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3. Definitions:

Cytology Specimen: A cytology specimen is referred as a sample of cells that is collected from a living organism which aim to conduct microscopic examination. This type of specimen is used to diagnoses or study disease such as cancer and other cellular abnormalities.

Chan of Custody:

Forensic Foreign Body: is any object found within a patient that has legal implications, often require specialized handling and documentation for evidentiary purpose. For example, bullets, shrapnel, or other items involved in inflicting trauma that may be subjected to forensic analysis to assist in a criminal investigation.

Frozen Section: is a diagnostic procedure in which a thin layer of tissue is cut from a frozen specimen for immediate histopathological examination during surgical procedure. This procedure is performed to diagnose malignancy, guide surgical margins, or to make other treatment decision in real-time.

Biopsy culture: A portion of tissue removed from body for further examination.

4. Introduction:

Laboratory examination of specimens is a cornerstone in determining a patient's diagnosis and subsequent treatment plan. Therefore, the correct and safe handling, labeling, and transportation of surgical specimens are critical steps in the diagnostic and treatment process.

This Standing Operating Procedure (SOP) is sin compliance with international and national regulations, including governing the management and handling of surgical specimens. Strict adherence to this SOP is essential to ensure we meet these standards.

The surgical team, particularly perioperative nurses, hold the central role in overseeing all aspects of surgical specimen management. This involves secure handling, precise documentation, and prompt delivery of specimens to authorized laboratories for analysis.

Failure to properly manage surgical specimens can lead to several consequences, including contamination, loss of specimens, or even risk for infection to healthcare personnel. Non-compliance with this SOP may result in disciplinary measure and can severely jeopardize both patient safety and the institution's reputation.

5. Scope:

This SOP is for surgeon, perioperative nurses and medical orderlies involved in patient Specimen Handling procedures.

This policy procedure applies to:

3.1 surgeon: to collect, pass the correct information and enter the details in system.

3.2 Perioperative nurses, who hold the primary responsibility for surgical specimen management, including but limited to the safe handling, accurate documentation, and appropriate dispatch of specimens to designated laboratories.

3.3 Medical orderlies and other support staff involved in assisting with specimen collection, labeling, or transport within the healthcare facility.

3.4 This SOP is also pertinent when specimens are being transferred between departments within the healthcare facility, or to external laboratories for specialized testing.

6. Purpose:

The objective of this Standard Operating Procedure is the following:

- 6.1.** To establish a clear guideline for the accurate labeling and safe handling of surgical specimens in accordance with healthcare regulation and standards.
- 6.2.** To specify standardized protocol for the accurate labeling and secure, efficient handling of surgical specimens.
- 6.3.** To highlight the importance of careful management of these sample due to the following consideration:
 - a)** Accurate specimen analysis is vital in determining a patient's diagnosis and subsequence course of treatment.
 - b)** Losing or mishandling of specimen may necessitate a second surgical procedure, exposing the patient to additional risks.
 - c)** Mislabeling insufficient documentation could result in inaccurate test outcomes, leading to inappropriate medical treatment
- 6.4.** To facilitate interdepartmental collaboration by providing a standardized protocol, ensuring that all healthcare providers are aligned in their practices concerning specimen handling.
- 6.5.** To enhance the overall quality and safety of patient care by minimizing errors in specimen management thereby improving diagnostic accuracy and treatment effectiveness.

7. Procedure:

The following SOP outlines specific steps for specimen management, from preparation and collection to transportation and documentation.

7.1. Equipment required:

- a) Anaerobic and aerobic culture tubes and swabs
- b) Appropriate-size sterile, leakproof specimen containers
- c) Gloves / mask
- d) Pen or marker
- e) Patient identification label
- f) Requisition form
- g) Laboratory biohazard transport bags and labels
- h) Histopathology Transport bags are white in color
- i) Clean, sterile sponge
- j) Clean sponge or towel
- k) Optional: sterile syringe, preservative, small sterile pad, atraumatic clamp, tissue forceps , PPE
- l) 10% Formalin labeled with expiry date collected from Histopathology Laboratory.

7.2. Preparation of Equipment:

Prior to start any surgical procedure, it is vital to inspect all equipment and supplies. If a product is expired, or defective, or compromised integrity, remove it from patient use, label it as expired or defective, and report the expiration or defect as directed by your facility. Prepare an adequate number of culture tubes, culture containers, and labels take maybe required during the procedure. Open the sterile containers and culture tubes only as needed, during the surgical procedure.

