

Overview of Anatomic Pathology Services

CUSTOMER EDUCATION SERIES 1-2024
15th March 2024



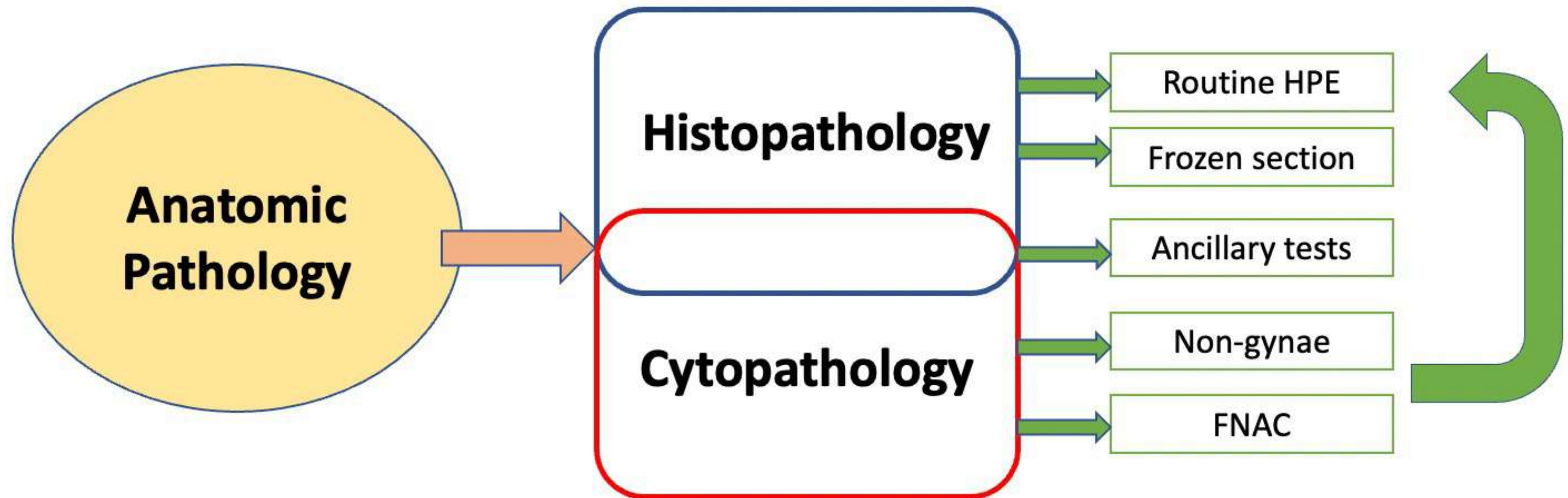


7 PATHOLOGISTS, 2 SCIENCE OFFICERS AND 15 MLTs

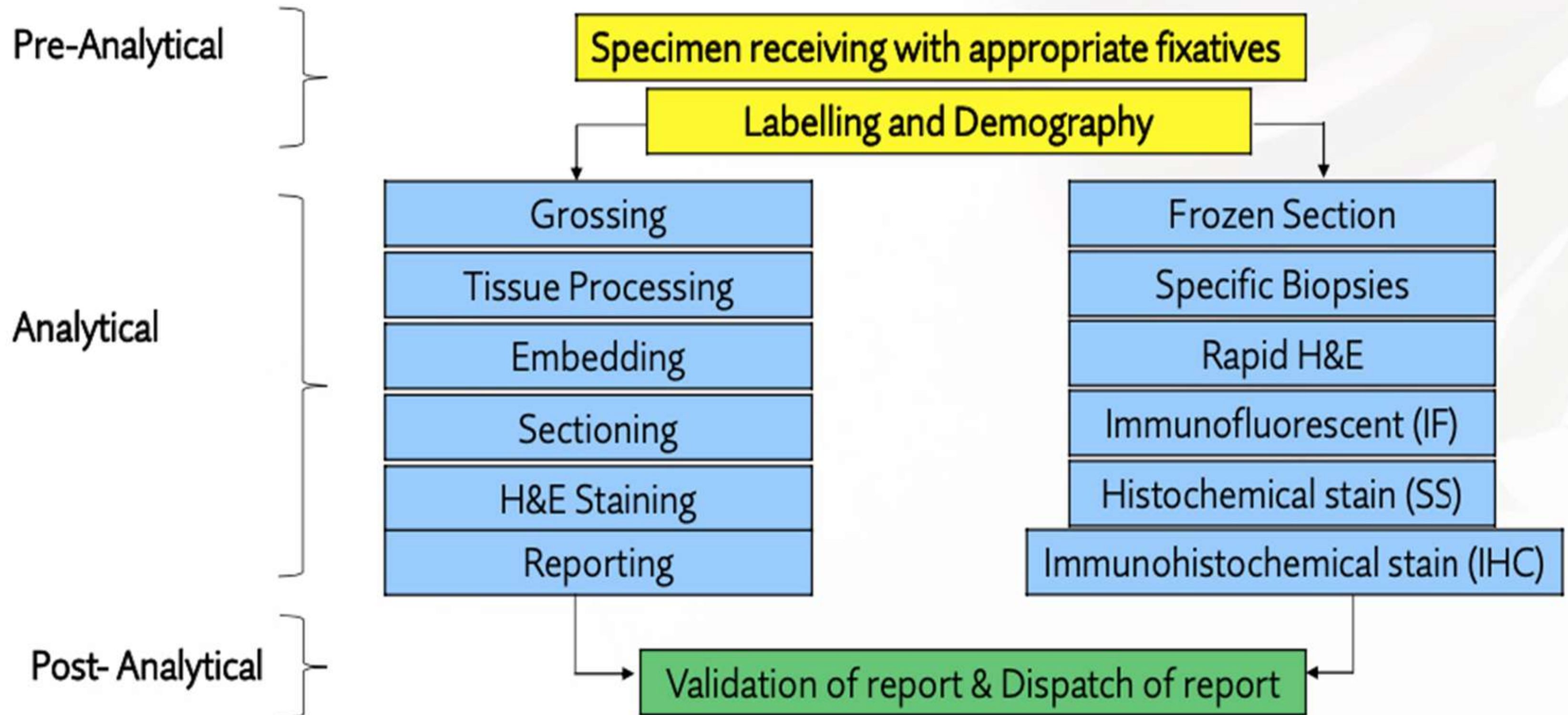
Outline

- Components of Anatomic Pathology (AP) service
- Overview of laboratory processes in 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.

