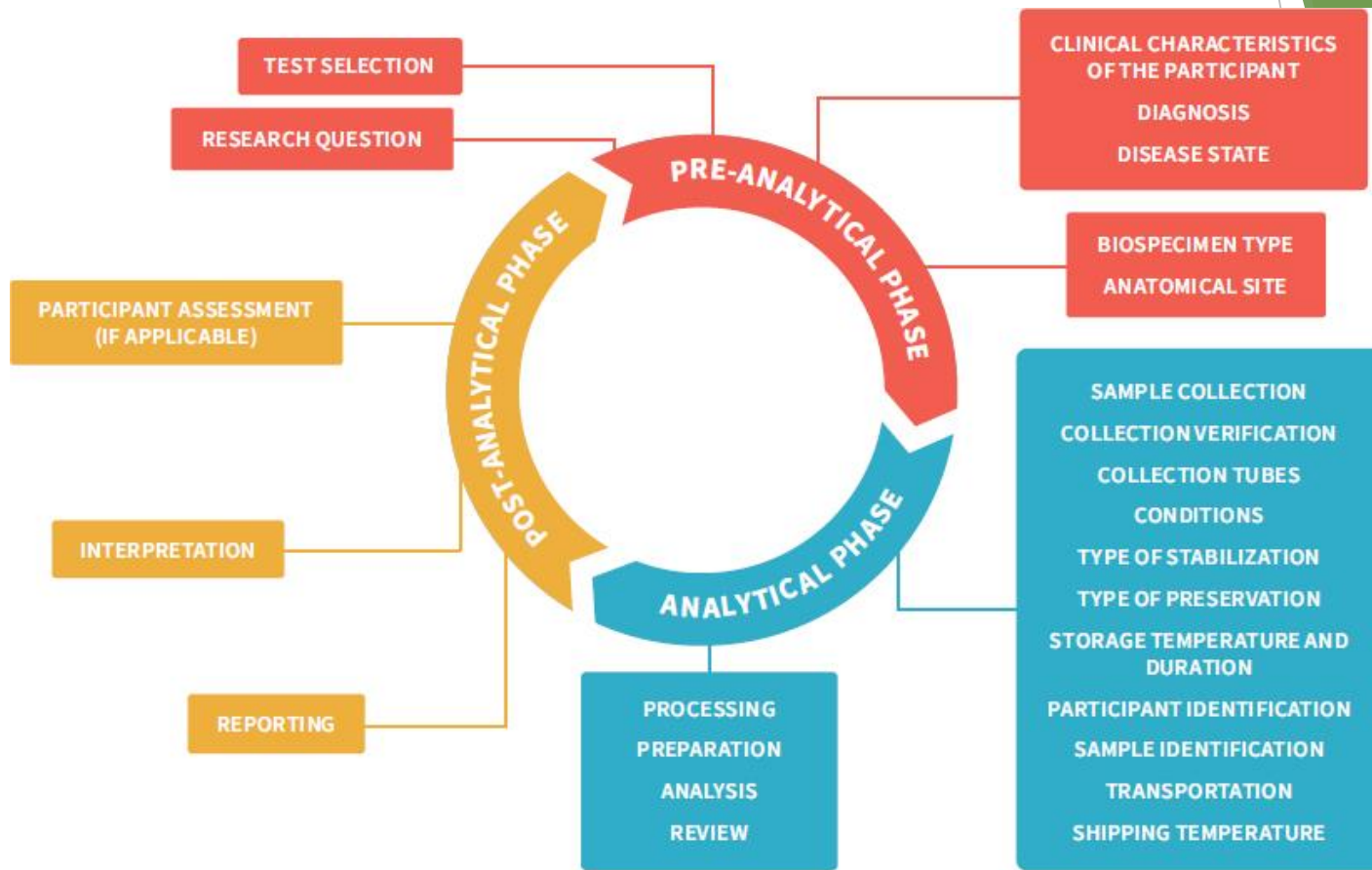
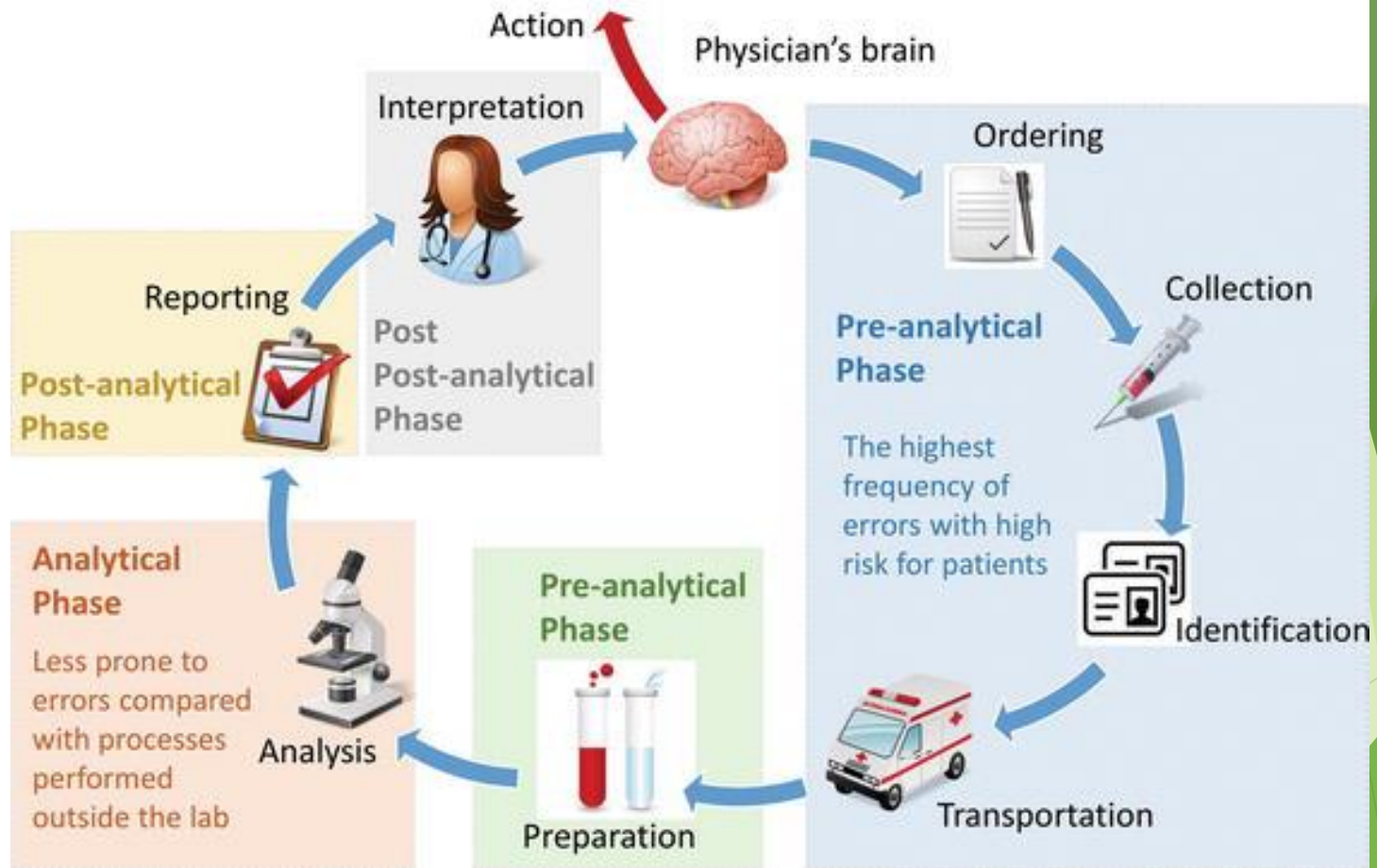


