REPUBLIC OF KENYA
MINISTRY OF HEALTH

KENYA MEDICAL LABORATORY TECHNICIANS & TECHNOLOGIST BOARD
Make Testing a Safe Reality

KENYA MEDICAL LABORATORY MEDICAL LABORATORY SCIENCES PROFESSIONALS AND TECHNOLOGISTS BOARD

ASSESMENT OF HISTOLOGICAL SPECIMEN HANDLING

*Pursuant to the Medical Laboratory Medical laboratory sciences professionals and Technologi*sts Act, CAP 253A Laws of Kenya

KMLTTB QUALITY ASSURANCE SERVICES

KENYA MEDICAL LABORATORY TECHNICIANS AND TECHNOLOGISTS BOARD *Make Testing a Safe Reality*	ASSESMENT OF HISTOLOGICAL SPECIMEN HANDLING		*DOCUMENT CONTROL* *Serial: KMLTTB/HISTOLOGY//01* *Revision No. 001* *Revision Date:2nd, JANUARY 2026*
	OWNER OF FORM	*REGISTRAR*	

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HISTOLOGICAL SPECIMEN HANDLING

INTRODUCTION

The Kenya Medical Laboratory Technicians and Technologists Board (KMLTTB) is a body corporate with statutory mandate to exercise general supervision and control over the training, practice, business and employment of medical laboratory technicians and technologists under Cap 253A Laws of Kenya. The Board also advises the Government in relations to all aspects thereof including validation of invitro diagnostics through Legal Notice NO.113 of 2011

Professional practice in the health sector requires consistent and ongoing commitment from all concerned with lifelong learning in order to update and develop the knowledge, skills and ethical attitudes that underpin competent practice. This perspective protects the public interest and promotes the health of all members of the Kenyan society.

Guided by the principle of beneficence, medical laboratory Sciences profession aspire to standards of excellence in health care provision and delivery.

KMLTTB policy on Point of Care Testing (POCT) services is primarily governed by international best practices and the applicable standards. The KMLTTB policy on POCT is aimed at ensuring quality healthcare and patient safety. It also ensure the safety of the healthcare professional s as well as protect the environment from pollution and contamination for sustainability.
All health institutions that offer point of care testing must ensure that the approved standards areas adhered to and have dedicated registered medical laboratory sciences professionals who are duly registered and licensed by KMLTTB to offer the testing serves in all their histology services areas/sites. Failure to follow the prescribed is contravention of section 19 of the MLTT act, cap 253A laws of Kenya and article 43(1) of the constitution of Kenya 2010

Histological specimen handling is a multi-stage process governed by strict protocols to ensure tissue integrity and accurate diagnosis. Each step, from the operating theatre to the laboratory archive, must prevent artifacts like autolysis, crushing, or drying.

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NAME OF MEDICAL LABORATORY			
P.O BOX ADDRESS			
MOBILE NUMBER	EMAIL	STREET/ROAD	
COUNTY	SUB-COUNTY	TOWN	
INSTITUTION TYPE	GOK	PRIVATE	FAITH BASED ORGANIZATION
MEDICAL LABORATORY CLASS	CLASSIFICATION		NOT CLASSIFIED

AUDIT /INSPECTION VISIT TYPE			
AUDIT / INSPECTION		REINSPECTION	
DATE OF INSPECTION VISIT			

A. AUDIT TEAM

NO	NAME	DESIGNATION	MOBILE NUMBER	SIGNATURE
i				
ii				
iii				
iv				

B. INSTITUTIONAL TEAM:

NO	NAME	DESIGNATION	MOBILE NUMBER	SIGNATURE
i				
ii				
iii				
iv				
v				

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1. COLLECTION AND PRESERVATION

- **Gentle Handling**: Tissues should be removed carefully to avoid **crushing artifacts** from surgical instruments like forceps.
- **Aseptic Technique:** Use sterile instruments to prevent contamination.

a) **Immediate Fixation**: Specimens must be placed in fixative immediately to halt enzymatic degradation (autolysis). The standard fixative is **10% Neutral Buffered Formalin (NBF)**.

b) **Ratio and Container**: A volume ratio of at least **10:1 (fixative to tissue)** is ideal. Containers must be leak-proof, appropriately sized to prevent distortion, and wide-mouthed for easy retrieval after the tissue hardens.

c) **Labeling**: Every container must be clearly labeled with at least two patient identifiers (e.g., name and DOB), the collection site, and date/time of collection.