7.2.1 Inspection: Conduct a thorough examination of all equipment, including culture tubes, specimen containers, and labeling materials. Verify the sterility and integrity of each item.

7.2.2 Expiration & Defects: Any equipment found to be expired, defective, of compromised integrity of the specimen, must promptly remove from the patient care area such items should be labeled as “Expired” or “Defective” and set aside for disposal according to Medical Store Protocols.

7.2.3 Reporting: The removal of any non-complaint items must be documented and reported to through Amman System.

7.2.4 Preparation: pre-arrange an adequate number of sterile culture tubes, specimen containers, and labels based on the specific of the surgical procedure to be performed.

7.2.5 Sterile Field: Open sterile containers and culture tubes only when necessary during the surgical procedure to maintain a sterile environment and minimize the risk of contamination.

7.2.6 Checklist: Consider utilizing a pre-procedure checklist to ensure all equipment is accounted for and in optional condition. This can serve as an additional safety measure to prevent any lapses in the procedure.

7.3 Handling & Documentation of the Specimen:

7.3.1. Identification & Verification: The specimen must be accurately identified and confirmed by the surgical team. This includes cross-referencing the specimen against the surgical plan and patient record.

7.3.2 Containment: Place the specimen in a container that is both appropriate for the type of specimen and securely sealed. If a preservative is needed, add the correct type and amount according to the attached instruction.

7.3.3. Labeling: Attach a patient identification label and any other required labels to the container. Ensuring the label included necessary details such as patient name, specimen site, type, date, and time of collection.

7.3.4. Documentation: Complete the documentation requirement including the request form or pathology request forms in AL Shifa System.

7.3.5. Transport: Dispatch the specimen to the laboratory in a timely manner, accompanied by all necessary documentation and securely sealed in a Biohazard transport bag.

7.3.6. AL Shifa system entry: Specimen entry in AL Shifa system for Histopathology examination to be checked which should correlate with number of specimens and sites of collection as per clinical findings

7.4 Handling Specimens for Frozen Section Analysis:

7.4.1 Confirmation with Surgeon: Prior the operation and during the surgical procedure, the perioperative nurse should confirm with the surgeon whether a specimen will be needed to be sent for the frozen suction analysis.

7.4.2 Notification to Pathology Department: The Surgeon is responsible for informing the pathology department within 24 hrs in advance about the specimens that is required for Frozen Section Analysis. To communicate with the department earlier will ensure preparation that is needed according to the time and for processing of the specimen.

7.4.3 Preservation: Specimen designated for frozen section **should not** be placed in a preservative solution, *as this can interfere with the analysis.*

7.4.4. Labeling & documentation: The circulating nurse must ensure that the specimen is labeled and documented properly prior sending it for the analysis.

7.4.5. Transportation of the Specimens: for maintain the integrity of the specimen, it is important to follow the proper transporting guideline of the specimen according to Pathology Department. The specimen should be transported with the time specified by the Pathology Department to guarantee its quality for analysis.

7.5 Handling culture specimen:

7.5.1 Care should be taken while handling swab culture, so the cotton and stem will touch only the tissue to be cultured. (consider restart it, and add photo if possible).

7.5.2 Send the piece of tissue in a sterile container labeled with the patients details and site of collection. Care should be taken while handling swab culture, so the cotton and stem will touch

7.5.3 Circulator nurse should label the swab tube and write the source of the culture.

7.5.4 Place the culture tube in biohazard specimen plastic bag and dispatch to the lab in a proper container.

7.6.1. Collection and Packing: The specimen should be collected in a leak-proof sterile specimen container with a closed lid .

7.6.2. Verification: Both scrub & circulator nurse should double check the request before sending the specimen against the request form to ensure accuracy and completeness.

7.6.3. Timing & Storage:

- a) If the specimen is collected during the working hours of the laboratory immediately to accelerate the testing.

- b) For specimen collected outside of these hours, it should be stored at OT reception and transported the next working day to the Pathology Laboratory according to guideline of Pathology Department.

7.7 Handling of Other Surgical Specimens:

4.7.1. Specimens Not Requiring Laboratory Examination: Surgical specimens designated for visual inspection and there is no need for laboratory analysis should be disposed of as per the surgeon's guidance.

4.7.2. Handling of Foreign Bodies: All screws, pins, and plates should be discarded following the disposal procedure.

4.7.3. Forensic foreign bodies:

- a) Bullets or other forensic-related items should be handled exclusively with forceps or a sterile sponge to preserve their integrity.
- b) These items must be stored in clearly labeled containers.
- c) The Public Relations Officers (PRO) must be notified immediately about the presence of any forensic foreign bodies.
- d) **Chain of Custody:** maintain a clear chain of custody for all forensic items to ensure acceptability in legal cases, including documentation who had possession of the item at all time.

