



# PERIPHERAL BLOOD FILM (PBF)

## DOs and DON'Ts

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17 FEB 2023



## PERIPHERAL BLOOD FILM (PBF)

- Initiation of a PBF is often a clinical request by the attending clinician on account of a clinical suspicion or less frequently initiated by the laboratory.
- The laboratory may initiate peripheral blood film based on abnormal findings from an automated count or patients clinical information whose diagnosis may be supported by a peripheral blood film.



## PBF: INDICATIONS

- Unexplained/ suspected cytopenias
- Suspected bone marrow infiltration by malignancy/ infection
- Suspected haemolysis
- Suspected haematological malignancy
- Unexplained splenomegaly/ jaundice
- Features of hyperviscosity syndrome



Analyte	Results	Unit	Flag	Reference	Methodology
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## CBC + DIFF

### WHOLE BLOOD

White Blood Cell	5.3	10 <sup>9</sup> /L		4.0 - 10.0	Scatter Fluorescence
Red Blood Cell	3.7	10 <sup>12</sup> /L	L	3.8 - 4.8	DC Impedance Method
Haemoglobin	9.9	g/dL	L	12.0 - 15.0	Colorimetric method
Haematocrit	30.6	%	L	36.0 - 46.0	Calculated
Mean Cell Volume	83.4	fL		83.0 - 101.0	RBC Histogram
Mean Cell Haemoglobin	26.9	pg	L	27.0 - 32.0	Calculated
Mean Cell Haemoglobin Concentration	32.3	g/dL		31.5 - 34.5	Calculated
Red Cell Distribution Width CV	14.9	%		11.0 - 15.0	RBC Histogram
Platelet	446	10 <sup>9</sup> /L	H	150 - 410	DC Impedance Method
Neutrophil %	44.7	%		40.0 - 80.0	Scatter Fluorescence /Manual Differential
Lymphocyte %	44.2	%	H	20.0 - 40.0	Scatter Fluorescence /Manual Differential
Monocyte %	8.5	%		2.0 - 10.0	Scatter Fluorescence /Manual Differential
Eosinophil %	2.0	%		1.0 - 6.0	Scatter Fluorescence /Manual Differential
Basophil %	0.6	%		0.0 - 2.0	Scatter Fluorescence /Manual Differential
Neutrophil Absolute Count	2.37	10 <sup>9</sup> /L		2.00 - 7.00	Calculated
Absolute Lymphocytes Count	2.34	10 <sup>9</sup> /L		1.00 - 3.00	Calculated
Monocyte Absolute Count	0.45	10 <sup>9</sup> /L	L	0.50 - 1.00	Calculated
Eosinophil Absolute Count	0.11	10 <sup>9</sup> /L		0.02 - 0.50	Calculated
Basophil Absolute Count	0.03	10 <sup>9</sup> /L		0.02 - 0.10	Calculated
Nucleated Red Blood Cell	0	NRBC/100WB		0 - 10	Scatter Fluorescence /Manual Differential

### Peripheral Blood Film Comment

Clinical summary: 41-year-old with underlying DM, chronic kidney disease, hypertension, susceptibility to infections presented with vomiting and lethargy.

HGB: mild anaemia

RBC: normochromic normocytic anaemia with a population of hypochromic microcytic red cells.

