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TEKNOLOGI  
MARA

Hospital  
Al-Sultan Abdullah

# UPDATES IN ANATOMIC PATHOLOGY SERVICES

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DEPARTMENT OF CLINICAL DIAGNOSTIC LABORATORIES, HASA  
17<sup>th</sup> February 2023  
CES 1/2023

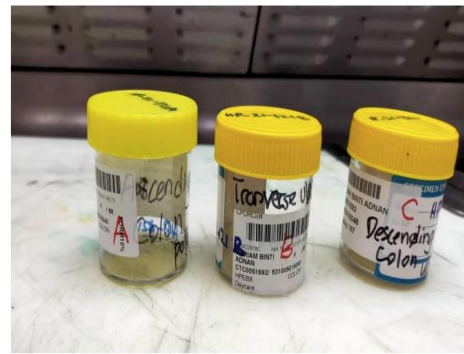
# SERVICES

## 1. HISTOPATHOLOGY

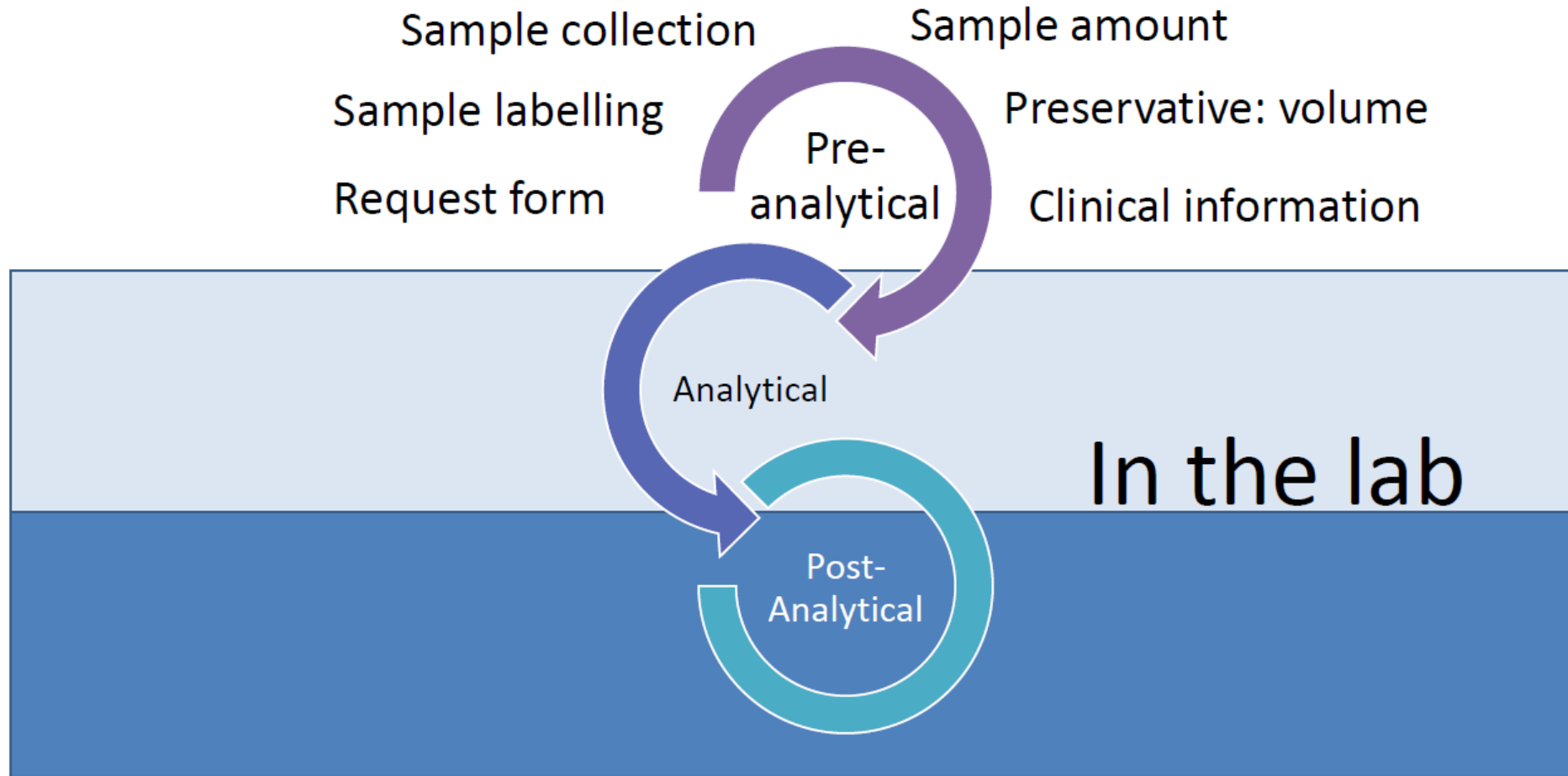
- Macroscopic and microscopic examination of tissues with interpretative diagnosis.
- Assessment of biopsies or specimens removed at surgery.
- Intraoperative frozen section consultation
- Ancillary services: Special stains, IHC, IF

