

# SPECIMEN HANDLING IN ANATOMIC PATHOLOGY

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Dept. of Clinical Diagnostic Laboratories, HUiTM

CES 1/2022

# SPECIALTY

## 1. HISTOPATHOLOGY

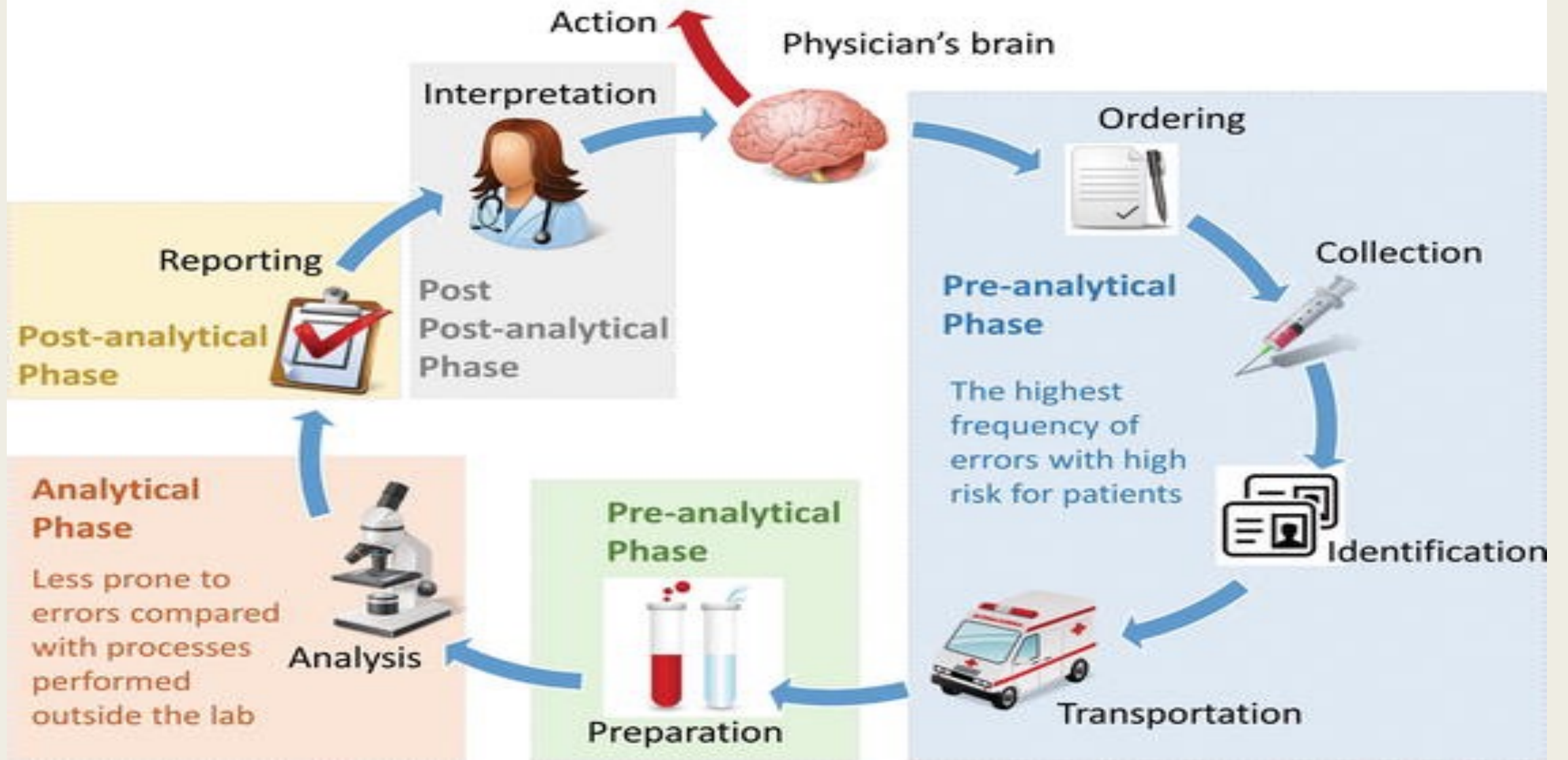
- Macroscopic and microscopic examination of tissues with interpretative diagnosis.
- Assessment of biopsies or specimens removed at surgery.
- Intraoperative frozen section consultation
- Ancillary services: histochemical, immunohistochemical and immunofluorescent stains.

