ANATOMIC PATHOLOGY LABORATORY WORKFLOW

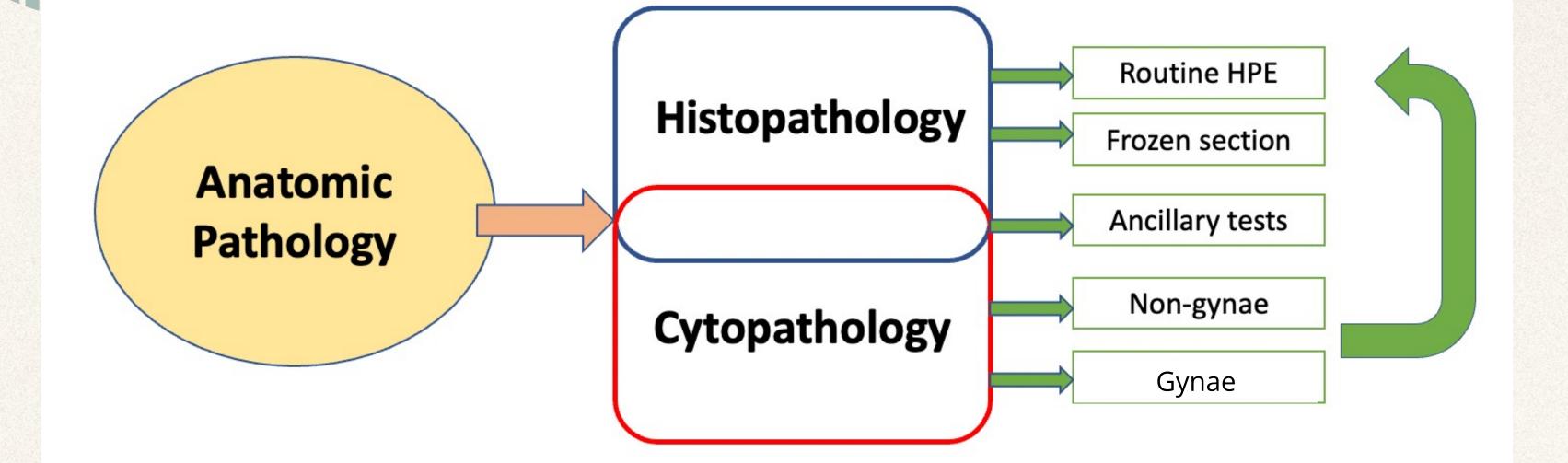
CUSTOMER EDUCATION SERIES 2-2023 18TH AUGUST 2023