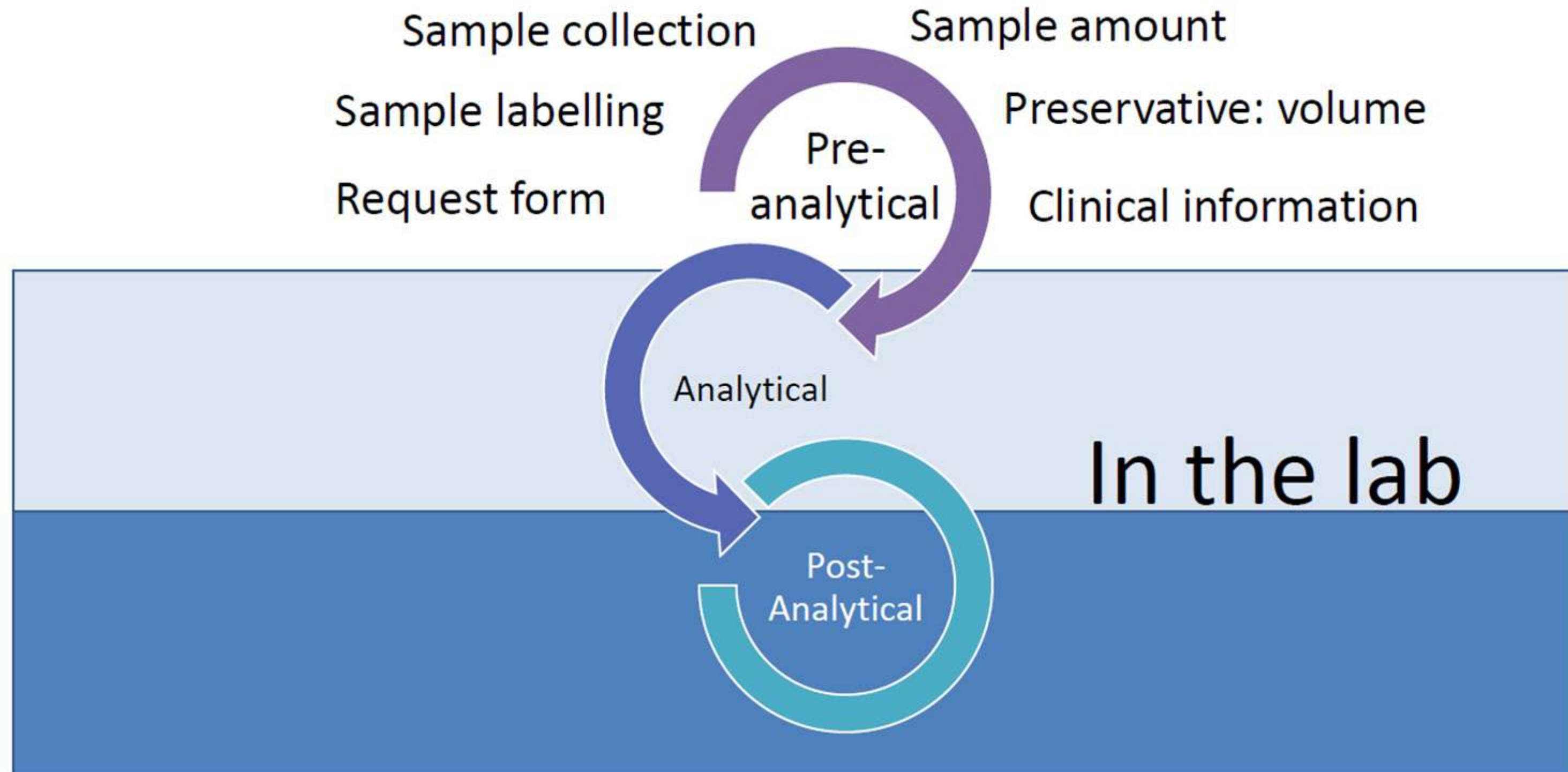
Components of AP Service



WORKFLOW IN AP LAB

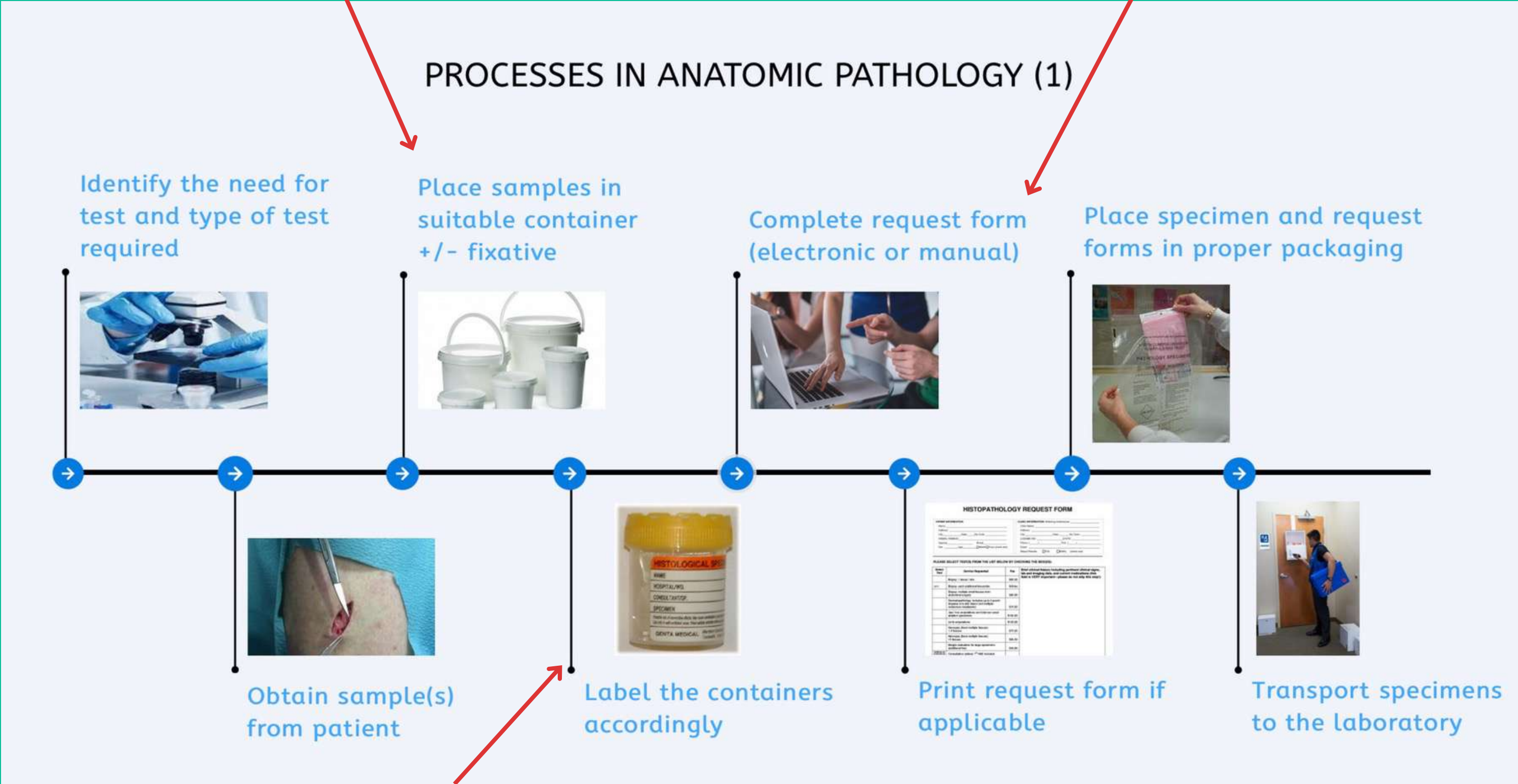


WORKFLOW IN AP LAB



HPE: In 10% formalin, at least 10x the specimen volume & in an appropriate container
FS & IF: Fresh tissue
Cyto: in clean container / fixative

