

HOSPITAL RAJA PERMAISURI BAINUN

TRANSFUSION MEDICINE HANDBOOK



DEPARTMENT OF
TRANSFUSION
MEDICINE

2025

FIRST EDITION



FOREWORD

It is a great pleasure to introduce the *Transfusion Medicine Handbook* published by our hospital. This handbook represents a significant milestone in our ongoing commitment to excellence in patient care, clinical safety, and continuous professional development.

Transfusion medicine plays a pivotal role in modern healthcare. With evolving standards, technologies, and protocols, it is crucial that healthcare professionals stay updated and informed. This handbook is designed to be a practical, evidence-based resource for clinicians, nurses, and laboratory personnel, supporting best practices in the transfusion of blood and blood products.

In line with our hospital's mission to uphold the highest standards of healthcare in Malaysia, this publication is a testament to our multidisciplinary collaboration, rigorous clinical governance, and dedication to patient safety. I commend the working committee for their hard work and expertise in compiling this comprehensive guide.

I am confident that this handbook will serve as a valuable reference for all healthcare personnel. May it support informed decision-making, promote safe transfusion practices, and ultimately enhance patient outcomes.



Dr. Hj Saiful Azlan bin Hj Sharif
Director
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PREFACE

Transfusion medicine focuses on the safe and effective use of blood and blood components. It is a unique discipline as it involves both clinical and laboratory practices. It combines the science of immunohaematology, the art of clinical practice, and the technology of various serological and molecular testings.

This Transfusion Medicine handbook aimed to serve as a guide for healthcare professionals, and laboratory personnel as part of patient management. It provides an overview of the principles, processes, and best practices essential for safe transfusion practices. I hope this manual could become an invaluable resource in your practice.

Lastly, I would like to express my heartfelt gratitude to the editorial board and all those who have contributed to the success of this work.



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1.0 GENERAL INFORMATION

1.1 INTRODUCTION

The Department of Transfusion Medicine was established on January 1, 2014, which consists of 7 units: the Procurement Unit, the Component Unit, the Inventory Unit, the Immunohaematology Unit, the Clinical Transfusion Unit, the Transfusion Microbiology Unit, and the Quality Unit. The main functions of this department include:

- Establishing and maintaining a pool of safe blood donors.
- Providing safe, sufficient, and appropriate blood and blood components through standardized screening procedures and inventory storage practices in accordance with international standards.
- Ensuring optimal patient care through the appropriate use of blood and blood products.
- Establishing and maintaining collaborative relationships through training, research, and development aligned with the latest practices and technologies in modern medicine.
- Providing advisory services and serving as a referral center for the entire state of Perak Darul Ridzuan.

1.2 QUALITY POLICY

The Department of Transfusion Medicine at Hospital Raja Permaisuri Bainun (HRPB), Ipoh, implements a Quality Management System based on Good Manufacturing Practice, MS ISO 15189:2022, and Malaysian Standard for Quality in Health (MSQH) standards. The laboratory conducts testing activities using internationally recognized methods and adheres to accepted standards based on good laboratory practices for all scopes of services offered.

It is the laboratory's policy to report accurate test results within the specified Turnaround Time (TAT) to clients, ensuring continuous improvement of the Quality Management System in compliance with MS ISO 15189:2022 while maintaining confidentiality of information.

1.3 VISION

The Department of Transfusion Medicine is committed to serving the community, blood donors, and patients by ensuring the provision of sufficient and safe blood. It also strives to be an excellent referral center in the field of Transfusion Medicine within the state of Perak Darul Ridzuan.

1.4 MISSION

The Department of Transfusion Medicine consistently strives to deliver high-quality services through a strong sense of professionalism, teamwork, ethical conduct, respect, up-to-date knowledge, and innovation. The department is committed to fostering collaboration with other institutions across Malaysia to conduct research and share knowledge for the well-being of patients, blood donors, healthcare personnel.

1.5 CUSTOMER CHARTER

- Every blood donor and patient will be treated with courtesy, fairness, and equity.
- Always remain prepared and punctual in delivering continuous services based on promised standards.
- Ensure accuracy in work processes to guarantee blood donors' and patients' safety without compromise.
- Provide blood donors with information about their conditions and treatments.
- Maintain the confidentiality of personal information, medical conditions, and treatments provided to blood donors and patients.
- Provide clean, comfortable, and safe facilities and environments.

1.6 LOCATION

The Department of Transfusion Medicine is located next to the Ambulatory Care Centre (ACC), HRPB.

- Donation Suite - 2nd floor of Transfusion Medicine Department.
- Receiving Bay - 1st floor of Transfusion Medicine Department.
- Inventory Counter - 1st floor of Transfusion Medicine Department.
- Immunohaematology Counter - 1st floor of Transfusion Medicine Department.
- Clinical Transfusion Unit - 1st floor of Block D (adjacent to the main laboratory of the Pathology Department).

1.7 BUSINESS HOUR

Unit	Operating Hour	
	Monday-Friday	Weekend/ Public Holiday
Donation Suite	8.00 am - 5.00 pm	Closed
Clinical Transfusion	24 hours	
Immunohaematology	8.00 am – 5.00 pm (Lunch hour closed)	Closed
Receiving Bay	8.00 am – 5.00 pm (Lunch hour closed)	2.00 pm – 8.00 pm
Inventory	8.00 am – 5.00 pm (Lunch hour closed)	Closed *Inventory counter will be operating from 2.00 pm - 8.00 pm on the 2 nd day of a long weekend (> 2 days).

* Cut-off time for processing of TML samples is 5.00 pm on weekdays and 7.00 pm on weekends and public holidays.

1.8 CONTACT NUMBERS

	Ext.
Head Of Department	5241
TMS 1 / Office	5242
TMS 2/ Science Officer/ Senior MLT	7369
Medical Officer	5243
Clinical Transfusion Lab	5246 (24-hours)
Component Lab	5244
Transfusion Microbiology Lab	5247
Immunohematology Lab	7365
Donation Suite	5248
PR Officer	5245
Reactive Clinic	7368

1.9 COMPLAINT PROCEDURE BY CUSTOMERS

Any complaints regarding department's service can be made via:

- i. Walk-in:
 - Donation Suite at 2nd floor of Transfusion Medicine Department.
 - Clinical Transfusion Unit at 1st floor of Block D.
 - Unit Perhubungan Awam at 4th floor, ACC, HRPB.
- ii. Call in:
 - Office of Transfusion Medicine Department: 05-2085000 ext. 5242
 - Unit Perhubungan Awam HRPB: 05-2085000 ext. 5104 / 5127
- iii. KKM website (www.moh.gov.my) - Sistem Pengurusan Aduan Awam (SisPAA): Acknowledgement of Receipt of the complaint to complainant / customer will be within 7 working days. Feedback to the investigation will be provided once ready.

1.10 PATIENT / DONOR CONFIDENTIALITY

- Department shall abide by the Personal Data Protection Act.
- Department shall always maintain patient's/ donor's confidentiality.
- The use of samples for purpose other than those requested without prior consent occurs only if the residual samples are rendered anonymous or have been pooled.
- Adequate privacy during reception, sampling and counselling is available.
- Lab collects adequate information which enables examinations to be carried out but does not collect unnecessary personal information.

2.0 GUIDE TO REQUEST TESTS /BLOOD AND COMPONENTS

2.1 CONSENT FOR BLOOD / COMPONENT TRANSFUSION

- Refer to Appendix VII: Consent Form for Blood and Blood Component Transfusion (BTS/TC/2/2016).
- Consent for non-transfusion-dependent patient is valid per admission.
- Consent for transfusion-dependent patient is valid for 6 months.

2.2 BLOOD SAMPLING & LABELLING

- Refer to Appendix I for types of containers and volume needed for each test.
- Send the requests to the respective units.

2.2.1 Group, Screen and Hold (GSH) / Group and Crossmatching (GXM)

- Prior to blood taking, please bring along:
 - EDTA tube
 - Blank piece of label paper
 - GSH/ GXM form: Refer to Appendix VII: Borang Permohonan Transfusi Darah [PER-SS-BT 105 (Pind 1/2016)]
- At bedside:
 - Positive patient identification:
 - Ask for patient's full name.
 - Ask for patient's IC number.
 - Check and confirm with patient's wrist band (If wrist band is not available, please ask the staff nurse to put it on promptly before blood taking).
- Take the blood sample immediately after positive patient identification.
 - At bedside:
 - Label the EDTA tube immediately.
 - Fill up the GXM/GSH form.
 - Ensure the name and IC on the sample tallies with the form.
 - Initial of the phlebotomist on the sample.
 - Sign and stamp the form (phlebotomist & transfusion buddy).
 - Put the sample (EDTA tube) in a specimen bag and staple the form.
- All samples should be taken and labeled **one at a time**.

- **‘Gotong-royong’ is not allowed in sampling and labeling.**
- Second sample should be taken at a different occasion if requested by the lab.
- Use a separate request form for blood and blood components.

2.2.2 Paediatric Transfusion

- Complete in duplicate the request form with relevant information:
 - Patient’s full name
 - Baby without name should be written as B/O followed by mother’s name
 - To indicate clearly if there is more than one baby i.e. twin / multiplet
 - Patient’s IC no.
 - For baby without IC no.:
 - If using mother’s NRIC
Put the child sequence e.g. E01 – 1st child, E02 – 2nd child, etc. at the end of NRIC.
Example: 810328015638E01
 - Blood group of the patient if known.
 - Hb level / platelet count where applicable.
 - Age / sex / race
 - Ward/ unit
 - Indication for transfusion & diagnosis.
 - Date / time / name of person taking and labeling sample.
 - Name and signature of requesting doctor and stamp.
- A sample from the mother should be sent if the patient is below 4 months old.

2.2.3 Blood component (apart from red blood cells)

- In cases where a patient has a prior transfusion record in HRPB, submission of a new blood sample is not required with the request. The request shall be made by specifying the patient’s blood group as recorded in BBISv2 and must be accompanied by a carbon copy of the previous GXM form.
- However, if previous record is not available, a fresh sample in EDTA tube should be sent to determine the patient’s blood group.

2.3 TYPE OF REQUEST

- Request for blood/ blood components must be made through the medical officer or specialist: via hospital operator to MO on-call (speed dial **052) / specialist on-call.

	GSH	GXM	Saline Crossmatch	Safe O
TESTS	-ABO & Rh (D) grouping -Antibody screening	-ABO & Rh (D) grouping -Antibody screening -Crossmatch	Crossmatching at room temperature	No crossmatching
Reservation	Reserved 2 days	Reserved for 72 hours	-	-
Issuance Of Product	Convert to GXM 1 hour	2 hours	30 minutes	Immediately

2.4 REJECTION OF REQUEST

- Any request that does not fulfill the acceptance criteria will be rejected. Refer to Appendix V.
- Ward can assess “Ward View” module in BBISv2 to check the status of the sample sent.
- Details for rejection can be viewed via “Ward View” by clicking  .

No.	Ward	Requisition Date	IC No.	Patient Name	MRN	Reserved	Issued	Returned	Type	Physician	ABO	Rh D	Status	Options
1	SB	06-08-2025 06:56	870313385255	SUHAIMI BI			0	0	GSH		O	POS	CNL	

Rejection Information	
Rejection Reason	SAMPLE LYSED
Inform To	SN UMI
Action Taken	Remarks
Rejected By	AISI  KNOLOGI MAKMAL PERUBATAN, U29)

2.5 ISSUE, TRANSPORTATION AND STORAGE OF BLOOD/ BLOOD COMPONENTS

2.5.1 Collection

- Blood and blood components will only be issued to hospital personnel.
- Please present the following document during collection:
the duplicate copy of “Borang Permohonan Transfusi Darah” [PER- SS-BT 105 (Pind. 1/2016)]
or
Borang Permohonan Bekalan Darah dan Komponen dari Unit Inventori Jabatan Perubatan Transfusi HRPB Ipoh (HRPB/TRANS/INVEN/FORM-01) (request from district hospitals) – Refer to Appendix VIII
or
a memo duly stamped and signed by the blood bank staff of the requesting hospital (request from private clinics or hospitals).
- Please bring along appropriate container.

2.5.2 Issue and transportation of blood and blood components

	Whole Blood/ Packed Cell	Platelet Concentrate	FFP/ Cryoprecipitate/ Cryosupernatant
Supply	After crossmatch	-Group specific -No crossmatching required	-Group specific -No crossmatching required -Ideally should be thawed before transportation to the ward
Collection	Blood box with ice	Blood box WITHOUT ice	Blood box with ice
Use	As soon as possible after reaching ward (within 30mins after collection from lab)	Transfuse immediately	
Storage	Should not be stored or kept in the ward		
Return	Return immediately if not used Fill up <i>Borang Pemulangan Beg Darah Yang Tidak Digunakan</i> (HRPB/TRANS/CTU/AK-05/FORM-01) Refer to Appendix IX		
After Use	Fill up labels on blood tag (PPDK-1). Detach lower portion of the label and attach to patient's case note. Return remainder of the blood tag together with empty blood bag to Blood Bank as soon as possible.		

2.6 ADMINISTRATION OF BLOOD/ BLOOD COMPONENTS

- Refer to Appendix XIII: Blood/ Blood Products Transfusion Checklist.

2.7 TYPES OF BLOOD / BLOOD COMPONENTS AND THEIR USES

- Leucocyte depleted-red blood cells (LD-RBC) are prepared on demand/availability of filter bag.
- Irradiation of cellular products is outsourced to Pusat Darah Negara. These products are prepared on demand.
- Refer to Appendix IV.

2.8 TRANSFUSION REACTION TO BLOOD / BLOOD COMPONENTS

- Refer to Appendix XII: Reporting Form for Transfusion - Related Adverse Event (BTS/HV/3/2016)
- Refer to Appendix XI: Request Form for Transfusion Reaction Investigation (BTS/TR/2/2016)
 - Follow the instruction given on “BTS/TR/2/2016” to send the specimen for investigation of the transfusion reaction.
 - For 24 hours post transfusion reaction, to send sample with Perkhidmatan Patologi (PER-PAT 301). Refer to Appendix XI.

2.9 PROCEDURES FOR SPECIAL CIRCUMSTANCES

2.9.1 Autologous Blood Collection

- Autologous Blood is the collection of own blood for transfusion or for plasma eyedrop.
- Selection of patients:
 - Suitable for selected elective procedures where there is a high possibility where blood will be transfused.
 - Patient with rare blood group or with alloantibody.
 - Ideally patient should be negative for infectious markers such as HIV, HBV, HCV and syphilis.
 - Hb $\geq$ 11 g/dL.
 - No active bacteremia at time of blood collection.

- Special precautions:
 - For patients < 50kg, care must be taken that no more than 12% of blood volume should be withdrawn at any one time.
 - Those with cardiorespiratory diseases should be certified fit for the procedure. Patients with significant aortic stenosis, prolonged and/or frequent angina, significant narrowing of the left main coronary artery and cyanotic heart disease should not be offered this procedure.
 - Pregnant patients should be counselled. It is contraindicated in pregnancy complicated by condition associated with
 - Impaired placental blood flow
 - Intrauterine growth retardation including hypertension, pre-eclampsia, diabetes mellitus and any severe medical conditions.
 - History of epilepsy.
- It is the responsibility of the clinician treating the patient to do the counselling.
- Obtain consent using “Consent Form For Autologous Predeposit” (Appendix XV) from patient.
- Refer the patient to MO on-call using “Referral Letter For Autologous Predeposit” (Appendix XIV).
- If the patient is certified fit for the procedure, blood will be collected and stored in the blood bank until required. If it is not used, the blood will be discarded.
- Please indicate clearly ‘**Autologous blood**’ on “Borang Permohonan Transfusi Darah” [PER-SS-BT 105 (Pind 1/2016)] when blood is needed to prevent inadvertent use of allogeneic blood.

2.9.2 Platelet Antibody:

- Platelet antibodies react the same way as red cell antibody.
- Platelet antibody may be the cause of reduced survival of transfused platelets causing platelet refractoriness.
- Platelet antibody may be the cause for Neonatal Alloimmune Thrombocytopenia (NAIT), Immune-Thrombocytopenic Purpura (ITP) and Post-Transfusion Purpura (PTP).
- Platelet antibody investigation is outsourced to PDN.

Sample for Platelet Antibody Investigation:

- The clinician is required to discuss with PDN specialist for any request for platelet antibody investigation.
- Once obtained approval from PDN, the ward staff need to collect and send the sample to blood bank for packing and transportation of sample to PDN. Effective communication with the blood bank is essential to facilitate the timely transportation of samples to PDN.
 - Sample collection for Platelet Antibody Investigation:
Refer to Appendix XVIII: Platelet Immunology Test Request (PDN) (PDN/IH/QP-05/02, ver 02).