## 2. CYTOPATHOLOGY

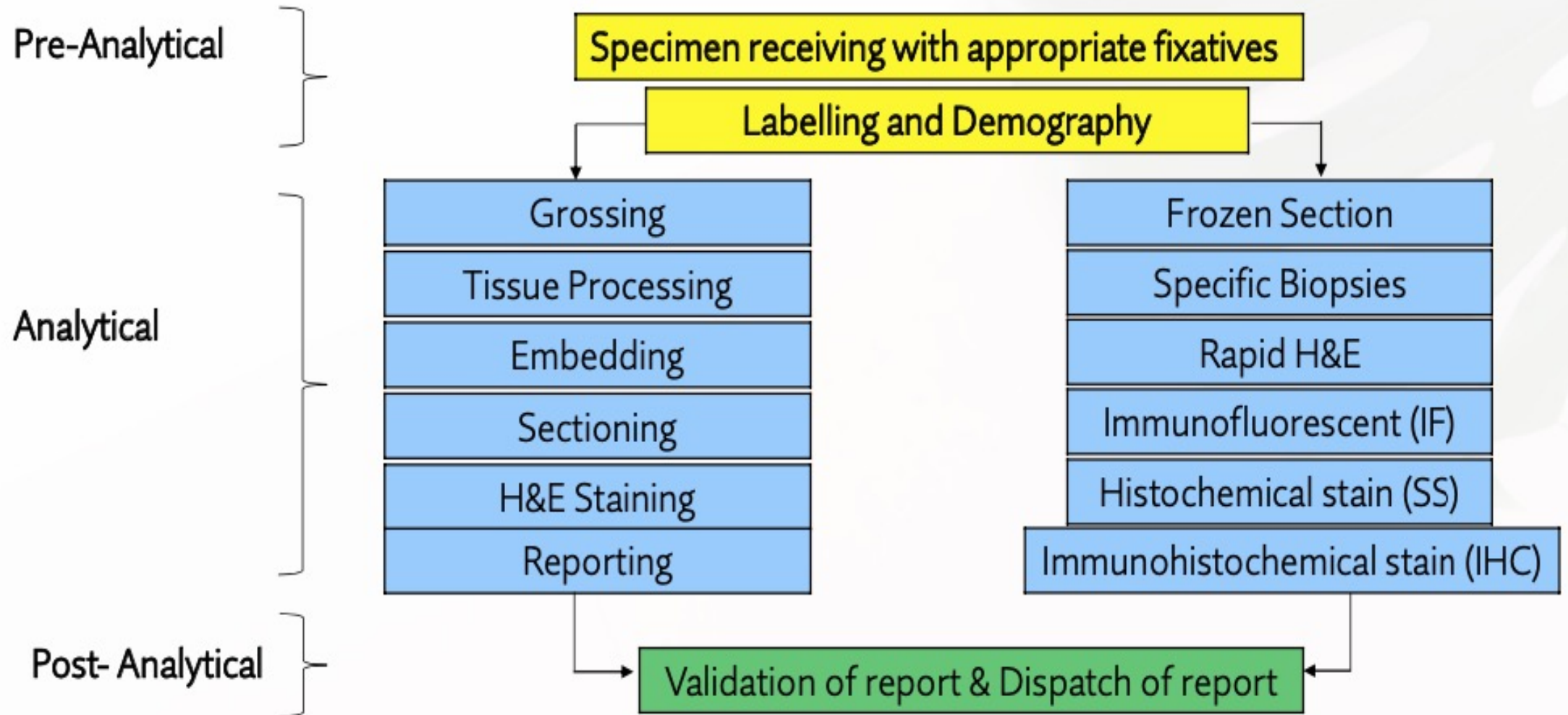
- Diagnostic and screening services based on the morphologic study of cells.
  - Gynae based cytology
  - Non-gynae based cytology – Fine needle aspiration cytology (FNAC), brushings and body fluid cytology.