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

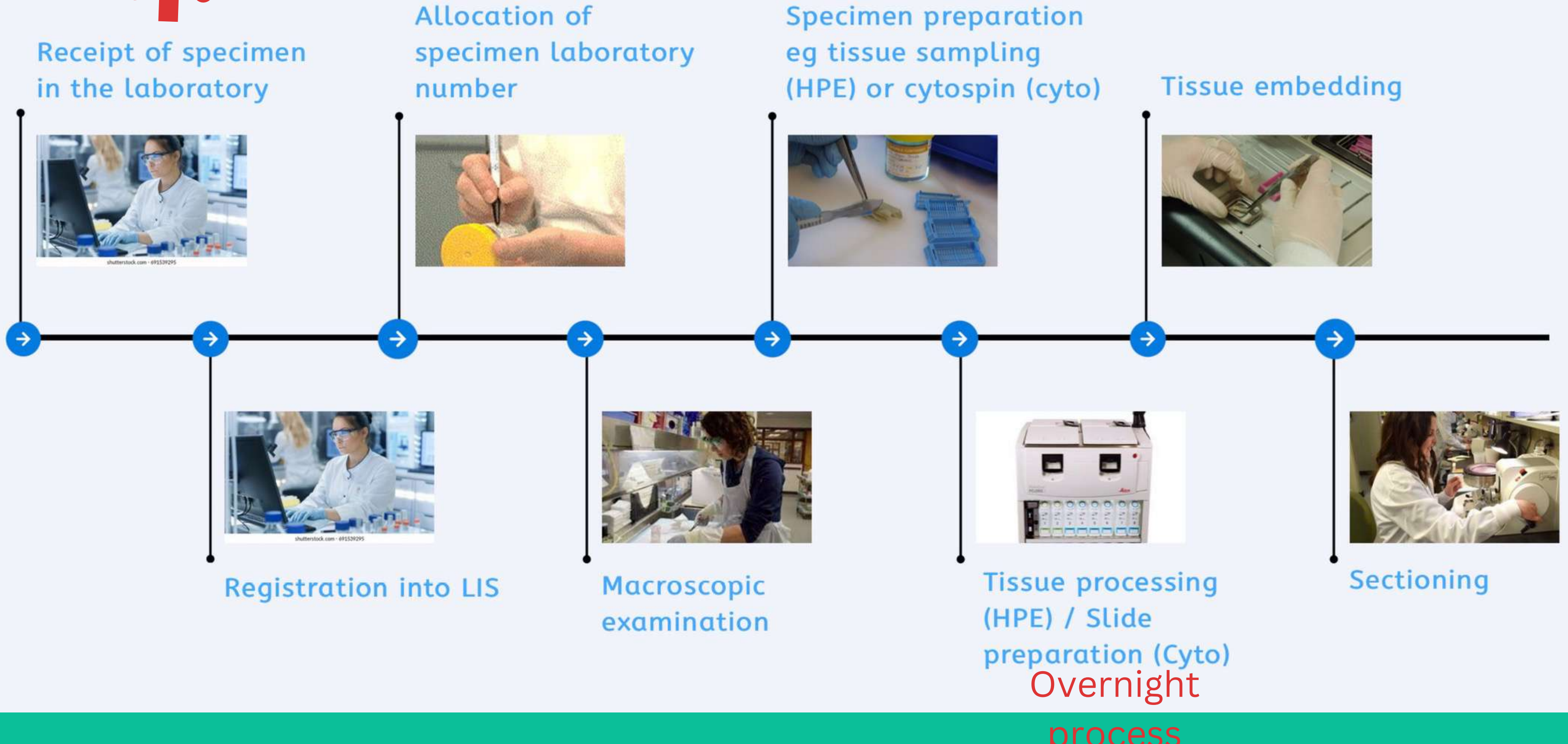


Patient identifiers & Specimen type

RECTIFICATION



PROCESSES IN ANATOMIC PATHOLOGY (2)



PROCESSES IN ANATOMIC PATHOLOGY (3)



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

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 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!