2.10 MASSIVE TRANSFUSION PROTOCOL (MTP)

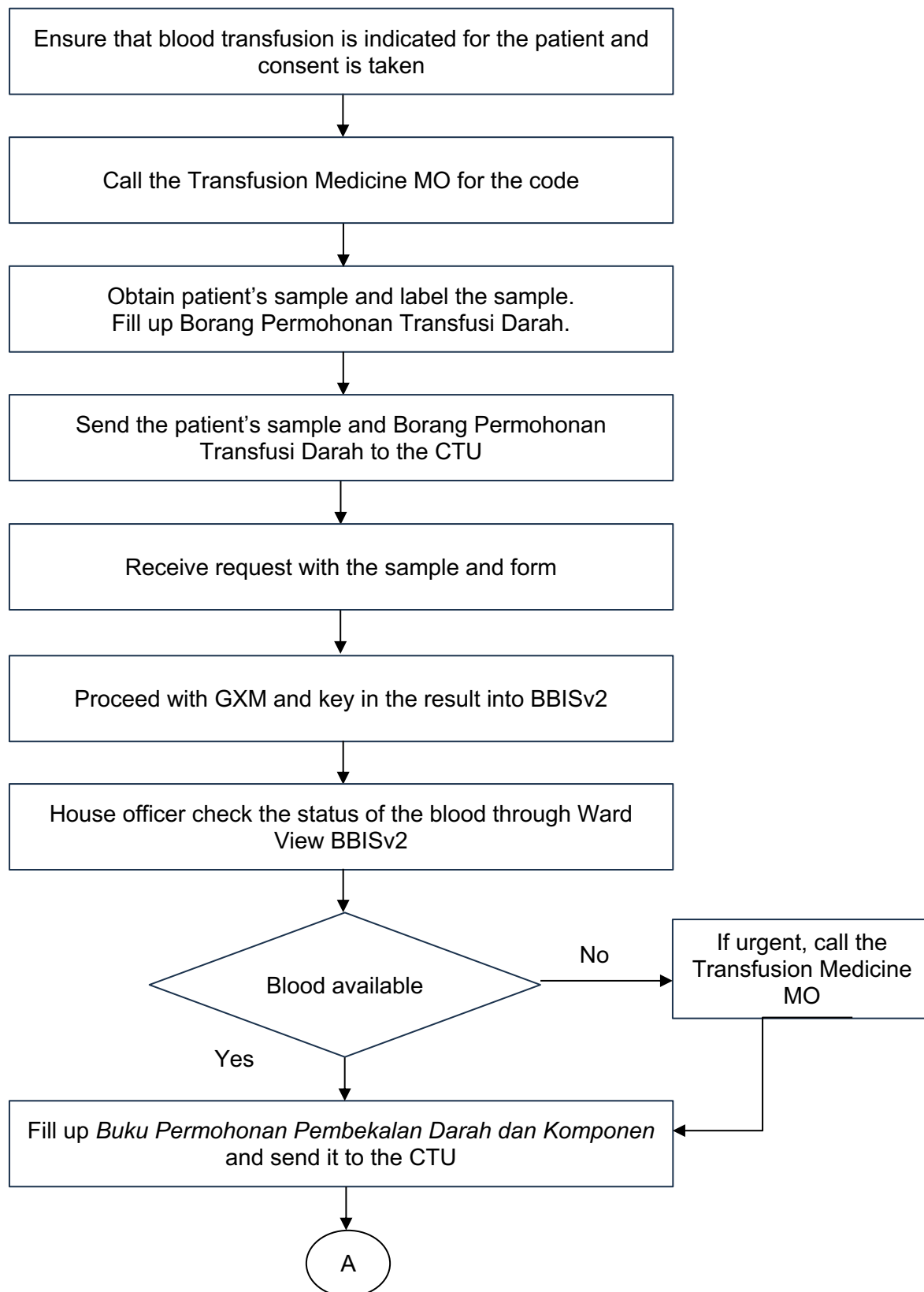
- MTP is used to identify and manage patients at risk of bleeding by standardizing blood orders for component replacement during the bleeding episode. It specifies the responsibilities of the clinical team, pathology laboratory and the blood bank. It defines communication and information to be relayed.
- Refer to Flowchart II for MTP activation and its algorithm.
- Once MTP has been activated:
 1. Fill up 5 GXM forms and 3 EDTA tubes filled with blood samples for issuance of safe O, laboratory preparation of 1st and 2nd package of MTP.
 2. Subsequent packages (3rd package of MTP onwards)
 - a. Fill up 2 GXM forms and 1 EDTA tube filled with blood samples.
 - 1 form for packed red cells and the other form for blood components
 - b. For each MTP package collected, please bring along 2 GXM forms and 1 sample in EDTA tube.
 3. Please bring along TWO blood boxes
 - a. Blood box WITH ICE: packed red cells/ FFP/ cryoprecipitate
 - b. Blood box WITHOUT ICE: platelet
- MTP is not available for paediatric age group.

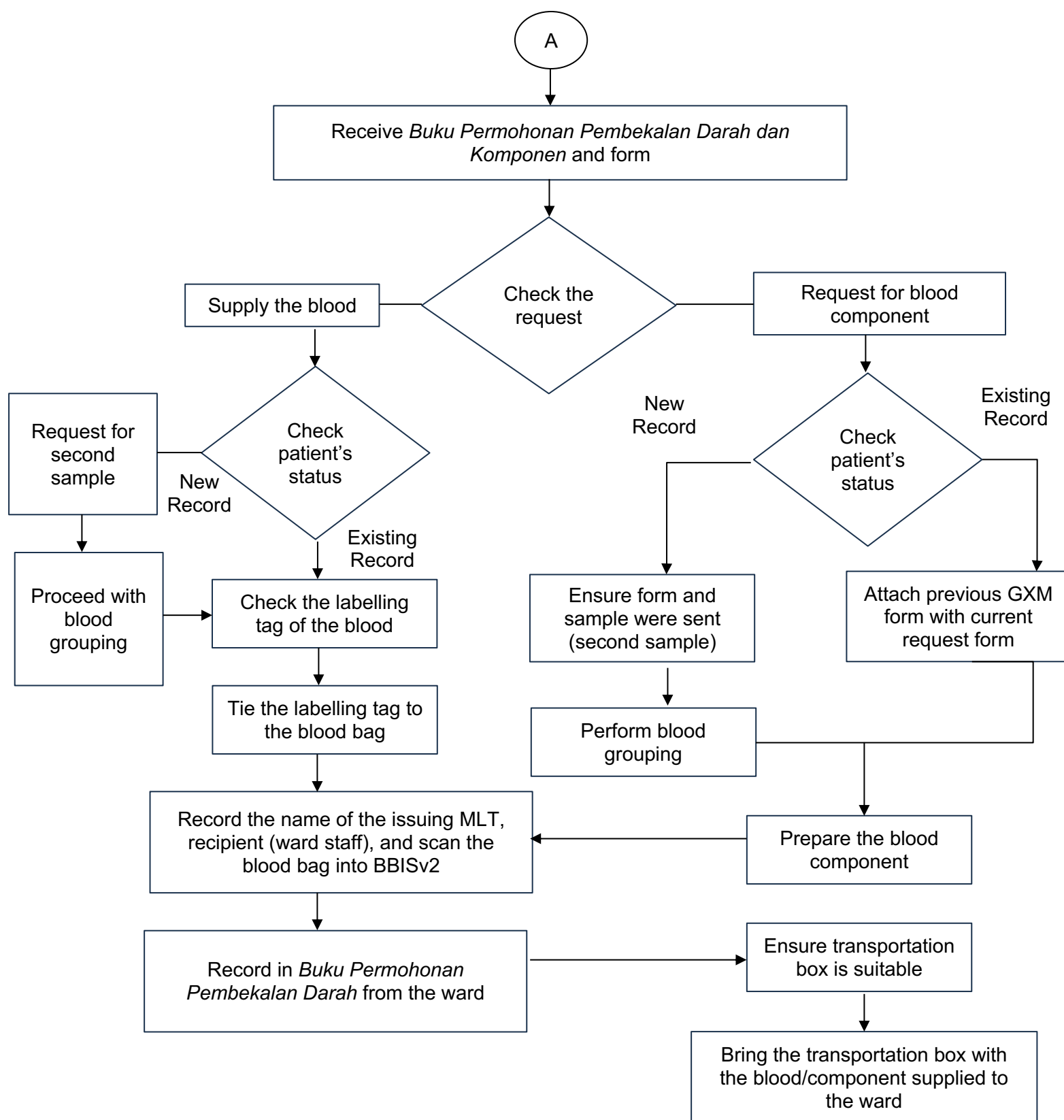
2.11 MAXIMUM SURGICAL BLOOD ORDERING SCHEDULE (MSBOS)

- MSBOS is a guideline for elective surgical procedure, which lists the number of units of red blood cells routinely requested and crossmatched for each procedure preoperatively.
- It aims to reduce wastage by eliminating unnecessary crossmatch, reduce workload for better work efficiency and preserve blood inventory.
- Refer to MSBOS HRPB for elective procedures.

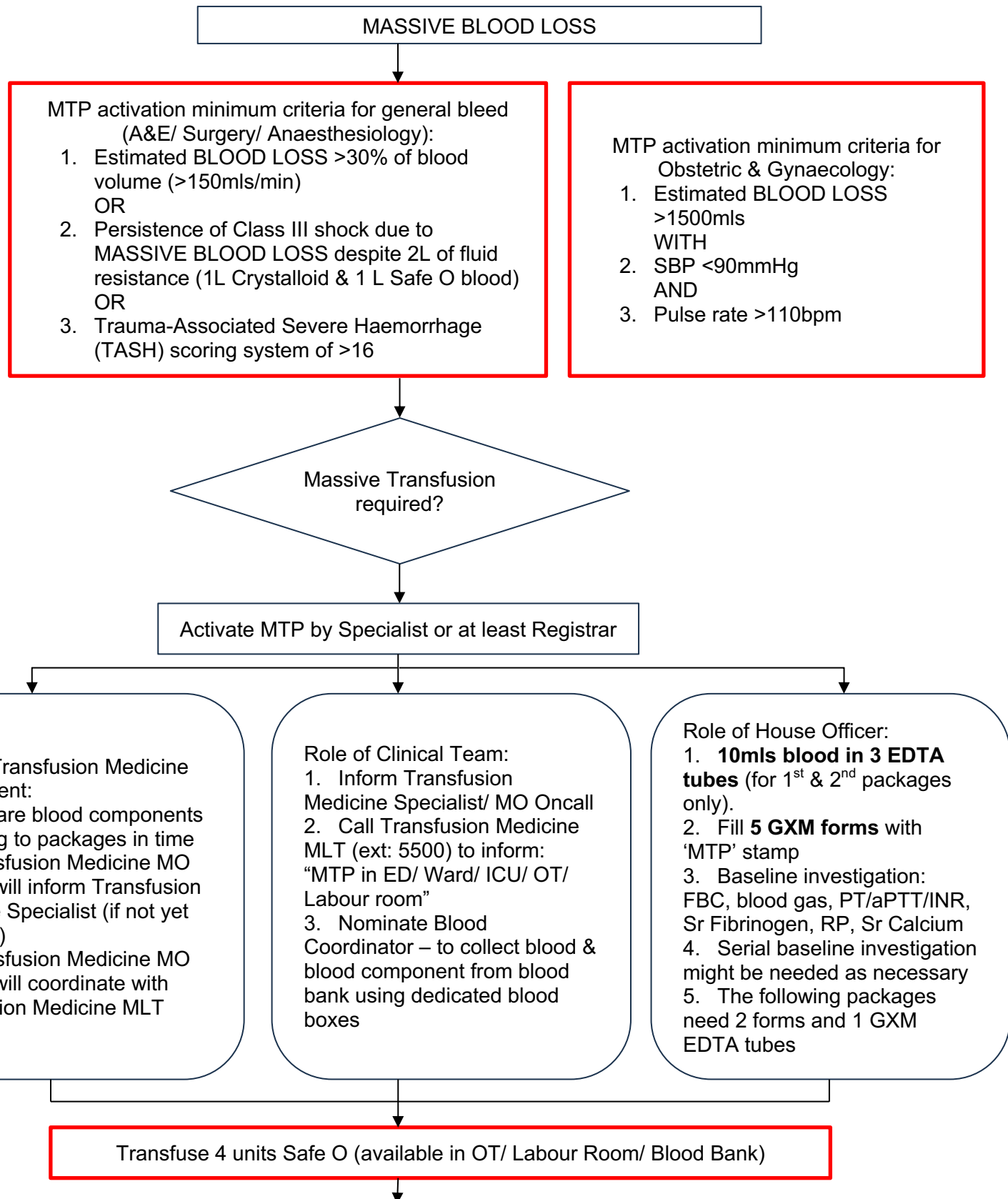
3.0 FLOWCHART

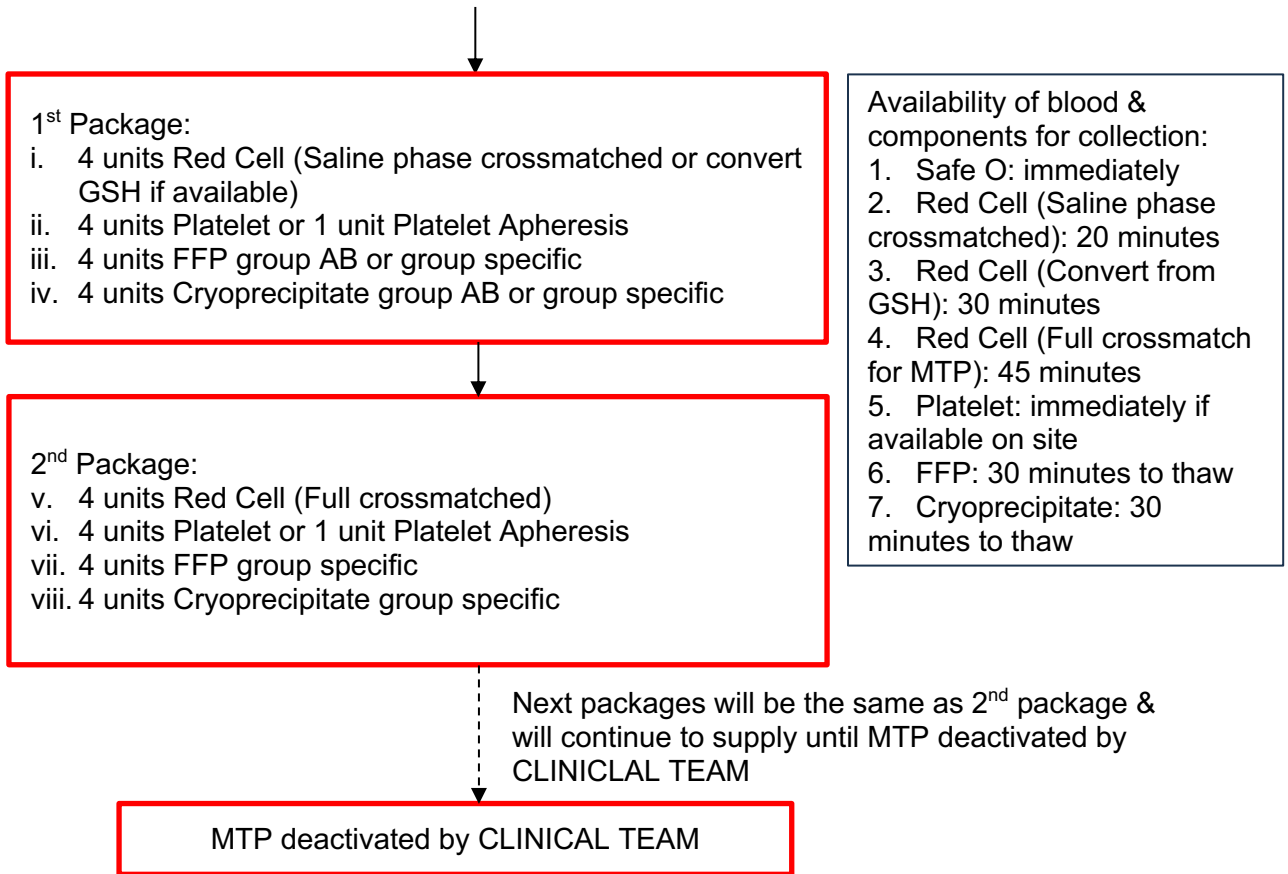
FLOWCHART I: COLLECTION OF BLOOD / BLOOD COMPONENT





FLOWCHART II: MASSIVE TRANSFUSION PROTOCOL





Notes:

- Once 1st package of blood collected, Transfusion Medicine MLT will continue to prepare 2nd package automatically and so on.
- If specific blood components e.g. Platelet is not available, other remaining blood components in the package will be supplied.
- If group specific blood component is not available, group compatible will be supplied.