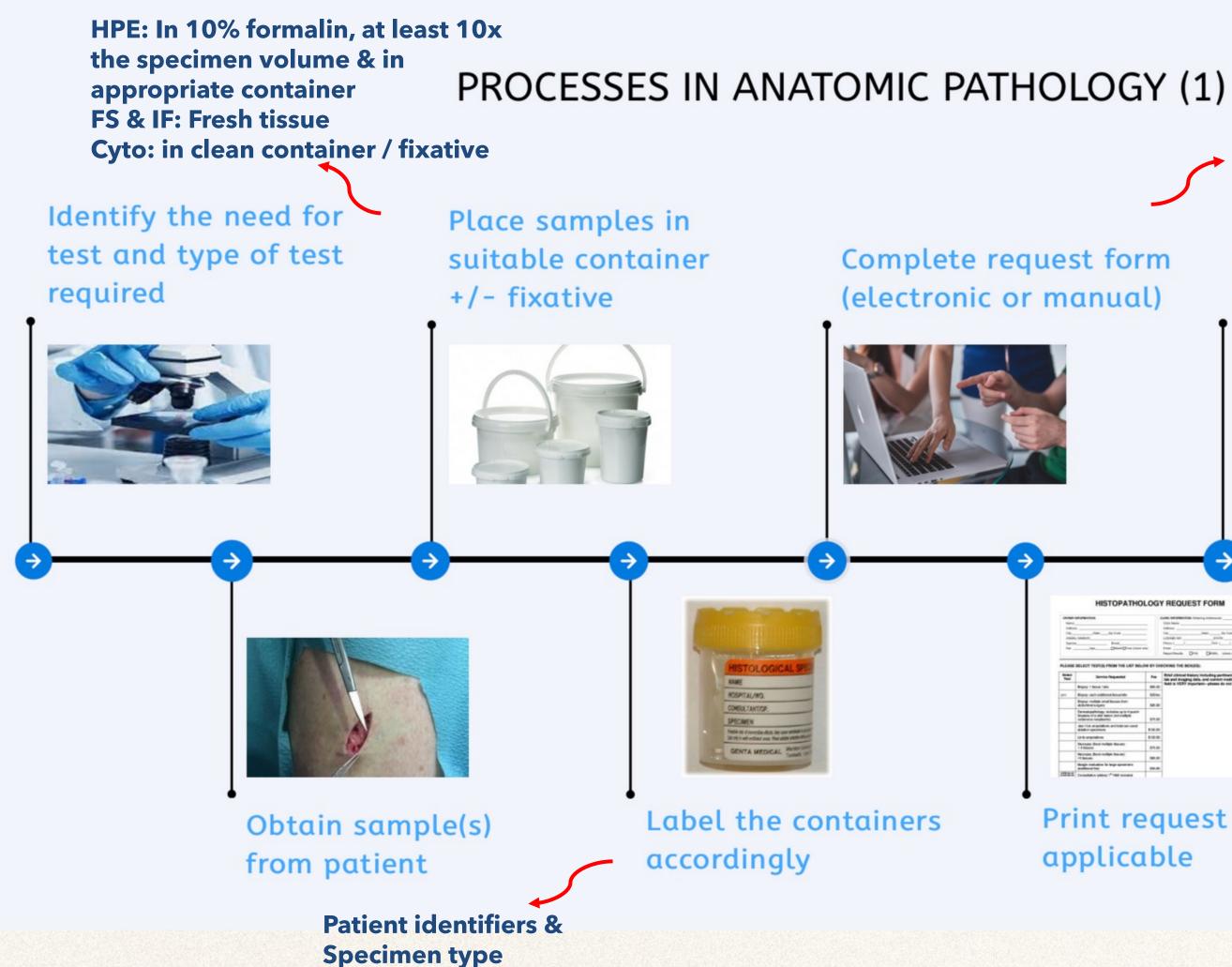


OUTLINE:

- Components of AP service •
- Overview of laboratory processes in Anatomic Pathology (AP) laboratory •
- Common pre-analytical errors in AP laboratory •
- **Rectification criteria** •
- General guide for optimal specimen preparation and test request •
- Turnaround time (TAT) •
- Critical notification •

COMPONENTS OF AN AP SERVICE





Helpful info includes contact number (if urgent/complex), imaging findings, prev patho reports etc)

Place specimen and request forms in proper packaging



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Print request form if applicable

Transport specimens to the laboratory



Receipt of specimen in the laboratory

PROCESSES IN ANATOMIC PATHOLOGY (2)

Allocation of specimen laboratory number Specimen preparation eg tissue sampling (HPE) or cytospin (cyto)



Macroscopic examination







Tissue processing (HPE) / Slide preparation (Cyto) **Overnight process**



Sectioning

PROCESSES IN ANATOMIC PATHOLOGY (3)