## 2. CYTOPATHOLOGY

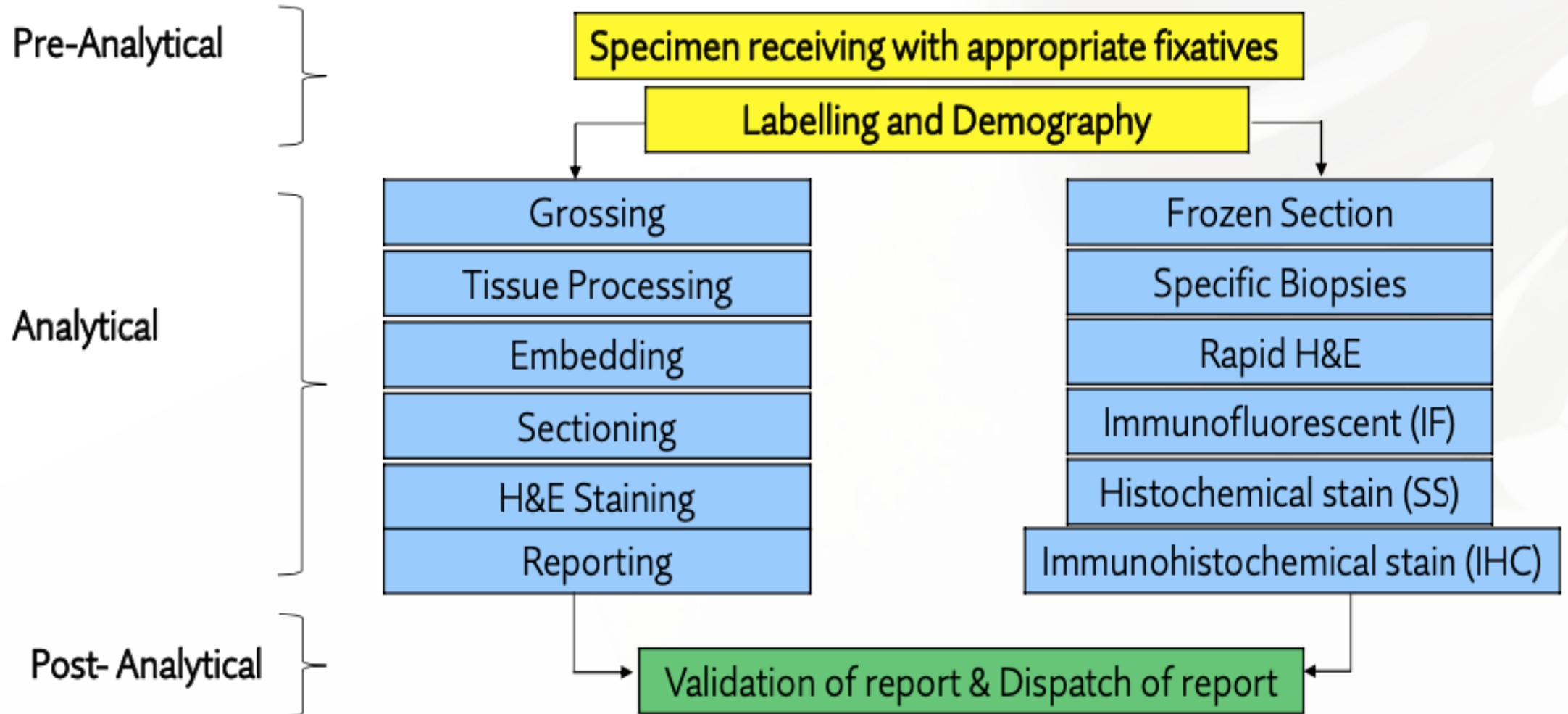
- Diagnostic and screening services based on the morphologic study of cells.
  - Gynae based cytology
  - Non-gynae based cytology – FNAC, brushings and body fluid cytology.