4.0 APPENDICES

APPENDIX I: LIST OF TESTS AVAILABLE

NO	TEST	FORM	CONTAINER	VOLUME	NOTE
Clinical Transfusion					
1	ABO, Rh(D) grouping, 2 nd sample	Perkhidmatan Patologi PER-PAT 301	EDTA	3ml	24 hours
2	GSH	Borang Permohonan Transfusi Darah PER- SS-BT 105 (Pind. 1/2016)	EDTA	3ml	24 hours
3	GXM		EDTA	3ml	24 hours
4	Coombs test	Perkhidmatan Patologi PER-PAT 301	EDTA	3ml	Office hour
Immunohaematology					
5	ABO & Rh(D) grouping confirmation	Perkhidmatan Patologi PER-PAT 301 Permohonan Ujian Immunohematologi (HRPB) HRPB/TRANS/IH/FORM-04	EDTA	12ml	Office hour
6	Antibody identification				
7	Anti-D titre				
8	Isohaemagglutinin titre				
9	Cold agglutinin				
10	Red cell phenotyping				
11	Red cell genotyping	Permohonan Ujian Immunohematologi (HRPB) PDN/IH/QP-05/01, ver 02	EDTA	12ml	Outsourced to PDN
12	Platelet immunology test	Platelet Immunology Test Request (PDN) PDN/IH/QP-05/02, ver 02	Refer 2.10.4	Refer 2.10.4	Outsourced to PDN
Transfusion Microbiology					
13	Fresh bleed for serology test	Perkhidmatan Patologi PER-PAT 301	Plain tube with gel	6ml	Office hour
14	NAT for blood donor		K2 EDTA	8.5ml	Outsourced to PDN
15	Anti-HBs (blood donor only)		Plain tube with gel	3ml	Outsourced to PDN
16	Anti-HBc (total) (blood donor only)		Plain tube with gel	6ml	Outsourced to PDN

APPENDIX II: REGISTRY OF REFERRAL LABORATORIES AND TURNAROUND TIME OF TESTS OUTSOURCED TO REFERRAL LABORATORIES

NO	TESTS	REFERRAL LABORATORY	SCHEDULE OF TEST	TAT
Immunohaematology				
1	Confirmation of subgroup for further classification	Seksyen Immunohematologi, Bahagian Transfusi Klinikal, Pusat Darah Negara (PDN), Kuala Lumpur	Upon request and appointment	21 working days upon receipt of specimen
2	Confirmation of unresolved antibody identification			
3	Platelet antibody/ Platelet crossmatch			
4	Red blood cell genotyping			
Transfusion Microbiology				
5	HIV confirmatory test (Blood donation samples only)	Seksyen Makmal Rujuk Kebangsaan, Bahagian Transfusi Mikrobiologi, Pusat Darah Negara (PDN), Kuala Lumpur	Send on Monday & Thursday	30 working days upon receipt of specimen
6	HCV confirmatory test (Blood donation samples only)			
7	HBV confirmatory test (Blood donation samples only)			
8	Anti-HBS, anti-HBc (Blood donation samples only)			
9	Nucleic acid amplification technology testing - screening	Seksyen Saring Molekular (NAT), Bahagian Transfusi Mikrobiologi, Pusat Darah Negara (PDN), Kuala Lumpur	Send daily unless no blood collection	24 hours upon receipt of specimen
10	Nucleic acid amplification technology testing - discriminatory		Send upon BBISv2 system notification/ on Monday & Thursday if sample available	21 days from date of releasing screening result

APPENDIX III: CUSTOMER SERVICE CHARTER OF DEPARTMENT OF TRANSFUSION MEDICINE, HOSPITAL RAJA PERMAISURI BAINUN

NO	TEST	LTAT
CLINICAL TRANSFUSION / IMMUNOHAEMATOLOGY		
1	Group, screen and hold (GSH)	4 hours
2	Group and crossmatch (GXM)	2 hours
3	Conversion of GSH to GXM	1 hour
4	Saline crossmatch	30 minutes
5	Issuance of platelet	Immediately
6	Issuance of frozen plasma products	30 minutes
7	Antibody identification	7 working days *
8	Cold agglutinin	7 working days
9	ABO & Rh(D) grouping	1 working day
10	Direct antiglobulin test (DAT)	1 working day
11	Transfusion reaction workup	7 working days
TRANSFUSION MICROBIOLOGY		
12	Blood donor screening (HIV Ag/Ab, HBsAg, anti-HCV, RPR)	48 hours **
13	TPPA	14 working days

*May vary depending on complexity of case.

**For samples arrived before 5.00 pm on weekdays and 6.30 pm on weekends or public holiday)

Note: LTAT, laboratory turnaround time.

APPENDIX IV: TYPES OF BLOOD / BLOOD COMPONENTS AVAILABLE AND THEIR INDICATIONS

NO.	BLOOD COMPONENT	CONTENTS	VOLUME (ml)	STORAGE	INDICATIONS	DOSAGE EFFECT	REMARK
1.	Whole Blood	Red Cells & Plasma	350 - 450 ml	+2°C to +6°C (35 days)	▪ Exchange transfusion.	In adult, 1 unit: increases the haematocrit by 3% or the haemoglobin by 1g/dl	
2.	Red Cells	70% Red Cells	Approximately 250 ml of packed red cells suspended in 100 ml additive solution	+2° to +6°C (35 or 42 days)	To increase the oxygen carrying capacity of blood due to red cells loss or reduced erythropoiesis.		Children: 5ml-20ml/kg
3.	Red Cells, Leucocyte – Depleted	Red Cells with residual leukocyte content of less than 1×10^6 / unit	200 - 300 ml		Multi-transfused patients- e.g. Thalassaemia		
4.	Random Platelet Concentrate	Platelets prepared from platelet rich plasma	40 - 70 ml	22 °C (± 2 °C) on agitator (5 days)	Thrombocytopenia or Platelet dysfunction.	1 unit Increases platelet count by $5 \sim 10 \times 10^9$ / L	Standard Adult dose: 4-6 units within 1 hour Children: 1 unit/10kg body weight
5.	Platelet Apheresis	Platelet - by plateletpheresis	200 - 300 ml		Similar as Random Platelet Concentrate Correct thrombocytopenia in patients who demonstrate refractoriness to platelets prepared from whole blood.	1 unit Increases platelet count by $20 \sim 40 \times 10^9$ / L	
6.	Irradiated Cellular Products	Red Cells/ Platelets that are irradiated with gamma rays (25Gy) or X-rays.	Refer to the blood component	Depend on the blood component	To prevent TA-GVHD		

NO.	BLOOD COMPONENT	CONTENTS	VOLUME (ml)	STORAGE	INDICATIONS	DOSAGE EFFECT	REMARK
7.	Fresh Frozen Plasma	All coagulating factors, immunoglobulin and albumin.	200 - 250 ml	≤ - 30°C (3 years) Or -18°C to -30°C (3 months)	Deficiency of multiple clotting factors. Definite Indications: - Replacement of coagulation factor deficiency where specific or combined factor concentrate is not available. - Immediate reversal of warfarin effect if major bleeding - Acute DIC Conditional Use - Massive transfusion - Liver disease - Hemorrhagic disease of Newborn	10-20 ml/kg will increase factor levels by 20-30%	
8.	Cryoprecipitate	FVIII, Fibrinogen, VWF, FXIII, Fibronectin	35 - 55 ml		- Deficiency in inherited specific clotting factors i.e. Factor VIII Deficiency, Von Willebrand disease. - This has been superseded with factor concentrates - Afibrinogenaemia or dysfibrinogenemia. - Factor XIII deficiency. - In DIC with bleeding in conjunction with FFP.	1 unit/ 5-10kg will increase fibrinogen by 5mg/dL. 2 pools of 5 units (10 units) will raise plasma fibrinogen by 1g/L.	Standard Adult dose: 6 units transfuse over 10-20 minutes Children: 1 unit/10kg body weight
9.	Cryosupernatant	Same as FFP except for depletion of FV, FVIII & Fibrinogen	200ml		- Thrombocytopenic purpura (TTP) - Haemolytic uraemic syndrome (HUS)	10-15 ml/kg (<i>dosage for top up transfusion</i>)	

APPENDIX V: REJECTION CRITERIA

- No signature and stamp of the phlebotomist and transfusion buddy on the sample taking section in the requesting form .
- No initial of the phlebotomist on the sample.
- Incomplete patient identification.
(Name and identification card number/passport number must be provided. If there is no identification card number/passport number, the hospital RN must be stated).
- No diagnosis stated on the form.
- No date and time of blood collection on the form.
- Illegible handwriting.
- Information on the form and sample does not match / is inconsistent.
- Form and/or sample labeled with a printed label.
- Form without a carbon copy.
- Haemolysed sample.
- Clotted sample.
- Sample volume insufficient for testing.
- Form without a sample or vice versa.
- Unlabeled sample.
- Leaking sample.
- Sample collected in the wrong tube (other than EDTA).
- Duplicate request, i.e., GSH request for the same patient within a 2-day period.

Adapted from HRPB/TRANS/CTU/PK-01 (Updated 1/8/2025)

APPENDIX VI: BLOOD TRANSFUSION CONSENT FORM

BTS/TC/2/2016

CONSENT FORM FOR BLOOD OR BLOOD COMPONENT TRANSFUSION

Patient's Name:

Age:

Identity Card No.:

Sex: ☐ Male ☐ Female

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Address:

Attending Medical Practitioner: Dr.

Identity Card No.

I, the above-named/parent/guardian/spouse/next of kin of the above-named*, have been informed of the need for a blood transfusion of the patient. The attending medical practitioner has explained to me the risk and benefits involved in the transfusion as well as answering all my inquiries satisfactorily. I understand that despite testing and screening on the blood/blood components for HIV, Hepatitis B, Hepatitis C and Syphilis according to established standard, there are still risks of developing the disease. I also understand that unavoidable complications of transfusion may also occur.

I fully understood the above and hereby agree to the blood/blood component transfusion.

 Signature of the patient/

 Signature of Attending

parent/guardian/spouse/next of kin*

Medical Practitioner

Name of parent/guardian/spouse/next of kin**:

Identity Card No. of the above :

I was present while the above matter was explained to the patient/parent/guardian/spouse/next of kin* whose signature appears above. In my opinion, the person referred to has understood the contents of this form and agreed to the transfusion willingly.

 Signature of witness*

Name of witness :

Identity Card No.:

* delete appropriately

** if necessary

APPENDIX VII: BLOOD TRANSFUSION REQUEST FORM

PER-SS-BT 105 (Pind. 1/2016)		BORANG PERMOHONAN TRANSFUSI DARAH PERKHIDMATAN TRANSFUSI PERUBATAN		No. Makmal:							
(Mesti dipenuhi dalam dua salinan. Tulis dengan pen mata bulat dan sila tandakan ✓ dalam petak yang berkenaan.)											
Nama (Tulis huruf besar)		No. Kad Pengenalan		No. Daftar							
Hospital	Unit	Wad	Bangsa	Umur	Jantina						
Pegawai Kerajaan Ya/Tidak	Kelas	Bayar/Percuma	Pakar Perunding	Kumpulan Darah Ada/Tiada							
Diagnosa		Sebab transfusi komponen darah		Hb % atau keputusan lain yg berkaitan (Plt count etc)							
Transfusi darah masa lalu? Ya/Tidak		Jika 'ya' sebutkan tarikh transfusi darah yang terakhir		Komplikasi?							
Sekiranya pesakit seorang wanita, nyatakan →		Bil. kehamilan	Bil. Lahir Mati	Tanda-tanda "Haemolytic Disease of Newborn"							
Sampel darah diambil dan dilabel oleh: Saya mengesahkan bahawa saya telah mengenalpasti identiti pesakit dengan bertanya secara langsung* dan memeriksa gelang pengenalan pesakit. Saya juga mengesahkan bahawa saya telah mengambil sendiri sampel darah pesakit tersebut dan melabelkannya dengan serta merta sebaik sahaja ianya diambil. Tandatangan Nama Jawatan Tarikh Waktu pagi/petang		Units/ mls ☐ WHOLE BLOOD ☐ PACKED CELLS ☐ PAEDIPACK ☐ PLATELET CONCENTRATE ☐ CRYOPRECIPITATE ☐ FRESH FROZEN PLASMA ☐ CRYOSUPERNATANT		SPECIAL REQUIREMENT : ☐ WASHED ☐ FILTERED ☐ IRRADIATED ☐ OTHERS : ☐ GROUP, SCREEN & HOLD							
Nota:- (1) Sila hantarkan 3ml-5ml sampel darah dalam tiub EDTA. Untuk makluman, ujian keserasian memerlukan masa 2 jam. (2) Dalam keadaan kecemasan, sila hubungi makmal transfusi darah untuk pembekalan segera berdasarkan keserasian pada peringkat awal ujian. Darah yang dibekalkan mempunyai risiko ketidakserasian yang kecil. Penggunaan darah tersebut merupakan tanggungjawab pegawai perubatan yang merawat. (3) Darah yang tidak digunakan perlu dipulangkan dengan kadar segera ke makmal transfusi kecuali Pegawai Perubatan meminta dipanjangkan tempoh simpanannya di wad. (4) AMARAN: Setiap transfusi darah membawa risiko infeksi. WARNING: Every blood transfusion carries a small risk of infection.		Bekalan diperlukan (a) Serta merta, tanpa ujian keserasian darah (safe O) ☐ (untuk menyelamatkan nyawa) (b) Segera (lihat Nota 2) ☐ (c) Pada jam pg/ptg ☐ (Lihat Nota 3) (d) Sampel disimpan selama 24 jam. ☐ Saya mengesahkan bahawa sampel darah yang disertakan ini telah diambil daripada pesakit bernama seperti di atas dan dilabelkan mengikut prosedur kerja yang telah ditetapkan. Saya juga mengesahkan bahawa setelah diperiksa, pesakit ini memerlukan/ akan memerlukan transfusi darah. Tandatangan: Cop dan Nama Pegawai Perubatan: (Huruf besar)									
KHAS UNTUK KEGUNAAN KAKITANGAN MAKMAL TRANSFUSI DARAH											
Pemintaan diterima	T/Tangan	Anti A	Anti B	Anti AB	Sel A	Sel B	Sel O	Rh D	Kump. Darah	T/Tangan	Tarikh & masa
Tarikh.....											
Waktu pg/ptg											
Serum pesakit diserasikan dengan beg darah no.	UJIAN KESERASIAN DARAH								Catatan		
	R.T.	37°C	AHG	T/Tangan.	Tarikh & masa						

APPENDIX VIII: BLOOD OR BLOOD PRODUCT REQUEST FORM

HRPB/TRANS/INVEN/FORM-01



**BORANG PERMOHONAN BEKALAN
DARAH DAN KOMPONEN
DARI UNIT INVENTORI
JABATAN PERUBATAN TRANSFUSI, HRPB, IPOH**



HOSPITAL :

Faks: 05-2469010

TARIKH :

Butir bekalan yang dipohon :

Bil	Kumpulan Darah	Rh Pos (✓)	Rh Neg (✓)	Whole Blood	Packed Cell	Filtered Red Cell	Random Platelet	Apheresis Platelet	FFP	Cryoper cipitate	Cryosuper natan (LP)
1.	O										
2.	A										
3.	B										
4.	AB										
5.	Lain-lain	Nyatakan:									

Perbincangan melalui telefon di antara dan
..... adalah dirujuk.