REFERRED MATERIAL

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

CYTOLOGY

- Diagnostic
- Material for ancillary tests
- ROSE

ANCILLARY

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

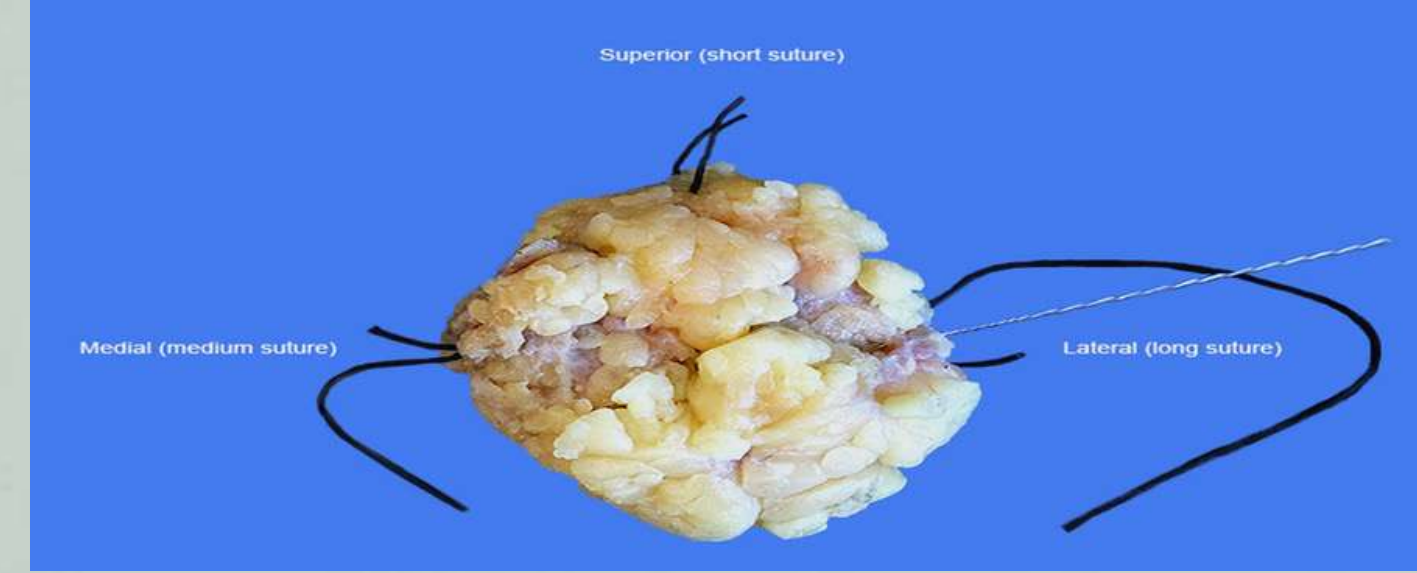
REQUEST FORM

- 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
- Contact number of PIC (especially for urgent requests or frozen section)