# Flow of an anatomic pathology laboratory



# WORKFLOW IN HISTOPATHOLOGY LABORATORY





# OPTIMAL HANDLING OF ANATOMIC PATHOLOGY SPECIMENS

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# SPECIMEN LABELLING



- All specimens must be correctly labelled.
  - Patient's **name** and at least **one other unique identifier** (e.g NRIC, MRN etc)
  - **Type of specimen**
- **Multiple specimens** must be labelled accurately.
- Proper patient identification is crucial to ensure that specimen is being drawn from the individual designated on the request form (UniMEDS).

# SPECIMEN FIXATION



- All specimens should be fixed in **10% neutral buffered formalin in suitable leak-proof container**, unless stated otherwise (e.g. frozen section or biopsy for IF studies).
  - The volume of formalin used should be at least **10times** the volume of the specimen / samples to be fixed (10:1).
- Use appropriate size of container
- Do not put large specimens in small containers as this would prevent proper fixation of the tissue and it may cause distortion to the specimen.



- Purpose of fixation
  - To prevent autolysis
  - To inactivate infectious agents
  - To fix tissue
  - To leave tissue as close as their living state as possible
- Period/time of fixation (Optimum time is 6-48 hours)
  - Large specimen, 24 – 48 hours
  - Small specimen <10mm, 6-8 hours



# REQUEST FORM

- All specimens must be sent together with a request form.
- All requests shall be made via UniMEDS. Please select the relevant test request according to the category and provide relevant clinical information.
- For multiple specimens, please ensure that request for each specimen is done separately on the system.
- If an urgent result is required, please tick the “Priority” column on the request page
- Print the generated request form and the barcode sticker. Place the sticker onto the labelled specimen container.

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CLINICAL DIAGNOSTIC LABORATORIES DEPARTMENT  
LEVEL 1, HOSPITAL UTM  
42300 Puncak Alam, Selangor Darul Ehsan  
Phone: 03-3396 3000

UNIVERSITI TEKNOLOGI MARA

**URGENT**      **ANATOMIC PATHOLOGY REQUEST FORM**

UITM/FPR/CPDRL/QP-11 /IF-03  
440216322  
FOR LAB USE ONLY

FN-22-57

Name	[REDACTED]	Clinic / Ward	: HUITM - Otorhinolaryngology Clinic
MRN	[REDACTED]	Phone No	: 0172427893
I/C No	[REDACTED]	Date of Admission / Clinic Appointment	:
DOB	: 09-11-1988	Requested By	: DR. MUHAMAD ARIFF SOBANI
Age	: 33y 8m 8d	Ordered Date/Time	: 07-07-2022 10:39
Race	: Malay	Consultant in Charge	:
Gender	: FEMALE		
App.Date (Specimen)	: N/A		
Remark	:		

**Clinical History :**  
underlying CP with paraplegia Bicytopenia p/w neck masses 3/52, slightly reduce size right level 2 2x2cm submental centre mass 3x3 TRO lymphoma centre mass TRO thyroglossal cyst

**Diagnosis :**  
centre submental mass

**Test Request :**  
FNAC

**Specimen :**  
LYMPH NODE

**Site :**  
N/A

**Specimen Collection :**  
Specimen Collection : 19-07-2022 08:44:42  
Sample Taken by / Printed by : SITI NUR HIDAYAH HAMZAH  
Sample Taken at : HUITM - Phlebotomy Unit

This document is computer generated. No signature required.