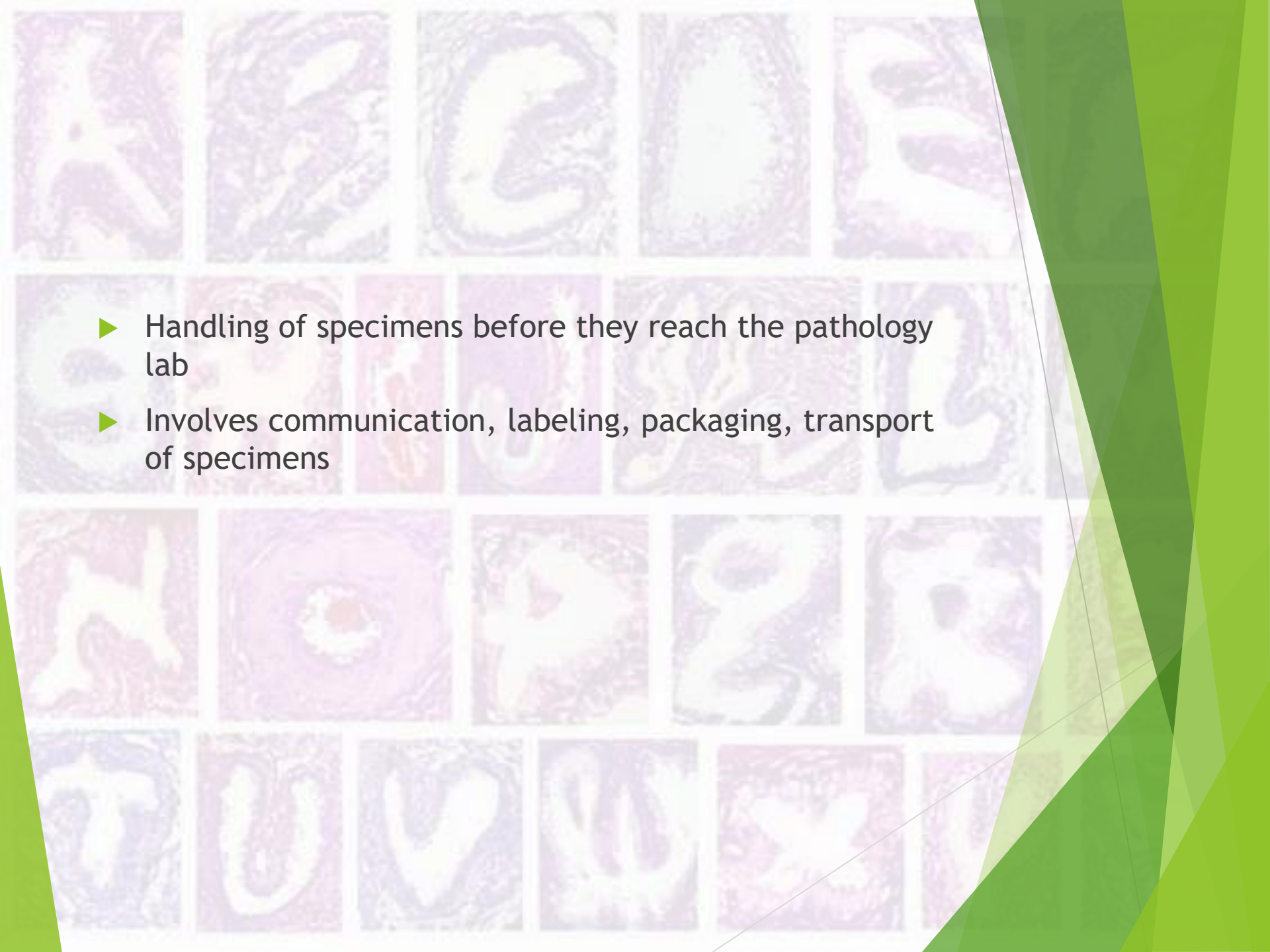
Pre-analytical Specimen Preparation for Anatomic Pathology