- ?Specific hazard eg infectious* (not accepted if fresh)
- Previous pathology reports
- Imaging reports / details: eg one vs multiple nodules, location, size, relationship to structures etc
- Prior discussion with the pathologist would be most welcome
- Beware of service hours (eg FS)

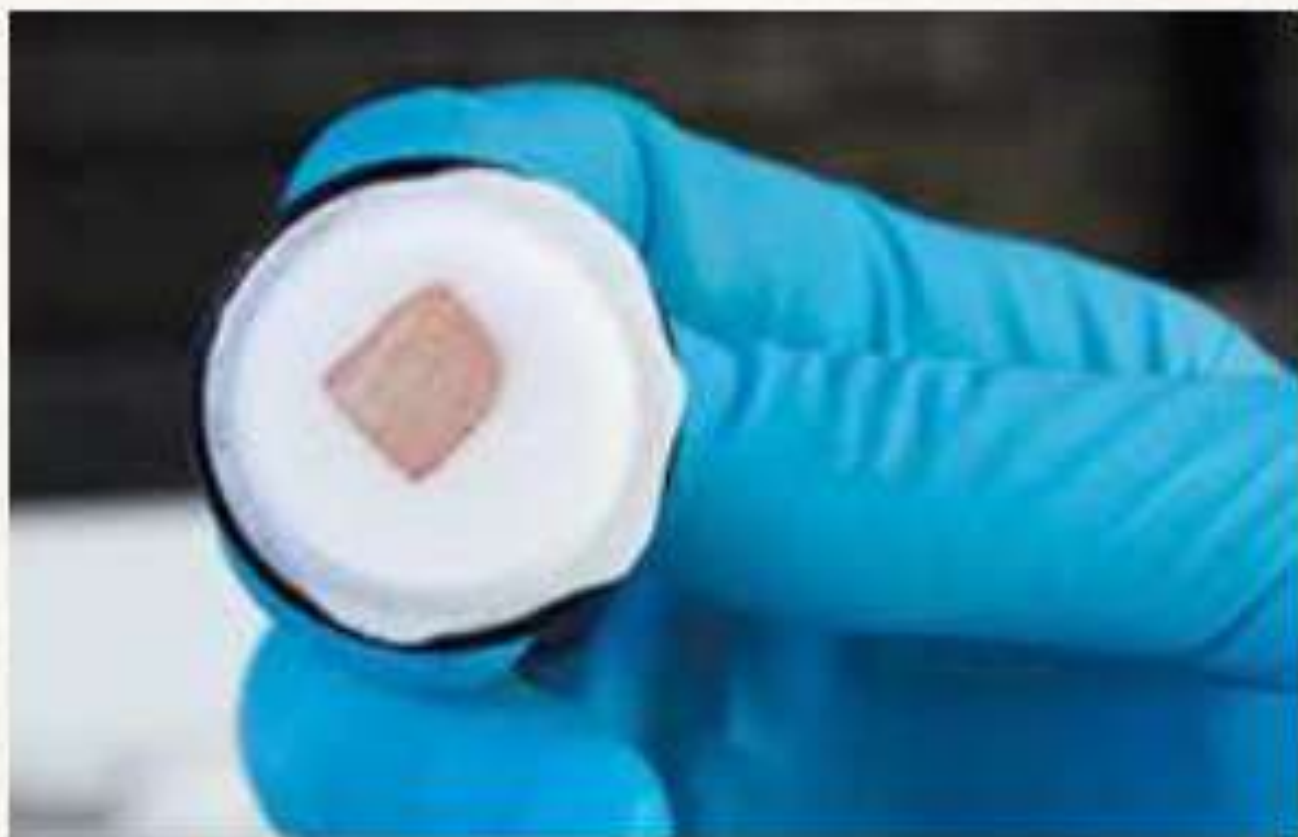
**Sutures, text descriptions, images or personally orientating the specimen to the pathologist*