# What is the Pre-analytical phase?



# WORKFLOW IN HISTOPATHOLOGY LABORATORY

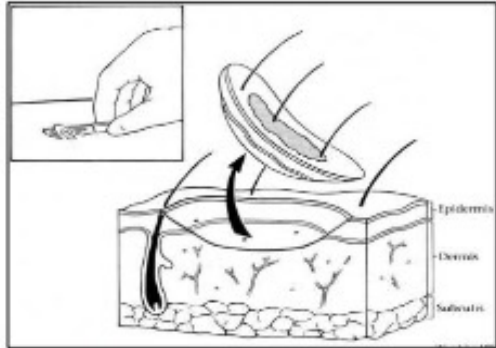


# TYPE OF SPECIMEN

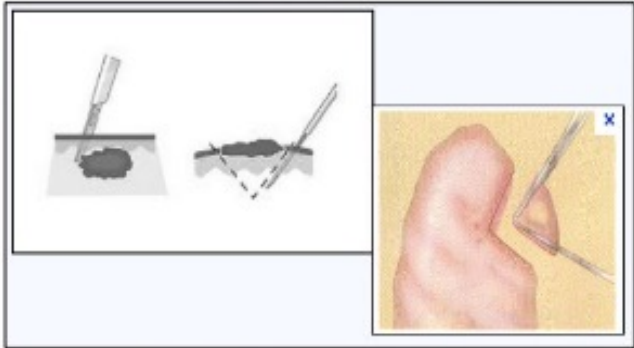
## Biopsies



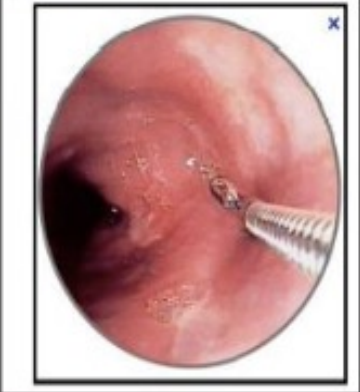
Core / tru-cut bx



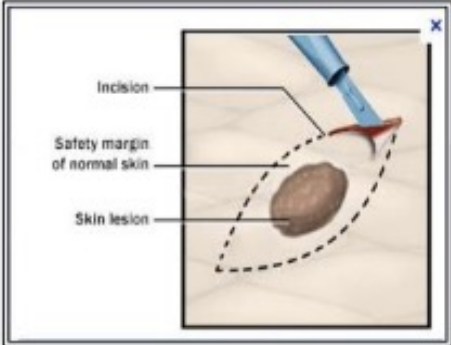
Shave bx



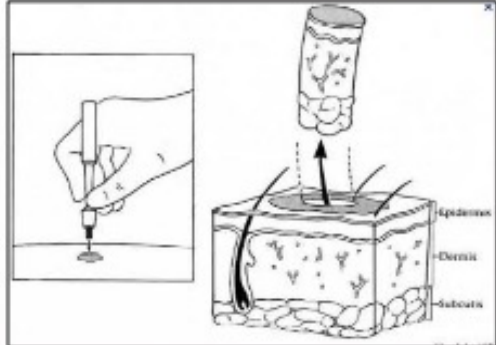
Wedge bx



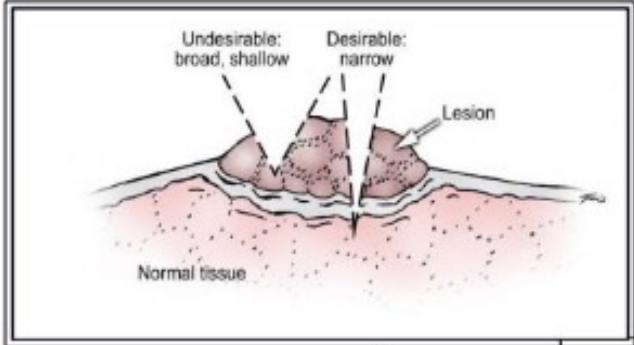
Endoscopic bx



Excisional bx



Punch bx



Incisional bx



## Surgical resection

Examples of resection specimen

- Mastectomy (usually with axillary lymph nodes)
- Colectomy
- Hysterectomy
- Prostatectomy
- Thyroidectomy



# ROUTINE SPECIMEN HANDLING

- Delivering a specimen to the pathology department involves many steps:
  - *Correctly identifying the patient.*
  - *Placing the specimen in an appropriate container and preservative.*
  - *Correctly labelling the specimen.*
  - *Complete the pathology request slip.*
  - *Transporting the specimen to the pathology department.*

# 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. The staff must be responsible to re-check the details on the specimen containers prior to dispatch.
- 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 immunofluorescence studies).
  - *The volume of formalin used should be at least **10 times** 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.