Customer Education Series



What is the Pre-analytical phase?



- 
- ▶ Handling of specimens before they reach the pathology lab
 - ▶ Involves communication, labeling, packaging, transport of specimens

Delivering a specimen to the pathology department involves many steps including:

- ▶ 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.

Request form

1- Patient Identifier

- a) Name
- b) Medical record number
- c) Identification number
- d) Date of birth
- e) Gender
- f) Race/ethnicity

Department of Pathology
Level 1, UiTM Medical Specialist Center
Faculty of Medicine
UiTM Sg Buloh
Jalan Hospital
47000 Sg Buloh Selangor
Phone: 03-6126 5000 Ext: 5215

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425967719A
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ANATOMIC PATHOLOGY REQUEST FORM HP-21-423A

Name	: [REDACTED]	Clinic / Ward	: SBC - Inpatient
MRN	: HUITM0001457	Phone No	: [REDACTED]
I/C No	: [REDACTED]	Date of Admission / Clinic Appointment	:
DOB	: 26-06-1986	Requested By	: [REDACTED]
Age	: 34y 11m 6d	Ordered Date/Time	: 02-06-2021 13:34
Race	: Malay	Consultant in Charge	: [REDACTED]
Gender	: FEMALE		
App.Date (Specimen)	: N/A		
Remark	:		

Clinical History :
right supraglottic mass sample taken from right vestibular fold