Kod pembekalan (jika ada) adalah

Nama dan tandatangan pemohon:

Tarikh :

Untuk Kegunaan Makmal Unit Inventori, HRPB, Ipoh :

Pembekalan telah dibuat dan bilangan unit yang dibekalkan * mengikut permintaan / TIDAK mengikut permintaan kerana

Nama dan tandatangan petugas makmal:

Tarikh :

VERSI 2:2020

APPENDIX IX: RETURN OF UNUSED BLOOD/ BLOOD PRODUCT FORM

HRPB/TRANS/CTU/AK-05/FORM-01

BORANG PEMULANGAN BEG DARAH YANG TIDAK DIGUNAKAN

1. MAKLUMAT PESAKIT

NAMA : WARD/CLINIC :
 IC : DIAGNOSIS :
 RN No : SEBAB TRANSFUSI :

2. MAKLUMAT PERMOHONAN

JUMLAH UNIT YANG DIPOHON		JUMLAH UNIT YANG DIAMBIL		JUMLAH UNIT YANG DIGUNAKAN	
--------------------------	--	--------------------------	--	----------------------------	--

3. SEBAB PEMULANGAN BEG DARAH/KOMPONEN DARAH YANG DIPERLUKAN :

TANDAKAN (v) DIPETAK YANG BERKENAAN:

1.	PESAKIT MENINGGAL DUNIA	
2.	PESAKIT TELAH DIRUJUK KELUAR / DISCAJ AT OWN RISK	
3.	PESAKIT ADA REAKSI TRANSFUSI	
4.	PESAKIT ENGGAN MENERIMA PEMINDAHAN DARAH	
5.	BEG DARAH ROSAK/BERMASALAH	
6.	PRODUK DARAH YANG SALAH	
7.	UNTUK DISIMPAN SEMENTARA DI MAKMAL	

LAIN-LAIN SEBAB JIKA DARAH TIDAK DIGUNAKAN:

4. MAKLUMAT BEG DARAH/KOMPONEN DARAH YANG DIPULANGKAN

Diisi oleh pihak wad/ klinik					Diisi oleh pihak makmal							
No.	NOMBOR BEG DARAH	JENIS KOMPONEN DARAH	PENGAMBILAN		PEMULANGAN		KEADAAN FIZIKAL BEG BAGUS		SUHU BEG DARAH	LUPUS		CATATAN
			TARIKH	MASA	TARIKH	MASA	YA	TIDAK		YA	TIDAK	

PEGAWAI YANG MELAPOR :

JTMP YANG MENERIMA :

TANDATANGAN :

TANDATANGAN :

NAMA :

NAMA :

TARIKH/MASA :

TARIKH/MASA :

Versi 1 : 2023

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APPENDIX XI: REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION (BLOOD AND BLOOD COMPONENTS)

BTS/TR/2/2016

REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION
(BLOOD AND BLOOD COMPONENTS)

1. When a patient has an adverse reaction to any blood or blood component, **STOP** transfusion immediately. **URGENTLY** inform the doctor in charge of the patient and the Blood Bank.
2. Report all reactions and do the following:
 - 2.1 Preserve the blood bag and giving set with all attached labels. Seal it securely and send immediately to the Blood Bank.
 - 2.2 Send the following samples for transfusion reaction investigation to the Blood Bank or relevant laboratory.
 - a. Post-transfusion sample 1 (immediately)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - b. Post-transfusion sample II (after 24 hours)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - 2.3 Please send for other appropriate investigations if necessary.
 - 2.4 Please refer to Section 10: Adverse effect of transfusion in Handbook on Clinical Use of Blood for details.

Hospital: Ward/Clinic:

Patient's name: IC/Passport No:

Race: Age: Sex:

Diagnosis:

- i. Date and time transfusion started
- ii. Date and time of onset of reaction
- iii. Blood/ Blood Component Serial No.
- iv. Volume Blood/ Blood Component transfused
- v. Blood Pressure: Before transfusion After transfusion
- vi. Temperature: Before transfusion After transfusion

Page 1 of 2

BTS/TR/2/2016

vii. Nature of Reaction: Tick off (✓) the positive symptoms/signs.

Fever	☐	Shock	☐	Haematuria	☐
Chills /Rigors	☐	Jaundice	☐	Haemoglobinuria	☐
Urticaria	☐	Dyspnoea	☐		
Pain	☐	(Location of pain if present.....)			

viii. Solution used for starting IV drip: - N.Saline / 5% Dextrose / Others

ix. History of previous transfusion: Yes / No

Date of last transfusion:

x. History of previous transfusion reaction if any:

.....
.....

xi. Medication (If any, please specify):

.....
.....

xii. Applicable for female patients ONLY:

History of pregnancy: Yes / No No. of pregnancies:

History of abortion: Yes / No No. of abortions:

xiii. History of transplant:

Date of transplant:

Date:

Signature:

Name:

**PLEASE SEND THIS FORM TO THE BLOOD BANK WITH ALL
REQUIRED SAMPLES FOR INVESTIGATION**

Page 2 of 2

APPENDIX XII: REPORTING FORM FOR TRANSFUSION-RELATED ADVERSE EVENT

BTS/HV/3/2016

**REPORTING FORM FOR TRANSFUSION-RELATED ADVERSE EVENT
TRANSFUSION MEDICINE SERVICE
KEMENTERIAN KESIHATAN MALAYSIA**

IMPORTANT INFORMATION

1. Every adverse event related to transfusion of blood or blood component shall be managed, investigated and documented accordingly.
2. The form must be completed and returned to the blood bank within 2 weeks of the incident.
3. The blood bank shall retain the completed form and send a copy to the State Transfusion Committee and the National Haemovigilance Coordinating Centre (NHCC), Pusat Darah Negara within a month.

Reported by:

Name:	Designation:
Email:	Tel. No:
Date:	Fax No:

SECTION A: PATIENT DETAILS

Name of Patient:		
NRIC/ Passport No:	Age:	Hospital:
Barcode:	Gender:	Ward:
		Department:

SECTION B: TYPE OF ADVERSE EVENTS

- B1. TRANSFUSION REACTION ☐ (Fill up section C-J)
- B2. ERROR IN TRANSFUSION PROCESS ☐ (Fill up section C-K)
- a) INCORRECT BLOOD COMPONENT TRANSFUSED ☐ (Proceed to SECTION K1 for 'NEAR MISS' on page 4)
- b) NEAR MISS ☐ (Proceed to SECTION K2 for 'INCIDENT' on page 4)
- c) INCIDENT ☐

Near Miss: Any error that has occurred but did not cause any adverse event as it was detected prior to blood transfusion.

SECTION C: ONSET OF ADVERSE EVENT

- C1. IMMEDIATE (within 24 hours of transfusion) ☐
- C2. DELAYED (after 24 hours of transfusion) ☐

SECTION D: BLOOD COMPONENTS IMPLICATED IN THE ADVERSE EVENT

D1. Whole blood	☐	Irradiated:	YES / NO	Filtered:	YES / NO
D2. Packed Cells	☐	Irradiated:	YES / NO	Filtered:	YES / NO
D3. Apheresis Platelet	☐	Irradiated:	YES / NO	Pathogen Inactivated:	YES / NO
D4. Random Platelet	☐	Irradiated:	YES / NO		
D5. Fresh Frozen Plasma	☐				
D6. Cryoprecipitate	☐			Pathogen Inactivated:	YES / NO
D7. Cryosupernatant/ Liver plasma	☐				
D8. Others (please specify)	☐				

SECTION E: DETAILS OF ADVERSE EVENTS

E1. Date of transfusion: (DD/MM/YY)	____/____/____
E2. Time transfusion started:	____ am/pm
E3. Time reaction occurred:	____ am/pm
E4. Volume transfused:	____ ml / unit

SECTION F: RELEVANT CLINICAL HISTORY

- F1. Patient's primary / provisional diagnosis: _____
- F2. Indication for transfusion: _____
- F3. History of pregnancy / miscarriage (if applicable): ☐ YES ☐ NO
- F4. a) History of previous transfusion: ☐ YES <3 mths ☐ YES >3 mths ☐ NO ☐ UNKNOWN
 b) If YES, component transfused: _____
 c) Reaction towards transfusion: ☐ YES ☐ NO
 d) If YES, please describe: _____
- F5. Other relevant medical and/or surgical history: _____
- F6. Emergency crossmatch (immediate spin) ☐ YES ☐ NO
- F7. Transfusion with safe "O" or uncrossmatched group specific blood ☐ YES ☐ NO

SECTION G: SIGNS AND SYMPTOMS [Tick all that apply (✓)]

- G1. General: ☐ Chill ☐ Rigors ☐ Fever ☐ Nausea ☐ Haemorrhage
☐ Restlessness / Anxiety ☐ Vomiting ☐ Cyanosis
☐ Others (specify) _____
- G2. Cardiovascular: ☐ Chest pain ☐ Palpitation ☐ Others (specify) _____
- G3. Skin: ☐ Oedema ☐ Flushing ☐ Hives ☐ Itching ☐ Pallor
☐ Jaundice ☐ Urticaria ☐ Petechiae ☐ Rash
- G4. Pain: ☐ Infusion site pain ☐ Abdominal pain ☐ Chest pain
☐ Flank pain ☐ Headache ☐ Back pain
☐ Other pain (specify) _____
- G5. Renal: ☐ Oliguria ☐ Anuria ☐ Dark coloured urine
- G6. Respiratory: ☐ Cough ☐ Hypoxia ☐ Dyspnoea
☐ Wheezing ☐ Others (specify) _____
- G7. Patient's baseline observations prior to reaction: Temperature: ____°C, BP: ____ Pulse rate: ____ RR: ____ SPO₂ ____
- G8. Patient's baseline observations at time of reaction: Temperature: ____°C, BP: ____ Pulse rate: ____ RR: ____ SPO₂ ____

SECTION H: RELEVANT INVESTIGATIONS

- H1. Chest X-ray findings (specify): _____
- H2. Relevant **pre-transfusion** laboratory investigation results:
 Full blood count: _____
 Liver Function: _____
 Coagulation Test: _____
- H3. Relevant **post-transfusion** laboratory investigation results:
 Full blood count including Reticulocyte count: _____
 Liver Function: _____
 Coagulation Test: _____
 Red cells antibodies: _____
 Haptoglobin: _____
 Blood C&S Patient: POS/ NEG Organism: _____
 Blood C&S Donor: POS/ NEG Organism: _____
 Urine FEME: _____
☐ Haemoglobinuria ☐ Hematuria
- H4. State other relevant investigations if any: _____

SECTION I: PATIENT OUTCOME FROM THE ADVERSE EVENT

11. Recovered with no ill effects ☐

12. Recovered with illness (morbidity) ☐

Time frame of recovery _____

Specify the morbidity _____

13. Death ☐

14. a) Unlikely related to transfusion ☐

b) Probable related to transfusion ☐

c) Possible related to transfusion ☐
SECTION J: TYPE OF ADVERSE EVENTS: [Tick where applicable]

Section	Events	✓	*
J1	Incorrect Blood Component / Product Transfused (Proceed to SECTION K for 'IBCT' on page 4)		*
	J1.1. Acute Immune Haemolytic Anaemia		*
	J1.1a. ABO incompatible		*
	J1.1b. Other red cell incompatibility (e.g. Rh positive given to Rh negative)		*
	J1.2. Blood is compatible but meant for another patient		*
	J1.3. Others :		
	J1.3a. Special requirement not met (e.g. irradiated, filtered, phenotyped)		*
	J1.3b. Inappropriate transfusion (e.g. wrong component)		*
J2	Delayed Haemolytic Transfusion Reaction		*
J3	Non-immune hemolytic reaction (due to mechanical factor, osmotic, heat, cold, etc)		*
J4	Febrile Non- Haemolytic Transfusion Reaction (FNHTR)		
J5	Allergic Reaction		
	a) Mild (Rash / Urticaria)		
	b) Moderate (Anaphylactoid)		*
	c) Severe (Anaphylactic Transfusion Reaction)		*
J6	Transfusion-Related Acute Lung Injury (TRALI)		*
J7	Transfusion-Associated Circulatory Overload (TACO)		*
J8	Transfusion-Associated Dyspnoea (TAD)		*
J9	Transfusion-Associated Graft-versus-Host Disease (TA-GvHD)		*
J10	Post-Transfusion Purpura (PTP)		*
J11	Post-Transfusion Infection : Virus (please specify) _____		*
J12	Post-Transfusion Infection : Bacteria (please specify) _____		*
J13	Post-Transfusion Infection : Parasite (please specify) _____		*
J14	Handling and storage error		*
J15	Equipment related (e.g. faulty waterbath, transfusion set, etc)		*
J16	Others , please specify :		*

*** Please send detailed report for all transfusion reaction except for FNHTR & mild allergy.**

SECTION K: ERRORS AND INCIDENTS IN TRANSFUSION PROCESS [Tick all that apply (✓)]**K1. IBCT AND NEAR MISSES IN TRANSFUSION PROCESS.**

No	CLASSIFICATION OF ACTUAL ERRORS / NEAR MISS	
1.	ERROR IN WARD	
	a) Sampling error at time of blood taking	
	b) Labelling error at time of blood taking	
	c) Cause cannot be determined	
2.	TESTING (BLOOD BANK)	
	a) Technical error	
	b) Transcription error	
	c) Blood issued meant for another patient	
3.	BLOOD ADMINISTRATION IN THE WARD	
	a) Failure to check the blood against patient's full identity.	
	b) Others (please specify)	

**K2. OTHER INCIDENTS RELATED TO TRANSFUSION PROCESS.
(Tick ✓ where applicable)**

a)	Sharing same ID (IC, UNHCR, Passport)	
b)	Possible blood grouping error in other hospitals / clinics	
c)	Error in previous admission	
d)	Others (please specify)	

K3. ERROR/ INCIDENT DISCOVERED (Tick ✓ where applicable)

- ☐ Pre-Transfusion
☐ During Transfusion
☐ Post-Transfusion

Please describe in detail how error was discovered (additional pages to be filled if necessary):

Please send root cause analysis (RCA) report for all IBCTs and Near Misses.

APPENDIX XIII: BLOOD/ BLOOD PRODUCT TRANSFUSION CHECKLIST

HRPB/TRANS/CTU/FORM-01

SENARAI SEMAK TRANSFUSI DARAH / KOMPONEN DARAH
(BLOOD / BLOOD PRODUCT TRANSFUSION CHECKLIST)
JABATAN PERUBATAN TRANSFUSI HOSPITAL RAJA PERMAISURI BAINUN

I. MAKLUMAT PESAKIT (PATIENT INFORMATION)

Nama (Name) :

No. KP (I/C No.) : No. R/N (R/N No.):.....

Wad (Ward) : Tarikh (Date) :

Pakar Perunding (Huruf Besar) :

Consultant (Block Letters) :

II. PENGESAHAN DARAH / KOMPONEN DARAH (VERIFICATION OF BLOOD / BLOOD PRODUCT)

A. Pastikan darah / komponen darah adalah sepadan dengan memeriksa borang permohonan darah, 'compatibility label' dan beg darah :
(Verify blood or plasma is compatible by checking blood request form, compatibility label and blood bag) :

	Req. form	Comp. label	Blood bag	Dr	J/T
i. Nama Pesakit (Patient's Name) :					
ii. No. KP (I/C No.) :					
iii. Kumpulan Darah & Rh (Blood Group & Rh) :					
iv. No. Beg Darah (Blood Bag No.) :					
v. Jenis Darah / Komponen Darah :					

Nama Pegawai Perubatan : Nama Jururawat Terlatih :

(Name of Medical Officer) (Name of Staff Nurse)

Tandatangan (Signature) : Tandatangan (Signature) :

B. Pastikan dengan pesakit yang menerima darah/ komponen darah (Verify with patient receiving blood/ blood product) :

	Dr	J/T
i. Tanya pesakit / waris (Asking patient/ relative)		
ii. Pastikan nama dan No. K/P pada gelang tangan <i>(Verify patient's name and I/C No. on the wrist band)</i>		

Nama Pegawai Perubatan : Nama Jururawat Terlatih :

(Name of Medical Officer) (Name of Staff Nurse)

Tandatangan (Signature) : Tandatangan (Signature) :

C. Prosedur Transfusi (Transfusion Procedure) :

No. Beg Darah (Blood Bag No.) :

Masa mula transfusi (Time of commencement) :

Masa tamat transfusi (Time of completion) :

Reaksi Transfusi (Any reaction) : Ya (Yes) Tidak (No)

Jika ada, sila nyatakan (If yes, please state reaction) :

Nama (Name) :

Tandatangan (Signature) :

Nota: Senarai semak **mestilah** dilakukan seboleh-bolehnya oleh dua orang (doktor / jururawat terlatih/penolong pegawai perubatan) bersama pesakit. Jika tiada doktor, pemeriksaan hendaklah dilakukan oleh dua orang paramedik (penolong pegawai perubatan / jururawat terlatih).
(Checklist preferably must be done by two persons (doctor / nurse/ medical assistant) at the bedside with the patient. If doctor is not available, checklist must be done by two paramedics (medical assistant / staff nurse).
 Borang perlu disimpan di dalam fail pesakit untuk rujukan selanjutnya.
(Form is to be kept in patient notes for further reference).