Report is despatched to requestor





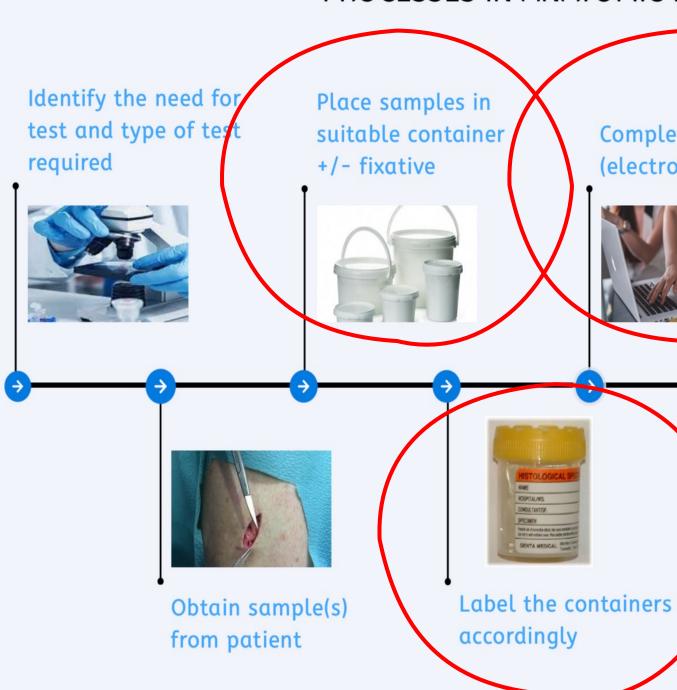
Specimen storage and disposal

Before specimen arrives to the lab

PRE-ANALYTICAL

ANALYTICAL

POST-ANALYTICAL



PROCESSES IN ANATOMIC PATHOLOGY (1)

Complete request form (electronic or manual)

Place specimen and request forms in proper packaging



Print request form it applicable



Transport specimens to the laboratory

RECTIFICATION CRITERIA

Specimens

- 1. No specimen(s) received
- 2. Wrong specimen(s) received
- 3. Incorrect number of specimens received
- 4. Inappropriate specimen container
- 5. Lack of, or wrong labelling of specimen(s)
- 6. Leaking specimen container
- 7. Specimen(s) do not tally with request form

- 1. No request form received
- 2. Wrong request form received
- 3. Request form torn / damaged / contaminated
- 4. Incomplete request form (demographic
 - details, requester's name etc)



Request Form

REQUEST FOR TESTS



ROUTINE HPE

- Diagnostic
- Small biopsies, small and large resections and excisions
- Tissue pieces obtained from cytology
- Cell blocks from cytology
- Residual tissue from frozen section specimens
- Formalin-fixed

FROZEN SECTION

- For intraoperative consultation requiring rapid communication
- Certain ancillary eg immunofluorescence
- Fresh tissue
- NOT for primary dx!

CYTOLOGY

- Diagnostic
- Material for ancillary tests
- ROSE

REFERRED MATERIAL

- Second opinion
- MDT/CPC
- Stained / unstained slides or paraffin block

ANCILLARY

- Special stains, immunohistochemical stains, molecular tests etc
- To supplement morphological interpretation
- Subtyping of tissue / tumour
- Predict response to therapy

REQUEST FORM

- The required test
- Patient details & identifiers •
- Relevant clinical history
- Differential / working diagnosis
- Any specific queries
- The (surgical) procedure performed
- Type of specimen removed
- Tissue orientation* including laterality
- Name of requester & location
- Urgent vs routine

- requests or frozen section)
- accepted if fresh)
- Previous pathology reports
- structures etc
- be most welcome
- •

*Sutures, text descriptions, images or personally orientating the specimen to the pathologist

• Contact number of PIC (especially for urgent

• ?Specific hazard eg infectious* (not

Imaging reports / details: eg one vs multiple

nodules, location, size, relationship to

Prior discussion with the pathologist would

Beware of service hours (eg FS)

| | | | | | | | | n.edu.my/interface/forms/order/reques |
|--|--|--|---|---|--|--|--|---|
| | | LABORATORIES DEPARTMENT LEVEL 1, HOSPITAL UITM uncak Alam, Selangor Darul Ehsan Phone: 03-3396 3000 | UNIVERSIT | GI | URGEN | | NICAL DIAGNOSTIC LABORATORI LEVEL 1, HOSPITAL AL-SU University | ES DEPARTMENT LTAN ABDULLAH iti Teknologi MARA angor Darul Ehsan one: 03-3396 3000 spital.uitm.edu.my |
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| IRN : • | | Phone No Date of Admission / Clinic Appointment | : 0192293766 : | Age Race | : Soy smooth | * | Requested By Ordered Date/Time Consultant in Charge | : 09-08-2023 12:04 |
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For multiple specimens, please select multiple specimens during order entry in UniMEDS