Diagnosis :
right supraglottic mass

Test Request :
HPE - Small Excision

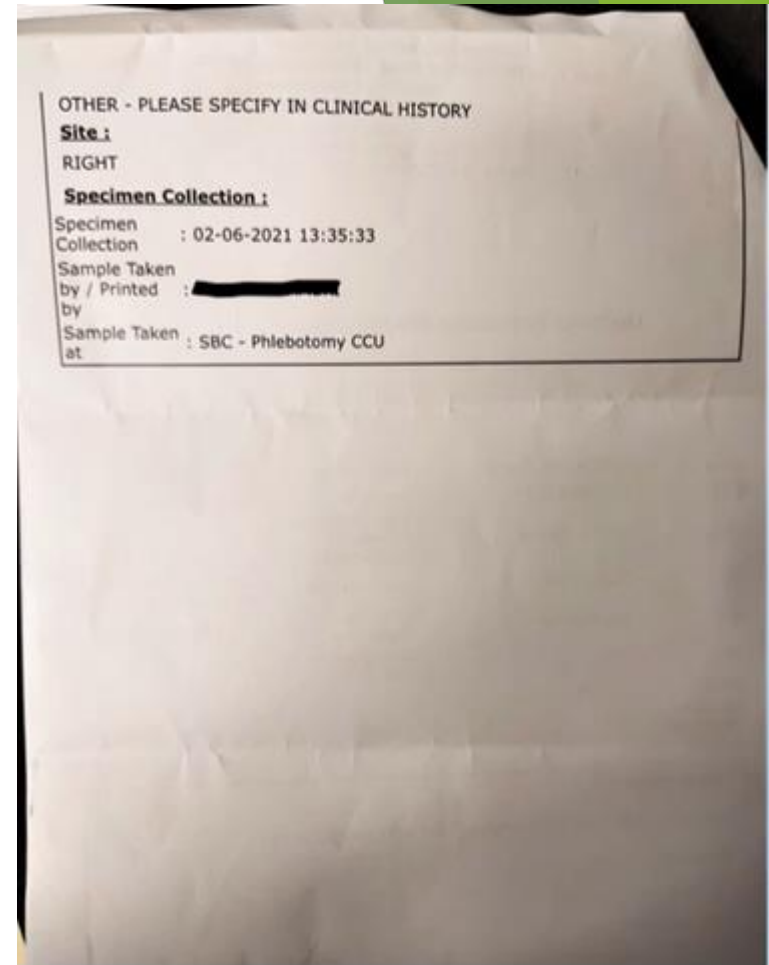
Examined :

2. Requester Identifier:

- a) Name of the requester
- b) Contact details of requester
- c) From where the specimen was sent

3. Specimen descriptors:

- a) Appropriate fixative
- b) Date and time specimen taken
- c) high risk patients
- d) How many parts ie. how many containers
- e) Each container labelled with parts
- f) Relevant history and findings ;
sutures indication
- g) Type of tests / diagnostic studies .Eg HPE, frozen section

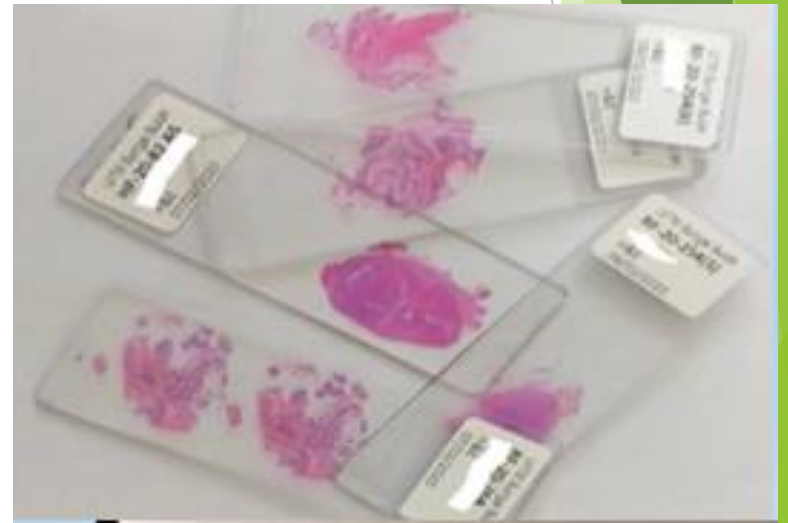


Important

- ▶ To ensure zero error in reporting cases
 - correct report to correct patient
 - correct site/side of lesion
- ▶ Standards
- ▶ Pre-analytical steps serves as an important and initial gate keeper
- ▶ No rejection policy