# Appropriate size of container



- 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.

- 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

Untitled Document

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

http://10.28.1.2/interface/forms/order/requestformnew\_c3.php?pi...  
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

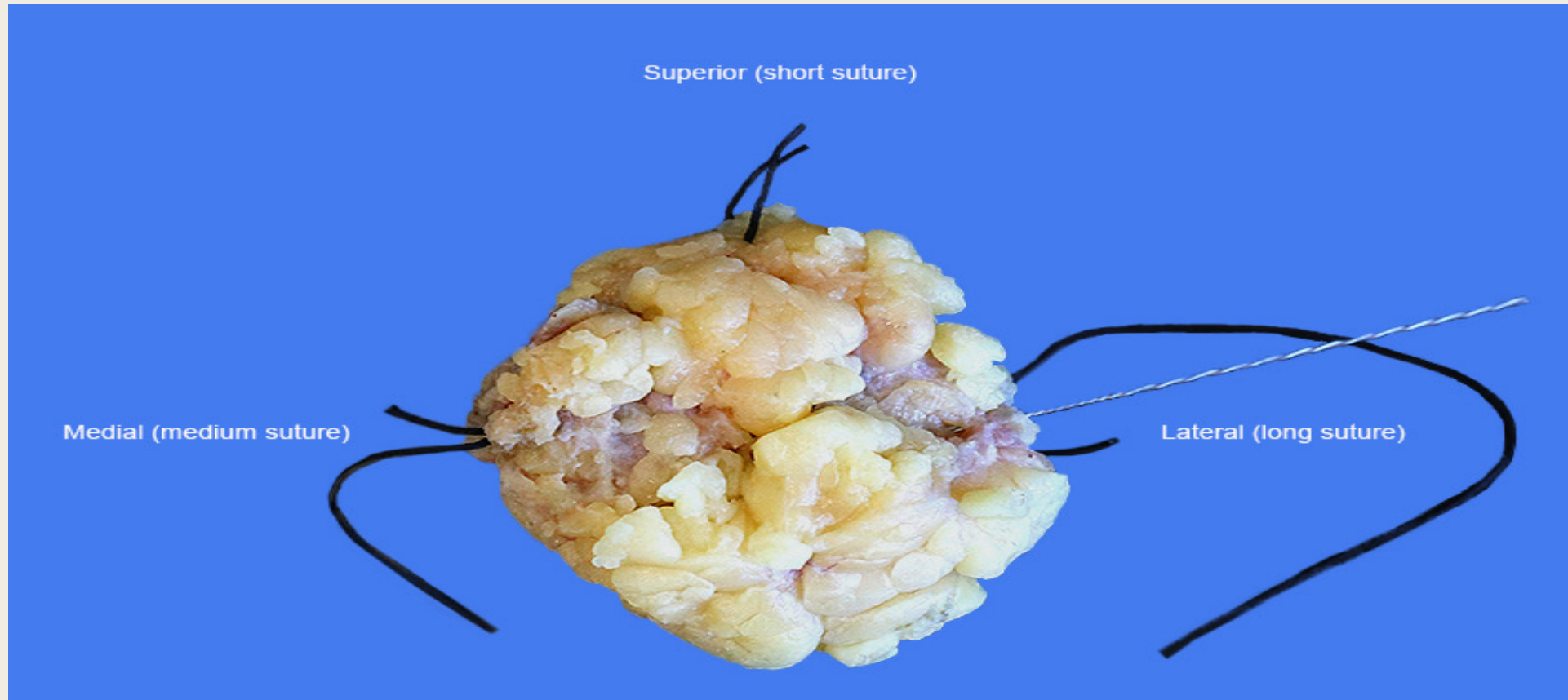
**Site :**  
N/A

**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

- 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.