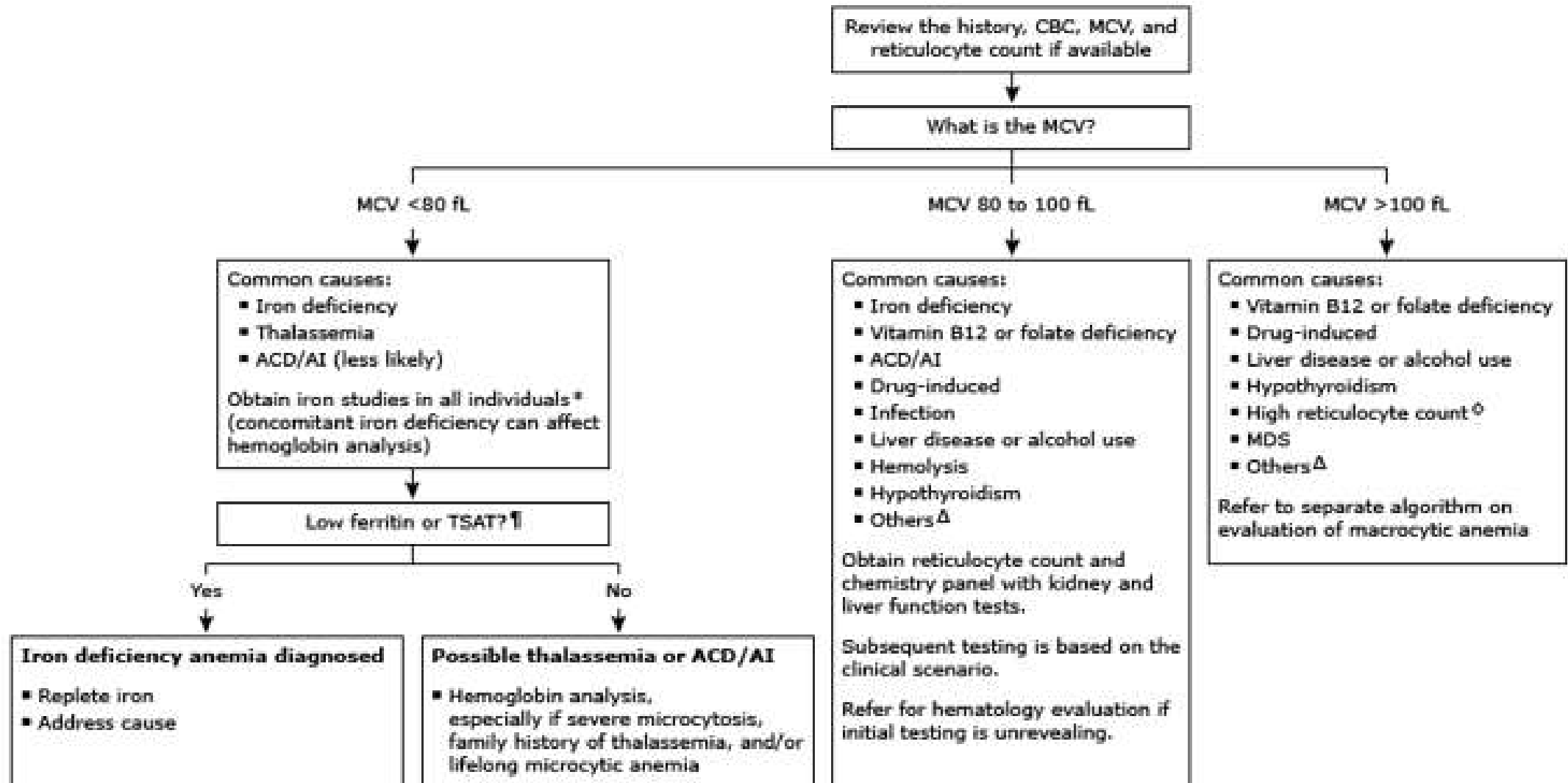
WBC: normal

PLT: thrombocytosis (40-50/hpf)

Impression:

1. Anaemia of chronic disease
2. Thrombocytosis is reactive. Please correlate with clinical findings.

## Anemia evaluation in outpatients (nonpregnant adults)



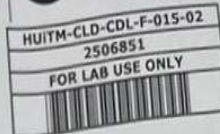


## PBF: DOs

### TO DO

- Sample collection: EDTA tube (2-3 ml)
- To reach the laboratory as soon as possible (sample integrity is within 4 hours)
- **Adequate clinical history**

CLINICAL DIAGNOSTIC LABORATORIES DEPARTMENT  
LEVEL 1, HOSPITAL AL-SULTAN ABDULLAH  
Universiti Teknologi MARA  
42300 Bandar Puncak Alam, Selangor Darul Ehsan  
Phone: 03-3396 3000  
http://hospital.uitm.edu.my



### HAEMATOLOGY REQUEST FORM

Name : [Redacted]  
Reg No : [Redacted]  
I/C No : [Redacted]  
DOB : [Redacted]  
Age : [Redacted]  
Race : [Redacted]  
Gender : [Redacted]  
App.Date (Specimen) : N/A  
Remark :  
Clinical History ==

Clinic / Ward : HUITM - Inpatient  
Date of Admission / Clinic Appointment : [Redacted]  
Requested By : [Redacted]  
Ordered Date/Time : [Redacted]  
Consultant in Charge : [Redacted]

No	Test Name	Specimen	Location	Priority
1	COMPLETE BLOOD COUNT (CBC)	WHOLE BLOOD	LABHUITM	Routine

M/F

13/2 15/2

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### URGENT

### HAEMATOLOGY REQUEST FORM

Name : [Redacted]  
Reg No : [Redacted]  
I/C No : [Redacted]  
DOB : [Redacted]  
Age : [Redacted]  
Race : [Redacted]  
Gender : [Redacted]  
App.Date (Specimen) : N/A  
Remark :  
Clinical History :  
HUITM - Emergency Department

Clinic / Ward : [Redacted]  
Date of Admission / Clinic Appointment : [Redacted]  
Requested By : [Redacted]  
Ordered Date/Time : [Redacted]  
Consultant in Charge : [Redacted]