Accession number

- Refers to alphanumeric code generated or printed on the specimen
- Used as a case identified
 - label on form, containers, cassettes, and slides



Case identifier

- a. HP = Tissue specimen for histopathology examination
- b. 21 = Year of 2021
- c. 423 = case number
- d. C = the third container for the same patient



Frozen section

- ▶ Notify the lab in advance
- ▶ Inform lab when patient in OT
- ▶ Send specimen fresh to lab ASAP
- ▶ Provide a contact number

Request form - Gynae

Gy-21-

PAP SMEAR REQUEST FORM

Clinical Summary

Name		Clinic / Ward	: SBC - PCM Postgraduate Clinic
MRN	:	Phone No	:
I/C No	:	Date of Admission / Clinic Appointment	:
DOB	:	Requested By	
Age	: 25y 11m 14d	Ordered Date/Time	: 22-10-2021 09:19
Race	: Malay	Consultant in Charge	:
Gender	: FEMALE		
Specimen Collection	: N/A		TERIMA22OCT'21 10:08AM
App. Date			
Clinical History	: screening, no sx		

Screening Information

i. Specimen	: CERVICAL SMEAR	v. Previous cytology no.	:
ii. Type of sample	: Liquid based Preparation	vi. Previous pathology no.	:
iii. Sample site	: Cervix	Place of previous screening	:
iv. Type of screening	: Repeat	vii. Previous diagnosis	: NILM

Clinical Summary

i. Hormonal status	: Pre Menopausal	v. Symptom / Sign	: Abnormal Bleeding. Specify:
ii. Last menstrual period	: 14-09-2021		
iii. Contraceptive/ Hormonal therapy	: No Info	vi. Cervix	: Normal
iv. Treatment history	: None	vii. Additional information	:

Specimen Collection : 22-10-2021 09:21:22

Sample Taken by :
/ Printed by :

Sample Taken at : SBC - Phlebotomy Clinic 3

Request form - Non-Gynae & Fnac

- ▶ Anatomic Pathology Request Form (white form)
- ▶ Patient's name
- ▶ Patient's hospital ID number / MRN
- ▶ Clinical diagnosis
- ▶ Source of specimen
- ▶ Test request
- ▶ Date and time of collection
- ▶ Other pertinent clinical information
- ▶ Surgeon's name

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03
4256321BA
FOR LAB USE ONLY

ANATOMIC PATHOLOGY REQUEST FORM HP-21- 423 A

Name	:	[REDACTED]	Clinic / Ward	:	SBC - Inpatient
MRN	:	HUITM0001457	Phone No	:	[REDACTED]
I/C No	:	[REDACTED]	Date of Admission / Clinic Appointment	:	[REDACTED]
DOB	:	26-06-1986	Requested By	:	[REDACTED]
Age	:	34y 11m 6d	Ordered Date/Time	:	02-06-2021 13:34
Race	:	Malay	Consultant in Charge	:	[REDACTED]
Gender	:	FEMALE			
App.Date (Specimen)	:	N/A			
Remark	:				

Clinical History:
right supraglottic mass sample taken from right vestibular fold

Diagnosis:
right supraglottic mass

Test Request:
HPE - Small Excision

Surgeon:

No rejection policy:

ALLs tissue specimens are precious

Discrepancies?

- Rectification is to be done prior to further processing of the tissues
- Requestor contact details

Rectification

RECTIFICATION FORM
*Please return this form after rectification has been made

Patient's Name : _____
Registration No. / MRN : _____
Patient's ID / NRIC : _____
Ward / Clinic : SOPD, HSB
Type of Specimen : Thyroid Biopsy, lobe, left
Test Request : HPE
Date & Time Received : 18/7/19, 9.47 am

Reason for Rectification : No K-P (IC) berbeza pada form dan 'sticker label'

Informed By : _____
Date & Time Informed : 18/7/2019, 11.00 am
Informed to : PPK / Staff Nurse : [Signature] _____
: Requester : _____

Corrective actions (to be filled by requester):
DL _____ COLLECT THE SAMPLE.

Remark (to be filled by lab staff):
RETURN TO THE WARD TO CHECK THE IC (P).