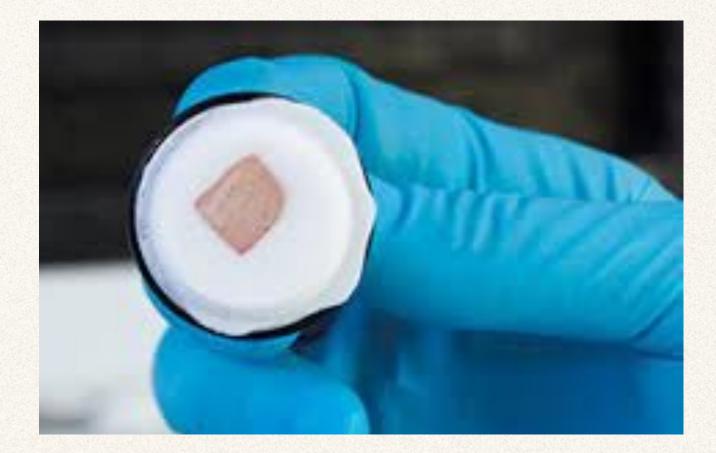
SPECIMEN

- Identify the type of specimen suitable for the requested test
- Orientate the specimen (eg with sutures) to be detailed in the form
- Place specimen in appropriate fixative (or send fresh)
- Appropriate container size, sealable, leakproof
- Label the container at least name and one other unique identifier and specimen type
- Close and seal
- ?Any particular hazard

| | CONTAINE | ER | |
|----------|----------|----|--|
| NAVE | | | |
| SPECIMEN | | | |
| SENDER | | | |
| DATE | TIME | | |
| BRTHDATE | | | |