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

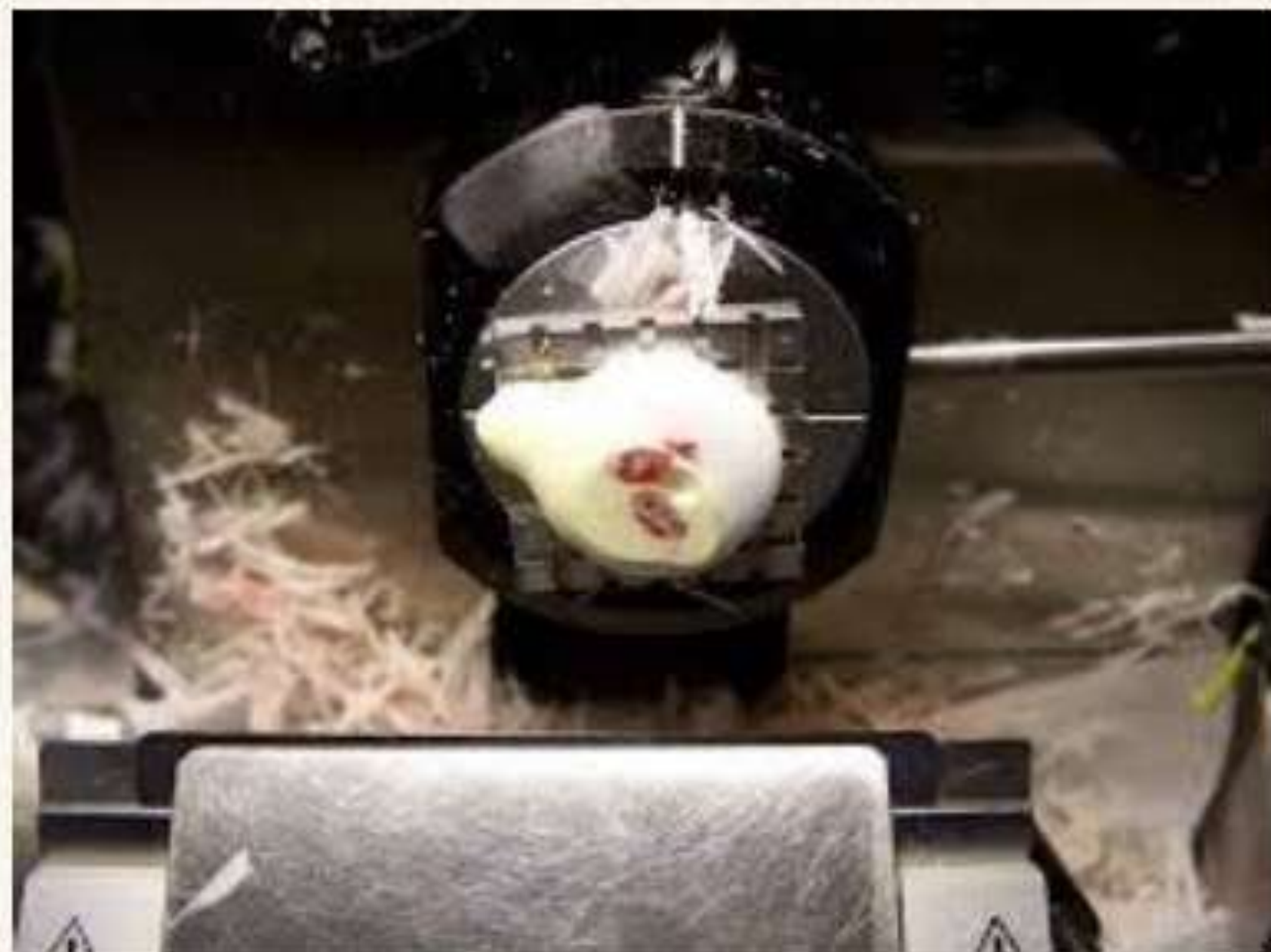


Histopathology			
Routine HPE examination	Appropriate-sized, leak-proof container. Place in 10% formalin (at least 10x volume of sample).	-	This is to ensure proper fixation of specimen.
Frozen section	Clean, empty air tight container.	-	Despatch immediately.
Renal biopsy for IF	Clean, empty air-tight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



- 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



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)

Cytopathology			
Gynae smears (Conventional)	Smear onto labelled slides. Spray-fix immediately.	As collected.	Despatch immediately.
Gynae smears (liquid-based)	Collection vial containing fixative (can be collected from lab).		
FNAC of any site - smears	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.		
FNAC of any site – for cell block	Place in cytolyt-containing tube.	As collected.	Despatch immediately.
Sputum	Sterile specimen container.	As collected.	
Urine	Sterile specimen container.		
Other body fluids (eg ascitic fluid, pleural fluid etc)	Sterile specimen container.		Despatch immediately. If delay is anticipated, refrigerate at 2-8°C.

Specimen type	Container	Sample Volume / size	Remarks
Bronchoalveolar lavage (BAL)	Sterile specimen container (in saline).	Minimum 5mls. The optimal volume is 20mls.	Keep fresh specimen in saline at 4°C. Despatch immediately (on the same day) with ice packing during transportation.
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.	ROSE service is provided for optimal sampling. Despatch immediately.
Brushing (e.g. EBUS, EUS) – for cellblock	Place in cytolyt-containing tube.	As collected.	Despatch immediately.