Further details; kindly contact Anatomic Pathology Laboratory, UITM at 03 - 61265244 / 5053

Effective date of use: 29 AUGUST 2016

* Inform SO _____
11.00 am 18/7/19.

1. Nama: _____

2. No. Pendaftaran: _____

3. No. K.P.: 75 _____ 2

4. Jantina: Lelaki Perempuan

5. Umur: 44 tahun

6. Keturunan: Melayu

7. Wad/Klinik: SOPD

8. Tarikh Masuk Wad: _____

9. Pekerjaan: _____

10. Taraf Perkahwinan: _____

11. Bayar Percuma

12. No. Laporan Dahulu: _____

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

h/o neck swelling

S> MNG w (L) thyroid node

TFT normal FT4: 13.42


TSH: 166

13. Butiran Penting:

	Ya	Tidak
Jaundice	<input type="checkbox"/>	<input type="checkbox"/>
Lymphadenopathy	<input type="checkbox"/>	<input type="checkbox"/>
Hepatomegaly	<input type="checkbox"/>	<input type="checkbox"/>
Splenomegaly	<input type="checkbox"/>	<input type="checkbox"/>
Bleeding Tendency	<input type="checkbox"/>	<input type="checkbox"/>
H/O Transfusion	<input type="checkbox"/>	<input type="checkbox"/>

Haematinics: _____

Hosp Sg Buloh Ro



651 4 17/07/19

Thyroid

Biopsy, Lobe, Left

15. Diagnosis: *Left Thyroid Node*

16. Kategori Permohonan/Jenis Ujian:

Hematologi Histo/Sitologi Mikro/Immunologi

Data of Rectifications

May 2016 - August 2021

**ANATOMIC PATHOLOGY LABORATORY
THE CENTRE FOR PATHOLOGY DIAGNOSTIC & RESEARCH LABORATORY (CPDRL),
FACULTY OF MEDICINE, UiTM SUNGAI BULOH CAMPUS,
48000 SUNGAI BULOH, SELANGOR**

Review Rectification: JAN – AUGUST 2021

NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORECTIVE ACTIONS
1.	Wrongly labelled and ordered patients specimen by requester	Non gynae	██████	1	Requester was filled in rectification form

Review Rectification: JAN – AUGUST 2020

NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORECTIVE ACTIONS
1.	Printed label specimen and handwritten type of specimen patient on request form not tally	HPE	█	1	Filled in rectification form. Informed requester to make correction. Specimen sent back to Hospital Sungai Buloh. Specimen processed once rectified.
2.	Specimen Leaking	HPE	█ █ █	1	Filled in rectification form. Informed requester. Specimen sent back to ward.

Review Rectification: JAN – JUNE 2019

NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORECTIVE ACTIONS
1.	Patient has multiple specimen but only received one specimen	HPE	█	2	Filled in rectification form. Informed requester. Specimen sent back to Hospital Sungai Buloh.
2.	Wrong labelled on specimen container	HPE	█ █ █	2	Filled in rectification form. Informed requester. Specimen sent back to Hospital Sungai Buloh.
3	Printed label and handwritten name of patient on request form and specimen pot not tally	HPE	█	1	Filled in rectification form. Informed requester. Specimen sent back to Hospital Sungai Buloh.