19/7/2022, 8:45 am

- Patient's details (Name, IC No., MRN, Age, Gender, Race)
- Adequate & relevant clinical history
- Type of specimen (including specimen orientation, if any)
- Date, time and location specimen was taken
- Requesting doctor

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CLINICAL DIAGNOSTIC LABORATORIES DEPARTMENT  
LEVEL 1, HOSPITAL UITM  
42300 Puncak Alam, Selangor Darul Ehsan  
Phone: 03-3396 3000

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**URGENT** **ANATOMIC PATHOLOGY REQUEST FORM**

UITM/FPR/CPDRL/QP-11  
/IF-03  
440216322  
FOR LAB USE ONLY

FN-22-S7

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MRN	[REDACTED]	Phone No	: 0172427893
I/C No	[REDACTED]	Date of Admission / Clinic Appointment	:
DOB	: 09-11-1988	Requested By	: DR. MUHAMAD ARIFF SOBANI
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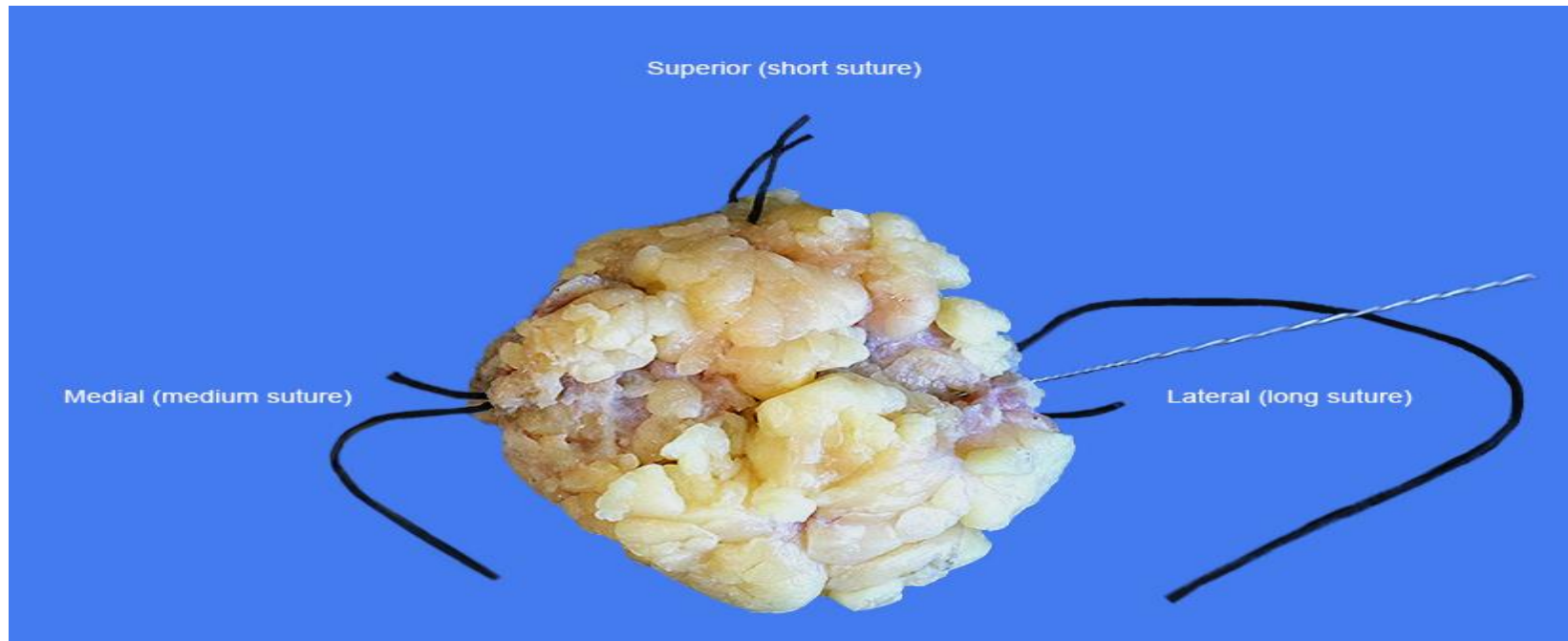
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19/7/2022, 8:45 am