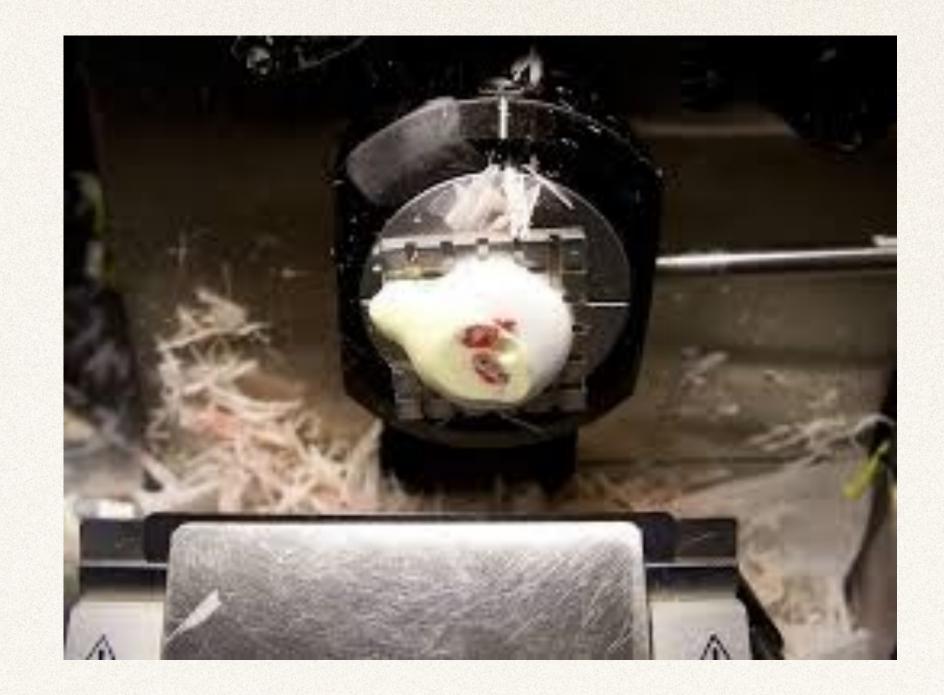




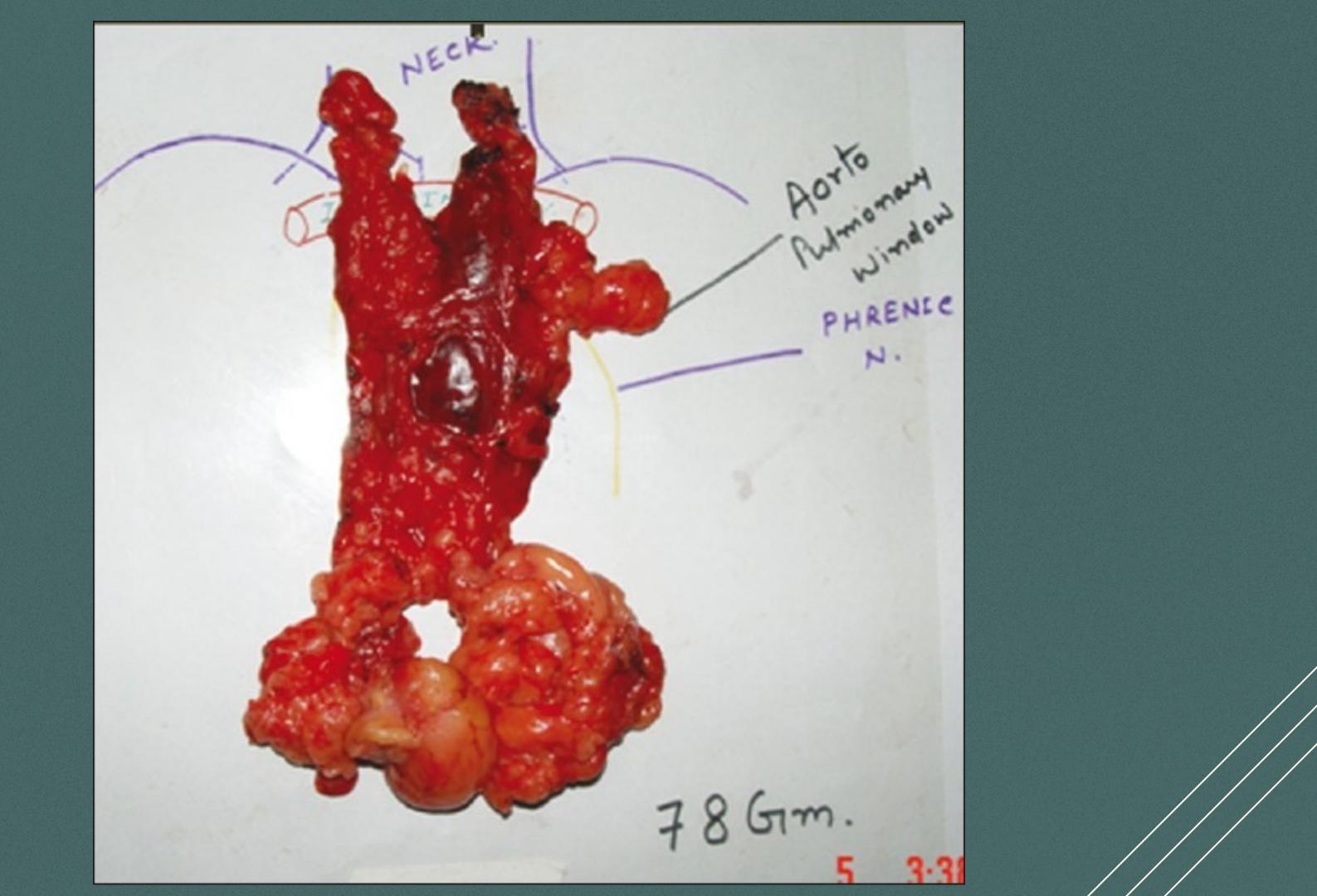


- Fresh tissue, without preservative, in a closed container
- Small size
- Must be pre-booked
- Must have contact number provided
- DO NOT send infectious material!
- Best to schedule the op first on the list