Versi 2 : 2025

APPENDIX XIV: REFERRAL LETTER FOR AUTOLOGOUS PREDEPOSIT

Referral letter for autologous pre-deposit (addressed to the doctor in charge of the pre-deposit programme)

Dear _____

This patient has requested autologous pre-deposit for his/her operation. I have discussed this with the patient, with appropriate reference to the Guideline for Pre-operative Autologous Donation and am of the opinion that he/she is medically suitable for the procedure.

I would be grateful if you could see him/her with a view of making the necessary arrangements.

Patient's name (Mr/Mrs/Ms): _____

Date of Birth: _____ I/C number: _____

Ward: _____ R/N: _____

Address: _____

Date of admission: _____

Date of operation: _____

Planned procedure: _____

Underlying pathology: _____

Requested number of donations (maximum is 4): _____

Haemoglobin (g/dL) : _____

Additional remarks: _____

Referring consultant clinician : _____

Signature : _____

Name (BLOCK LETTER) : _____

Date : _____

APPENDIX XV: CONSENT FORM FOR AUTOLOGOUS PREDEPOSIT

Consent for autologous transfusion

The purpose of autologous transfusion has been explained to me by Dr _____ who has also explained its possible complications and hazards.

I agree to my blood being withdrawn and stored for autologous transfusion.

I understand that it may not be possible for technical reasons to return to me all or any of the units which I donate.

I understand that it may be necessary to supplement my autologous transfusion with blood from volunteer donors from the Transfusion Services.

I agree to my blood being tested for HbsAg, anti-HCV, anti-HIV and RPR. In the event of a positive result in any of these tests, I agree to the clinician in charge of my case being informed.

Signature :

Date :

Witness :

APPENDIX XVI: IMMUNOHAEMATOLOGY TEST REQUEST FORM (HRPB)

HRPB/TRANS/IH/FORM-04

		JABATAN PERUBATAN TRANSFUSI, HRPB, IPOH			
		PERMOHONAN UJIAN IMMUNOHEMATOLOGI			
A	Nama Pemohon / Pegawai Perubatan				
	Hospital				
	Jabatan / Wad		Tandatangan / Cop rasmi		
	Telefon				
B	Nama Pesakit				
	No IC / Pasport		Bangsa / Etnik		
	Jantina		Aras Hb		
	Diagnosis Pesakit				
SEJARAH KLINIKAL / TRANSFUSI					
C : JENIS PERMOHONAN UJIAN					
Tanda (✓) pada ruang ujian yang diperlukan	☐	☐	☐	☐	☐
Maklumat Ujian	<i>Ujian Ab Identification Sahaja</i>	<i>Ujian Ab Identification & GXM/bekalan darah</i>	<i>Crossmatch (GXM) & bekalan darah</i>	<i>Bekalan beg darah Fenotip sahaja</i>	<i>Lain-lain ujian</i>
Kumpulan Darah ABO/Rh					
Keputusan Ujian Saringan Antibodi					
Jenis Antibodi Terdahulu (jika ada)					
Unit darah yang diperlukan					
Tarikh diperlukan					
Jenis Fenotip yang diperlukan					
Sampel Darah	PERLU	PERLU	PERLU	TIDAK PERLU	PERLU
Borang GXM PER-SS-BT-105 (Pind 1/2016)	Jika perlu	PERLU	PERLU	TIDAK PERLU	TIDAK BERKAITAN
PERHATIAN: 1. Hantar sampel darah sebanyak 12 ml iaitu 4 tiub EDTA dengan 3 ml sampel darah setiap satu bersama Borang Makmal PER-PAT 301 yang telah lengkap diisi. 2. Isi borang ini dengan lengkap dan tepat. 3. Permohonan ini akan ditolak sekiranya: • Maklumat borang dan tiub tidak lengkap • Borang tidak disertakan bersama sampel • Menggunakan tiub sampel yang salah • Bilangan tiub / isipadu yang tidak mencukupi Maklumat penolakan akan dimaklumkan terus kepada makmal yang memohon ujian. 4. Bagi permohonan ujian khas, sampel hanya boleh dihantar setelah perbincangan dibuat antara hospital dan JTMP y/m Unit Immunohematologi, HRPB.			Nama Pegawai Perubatan (MO) HRPB yang dihubungi		
			Kod MO HRPB		Tarikh Permohonan
			Untuk kegunaan Unit IH, HRPB sahaja		
			Nombor rujukan makmal		Tarikh sampel diterima
			Nama & t/tangan JTMP IH yang menerima sampel		
			Catitan:		

Versi 1 : 2024

APPENDIX XVII: IMMUNOHAEMATOLOGY TEST REQUEST FORM

PDN/IH/QP-05/01, ver 02
Effective date : 01 October 2024

Permohonan Ujian Immunoematologi (PDN)

Makmal Rujukan Immunoematologi Kebangsaan (MRIK), Pusat Darah Negara, Jalan Tun Razak, 50400 Kuala Lumpur
No telefon : 03-2613 2688 ext 2672 / 5640 (Red Cell / Genotyping), ext 2766 (Platelet)

BAHAGIAN A : Maklumat Pesakit

Nama Pesakit :	Etnik :	
No KP / Passport :	Hospital :	Umur :
Diagnosis :	Hb :	Jantina :
Sejarah transfusi :	Ringkasan klinikal :	
** Digalakkan untuk keipikan bersama borang patologi / surat rujukan hospital yang mengandungi maklumat sejarah transfusi / ringkasan klinikal pesakit.		

BAHAGIAN B : Maklumat Pemohon (Tabung Darah Hospital) dan Pelulus Permohonan (PDN)

Maklumat doktor / pemohon	Maklumat MO PDN dihubungi	Sila imbas kod QR berikut untuk akses ke MRIK Customer Referral Guide  bit.ly/MRIKrequestPDN
Nama :	Nama :	
Tandatangan :	Tarikh :	
No telefon :	Masa :	
Cop rasmi :		
Tarikh :		

BAHAGIAN C : Maklumat Permohonan Ujian (berdasarkan MRIK Customer Referral Guide, PDN/IH/QP-05/G01)

✓ ujian dipohon	Maklumat sokongan ujian (mandatory untuk diisi)		Ujian / maklumat lain (sekiranya ada) :
Blood Group Investigation	Nyatakan diskrepansi : / penemuan makmal anda		
Anti-human Globulin (AHG) Test	Saringan antibodi : BG : Sel 1 : Sel 2 : Sel 3 : DAT : Jenis antibody terdahulu (jika ada) :		
Crossmatching	No Kod MO PDN :	Blood Group : Bil. darah diperlukan : Tarikh diperlukan : Permohonan khas : (cth : irradiate)	
Transfusion Reaction	Sila sertakan borang haemovigilans dan sampel pesakit/beg penderma seperti yang disenaraikan dalam MRIK Customer Referral Guide.		
Genotyping	Profil sistem darah yang dimohon : Keputusan ujian serologi :		

**** Nota : untuk maklumat persampelan, sila rujuk MRIK Customer Referral Guide melalui kod QR yang disertakan.**

Prepared by : Nurul Munira Bt Yahya

Reviewed by : Dr. Rozi Hanisa Bt Musa

Approved by : Dr. Nor Hafizah Bt Ahmad

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APPENDIX XVIII: PLATELET IMMUNOLOGY TEST REQUEST FORM (PDN)

PDN/IH/QP-05/02, ver 02
Effective date : 01 October 2024

Platelet Immunology Test Request (PDN)

Makmal Rujukan Imunohematologi Kebangsaan (MRIK), Pusat Darah Negara, Jalan Tun Razak, 50400 Kuala Lumpur
No telefon : 03-2613 2688 ext 2766 (Platelet), ext 2672/5640 (Red Cell / Genotyping)

IMPORTANT : Note on Platelet Immunology Test Request	MRIK Referral Guide
- All platelet Immunology case must be discussed with specialist (on-call) PDN for approval of referral. - Collect fresh sample before sending. All samples must reach lab within 48 hours. Sample reception is during office hours only. - New case of PXM must be requested with PAb. However, if PAb is neg, PXM may be cancelled. - For additional PXM request (initial case of less than 2 weeks), please call MO PDN (on-call) to check on sample availability. If sample is still available, verbal request is accepted. If new sample required, please send the samples together with this form. - For all PXM request, please advise MO on-call PDN to raise PXM notification form to the lab, once request approved.	 bit.ly/MRIKrequestPDN

Detail of patient and requesting doctor			
Patient's name :	Age :	Ward :	
ID No :	Gender :	Hosp name :	
Platelet count :	Pregnant : ☐ Yes ☐ No	Ethnicity :	Details of medical officer requesting :-
Indication** Diagnosis:	Select test required ☐ Platelet antibody identification (PAb) ☐ NAIT investigation ☐ NAIT family HPA genotyping (only if NAIT is positive for anti-HPA) ☐ Platelet Crossmatch (PXM) supply • See note above, point # 3-5 • Name of MO PDN spoken to :	Signature : Name : Official stamp : Tel num. : Date and time :	Name of specialist (PDN) approving :

Clinical History			
Clinical presentation, sign and symptom. Preliminary / working diagnosis. History of medication.		FBP result to rule out pseudo-thrombocytopenia:	
History of blood product transfusion, platelet count trend. Indication of immune-mediated thrombocytopenia.			
For NAIT case only	History of current delivery – birth history / ICH / IUT / onset of thrombocytopenia		
	Family history of previous miscarriage / stillbirth / pre-mature / NAIT delivery and severity / platelet dysfunction		
	History of mother in current pregnancy / delivery. Any miscarriage / stillbirth ?	Gravida : Para :	History of antenatal ITP / Autoimmune disease and medication received :
	Availability of father's sample	Available and sent together with this request Name : ID No :	Not available Reason :

**** Whole blood volume. Do not spin / process.**
 NAIT case - Mother : 10ml EDTA tube and 10ml in plain tube (biological parent sample)
 - Father : 10ml EDTA tube
 - Baby : 1ml in EDTA tube
 PTR and PTP case - Platelet crossmatch
 - 10ml in EDTA tube, and 10ml plain tube
 ITP case - 10ml plain tube, and 10ml in EDTA tube (if plt > 20 x 10⁹/L)
 - 15 – 20 ml in EDTA (if plt 10 - 20 x 10⁹/L)
 - 2ml in EDTA if plt < 9 x 10⁹/L

Prepared by : Nurul Munira Bt Yahya

Reviewed by : Dr. Rozi Hanisa Bt Musa

Approved by : Dr. Nor Hafizah Bt Ahmad

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5.0 ABBREVIATION

LIST OF ABBREVIATIONS USED

BBISv2	Blood Bank Information System version 2
CTU	Clinical Transfusion Unit
DIC	Disseminated intravascular coagulopathy
EDTA	Ethylenediaminetetraacetic acid
FFP	Fresh frozen plasma
GSH	Group, screen, hold
GXM	Group and crossmatch
Hb	Haemoglobin
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HRPB	Hospital Raja Permaisuri Bainun
HUS	Haemolytic uraemic syndrome
IH	Immunohaematology
ITP	Immune thrombocytopaenia purpura
IC	Identification card
MO	Medical officer
MOU	Memorandum of understanding
MLT	Medical Laboratory Technologist
MSBOS	Maximum surgical blood ordering schedule
NAIT	Neonatal alloimmune thrombocytopenia
NAT	Nucleic acid test
RPR	Rapid plasma reagin
PDN	Pusat Darah Negara
PTP	Post transfusion purpura
RBC	Red blood cells
TA-GVHD	Transfusion associated graft versus host disease
TAT	Turnaround time
TML	Transfusion microbiology laboratory
TTP	Thrombotic thrombocytopenic purpura

PREFACE

Transfusion medicine focuses on the safe and effective use of blood and blood components. It is a unique discipline as it involves both clinical and laboratory practices. It combines the science of immunohaematology, the art of clinical practice, and the technology of various serological and molecular testings.

This Transfusion Medicine handbook aimed to serve as a guide for healthcare professionals, and laboratory personnel as part of patient management. It provides an overview of the principles, processes, and best practices essential for safe transfusion practices. I hope this manual could become an invaluable resource in your practice.

Lastly, I would like to express my heartfelt gratitude to the editorial board and all those who have contributed to the success of this work.



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1.0 GENERAL INFORMATION

1.1 INTRODUCTION

The Department of Transfusion Medicine was established on January 1, 2014, which consists of 7 units: the Procurement Unit, the Component Unit, the Inventory Unit, the Immunohaematology Unit, the Clinical Transfusion Unit, the Transfusion Microbiology Unit, and the Quality Unit. The main functions of this department include:

- Establishing and maintaining a pool of safe blood donors.
- Providing safe, sufficient, and appropriate blood and blood components through standardized screening procedures and inventory storage practices in accordance with international standards.
- Ensuring optimal patient care through the appropriate use of blood and blood products.
- Establishing and maintaining collaborative relationships through training, research, and development aligned with the latest practices and technologies in modern medicine.
- Providing advisory services and serving as a referral center for the entire state of Perak Darul Ridzuan.

1.2 QUALITY POLICY

The Department of Transfusion Medicine at Hospital Raja Permaisuri Bainun (HRPB), Ipoh, implements a Quality Management System based on Good Manufacturing Practice, MS ISO 15189:2022, and Malaysian Standard for Quality in Health (MSQH) standards. The laboratory conducts testing activities using internationally recognized methods and adheres to accepted standards based on good laboratory practices for all scopes of services offered.

It is the laboratory's policy to report accurate test results within the specified Turnaround Time (TAT) to clients, ensuring continuous improvement of the Quality Management System in compliance with MS ISO 15189:2022 while maintaining confidentiality of information.

1.3 VISION

The Department of Transfusion Medicine is committed to serving the community, blood donors, and patients by ensuring the provision of sufficient and safe blood. It also strives to be an excellent referral center in the field of Transfusion Medicine within the state of Perak Darul Ridzuan.

1.4 MISSION

The Department of Transfusion Medicine consistently strives to deliver high-quality services through a strong sense of professionalism, teamwork, ethical conduct, respect, up-to-date knowledge, and innovation. The department is committed to fostering collaboration with other institutions across Malaysia to conduct research and share knowledge for the well-being of patients, blood donors, healthcare personnel.

1.5 CUSTOMER CHARTER

- Every blood donor and patient will be treated with courtesy, fairness, and equity.
- Always remain prepared and punctual in delivering continuous services based on promised standards.
- Ensure accuracy in work processes to guarantee blood donors' and patients' safety without compromise.
- Provide blood donors with information about their conditions and treatments.
- Maintain the confidentiality of personal information, medical conditions, and treatments provided to blood donors and patients.
- Provide clean, comfortable, and safe facilities and environments.

1.6 LOCATION

The Department of Transfusion Medicine is located next to the Ambulatory Care Centre (ACC), HRPB.

- Donation Suite - 2nd floor of Transfusion Medicine Department.
- Receiving Bay - 1st floor of Transfusion Medicine Department.
- Inventory Counter - 1st floor of Transfusion Medicine Department.
- Immunohaematology Counter - 1st floor of Transfusion Medicine Department.
- Clinical Transfusion Unit - 1st floor of Block D (adjacent to the main laboratory of the Pathology Department).

1.7 BUSINESS HOUR

Unit	Operating Hour	
	Monday-Friday	Weekend/ Public Holiday
Donation Suite	8.00 am - 5.00 pm	Closed
Clinical Transfusion	24 hours	
Immunohaematology	8.00 am – 5.00 pm (Lunch hour closed)	Closed
Receiving Bay	8.00 am – 5.00 pm (Lunch hour closed)	2.00 pm – 8.00 pm
Inventory	8.00 am – 5.00 pm (Lunch hour closed)	Closed *Inventory counter will be operating from 2.00 pm - 8.00 pm on the 2 nd day of a long weekend (> 2 days).

* Cut-off time for processing of TML samples is 5.00 pm on weekdays and 7.00 pm on weekends and public holidays.