- Complex specimens (eg. breast) which require **orientation** must be marked or tagged accordingly by **sutures / staples**. The orientation must be **clearly indicated** in the accompanying request form.



# FROZEN SECTION

Frozen section service: ONLY during **working hours (8 am - 4pm), Monday – Friday (excluding PH)**.

- All frozen section requests must be discussed with the **surgical pathologist on-duty** at least **24 hours prior** to the intended frozen section.
- Please **inform** laboratory staff if a booked frozen section is **cancelled**.
- All specimens for frozen section must be sent **fresh** without any preservative in a closed container, accompanied by a request form.
- All specimens should be **sent immediately** to the laboratory upon removal.
- **Interpretation** will be **verbally** given to the requesting surgeon via **phone call** and documented.
- **High risk infectious material** will **not** be accepted for processing (e.g tuberculosis).
- All cases scheduled for FS should be placed first in the operating list to ensure no disruption to the service.

<b>Histopathology</b>			
<b>Routine HPE examination</b>	Appropriate-sized, leak-proof container. Place in 10% formalin (at least 10x volume of sample).	-	This is to ensure proper fixation of specimen.
<b>Frozen section</b>	Clean, empty air tight container.	-	Despatch immediately.
<b>Renal biopsy for IF</b>	Clean, empty air-tight container or in Phosphate Buffer Solution (PBS).	At least 3mm core.	Despatch immediately.
<b>Skin biopsy for IF</b>	Tissue in saline or PBS in a clean, air-tight container.	-	Otherwise transport in ice/gel-ice. Please submit separate piece of tissue in formalin for light microscopy.

<b>Cytopathology</b>			
<b>Gynae smears (Conventional)</b>	Smear onto labelled slides. Spray-fix immediately.	As collected.	Despatch immediately.
<b>Gynae smears (liquid-based)</b>	Collection vial containing fixative (can be collected from lab).		
<b>FNAC of any site - smears</b>	i) Smear onto labelled slides. Fix immediately (either immerse in 95% alcohol or spray-fix).	As collected.	Despatch immediately.
	ii) Smear onto labelled slides. Air-dry.		
<b>FNAC of any site – for cell block</b>	Place in cytolyt-containing tube.	As collected.	Despatch immediately.
<b>Brushing (eg Bronchial) - smears</b>	i) Smear onto labelled slides. Fix immediately (either immerse in 95% alcohol or spray-fix).	As collected.	Despatch immediately.
	ii) Smear onto labelled slides. Air-dry.		
<b>Brushing (eg Bronchial) – for cell block</b>	Place in cytolyt-containing tube.	As collected.	Despatch immediately.
<b>Sputum</b>	Sterile specimen container.	As collected.	
<b>Urine</b>	Sterile specimen container.		
<b>Other body fluids (eg ascitic fluid, pleural fluid etc)</b>	Sterile specimen container.		Despatch immediately. If delay is anticipated, refrigerate at 2-8°C.