No	Test Name	Specimen	Location	Priority
		WHOLE BLOOD	LABHUITM	URGENT

Sample taken at

- bosinop hda



## PBF: DON'Ts



### DO NOT

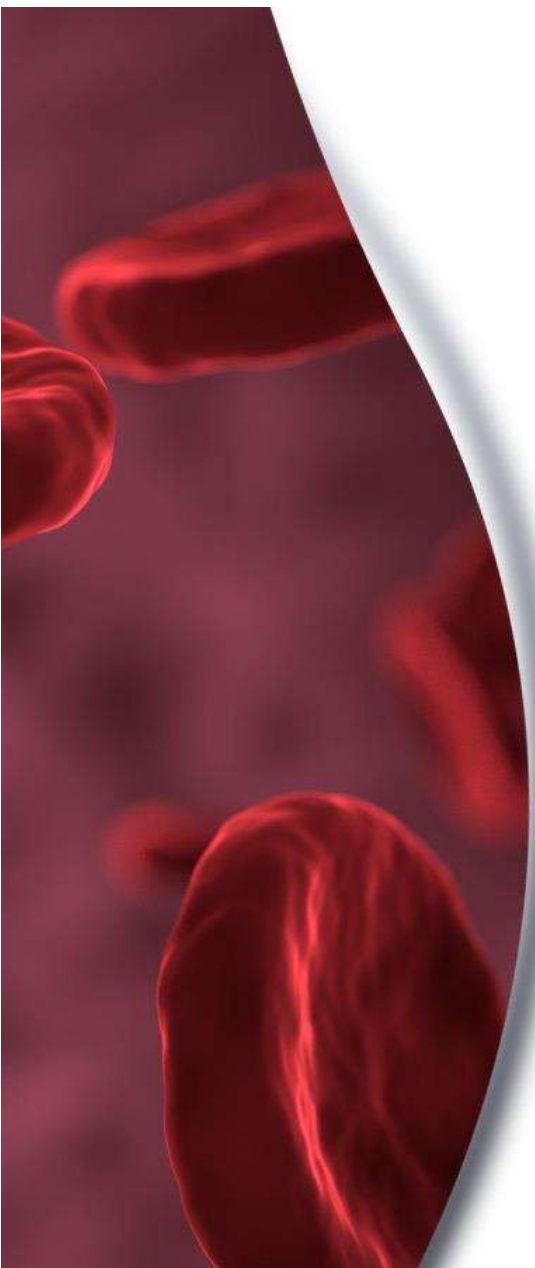
- Request together with
  - CBC
  - CBC + DIFF
  - Hb analysis
- Send request multiple times unless indicated
  - to discuss with the pathologist on call





## PBF: OTHER INFO

- TAT: 5 working days
- URGENT PBF:
  - urgent request is subjected to communication between the pathologist and requesting doctor
- CBC + DIFF  PBF
  - within 4 hours of sample taking
- CBC  PBF



Reason for Rejection :

	Defective label
	Missing label
	Wrong label
	Incomplete Request form
	Hemolyzed sample
	Lipaemic sample
	Icteric sample
	Clotted sample
	Expired collection containers
	Wrong collection containers
	Broken or cracked collection containers
	Insufficient specimen
	No specimen received (only request form received)
	Improper transportation method (specify: )
	Temperature not maintained
	Delayed specimen received
	Repetitive test order/double request
	Test is not clinically indicated
	Out of sample stability
	Test is not offered
	Improper Specimen Collection
	Others (specify: Red cell agglutination )

# SAMPLE REJECTION: HTM UNIT, CDL

## CDL HASA

### Haematology:

Duration	Jan – Dec 2022
Total specimen received	38,340
Total number of rejection	1,227
Percentage of rejection	3.2%
Highest rejection criteria	1. Clotted (58%, 714) 2. Insufficient (14%, 170)

### Transfusion Medicine

Duration	January – December 2022
Total specimen received	5,034
Total no. of rejection	218
Percentage of rejection	4.3%
Highest rejection causes	1. Haemolysed (51%, 111) 2. Repetitive (28%, 61)

## CDL Sg Buloh

### For Haematology only

Duration	January – December 2022
Total specimen received	19,828
Total number of rejection	433
Percentage of rejection	2.2%
Highest rejection causes	1. Clotted (52%, n=224) 2. Insufficient (15%, n=68)

### For Transfusion Medicine only

Duration	January – December 2022
Total specimen received	827
Total no. of rejection	36
Percentage of rejection	4.4%
Highest rejection causes	1. Haemolysed (47%, n = 17) 2. Repetitive order (28%, n = 10)

A microscopic view of several red blood cells, appearing as biconcave discs with a reddish-pink hue, set against a dark, blurred background. The cells are partially visible on the left side of the frame, with a white, curved border separating them from the main text area.

Q & A session





## QUIZ TIME!

The following are indications for PBF **EXCEPT** for

- A. pancytopenia
- B. pre-operation assessment
- C. suspected haematological malignancy
- D. suspected haemolysis
- E. unexplained jaundice



QUIZ TIME!

STATE ONE (1) **OTHER** INDICATION FOR PBF  
THAT IS **NOT STATED** IN QUESTION ABOVE



**THANK YOU**