Review Rectification: July - Dec 2019

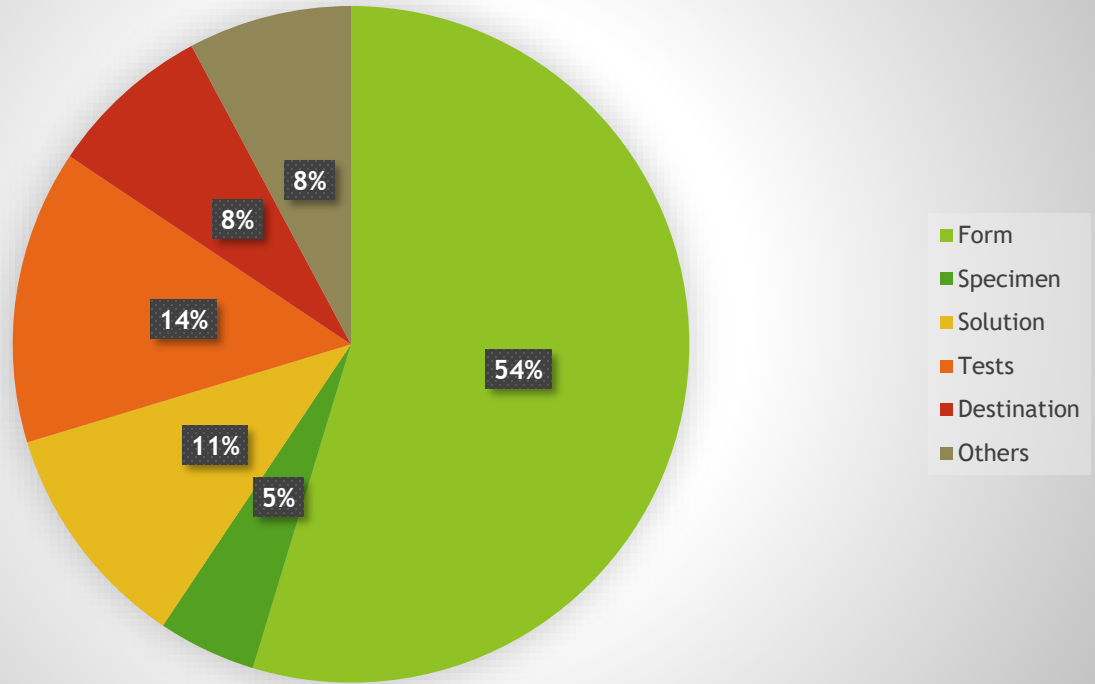
NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORRECTIVE ACTIONS
1	Different patient ID/NRIC on form and sticker label	HPE	HSB	1	Filled in rectification form. Informed requester. Specimen processed once rectified.
2	Specimen received does not correlate with the label printed	HPE	■	2	Filled in rectification form. Informed requester to make correction. Specimen sent back to Hospital Sungai <u>Buloh</u> .
3	Specimen not suitable for HPE test	HPE	HSB	1	Filled in rectification form. Informed requester. Specimen sent back to Hospital Sungai <u>Buloh</u> .
4	Printed label specimen and handwritten type of specimen patient on request form not tally	HPE	HSB	2	Filled in rectification form. Informed requester to make correction. Specimen sent back to Hospital Sungai <u>Buloh</u> . Specimen processed once rectified.
5	No specimen received (received inhaler asthma)	HPE	■	1	Filled in rectification form. Informed requester. Specimen sent back to Hospital Sungai <u>Buloh</u> .

NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORECTIVE ACTIONS
1.	Different specimen on the patient's request form & sticker	HPE	[REDACTED]	1	Filled in rectification form. Informed requester to make correction. Specimen processed once rectified.
2.	Specimen not in the formalin	HPE	HSB	1	Filled in rectification form. Informed requester but MO in-charge insist to proceed the test.
3.	Different specimen on the patient's request form & specimen containers(formalin & normal saline)	Not stated	HSB	1	Filled in rectification form. Informed requester to make correction. Specimen sent back to HSB to reconfirmed

Review Rectification: JAN - MARCH 2017

NO	PROBLEM	TEST REQUEST	SOURCE OF SPECIMEN	TOTAL	CORRECTIVE ACTIONS
1	Soft Tissue (Cornea)	HPE	■	1	Filled in rectification form. Informed requester. Specimen need to be sent to Selayang Hospital.
2	Lower GIT Specimen – Stomach Fundus	HPE	■	1	Filled in rectification form. Informed requester. Specimen need to be sent to Selayang Hospital.
3	Four specimen type in same(one) container	HPE	■	1	Filled in rectification form. Informed requester to make correction. Specimen send back to HSB. Specimen processed once rectified.

Rectification Data



▶ Form : 35/64

wrong form 3, labelling errors 31, no request form 1

▶ No formalin/Wrong solution : 7/64

▶ Missing specimen : 3/64

▶ Tests: not suitable for HPE or not available : 9/64

▶ Wrong lab/location : 5/64

▶ Others : 5/64

specimen leaking, broken slide, requester ask to return the specimen, improper specimen container, 4 specimens in one container

Fixation

- ▶ essential for successful dissection, processing and microscopic examination of diagnostic histopathology specimens.
- ▶ The fixative of choice for routine specimens is 10% phosphate-buffered formalin.