7.8 Handling Amputated Parts

7.8.1. Amputated limb must be wrapped properly.

- a) A patient label is placed on each bag.
- b) The exposed bone of the limb should be covered with disposable towel.
- c) Keep large, amputated limb in two red plastic bags, small limbs can be kept in regular specimen containers.
- d) Remove all air from the inner bag and secure the top with tape, close and secure outer bag.

7.8.2. Amputated limbs should be stored properly until it will be handed over to the PRO.

- a) It is patient and relatives wish to take the amputated limbs or to keep it in the hospital.
- b) Circulator nurse should document about amputated limb in intra-operative notes, and mortuary book and include (date, nature of amputated limb, person who received the limb with signature).

7.9 Documentation:

7.9.1. Double Check Accuracy: Both the circulating and scrub nurse should verify the details entered to minimize the chance of error.

7.9. 2. Patient Consent: The surgical team should ensure that the consent is obtained from the patient or their family member (Special consideration kindly review the Consent Form Policy).

7.9 .3. Lab Requisition Forms: Circulating Nurse must ensure that the Specimen Form is requested and accurately filled out and attached with the specimen in the laboratory for processing.

7.9. 4. Handover Documentation: if the specimen is handed over to another department or other hospital, must ensure that this handover is documented thoroughly, including the name, designation and staff number of the person receiving the specimen.

7.10. Special considerations:

7.10.1. Labeling the Specimens: Do not put the identification label on the lid, as the lid has an increased risk of being separated from the container.

7.10.2. Packing the Specimens: Never put a specimen on a "counted" sponge. The sponge may be packaged inadvertently with the specimen and taken from the room, resulting in an incorrect sponge count and don't add additional fluid (such as normal saline solution) to the specimen container. Additional fluid can dilute the specimen and make the test invalid.

7.10.3. Temperature: Be aware of the temperature the is required for different specimens. Some may require immediate refrigeration or a specific temperature range for valid results.

7.10.4. Biohazard Safety: Assume that all specimens are infectious. Utilize appropriate Personal Protective Equipment (PPE) when handling them.

7.10.5. Time Sensitivity: Some specimen degrade overtime. Ensure the time limits for specimens to be delivered to the laboratory department for processing (according to the specimen type).

7.10.6. Informed Consent: Ensure that informed consent is being obtained for specimen collection, especially for the specimens that may be stored for research study.

8. Responsibilities:

8.1. Surgeon:

- 8.1.1. Ensure that the specimen is collected according to the proper surgical and aseptic technique.
- 8.1.2. Communicate with the perioperative team, especially the circulating and scrub nurses, and to confirm type and requirements of the specimen to be collected.
- 8.1.3. Verify that informed consent has been obtained for the specimen collection.
- 8.1.4. Coordinates with the pathology department in advance for frozen section. For Urgent specimen, to inform the pathologist to avoid any delay.
- 8.1.5. In case of forensic or legal implication, maintain the chain of custody for the specimen, all who are involved with specimen should be documented.
- 8.1.6. Document clearly the site from which the sample was taken, to assist in pathological assessment.

8.2. Scrub Nurse:

- 8.2.1. **Sterile Containers:** Ensures that the specimen containers are sterile and available for use during the surgical procedure.
- 8.2.2. **Coordination with Team:** Coordinates with the surgeon and circulating nurse to ensure that all the needed equipment and supplies are available and ready prior the procedure.
- 8.2.3. **Infection Control:** Follows the universal precaution and maintain the septic technique to prevent specimen contamination.
- 8.2.4. **Communication:** Communicates with the surgical team regarding the specimen if there is any specific handling instructions that is required.
- 8.2.5. **Sealing & Packing:** Ensure that the specimen is well sealed, in its sterile container, to prevent contamination and leakage, and to maintain its integrity while transporting it.
- 8.2.6. **Gentle Specimen Handling:** The scrub nurse is responsible for handling the specimens with care to avoid any damage, alterations, or contamination that could affect the diagnostic integrity. This includes utilizing the appropriate instruments and techniques during the procedure and after that.
- 8.2.7. **Disposal Authority:** Specimen should not be discarded without the permission from the surgeon. Following confirmation, the specimen should be disposed of according to established clinical waste procedure.
- 8.2.8. **Immediate Specimen Transfer:** The scrub nurse should pass the specimen to the designated circulating nurse or place it in the specified container, according to surgical protocol.