FROZEN SECTION



| STERILE | CONTAI | NER |
|------------|--------|------|
| INVE | | |
| SPECIMEN | | |
| SENDER | | _ |
| DATE | TIME | |
| BRTHDATE | | 1000 |
| SURGIPACK' | | E |



CYTOLOGY - GENERAL PRINCIPLES

- Sterile containers
- Prepare as fresh as possible
- Optimal amount of effusion is 25mls
- Can include tissue pieces (will be extracted for examination)
- Brushings can be either alcohol-fixed smears or in liquid-based medium. Rinse brush in normal saline to maximize cell yield
- Cyst submit entire content
- Sputum first thing in the morning (before brushing the teeth or breakfast)
- Scrapings should be spread onto glass slides and fixed
- Separate specimens meant for other disciplines (eg microb testing, clinical chemistry etc)



| Histopathology | | | | |
|-------------------------------------|--|---|--|--|
| Specimen type | Container | Sample | Remarks | |
| | | Volume / size | | |
| | Appropriate-sized, leak-proof | - | This is to ensure proper | |
| | container. Place in 10% formalin (at | | fixation of the | |
| | least 10x volume of sample). | | specimen. | |
| Frozen section | Clean, empty air-tight container. | - | Despatch immediately. | |
| | | | Description distants | |
| | Clean, empty air-tight container or in Phosphate Buffer Solution (PBS). | | Despatch immediately. Otherwise, transport in | |
| | | | ice/gel-ice. | |
| Skin biopsy for IF | Tissue in saline or PBS in a clean, air- | | Please submit a separate | |
| | tight container. | | piece of tissue in formalin for | |
| Cytopathology | | | | |
| Cytopathology | | | | |
| Gynae Gynae | | | | |
| Specimen type | Container | Sample | Remarks | |
| 0 | O seconda la balla di all'idea. Orana i fiu | Volume / size | | |
| Gynae smears | Smear onto labelled slides. Spray-fix |] | | |
| (Conventional) | immediately. | , , | | |
| | | As collected. | Despatch immediately. | |
| Gynae smears (liquid- | Collection vial containing fixative (can |] | | |
| based) | be collected from the lab). |] | | |
| FNAC | | | | |
| Specimen type | Container | Sample | Remarks | |
| opecimen type | Container | Volume /size | | |
| | | Volume /Size | | |
| | Smear onto labelled slides. | The minimum | | |
| | For alcohol fixation (wet-fixed), fix | number of slides to | | |
| FNAC of any site | immediately by either immersing in | be submitted | Despatch immediately. | |
| (smears) | 95% alcohol or spray-fix. | depends on sample types; as outlined | | |
| | For air-dried slide, leave to air-dry. | below. | | |
| ENAC of any site (for | Diago conjusted material and needle | | Deepetab immediately | |
| FNAC of any site – (for cell block) | Place aspirated material and needle washing in cytolyt-containing tube. | As collected. | Despatch immediately. | |
| | | | | |

| Specimen type | Container | Sample | |
|--|---|---|---|
| | | Volume / size | |
| Bronchoalveolar lavage (BAL) | Sterile specimen container (in saline). | Minimum 5mls. The optimal volume is 20mls. | Ke at De sa du |
| Brushing (e.g. EBUS, EUS) - smears | Smear onto labelled slides. For alcohol fixation, fix immediately by either immersing in 95% alcohol or spray-fix. For air-dried slide, leave to air-dry. | As collected. | RC op De |
| Brushing (e.g. EBUS, EUS) – for cellblock | Place in cytolyt-containing tube. | As collected. | De |
| Serous fluid (eg Pericardial, Peritoneal, Pleural) | Sterile specimen container. | The minimum volume of 75mls (for large volume collection and washings) | As sho |
| Sputum | Sterile specimen container. | As collected. The entire amount of expectorated sample should be submitted. Multiple samples (x3) may be needed, but they should be taken on 3 separate days. | Sho pat bro For foll with bef or I |

Remarks

Keep fresh specimen in saline at 4°C.

