g., oral cavity vs. lips of the mouth). The examiner shall collect the least number of swabs necessary at each relevant anatomical site to concentrate the sample.

Cervical swabs may be collected separately from vaginal swabs. If cervical swabs are collected with vaginal swabs, the cervix shall be swabbed first. However, research is limited regarding the benefits of separate collections (Morgan, 2008). Other anatomical locations are in need of further research to support optimal swabbing techniques, such as the oral cavity. The examiner shall consider areas in the oral cavity where concentration of sperm is likely to occur after oral penetration, such as the teeth, under the tongue, and around braces or piercings (if present).

c. Time Frames for Collection

- Biological samples shall be collected if history indicates potential contact with the relevant anatomical site within the given time frame indicated in Table 1.
- In the event there is no available history, biological samples shall be collected from all anatomical sites indicated in Table 1 for the given time frames.
- The minimum time frames indicated in Table 1 shall not be used as the basis to deny medical-forensic care to any patient seeking care after sexual assault. Research indicates probative DNA results may be obtained from vaginal/cervical samples collected up to eight days after assault (Ballantyne, 2012; Hanson & Ballantyne, 2014; Quarino & Kishbaugh, 2012).

Table 1. Minimum timeframe for biological specimen collection

Anatomical Site	Minimum Collection Time
Vaginal/Cervical*	**5 days**
External Genitalia	**5 days**
Anal*	**3 days**
Oral	**1 day**
Skin surface	**4 days**

*For pre-pubescent patients, internal samples are not routinely collected. External samples shall be collected based on external genitalia or skin surface time frames, as appropriate. From Normative Reference A.

d. Packaging of Evidence

i. The exterior packaging shall bear, at minimum, the medical facility name, the examiner(s)' name, the date and time of examination, and a unique patient identifier. All external packaging containing biological samples shall be marked as a biohazard in accordance with OSHA (2019).

ii. All external packaging shall be sealed upon completion of the examination using tape bearing at minimum the date, the time, and the identity of the person sealing the package.

iii. Biological samples shall be packaged and labeled with time, date, and origin of sample.

iv. When possible, swabs should be dried separately before packaging. At a minimum, an isolated and secure space that is not in direct sunlight should be available for air drying.

v. Plastic packaging shall not be used for biological specimens, except for:
- contained liquid specimens.
- wet or heavily soiled items.

vi. When possible, a wet or heavily soiled item (such as sanitary products, diapers, clothing) shall be dried separately, without heat in an area that would allow for air movement such that trace material could not be lost and/or contaminated. The environment where drying occurs shall be isolated and secure. When indicated, the item shall be placed on or hung above a clean paper or sheet to collect trace material. This paper or sheet should then be collected and packaged for the lab.

vii. In the event a wet or heavily soiled item cannot be dried, the item shall be transferred to a facility capable of drying it as soon as possible. Prior to transfer, it shall be packaged in porous material. Package and seal the heavily soiled items in paper envelopes, paper bags, or paperboard containers, or containers that allow evaporation. If there is a potential for leakage, a secondary non-porous container can be used. Avoid plastic bags for long-term storage of biological evidence. All wet or heavily soiled items shall be refrigerated per the standards discussed in Section 7.

viii. Collect and transport blood samples according to requirements set forth by the forensic laboratory. Dried stains can be transported at room temperature and preserved according to Normative Reference B or laboratory protocols.

ix. Seal all blood and urine specimens obtained for toxicological examination, which must remain in liquid form, in appropriate containers and refrigerate according to Normative Reference B or laboratory protocols. Freezing may be necessary for some items such as liquid semen or an aborted fetus.

6. Documentation of the Evidence

a. In addition to the patient history, the following information shall be documented:
  i. Date and time of examination.
  ii. Identity of the examiner who collected each sample in the event multiple examiners participate in collection.
  iii. Identity of who sealed each package of evidence.

b. A clear, written explanation for why each sample included in the sexual assault kit was collected shall be provided.

c. Samples declined by the patient shall be documented.

d. If a sample is taken from the patient's body, the area of the body where the sample was collected shall be documented.

e. All samples collected shall be identifiable to a single patient and medical visit.

f. An inventory of the samples collected shall be provided when the examiner relinquishes the evidence.

7. Storage of Evidence

a. For optimal preservation and security of evidence, evidence shall be transferred to a law enforcement agency, crime laboratory, or other appropriate party as soon as possible following its collection.

b. Storage of all evidence shall be temperature controlled as appropriate to the sample per Normative Reference B (see NIST IR-7928 - see chart pg 27).

c. All storage locations shall be secured with limited access. All parties with access to the evidence shall be documented.

d. The location where evidence is stored shall be documented.

e. Minimum records for short-term storage in refrigerators and freezers (<72 hours) shall include the temperature on the day evidence is placed into storage and the day evidence is removed from storage. Minimum records for long-term storage in refrigerators and freezers (≥ 72 hours) shall include the temperature each day the evidence is stored.

8. Release of Evidence

a. Date, time, and identity of the individual who takes custody of evidence shall be documented.

b. When selecting a commercial carrier for transporting evidence, the carrier must use a tracking system in which shipments can be individually tracked.

c. The medical facility shall have a policy for monitoring shipped evidence to ensure it arrives at its destination.

Annex

Bibliography

The following bibliography is not intended to be an all-inclusive list, review, or endorsement of literature on this topic. The goal of the bibliography is to provide examples of publications addressed in the standard.

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