8.3. Circulating Nurse:

8.3.1. Specimen Preparation & labeling:

- Prepare the container by labeling it accurately with patient's name, date, time of collecting the specimen.
- If multiple specimens are being collected, separate containers must be provided, and label them accordingly as 'A', 'B', 'C', etc. The containers should in appropriate size for the specimen.

8.3.2. Specimen Preservation:

- The specimen should be fully covered with formalin to preserve it for pathological examination.
- For specimens that is required Histopathologies examination should be fully immersed in 10% buffered formalin and to be removed from the patient. This to ensure accurate preservation.

8.3.3. Specimen Packing: Place the specimen in a clear plastic bag that is properly sealed for safe and secure transport.

8.3.4. Documentation:

- Record the number and types of all specimens that is been collected in the logbook with the collection date. The staff who sends, should sign the logbook with contact details, in case further clarification which might be required.
- Check and confirm the details in AL Shifa System, and register the specimen in the laboratory Book.

8.3.5. Frozen Section Handling: For specimens required frozen section analysis, arrange for immediate transportation to the laboratory.

8.3.6. Incident Reporting: Complete an incident report for any specimens that are mis-handled or mis-managed.

8.3.7. Quality Assurance & Safety: to prevent a mix-up of specimens, which could lead to incorrect diagnosis and treatment, the circulating nurse should validate all specimen information before dispatch.

8.3.8. Specimen Dispatch:

- Ensure specimens are transported to the histopathology department either
 - a) During routine collection times according to hospital protocols.
 - b) At the beginning of the next working day.

8.4. Medical Orderly:

8.4.1 Standard Precaution: Adhere to established standards precaution for purpose of safe handling of the specimen, which include the proper use of (PPE).

8.4.2. Sample Transportation: Transfer the specimen securely from the (OT) to the Laboratory, prioritizing on the level of urgency.

8.4.3. Log Book Completion: The log book should be complete and located at the laboratory reception, and to confirm the delivery of each specimen.

8.4.4. Container Sanitization: Clean and sanitize the specimen transport container after each use, following hospital guidelines for disinfection.

8.4.5. Checklist Verification: Utilize a checklist to ensure that all specimens are accounted during pickup and delivery.

8.4.6. Specimen Integrity: Handle specimens in a manner that maintains their integrity, avoiding actions such as shaking or tilting that might compromise the sample.

8.4.7. Post-Transport Hygiene: Sanitize hands thoroughly after sending the specimen to the lab, even if the gloves were worn during the process.

9. Document History and Version Control

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1	Initial Release	April/2024

10. References:

Phillips, N.M. (2017). *Berry & Kohn's Operating Room Technique* (13th ed.). Mosby.

Khoulou Hospital. (2020). Guideline specimen handling policy

Royal Hospital. (2020). Guideline specimen handling policy.

Alexander's Care of the Patient in Surgery by Jane C. Rothrock:

Rothrock, J.C. (2019). *Alexander's Care of the Patient in Surgery* (16th ed.). Elsevier.

For Perioperative Nursing by Shields, L., & Werder, H., Singh, S. (2021). Standards of specimen handling in operation theatre: Does it affect adjuvant treatment decision? Retrieved January 15, 2023, from <https://www.rgcirc.org/blog/standards-of-specimen-handling-in-operation-theatre-does-it-affect-adjuvant-treatment-decision/>

NHS Leicestershire. (2022). The Collection, Handling and Transport of Specimens Policy. Retrieved from <https://www.leicspart.nhs.uk/wp-content/uploads/2022/04/The-Collection-Handling-and-Transport-of-Specimens-Policy.pdf>

Lippincott. (2022). *Nursing Procedures* (9th ed.). Wolters Kluwer.

Rothrock, J.C. (2017). *Alexander's Care of the Patient in Surgery*. Retrieved from [https://www.google.com.om/books/edition/Alexander s Care of the Patient in Surge/O4IIDwAAQBAJ?hl=en&gbpv=1&dq=Alexander%27s+Care+of+the+Patient+in+Surgery%22+by+Jane+C.+Rothrock&printsec=frontcover](https://www.google.com.om/books/edition/Alexander_s_Care_of_the_Patient_in_Surge/O4IIDwAAQBAJ?hl=en&gbpv=1&dq=Alexander%27s+Care+of+the+Patient+in+Surgery%22+by+Jane+C.+Rothrock&printsec=frontcover)