Serous fluid (eg Pericardial, Peritoneal, Pleural)	Sterile specimen container.	The minimum volume of 75mls (for large volume collection and washings)	As much fluid as possible should be sent for evaluation.
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.	Should only be taken where patients are unfit for bronchoscopy. For best results obtain sputum following chest physiotherapy, with an early morning sample before the patient has eaten or 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 → 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	TAT
Uncomplicated urgent biopsies	5 working days
Complicated urgent biopsies and routine surgical specimen	14 working days
Frozen section	30 minutes (per specimen) from time of arrival to the lab to verbal reporting
Renal / Skin biopsy with immunofluorescence	14 working days
Gynaecological / Non - Gynaecological cytology:	14 working days

CRITICAL RESULTS NOTIFICATION

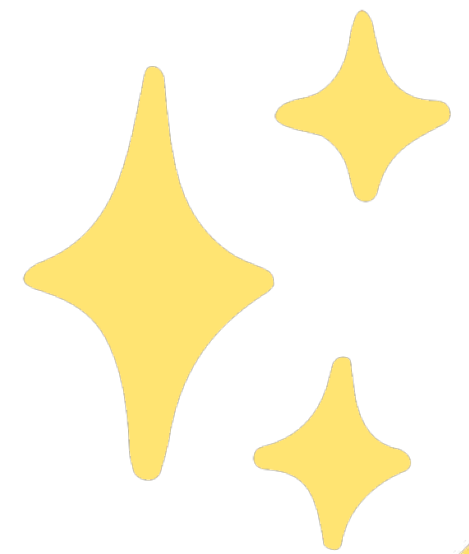
Cases with immediate clinical significance that require urgent action or unexpected diagnoses

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

Quiz Time

Time to test your knowledge!



QUESTION 1

The following are pre-analytical steps in Anatomic Pathology processes except:

- A Ordering of tests**
- B Sample collection**
- C Sample labelling**
- D Grossing of specimen**

QUESTION 2

For cytology specimens taken after office hours and on weekends, the specimen should be

A**sent to the lab immediately****B****sent to the lab within 24 hours****C****placed in a fridge and then sent to the lab immediately during office hours****D****discarded.**

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THANK YOU