1.8 CONTACT NUMBERS

	Ext.
Head Of Department	5241
TMS 1 / Office	5242
TMS 2/ Science Officer/ Senior MLT	7369
Medical Officer	5243
Clinical Transfusion Lab	5246 (24-hours)
Component Lab	5244
Transfusion Microbiology Lab	5247
Immunohematology Lab	7365
Donation Suite	5248
PR Officer	5245
Reactive Clinic	7368

1.9 COMPLAINT PROCEDURE BY CUSTOMERS

Any complaints regarding department's service can be made via:

- i. Walk-in:
 - Donation Suite at 2nd floor of Transfusion Medicine Department.
 - Clinical Transfusion Unit at 1st floor of Block D.
 - Unit Perhubungan Awam at 4th floor, ACC, HRPB.
- ii. Call in:
 - Office of Transfusion Medicine Department: 05-2085000 ext. 5242
 - Unit Perhubungan Awam HRPB: 05-2085000 ext. 5104 / 5127
- iii. KKM website (www.moh.gov.my) - Sistem Pengurusan Aduan Awam (SisPAA): Acknowledgement of Receipt of the complaint to complainant / customer will be within 7 working days. Feedback to the investigation will be provided once ready.

1.10 PATIENT / DONOR CONFIDENTIALITY

- Department shall abide by the Personal Data Protection Act.
- Department shall always maintain patient's/ donor's confidentiality.
- The use of samples for purpose other than those requested without prior consent occurs only if the residual samples are rendered anonymous or have been pooled.
- Adequate privacy during reception, sampling and counselling is available.
- Lab collects adequate information which enables examinations to be carried out but does not collect unnecessary personal information.

2.0 GUIDE TO REQUEST TESTS /BLOOD AND COMPONENTS

2.1 CONSENT FOR BLOOD / COMPONENT TRANSFUSION

- Refer to Appendix VII: Consent Form for Blood and Blood Component Transfusion (BTS/TC/2/2016).
- Consent for non-transfusion-dependent patient is valid per admission.
- Consent for transfusion-dependent patient is valid for 6 months.

2.2 BLOOD SAMPLING & LABELLING

- Refer to Appendix I for types of containers and volume needed for each test.
- Send the requests to the respective units.

2.2.1 Group, Screen and Hold (GSH) / Group and Crossmatching (GXM)

- Prior to blood taking, please bring along:
 - EDTA tube
 - Blank piece of label paper
 - GSH/ GXM form: Refer to Appendix VII: Borang Permohonan Transfusi Darah [PER-SS-BT 105 (Pind 1/2016)]
- At bedside:
 - Positive patient identification:
 - Ask for patient's full name.
 - Ask for patient's IC number.
 - Check and confirm with patient's wrist band (If wrist band is not available, please ask the staff nurse to put it on promptly before blood taking).
- Take the blood sample immediately after positive patient identification.
 - At bedside:
 - Label the EDTA tube immediately.
 - Fill up the GXM/GSH form.
 - Ensure the name and IC on the sample tallies with the form.
 - Initial of the phlebotomist on the sample.
 - Sign and stamp the form (phlebotomist & transfusion buddy).
 - Put the sample (EDTA tube) in a specimen bag and staple the form.
- All samples should be taken and labeled **one at a time**.

- **‘Gotong-royong’ is not allowed in sampling and labeling.**
- Second sample should be taken at a different occasion if requested by the lab.
- Use a separate request form for blood and blood components.

2.2.2 Paediatric Transfusion

- Complete in duplicate the request form with relevant information:
 - Patient’s full name
 - Baby without name should be written as B/O followed by mother’s name
 - To indicate clearly if there is more than one baby i.e. twin / multiplet
 - Patient’s IC no.
 - For baby without IC no.:
 - If using mother’s NRIC
Put the child sequence e.g. E01 – 1st child, E02 – 2nd child, etc. at the end of NRIC.
Example: 810328015638E01
 - Blood group of the patient if known.
 - Hb level / platelet count where applicable.
 - Age / sex / race
 - Ward/ unit
 - Indication for transfusion & diagnosis.
 - Date / time / name of person taking and labeling sample.
 - Name and signature of requesting doctor and stamp.
- A sample from the mother should be sent if the patient is below 4 months old.

2.2.3 Blood component (apart from red blood cells)

- In cases where a patient has a prior transfusion record in HRPB, submission of a new blood sample is not required with the request. The request shall be made by specifying the patient’s blood group as recorded in BBISv2 and must be accompanied by a carbon copy of the previous GXM form.
- However, if previous record is not available, a fresh sample in EDTA tube should be sent to determine the patient’s blood group.

2.3 TYPE OF REQUEST

- Request for blood/ blood components must be made through the medical officer or specialist: via hospital operator to MO on-call (speed dial **052) / specialist on-call.

	GSH	GXM	Saline Crossmatch	Safe O
TESTS	-ABO & Rh (D) grouping -Antibody screening	-ABO & Rh (D) grouping -Antibody screening -Crossmatch	Crossmatching at room temperature	No crossmatching
Reservation	Reserved 2 days	Reserved for 72 hours	-	-
Issuance Of Product	Convert to GXM 1 hour	2 hours	30 minutes	Immediately

2.4 REJECTION OF REQUEST

- Any request that does not fulfill the acceptance criteria will be rejected. Refer to Appendix V.
- Ward can assess “Ward View” module in BBISv2 to check the status of the sample sent.
- Details for rejection can be viewed via “Ward View” by clicking  .

No.	Ward	Requisition Date	IC No.	Patient Name	MRN	Reserved	Issued	Returned	Type	Physician	ABO	Rh D	Status	Options
1	SB	06-08-2025 06:56	870313385255	SUHAIMI BI			0	0	GSH		O	POS	CNL	

Rejection Information	
Rejection Reason	SAMPLE LYSED
Inform To	SN UMI
Action Taken	Remarks
Rejected By	AISI  KNOLOGI MAKMAL PERUBATAN, U29)

2.5 ISSUE, TRANSPORTATION AND STORAGE OF BLOOD/ BLOOD COMPONENTS

2.5.1 Collection

- Blood and blood components will only be issued to hospital personnel.
- Please present the following document during collection:
the duplicate copy of “Borang Permohonan Transfusi Darah” [PER- SS-BT 105 (Pind. 1/2016)]
or
Borang Permohonan Bekalan Darah dan Komponen dari Unit Inventori Jabatan Perubatan Transfusi HRPB Ipoh (HRPB/TRANS/INVEN/FORM-01) (request from district hospitals) – Refer to Appendix VIII
or
a memo duly stamped and signed by the blood bank staff of the requesting hospital (request from private clinics or hospitals).
- Please bring along appropriate container.

2.5.2 Issue and transportation of blood and blood components

	Whole Blood/ Packed Cell	Platelet Concentrate	FFP/ Cryoprecipitate/ Cryosupernatant
Supply	After crossmatch	-Group specific -No crossmatching required	-Group specific -No crossmatching required -Ideally should be thawed before transportation to the ward
Collection	Blood box with ice	Blood box WITHOUT ice	Blood box with ice
Use	As soon as possible after reaching ward (within 30mins after collection from lab)	Transfuse immediately	
Storage	Should not be stored or kept in the ward		
Return	Return immediately if not used Fill up <i>Borang Pemulangan Beg Darah Yang Tidak Digunakan</i> (HRPB/TRANS/CTU/AK-05/FORM-01) Refer to Appendix IX		
After Use	Fill up labels on blood tag (PPDK-1). Detach lower portion of the label and attach to patient's case note. Return remainder of the blood tag together with empty blood bag to Blood Bank as soon as possible.		

2.6 ADMINISTRATION OF BLOOD/ BLOOD COMPONENTS

- Refer to Appendix XIII: Blood/ Blood Products Transfusion Checklist.

2.7 TYPES OF BLOOD / BLOOD COMPONENTS AND THEIR USES

- Leucocyte depleted-red blood cells (LD-RBC) are prepared on demand/availability of filter bag.
- Irradiation of cellular products is outsourced to Pusat Darah Negara. These products are prepared on demand.
- Refer to Appendix IV.

2.8 TRANSFUSION REACTION TO BLOOD / BLOOD COMPONENTS

- Refer to Appendix XII: Reporting Form for Transfusion - Related Adverse Event (BTS/HV/3/2016)
- Refer to Appendix XI: Request Form for Transfusion Reaction Investigation (BTS/TR/2/2016)
 - Follow the instruction given on “BTS/TR/2/2016” to send the specimen for investigation of the transfusion reaction.
 - For 24 hours post transfusion reaction, to send sample with Perkhidmatan Patologi (PER-PAT 301). Refer to Appendix XI.

2.9 PROCEDURES FOR SPECIAL CIRCUMSTANCES

2.9.1 Autologous Blood Collection

- Autologous Blood is the collection of own blood for transfusion or for plasma eyedrop.
- Selection of patients:
 - Suitable for selected elective procedures where there is a high possibility where blood will be transfused.
 - Patient with rare blood group or with alloantibody.
 - Ideally patient should be negative for infectious markers such as HIV, HBV, HCV and syphilis.
 - Hb $\geq$ 11 g/dL.
 - No active bacteremia at time of blood collection.

- Special precautions:
 - For patients < 50kg, care must be taken that no more than 12% of blood volume should be withdrawn at any one time.
 - Those with cardiorespiratory diseases should be certified fit for the procedure. Patients with significant aortic stenosis, prolonged and/or frequent angina, significant narrowing of the left main coronary artery and cyanotic heart disease should not be offered this procedure.
 - Pregnant patients should be counselled. It is contraindicated in pregnancy complicated by condition associated with
 - Impaired placental blood flow
 - Intrauterine growth retardation including hypertension, pre-eclampsia, diabetes mellitus and any severe medical conditions.
 - History of epilepsy.
- It is the responsibility of the clinician treating the patient to do the counselling.
- Obtain consent using “Consent Form For Autologous Predeposit” (Appendix XV) from patient.
- Refer the patient to MO on-call using “Referral Letter For Autologous Predeposit” (Appendix XIV).
- If the patient is certified fit for the procedure, blood will be collected and stored in the blood bank until required. If it is not used, the blood will be discarded.
- Please indicate clearly ‘**Autologous blood**’ on “Borang Permohonan Transfusi Darah” [PER-SS-BT 105 (Pind 1/2016)] when blood is needed to prevent inadvertent use of allogeneic blood.

2.9.2 Platelet Antibody:

- Platelet antibodies react the same way as red cell antibody.
- Platelet antibody may be the cause of reduced survival of transfused platelets causing platelet refractoriness.
- Platelet antibody may be the cause for Neonatal Alloimmune Thrombocytopenia (NAIT), Immune-Thrombocytopenic Purpura (ITP) and Post-Transfusion Purpura (PTP).
- Platelet antibody investigation is outsourced to PDN.

Sample for Platelet Antibody Investigation:

- The clinician is required to discuss with PDN specialist for any request for platelet antibody investigation.
- Once obtained approval from PDN, the ward staff need to collect and send the sample to blood bank for packing and transportation of sample to PDN. Effective communication with the blood bank is essential to facilitate the timely transportation of samples to PDN.
 - Sample collection for Platelet Antibody Investigation:
Refer to Appendix XVIII: Platelet Immunology Test Request (PDN) (PDN/IH/QP-05/02, ver 02).

2.10 MASSIVE TRANSFUSION PROTOCOL (MTP)

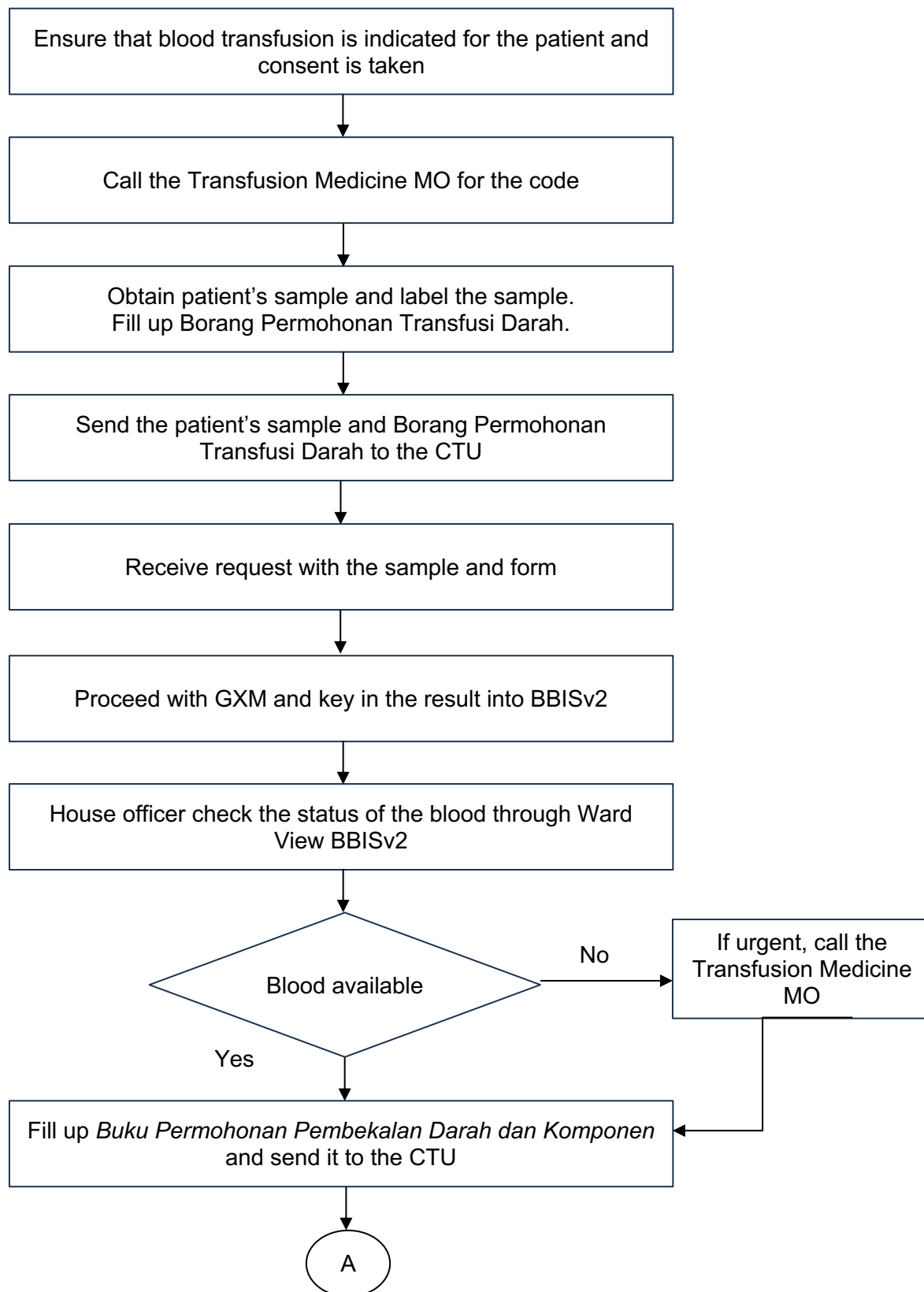
- MTP is used to identify and manage patients at risk of bleeding by standardizing blood orders for component replacement during the bleeding episode. It specifies the responsibilities of the clinical team, pathology laboratory and the blood bank. It defines communication and information to be relayed.
- Refer to Flowchart II for MTP activation and its algorithm.
- Once MTP has been activated:
 1. Fill up 5 GXM forms and 3 EDTA tubes filled with blood samples for issuance of safe O, laboratory preparation of 1st and 2nd package of MTP.
 2. Subsequent packages (3rd package of MTP onwards)
 - a. Fill up 2 GXM forms and 1 EDTA tube filled with blood samples.
 - 1 form for packed red cells and the other form for blood components
 - b. For each MTP package collected, please bring along 2 GXM forms and 1 sample in EDTA tube.
 3. Please bring along TWO blood boxes
 - a. Blood box WITH ICE: packed red cells/ FFP/ cryoprecipitate
 - b. Blood box WITHOUT ICE: platelet
- MTP is not available for paediatric age group.