► Benefits of fixation

- Allows thin sectioning of tissue by hardening tissue
- Prevents autolysis
- Inactivates infectious agents (except prion diseases)
- Improves cell avidity for special stains

- ▶ Pre-laboratory Specimens should be transferred to a fixative within 1 hour of surgical excision.
- ▶ If this cannot be achieved, keep the specimen at 4 °C including during transfer to the laboratory.
- ▶ Deterioration will commence very quickly with the loss of blood supply after surgery.
- ▶ Results have shown that the quality of RNA and DNA is reliable for specimens stored at 4 °C overnight. 7

Fixative 10% neutral buffered formalin

- most common fixative for routine histology
- suitable for immunohistochemistry (IHC) and most molecular testing

- ▶ Formalin should be replaced with fresh solution after 24 hours if the specimen requires longer fixation before processing, to reduce the effect of polymerisation and ensure a stable concentration.
- ▶ Tissues should be fixed in a sufficient volume of solution; optimally in a ratio of 10:1 but at least 5:1 fixative to specimen, for penetration to occur in the most efficient manner
- ▶ Insufficient fixation will result in unfixed tissues being damaged by dehydrating fixative effect of ethanol during processing causing:
 - Loss of immunohistochemical antigenicity
 - Difficulties in microtomy

References

- ▶ http://www.ast.org/uploadedFiles/Main_Site/Content/About_Us/Standard_Handling_Care_Surgical_Specimens.pdf
- ▶ Cytopathology 2011, Oxford University Press.
- ▶ Prof Madya Dr Noor Kaslina Kornain
- ▶ RCPA fixation tissue guideline number 2/2016, approve 2016 and 2020

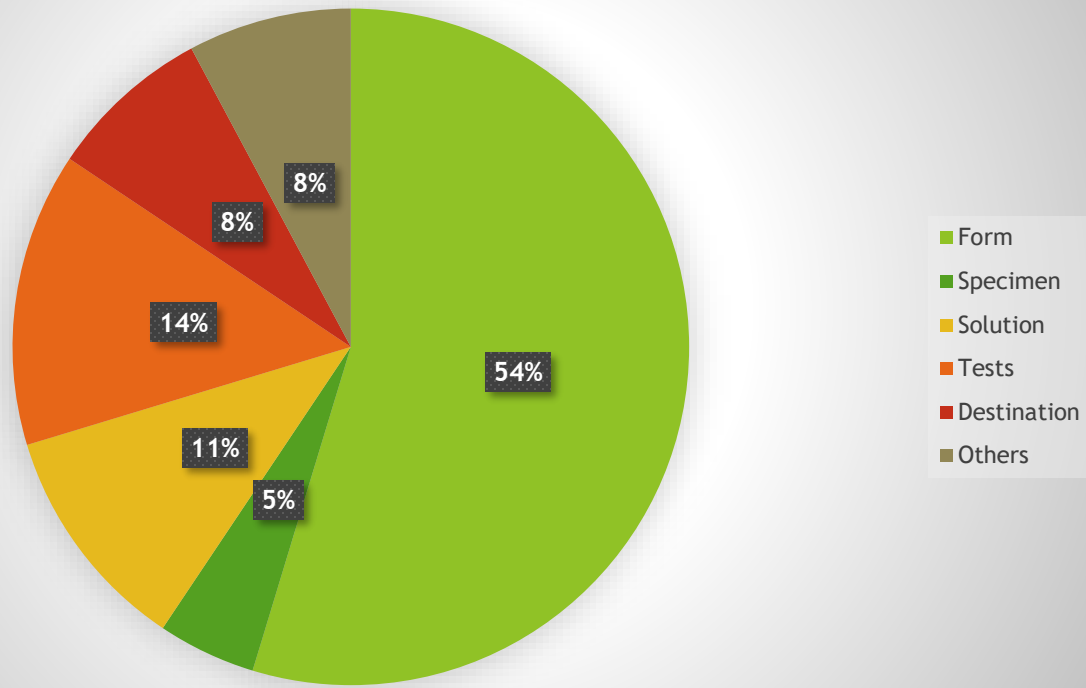
QUIZ

► Pre-analytical Specimen Preparation for Anatomic Pathology quiz

1 - What is the most common cause of rectification in pre-analytical specimen preparation in the AP lab

- a) labeling
- b) Specimen not in formalin
- c) Specimen leaking
- d) Test not available

Rectification Data



2- What is the minimum adequate ratio specimen to formalin as per 2020 approved RCPA guidelines

- a) 10:1
- b) 5:1
- c) 4:1
- d) 2:1

Tissues should be fixed in a sufficient volume of solution; optimally in a ratio of 10:1 but at least 5:1 fixative to specimen, for penetration to occur in the most efficient manner