2. TRANSPORT

a) **Documentation**: A completed **pathology request form** containing clinical history and specific diagnostic questions must accompany the specimen in a separate pocket of the biohazard bag.

b) **Conditions**: Most specimens are transported at **ambient room temperature**. High-risk specimens (e.g., suspected TB or HIV) must be clearly flagged with biohazard stickers.

c) **Special Cases**: Fresh specimens for **frozen sections** or immunofluorescence must be delivered immediately without fixative (often on saline-moistened gauze) and coordinated with the lab.

3. RECEIPT AND ACCESSIONING

a) **Verification**: Lab staff match the details on the specimen container with the request form to ensure accuracy.

b) **Accessioning**: The specimen is assigned a **unique laboratory number**, which is used to track it through all subsequent processing steps.

c) **Grossing**: A pathologist or Medical laboratory sciences professional performs a **gross examination**, describing the specimen's physical appearance and selecting representative sections (typically 3–4 mm thick) for further processing.

4. LABORATORY PROCESSING (AUTOMATED)

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Modern Medical laboratories use automated processors to take tissue through several chemical stages:

a) **Dehydration**: Water is removed using graded concentrations of **ethanol**.

b) **Clearing**: Ethanol is replaced by a solvent like **xylene**, which makes the tissue transparent and miscible with wax.

c) **Infiltration**: Molten **paraffin wax** replaces the clearing agent, providing internal support.

d) **Embedding**: Tissues are oriented in molds and encased in solid paraffin blocks.

e) **Microtomy**: The blocks are cut into extremely thin sections (typically **3–5 micrometers**) using a microtome, then floated onto glass slides.

f) **Staining**: Sections are typically stained with **Hematoxylin and Eosin (H&E)** to highlight cellular structures.

5. REPORTING

a) **Microscopic Analysis**: A pathologist examines the slides and integrates findings with the provided clinical history.

b) **Report Generation**: The final report includes the histological diagnosis, microscopic description, and prognostic data. Reports are typically issued to the authorized requester electronically and via hard copy.

6. ARCHIVING AND RETRIEVAL

a) **Retention Periods**:

i. **Wet Tissue**: Usually kept for **4–6 weeks** after the final report is issued before disposal.

ii. **Paraffin Blocks and Slides**: Often archived for **at least 10 years**, and sometimes indefinitely, for future review or research.

iii. **Retrieval**: Systems must be in place to allow rapid retrieval of archived slides and blocks for clinical review, research, or second opinions.

ASSESMENT OF HISTOLOGICAL SPECIMEN HANDLING FLOWCHART.

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1. COLLECTION & IDENTIFICATION		
ASPECT	DONE	NOT DONE
Procedure: Surgical excision or biopsy of representative tissue.		
Identification: Immediate labeling with at least two unique patient identifiers (e.g., name and DOB).		
2. PRESERVATION (FIXATION)		
Medium: 10% Neutral Buffered Formalin is the standard fixative		
Ratio: Ideally 1:10 or 1:20 fixative-to-tissue volume ratio		
Time: Start fixation within 1 hour of collection to prevent autolysis		
3. **Transport**		
Packaging: Secure, leak-proof containers placed in secondary biohazard bags		
Conditions: Ambient temperature; avoid extreme heat or freezing.		
4. RECEPTION IN THE MEDICAL LABORATORY		

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Verification: Check specimen label against the requisition form.		
Accessioning: Assigning a unique laboratory ID (Accession Number) and case creation in the Laboratory Information System (LIS).		
5. GROSS EXAMINATION		
Description: Visual inspection, measurement, and dictation of macroscopic features.		
Sampling: Trimming tissue into small pieces (3–4 mm thick) and placing them into labeled cassettes.		
6. TISSUE PROCESSING (AUTOMATED)		
Dehydration: Removing water using graded alcohols.		
Clearing: Replacing alcohol with a solvent like Xylene		
Infiltration: Permeating tissue with molten paraffin wax.		
7. EMBEDDING		

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Orientation: Placing the tissue in a mold with more wax to form a solid "block".		
8. MICROTOMY (SECTIONING)		
Slicing: Cutting ultra-thin sections (3–5 microns) using a microtome.		
Mounting: Floating sections in a water bath and picking them up onto glass slides.		
9. STAINING & COVER SLIPPING		
Routine: Hematoxylin and Eosin (H&E) staining.		
Protection: Applying a mounting medium and glass coverslip for permanence.		
10. REPORTING		
Diagnosis: Pathologist reviews slides under a microscope and issues a final report via LIS.		
11. ARCHIVING & RETRIEVAL		
Storage: Paraffin blocks and glass slides are indexed and stored (often for 10+ years).		
Retrieval: Organized filing systems allow for re-testing or clinical review if needed		

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12. SUMMARY FINDINGS.

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……THE END……

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