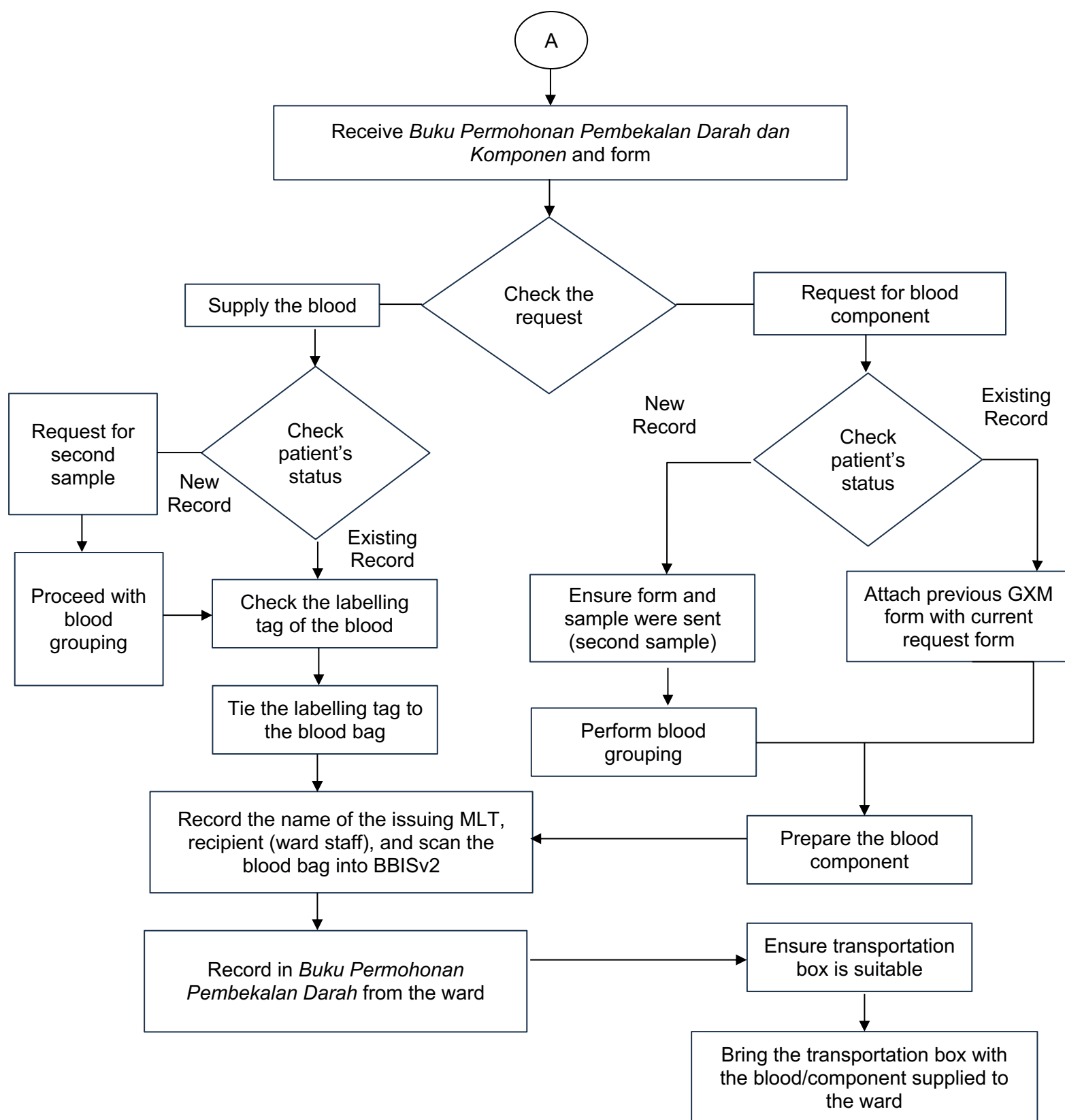
2.11 MAXIMUM SURGICAL BLOOD ORDERING SCHEDULE (MSBOS)

- MSBOS is a guideline for elective surgical procedure, which lists the number of units of red blood cells routinely requested and crossmatched for each procedure preoperatively.
- It aims to reduce wastage by eliminating unnecessary crossmatch, reduce workload for better work efficiency and preserve blood inventory.
- Refer to MSBOS HRPB for elective procedures.

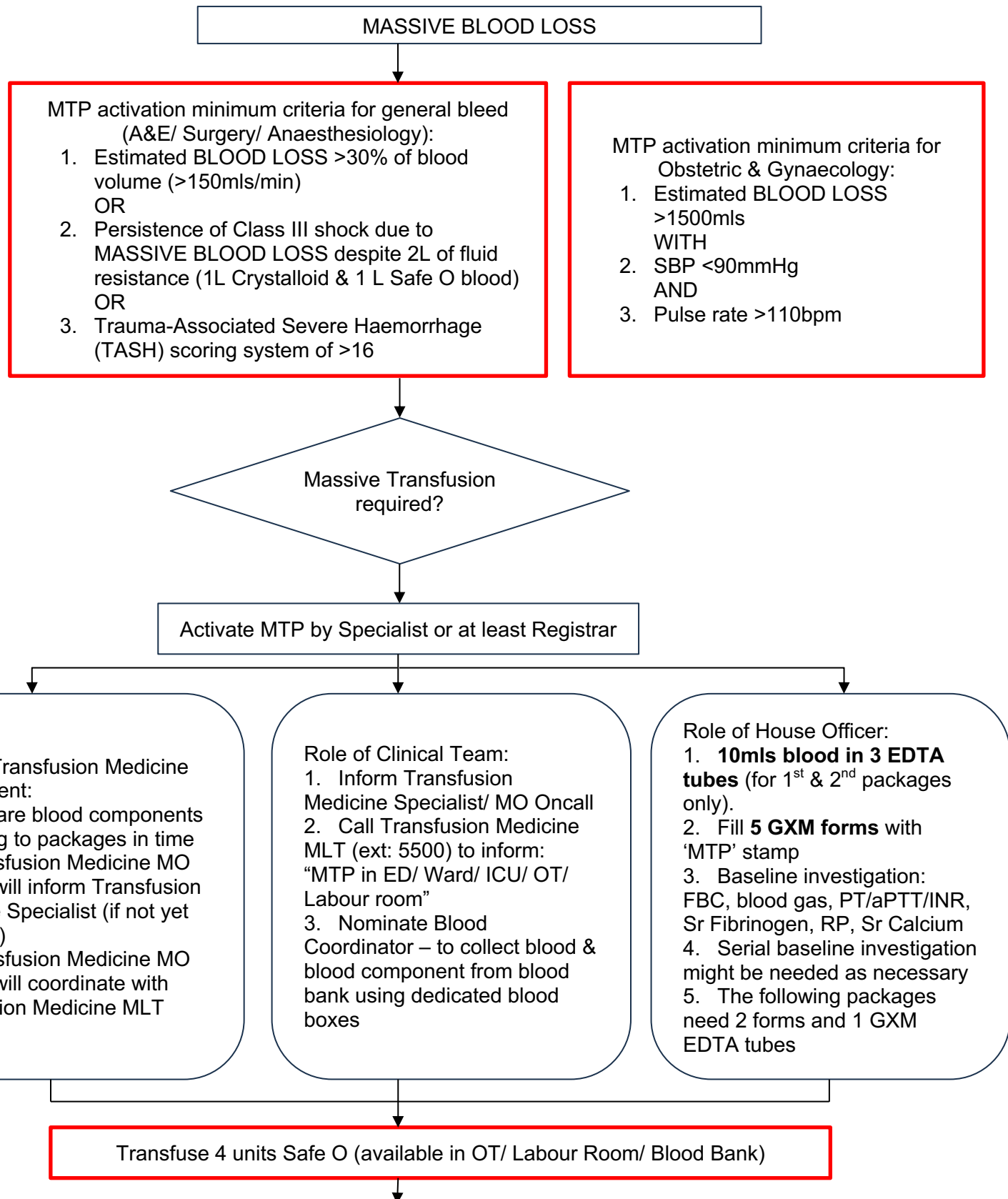
3.0 FLOWCHART

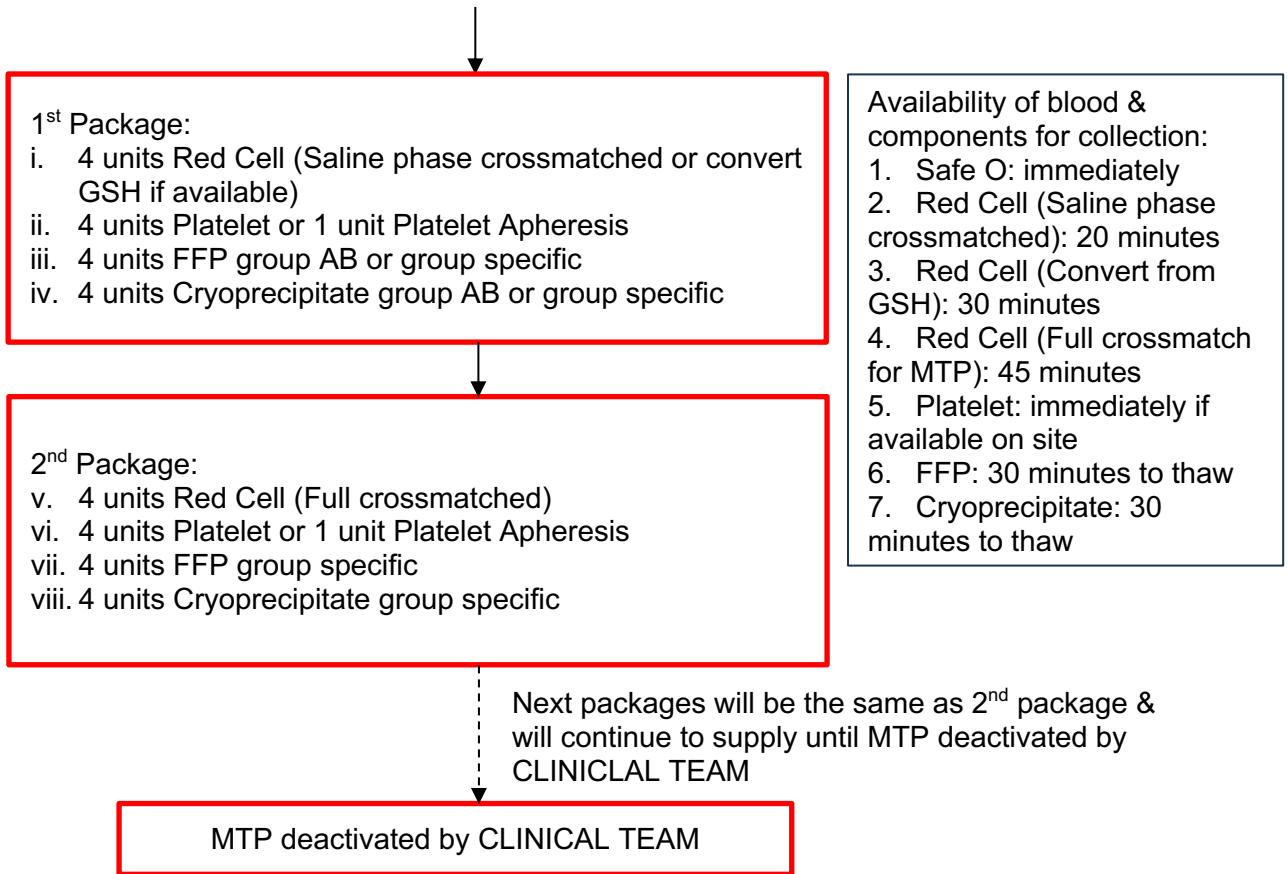
FLOWCHART I: COLLECTION OF BLOOD / BLOOD COMPONENT





FLOWCHART II: MASSIVE TRANSFUSION PROTOCOL





Notes:

1. Once 1st package of blood collected, Transfusion Medicine MLT will continue to prepare 2nd package automatically and so on.
2. If specific blood components e.g. Platelet is not available, other remaining blood components in the package will be supplied.
3. If group specific blood component is not available, group compatible will be supplied.

4.0 APPENDICES

APPENDIX I: LIST OF TESTS AVAILABLE

NO	TEST	FORM	CONTAINER	VOLUME	NOTE
Clinical Transfusion					
1	ABO, Rh(D) grouping, 2 nd sample	Perkhidmatan Patologi PER-PAT 301	EDTA	3ml	24 hours
2	GSH	Borang Permohonan Transfusi Darah PER- SS-BT 105 (Pind. 1/2016)	EDTA	3ml	24 hours
3	GXM		EDTA	3ml	24 hours
4	Coombs test	Perkhidmatan Patologi PER-PAT 301	EDTA	3ml	Office hour
Immunohaematology					
5	ABO & Rh(D) grouping confirmation	Perkhidmatan Patologi PER-PAT 301 Permohonan Ujian Immunohematologi (HRPB) HRPB/TRANS/IH/FORM-04	EDTA	12ml	Office hour
6	Antibody identification				
7	Anti-D titre				
8	Isohaemagglutinin titre				
9	Cold agglutinin				
10	Red cell phenotyping				
11	Red cell genotyping	Permohonan Ujian Immunohematologi (HRPB) PDN/IH/QP-05/01, ver 02	EDTA	12ml	Outsourced to PDN
12	Platelet immunology test	Platelet Immunology Test Request (PDN) PDN/IH/QP-05/02, ver 02	Refer 2.10.4	Refer 2.10.4	Outsourced to PDN
Transfusion Microbiology					
13	Fresh bleed for serology test	Perkhidmatan Patologi PER-PAT 301	Plain tube with gel	6ml	Office hour
14	NAT for blood donor		K2 EDTA	8.5ml	Outsourced to PDN
15	Anti-HBs (blood donor only)		Plain tube with gel	3ml	Outsourced to PDN
16	Anti-HBc (total) (blood donor only)		Plain tube with gel	6ml	Outsourced to PDN

APPENDIX II: REGISTRY OF REFERRAL LABORATORIES AND TURNAROUND TIME OF TESTS OUTSOURCED TO REFERRAL LABORATORIES

NO	TESTS	REFERRAL LABORATORY	SCHEDULE OF TEST	TAT
Immunohaematology				
1	Confirmation of subgroup for further classification	Seksyen Immunohematologi, Bahagian Transfusi Klinikal, Pusat Darah Negara (PDN), Kuala Lumpur	Upon request and appointment	21 working days upon receipt of specimen
2	Confirmation of unresolved antibody identification			
3	Platelet antibody/ Platelet crossmatch			
4	Red blood cell genotyping			
Transfusion Microbiology				
5	HIV confirmatory test (Blood donation samples only)	Seksyen Makmal Rujuk Kebangsaan, Bahagian Transfusi Mikrobiologi, Pusat Darah Negara (PDN), Kuala Lumpur	Send on Monday & Thursday	30 working days upon receipt of specimen
6	HCV confirmatory test (Blood donation samples only)			
7	HBV confirmatory test (Blood donation samples only)			
8	Anti-HBS, anti-HBc (Blood donation samples only)			
9	Nucleic acid amplification technology testing - screening	Seksyen Saring Molekular (NAT), Bahagian Transfusi Mikrobiologi, Pusat Darah Negara (PDN), Kuala Lumpur	Send daily unless no blood collection	24 hours upon receipt of specimen
10	Nucleic acid amplification technology testing - discriminatory		Send upon BBISv2 system notification/ on Monday & Thursday if sample available	21 days from date of releasing screening result

APPENDIX III: CUSTOMER SERVICE CHARTER OF DEPARTMENT OF TRANSFUSION MEDICINE, HOSPITAL RAJA PERMAISURI BAINUN

NO	TEST	LTAT
CLINICAL TRANSFUSION / IMMUNOHAEMATOLOGY		
1	Group, screen and hold (GSH)	4 hours
2	Group and crossmatch (GXM)	2 hours
3	Conversion of GSH to GXM	1 hour
4	Saline crossmatch	30 minutes
5	Issuance of platelet	Immediately
6	Issuance of frozen plasma products	30 minutes
7	Antibody identification	7 working days *
8	Cold agglutinin	7 working days
9	ABO & Rh(D) grouping	1 working day
10	Direct antiglobulin test (DAT)	1 working day
11	Transfusion reaction workup	7 working days
TRANSFUSION MICROBIOLOGY		
12	Blood donor screening (HIV Ag/Ab, HBsAg, anti-HCV, RPR)	48 hours **
13	TPPA	14 working days

*May vary depending on complexity of case.

**For samples arrived before 5.00 pm on weekdays and 6.30 pm on weekends or public holiday)

Note: LTAT, laboratory turnaround time.