# TURNAROUND TIME (TAT)

ITEM	TAT
<i>Uncomplicated urgent biopsies</i>	5 working days
<i>Complicated urgent biopsies and routine surgical specimen</i>	14 working days
<i>Frozen section</i>	30 minutes (per specimen) from time of arrival to the lab to verbal reporting
<i>Renal / Skin biopsy with immunofluorescence</i>	14 working days
<i>Gynae / Non - Gynae cytology:</i>	14 working days



# SPECIMEN REJECTION

NO REJECTION POLICY – ALL SPECIMENS ARE DEEMED PRECIOUS



EXCEPT:

No specimen

No name or IC No. (request form or specimen)

Unsuitable sample for HPE (eg. fluid, aspirate)

Major differences in name or IC No. (request form and container)

# RECTIFICATION CRITERIA

- For certain requests which do not fulfil the unit's requirements, the requester shall be contacted to rectify the request by filling in the rectification form.
- The specimen will only be processed following satisfactory corrective actions.
- Examples of cases which will require rectification include:
  - Specimens with no request form, inappropriate request form, damaged, or incompletely filled request forms.
  - Incorrectly labelled specimen container.
  - Discrepancy between details on request form and specimen container.
  - Inappropriate specimen container

- Specimens will be retained at the lab until rectification/clarification received from requesting health personnel
- Fill in a rectification form → inform requester → record details in rectification form
- Inform PPK/staff nurse → give original rectification form, specimen & request form to PPK/staff nurse to be given to the requester
- Once rectified → follow procedures for specimen reception

**RECTIFICATION FORM**

\*Please return this form after rectification has been made

Patient's Name : \_\_\_\_\_

Registration No. / MRN: \_\_\_\_\_

Patient's ID / NRIC : \_\_\_\_\_

Ward / Clinic : \_\_\_\_\_

Type of Specimen : \_\_\_\_\_

Test Request : \_\_\_\_\_

Date & Time Received : \_\_\_\_\_

Reason for Rectification : \_\_\_\_\_

\_\_\_\_\_

Informed By : \_\_\_\_\_

Date & Time Informed : \_\_\_\_\_

Informed to : PPK / Staff Nurse : \_\_\_\_\_

: Requestor : \_\_\_\_\_

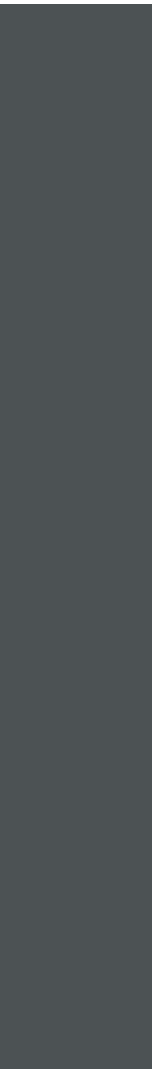
Corrective actions (to be filled by requester):

\_\_\_\_\_

Remark (to be filled by lab staff):

\_\_\_\_\_

Further details; kindly contact Anatomic Pathology Laboratory, UTM at 03 – 61265244 / 5053