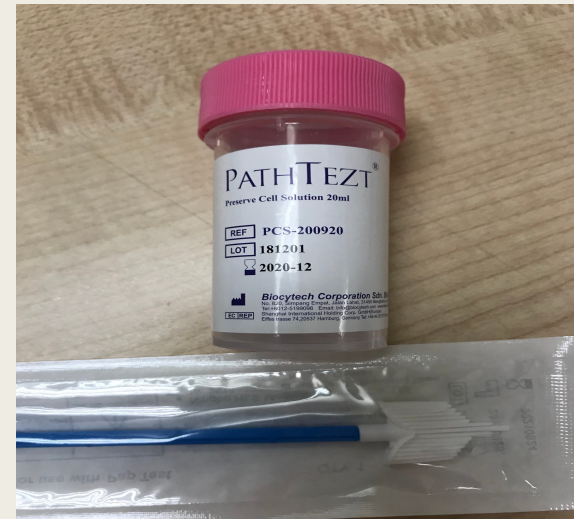


# FROZEN SECTION

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

- All frozen section requests must be discussed with the **surgical pathologist on-call** 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 completed 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 frozen section are best placed first in the operating list to ensure no disruption to the service.

# GYNAECOLOGY CYTOLOGY



## ***Liquid-based cytology:***

- Label the vial with patient's name and at least one other unique identifier.
- Avoid using lubricant on the speculum.
- Obtain an adequate sample from the cervix using an appropriate broom-like sample collection device.
- Rinse the broom in the vial containing fixative solution. Discard the collection device.
- Tighten the cap. Send the vial along with a completed request form to Anatomic Pathology reception counter, Level 1, UiTMSC (PPUiTM).
- The specimen collection kit may be collected from the Anatomic Pathology Unit, Level 1, UiTMSC (PPUiTM) Sg Buloh.

# NON-GYNAECOLOGY CYTOLOGY

- *Fine needle aspiration cytology (FNAC) and brushings*
  - *Spread aspirated / brushing material onto glass slides labelled in pencil with the patient's name and one other unique identifier (e.g NRIC, MRN no).*
  - *For alcohol-fixed smears, immediately immerse slides in 95% alcohol for at least 30 minutes or use spray-fixative.*
  - *For air-dried smears, leave the slides to air-dry.*
  - *For cell block preparation, place the aspirated material into cytolyt-containing tube. Label the container with patient details.*
  - *Send the slides / sample along with the completed request form to Anatomic Pathology reception counter, Level 1, UiTM SC (PPUiTM).*



## ■ Body fluid cytology

- Ascitic/peritoneal/pleural/pericardial fluid, bronchial washing and lavage, cerebrospinal fluid, cyst fluid:

- Collect in sterile universal container. Label with patient details. Despatch immediately.
- If delay is anticipated, refrigerate specimen at 2-8 °C.

- Sputum:

- The specimen should be obtained first thing in the morning, before the patient eats, drinks or cleans their teeth. Preferably the sample should be collected on three consecutive days.
- Instruct the patient to cough deeply and collect the sputum in a sterile universal container. Label with patient details. Despatch immediately.
- If delay is anticipated, refrigerate specimen at 2-8 °C.

- Urine:

- Collect mid-stream urine sample in a sterile universal container. Avoid submitting the first morning urine. Label with patient details. Despatch immediately.
- If delay is anticipated, refrigerate specimen 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 : \_\_\_\_\_  
 : Requester : \_\_\_\_\_

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

# REFERENCES

- **Clinical Laboratory Handbook Faculty of Medicine UiTM (1st edition)**
- **Quality Measures of Pre-Analytical Phase– MLT Sari Aspara Bakri**

# QUIZ

- Optimal specimen handling is essential for accurate tissue interpretation. Which of the following does NOT play a role in optimal specimen handling?
  - A. Ratio of volume of fixatives to specimen volume is 10:1.
  - B. Using small container size for large specimen.
  - C. All specimens are clearly labelled with proper identification.
  - D. Optimal duration of fixation is between 6 to 72 hours.

# QUIZ

- Optimal specimen handling is essential for accurate tissue interpretation. Which of the following does NOT make an optimal specimen handling?
  - A. Ratio of volume of fixatives to specimen volume is 10:1.
  - B. Using small container size for large specimen.**
  - C. All specimens are clearly labelled with proper identification.
  - D. Optimal duration of fixation is between 6 to 72 hours.