Despatch immediately (on the same day) with ice packing during transportation.

ROSE service is provided for optimal sampling.

Despatch immediately.

Despatch immediately.

s much fluid as possible hould be sent for evaluation.

hould only be taken where atients are unfit for ronchoscopy.

or best results obtain sputum ollowing chest physiotherapy, vith an early morning sample efore the patient has eaten r brushed teeth.

STORAGE AND TRANSPORT

GENERAL PRINCIPLES

- Transport ASAP especially fresh and cytology specimens
- If delay is expected (for fresh/cyto specimens), keep in fridge*.
- Specimens in fixative will be stable
- Safe transport (eg manual; not using pneumatic tube)
- Proper packaging
- Record of despatch and receipt in lab
- Sender/requester to be contactable if required (for rectification if there are errors)
- Refer handbook

SPECIMEN RECEPTION



WHERE & WHEN TO SEND AP **SPECIMENS?**

- Lab is currently fully in HASA, 1st floor
- Specimens in PPUiTM Sg Buloh to be sent to Main Specimen Reception (MSR), Level 1 CTC \rightarrow will be transported to HASA
- AP reception operates 8am 5pm Monday Friday (excluding public holidays)
 - Particularly important for cytology/fresh specimens (refer to previous slide)

ADDITIONAL REQUESTS



WHAT REQUESTS?

- Ancillary tests
- Discussions
- MDT/CPC
- Diagnostic material for referrals to other institutions

WHY AND WHEN?

- Initiated by pathologist or clinician
- Diagnostic vs prognostic vs predictive
- Applicable to HPE & cyto specimens

HOW?

Refer handbook / guidebook
Discuss on case-by-case basis
Specific request form to be completed

TURNAROUND TIME

| CATEGORIES | |
|---|-------------|
| Uncomplicated urgent biopsies | |
| Complicated urgent biopsies and routine surgical specimen | |
| Frozen section | 30 m arr |
| Renal / Skin biopsy with immunofluorescence | |
| Gynaecological / | |
| Non - Gynaecological cytology: | |

TAT

5 working days

14 working days

minutes (per specimen) from time of arrival to the lab to verbal reporting

14 working days

14 working days

CRITICAL RESULTS NOTIFICATION

Cases with immediate clinical significance that require urgent action or unexpected diagnoses

Examples:

- Unexpected malignancy*
- Wrong organ removed
- Fat in endometrial curettage or colon biopsy
- Infection in unusual sites
- Crescents in >50% of glomeruli in a renal biopsy

SUMMARY

- Components of AP service
- Overview of laboratory processes in Anatomic Pathology (AP) laboratory
- Common pre-analytical errors in AP laboratory
- **Rectification criteria**
- General guide for optimal specimen preparation and test request
- Turnaround time (TAT)
- Critical result notification

QUESTION 1

Pre-analytical steps in Anatomic Pathology processes include:

| А. | Ordering of tests. |
|----|------------------------------------|
| В. | Grossing of specimen. |
| C. | Microscopic examination of slides. |
| D. | Specimen disposal. |



QUESTION 2

The following non-conformances will require rectification by the requester, EXCEPT:

| Α. | Absence of a label on the specimen contai |
|----|--|
| | |
| Β. | Incomplete request form. |
| | |
| С. | Lack of requester's name on request form |
| | |
| D. | Typographical error in histopathology repo |
| | |

iner.

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ort.

CUSTOMER EDUCATION SERIES (CES 2/2023)



DEPARTMENT OF CLINICAL DIAGNOSTIC LABORATORY, HASA

THANK YOU

18 August 2023 10.00 am – 12.00 pm Bilik Persidangan 2, Level 2