## Ingredient for great patient care:

Pre-analytical phase – within clients' control

Correct specimen: type/location

Use correct preservative in correct amount

Accurate labelling

Good/ relevant clinical information

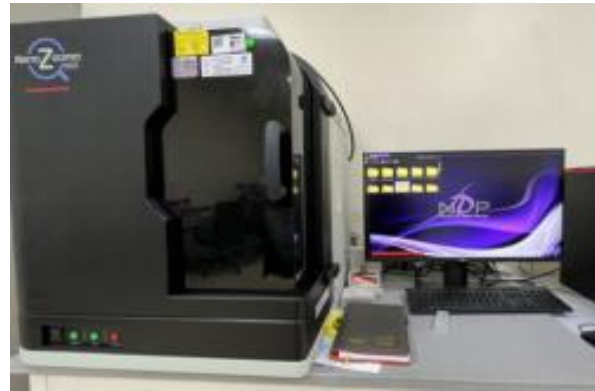
# HISTOPATHOLOGY LABORATORY





# CYTOPATHOLOGY LABORATORY

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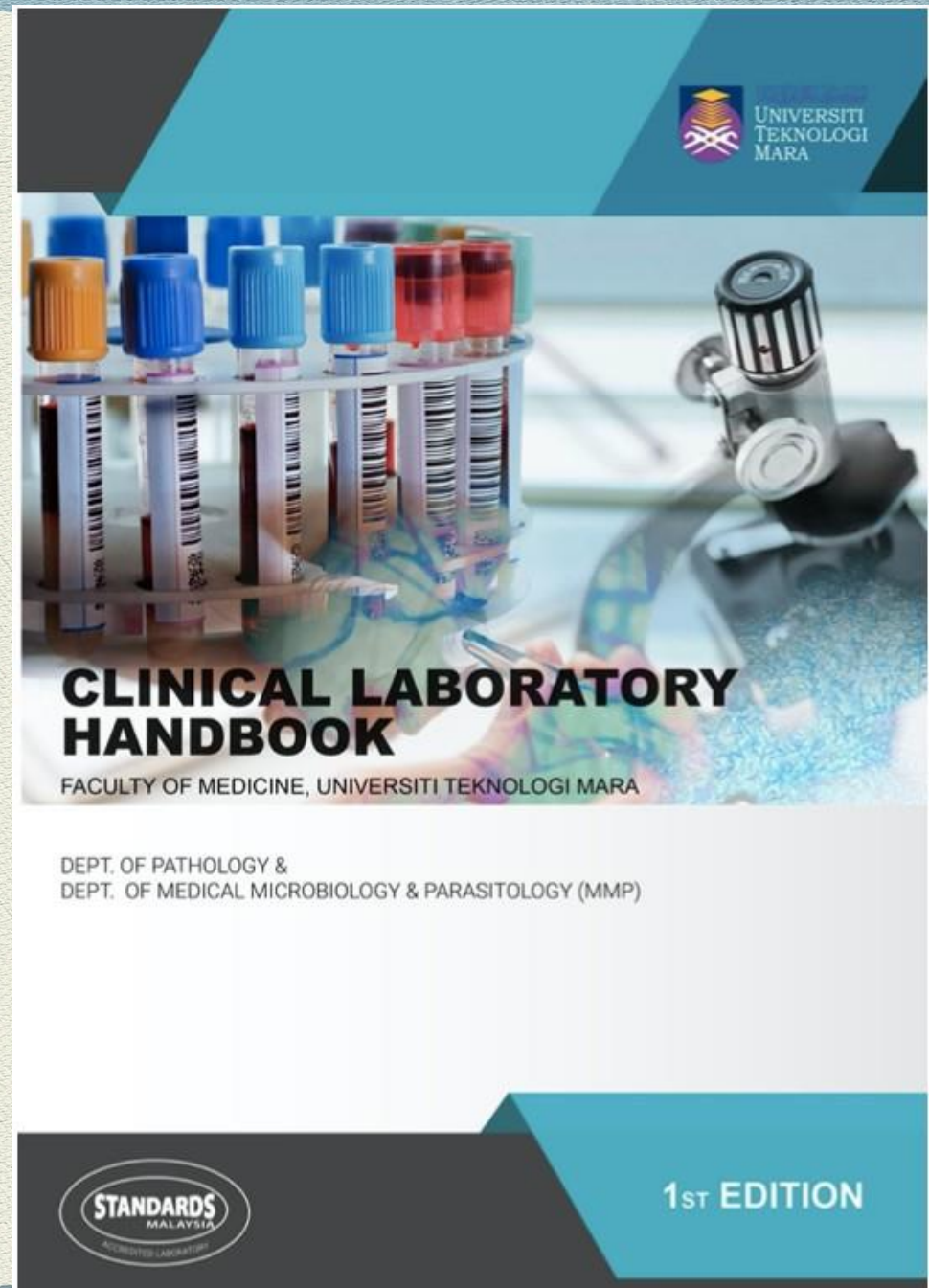
PUSAT PAKAR PERUBATAN UiTM





*REFERENCE:*

**Clinical Laboratory Handbook  
Faculty of Medicine UiTM (1st  
edition)**





THANK YOU!

# QUIZ!

**The following are the rectification criteria for specimens except:**

- A. Specimens with incompletely filled request forms**
- B. Incorrectly labelled specimen container**
- C. Concordant details on request form and specimen container**
- D. Inappropriate specimen container**