APPENDIX IV: TYPES OF BLOOD / BLOOD COMPONENTS AVAILABLE AND THEIR INDICATIONS

NO.	BLOOD COMPONENT	CONTENTS	VOLUME (ml)	STORAGE	INDICATIONS	DOSAGE EFFECT	REMARK
1.	Whole Blood	Red Cells & Plasma	350 - 450 ml	+2°C to +6°C (35 days)	▪ Exchange transfusion.	In adult, 1 unit: increases the haematocrit by 3% or the haemoglobin by 1g/dl	
2.	Red Cells	70% Red Cells	Approximately 250 ml of packed red cells suspended in 100 ml additive solution	+2° to +6°C (35 or 42 days)	To increase the oxygen carrying capacity of blood due to red cells loss or reduced erythropoiesis.		Children: 5ml-20ml/kg
3.	Red Cells, Leucocyte – Depleted	Red Cells with residual leukocyte content of less than 1×10^6 / unit	200 - 300 ml		Multi-transfused patients- e.g. Thalassaemia		
4.	Random Platelet Concentrate	Platelets prepared from platelet rich plasma	40 - 70 ml	22 °C (± 2 °C) on agitator (5 days)	Thrombocytopenia or Platelet dysfunction.	1 unit Increases platelet count by $5 \sim 10 \times 10^9$ / L	Standard Adult dose: 4-6 units within 1 hour Children: 1 unit/10kg body weight
5.	Platelet Apheresis	Platelet - by plateletpheresis	200 - 300 ml		Similar as Random Platelet Concentrate Correct thrombocytopenia in patients who demonstrate refractoriness to platelets prepared from whole blood.	1 unit Increases platelet count by $20 \sim 40 \times 10^9$ / L	
6.	Irradiated Cellular Products	Red Cells/ Platelets that are irradiated with gamma rays (25Gy) or X-rays.	Refer to the blood component	Depend on the blood component	To prevent TA-GVHD		

NO.	BLOOD COMPONENT	CONTENTS	VOLUME (ml)	STORAGE	INDICATIONS	DOSAGE EFFECT	REMARK
7.	Fresh Frozen Plasma	All coagulating factors, immunoglobulin and albumin.	200 - 250 ml	$\leq -30^{\circ}\text{C}$ (3 years) Or -18°C to -30°C (3 months)	Deficiency of multiple clotting factors. Definite Indications: - Replacement of coagulation factor deficiency where specific or combined factor concentrate is not available. - Immediate reversal of warfarin effect if major bleeding - Acute DIC Conditional Use - Massive transfusion - Liver disease - Hemorrhagic disease of Newborn	10-20 ml/kg will increase factor levels by 20-30%	
8.	Cryoprecipitate	FVIII, Fibrinogen, VWF, FXIII, Fibronectin	35 - 55 ml		- Deficiency in inherited specific clotting factors i.e. Factor VIII Deficiency, Von Willebrand disease. - This has been superseded with factor concentrates - Afibrinogenaemia or dysfibrinogenemia. - Factor XIII deficiency. - In DIC with bleeding in conjunction with FFP.	1 unit/ 5-10kg will increase fibrinogen by 5mg/dL. 2 pools of 5 units (10 units) will raise plasma fibrinogen by 1g/L.	Standard Adult dose: 6 units transfuse over 10-20 minutes Children: 1 unit/10kg body weight
9.	Cryosupernatant	Same as FFP except for depletion of FV, FVIII & Fibrinogen	200ml		- Thrombocytopenic purpura (TTP) - Haemolytic uraemic syndrome (HUS)	10-15 ml/kg (<i>dosage for top up transfusion</i>)	

APPENDIX V: REJECTION CRITERIA

- No signature and stamp of the phlebotomist and transfusion buddy on the sample taking section in the requesting form .
- No initial of the phlebotomist on the sample.
- Incomplete patient identification.
(Name and identification card number/passport number must be provided. If there is no identification card number/passport number, the hospital RN must be stated).
- No diagnosis stated on the form.
- No date and time of blood collection on the form.
- Illegible handwriting.
- Information on the form and sample does not match / is inconsistent.
- Form and/or sample labeled with a printed label.
- Form without a carbon copy.
- Haemolysed sample.
- Clotted sample.
- Sample volume insufficient for testing.
- Form without a sample or vice versa.
- Unlabeled sample.
- Leaking sample.
- Sample collected in the wrong tube (other than EDTA).
- Duplicate request, i.e., GSH request for the same patient within a 2-day period.

Adapted from HRPB/TRANS/CTU/PK-01 (Updated 1/8/2025)

APPENDIX VI: BLOOD TRANSFUSION CONSENT FORM

BTS/TC/2/2016

**CONSENT FORM FOR BLOOD OR
BLOOD COMPONENT TRANSFUSION**

Patient's Name:

Age:

Identity Card No.:

Sex: ☐ Male ☐ Female

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Address:

Attending Medical Practitioner: Dr.

Identity Card No.

I, the above-named/parent/guardian/spouse/next of kin of the above-named*, have been informed of the need for a blood transfusion of the patient. The attending medical practitioner has explained to me the risk and benefits involved in the transfusion as well as answering all my inquiries satisfactorily. I understand that despite testing and screening on the blood/blood components for HIV, Hepatitis B, Hepatitis C and Syphilis according to established standard, there are still risks of developing the disease. I also understand that unavoidable complications of transfusion may also occur.

I fully understood the above and hereby agree to the blood/blood component transfusion.

Signature of the patient/

Signature of Attending

parent/guardian/spouse/next of kin*

Medical Practitioner

Name of parent/guardian/spouse/next of kin**:

Identity Card No. of the above :

I was present while the above matter was explained to the patient/parent/guardian/spouse/next of kin* whose signature appears above. In my opinion, the person referred to has understood the contents of this form and agreed to the transfusion willingly.

Signature of witness*

Name of witness :

Identity Card No.:

* delete appropriately

** if necessary

APPENDIX VII: BLOOD TRANSFUSION REQUEST FORM

No. Makmal:		PER-SS-BT 105 (Pind. 1/2016)	
BORANG PERMOHONAN TRANSFUSI DARAH PERKHIDMATAN TRANSFUSI PERUBATAN			
(Mesti dipenuhi dalam dua salinan. Tulis dengan pen mata bulat dan sila tandakan ✓ dalam petak yang berkenaan.)			
Nama (Tulis huruf besar)		No. Kad Pengenalan	
Hospital		Unit	
Pegawai Kerajaan Ya/Tidak		Kelas	
Diagnosa		Sebab transfusi komponen darah	
Transfusi darah masa lalu? Ya/Tidak		Jika 'ya' sebutkan tarikh transfusi darah yang terakhir	
Sekiranya pesakit seorang wanita, nyatakan →		Bil. kehamilan	
Tandatangan		Bil. Lahir Mati	
Nama		Tanda-tanda "Haemolytic Disease of Newborn"	
Jawatan		Komplikasi?	
Tarikh		Waktu	
* (atau ahli keluarga / penjaga untuk kes-kes pediatrik dan pesakit yang tidak sedarkan diri)			

Saya mengesahkan bahawa saya telah mengenalpasti identiti pesakit dengan bertanya secara langsung* dan memeriksa gelang pengenalan pesakit. Saya juga mengesahkan bahawa saya telah mengambil sendiri sampel darah pesakit tersebut dan melabelkannya dengan serta merta sebaik sahaja ianya diambil.	Units/ mls ☐ WHOLE BLOOD ☐ PACKED CELLS ☐ PAEDIPACK ☐ PLATELET CONCENTRATE ☐ CRYOPRECIPITATE ☐ FRESH FROZEN PLASMA ☐ CRYOSUPERNATANT	SPECIAL REQUIREMENT : ☐ WASHED ☐ FILTERED ☐ IRRADIATED ☐ OTHERS : ☐ GROUP, SCREEN & HOLD
---	--	--

Nota:- (1) Sila hantarkan 3ml-5ml sampel darah dalam tiub EDTA. Untuk makluman, ujian keserasian memerlukan masa 2 jam. (2) Dalam keadaan kecemasan, sila hubungi makmal transfusi darah untuk pembekalan segera berdasarkan keserasian pada peringkat awal ujian. Darah yang dibekalkan mempunyai risiko ketidakserasian yang kecil. Penggunaan darah tersebut merupakan tanggungjawab pegawai perubatan yang merawat. (3) Darah yang tidak digunakan perlu dipulangkan dengan kadar segera ke makmal transfusi kecuali Pegawai Perubatan meminta dipanjangkan tempoh simpanannya di wad. (4) AMARAN: Setiap transfusi darah membawa risiko infeksi. WARNING: Every blood transfusion carries a small risk of infection.	Bekalan diperlukan (a) Serta merta, tanpa ujian keserasian darah (safe O) (untuk menyelamatkan nyawa) ☐ (b) Segera (lihat Nota 2) ☐ (c) Pada jam.....pg/ptg (Lihat Nota 3) ☐ (d) Sampel disimpan selama 24 jam. ☐ Saya mengesahkan bahawa sampel darah yang disertakan ini telah diambil daripada pesakit bernama seperti di atas dan dilabelkan mengikut prosedur kerja yang telah ditetapkan. Saya juga mengesahkan bahawa setelah diperiksa, pesakit ini memerlukan/ akan memerlukan transfusi darah. Tandatangan: Cop dan Nama Pegawai Perubatan: (Huruf besar)
---	--

KHAS UNTUK KEGUNAAN KAKITANGAN MAKMAL TRANSFUSI DARAH											
Pemintaan diterima	T/Tangan	Anti A	Anti B	Anti AB	Sel A	Sel B	Sel O	Rh D	Kump. Darah	T/Tangan	Tarikh & masa
Tarikh.....											
Waktu pg/ptg											

Serum pesakit diserasikan dengan beg darah no.	UJIAN KESERASIAN DARAH					Catatan
	R.T.	37°C	AHG	T/Tangan.	Tarikh & masa	

APPENDIX VIII: BLOOD OR BLOOD PRODUCT REQUEST FORM

HRPB/TRANS/INVEN/FORM-01



**BORANG PERMOHONAN BEKALAN
DARAH DAN KOMPONEN
DARI UNIT INVENTORI
JABATAN PERUBATAN TRANSFUSI, HRPB, IPOH**



HOSPITAL : Faks: 05-2469010

TARIKH :

Butir bekalan yang dipohon :

Bil	Kumpulan Darah	Rh Pos (✓)	Rh Neg (✓)	Whole Blood	Packed Cell	Filtered Red Cell	Random Platelet	Apheresis Platelet	FFP	Cryoper cipitate	Cryosuper natan (LP)
1.	O										
2.	A										
3.	B										
4.	AB										
5.	Lain-lain	Nyatakan:									

Perbincangan melalui telefon di antara dan
..... adalah dirujuk.

Kod pembekalan (jika ada) adalah

Nama dan tandatangan pemohon:

Tarikh :

Untuk Kegunaan Makmal Unit Inventori, HRPB, Ipoh :

Pembekalan telah dibuat dan bilangan unit yang dibekalkan * mengikut permintaan / TIDAK mengikut permintaan kerana

Nama dan tandatangan petugas makmal:

Tarikh :

VERSI 2:2020

APPENDIX IX: RETURN OF UNUSED BLOOD/ BLOOD PRODUCT FORM

HRPB/TRANS/CTU/AK-05/FORM-01

BORANG PEMULANGAN BEG DARAH YANG TIDAK DIGUNAKAN

1. MAKLUMAT PESAKIT

NAMA : WARD/CLINIC :
 IC : DIAGNOSIS :
 RN No : SEBAB TRANSFUSI :

2. MAKLUMAT PERMOHONAN

JUMLAH UNIT YANG DIPOHON		JUMLAH UNIT YANG DIAMBIL		JUMLAH UNIT YANG DIGUNAKAN	
--------------------------	--	--------------------------	--	----------------------------	--

3. SEBAB PEMULANGAN BEG DARAH/KOMPONEN DARAH YANG DIPERLUKAN :

TANDAKAN (v) DIPETAK YANG BERKENAAN:

1.	PESAKIT MENINGGAL DUNIA	
2.	PESAKIT TELAH DIRUJUK KELUAR / DISCAJ AT OWN RISK	
3.	PESAKIT ADA REAKSI TRANSFUSI	
4.	PESAKIT ENGGAN MENERIMA PEMINDAHAN DARAH	
5.	BEG DARAH ROSAK/BERMASALAH	
6.	PRODUK DARAH YANG SALAH	
7.	UNTUK DISIMPAN SEMENTARA DI MAKMAL	

LAIN-LAIN SEBAB JIKA DARAH TIDAK DIGUNAKAN:

4. MAKLUMAT BEG DARAH/KOMPONEN DARAH YANG DIPULANGKAN

Diisi oleh pihak wad/ klinik					Diisi oleh pihak makmal							
No.	NOMBOR BEG DARAH	JENIS KOMPONEN DARAH	PENGAMBILAN		PEMULANGAN		KEADAAN FIZIKAL BEG BAGUS		SUHU BEG DARAH	LUPUS		CATATAN
			TARIKH	MASA	TARIKH	MASA	YA	TIDAK		YA	TIDAK	

PEGAWAI YANG MELAPOR :

JTMP YANG MENERIMA :

TANDATANGAN :

TANDATANGAN :

NAMA :

NAMA :

TARIKH/MASA :

TARIKH/MASA :

Versi 1 : 2023

APPENDIX X: TEST REQUEST FORM

 KEMENTERIAN KESIHATAN MALAYSIA PERKHIDMATAN PATOLOGI HOSPITAL _____				PER-PAT 301 UNTUK KEGUNAAN MAKMAL LAB NO. _____																																								
1. Nama :		2. No. Pendaftaran :																																										
3. No. K/P :		4. Jantina : ☐ Lelaki ☐ Perempuan																																										
5. Umur :	6. Keturunan :	7. Wad / Klinik :																																										
8. Tarikh Masuk Wad :	9. Pekerjaan :	10. Taraf Perkahwinan :	11. ☐ Bayar ☐ Percuma																																									
12. No. Laporan Dahulu :		13. Butiran Penting																																										
14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga :		<table border="0" style="width: 100%;"> <tr> <td></td> <td style="text-align: center;">Ya</td> <td style="text-align: center;">Tidak</td> </tr> <tr> <td>Jaundice</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Lymphadenopathy</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Hepatomegaly</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Splenomegaly</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Bleeding Tendency</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>H/O Transfusion</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> </table>					Ya	Tidak	Jaundice	☐	☐	Lymphadenopathy	☐	☐	Hepatomegaly	☐	☐	Splenomegaly	☐	☐	Bleeding Tendency	☐	☐	H/O Transfusion	☐	☐																		
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H/O Transfusion	☐	☐																																										
Haematinics _____																																												
Drug / Chemical History _____																																												
Data Makmal Terdahulu																																												
Hb _____ Platelet _____ TWDC _____																																												
15. Diagnosis :																																												
16. Kategori Permohonan/Jenis Ujian :																																												
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Tandatangan dan Cop Doktor _____																																												

Patologi/95

LAPORAN "SILA LIHAT SEBELAH"
L—PNMB, AS.

APPENDIX XI: REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION (BLOOD AND BLOOD COMPONENTS)

BTS/TR/2/2016

REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION
(BLOOD AND BLOOD COMPONENTS)

1. When a patient has an adverse reaction to any blood or blood component, **STOP** transfusion immediately. **URGENTLY** inform the doctor in charge of the patient and the Blood Bank.
2. Report all reactions and do the following:
 - 2.1 Preserve the blood bag and giving set with all attached labels. Seal it securely and send immediately to the Blood Bank.
 - 2.2 Send the following samples for transfusion reaction investigation to the Blood Bank or relevant laboratory.
 - a. Post-transfusion sample 1 (immediately)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - b. Post-transfusion sample II (after 24 hours)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - 2.3 Please send for other appropriate investigations if necessary.
 - 2.4 Please refer to Section 10: Adverse effect of transfusion in Handbook on Clinical Use of Blood for details.

Hospital: Ward/Clinic:

Patient's name: IC/Passport No:

Race: Age: Sex:

Diagnosis:

- i. Date and time transfusion started
- ii. Date and time of onset of reaction
- iii. Blood/ Blood Component Serial No.
- iv. Volume Blood/ Blood Component transfused
- v. Blood Pressure: Before transfusion After transfusion
- vi. Temperature: Before transfusion After transfusion

Page 1 of 2

BTS/TR/2/2016

vii. Nature of Reaction: Tick off (✓) the positive symptoms/signs.

Fever	☐	Shock	☐	Haematuria	☐
Chills /Rigors	☐	Jaundice	☐	Haemoglobinuria	☐
Urticaria	☐	Dyspnoea	☐		
Pain	☐	(Location of pain if present.....)			

viii. Solution used for starting IV drip: - N.Saline / 5% Dextrose / Others

ix. History of previous transfusion: Yes / No

Date of last transfusion:

x. History of previous transfusion reaction if any:

.....

xi. Medication (If any, please specify):

.....

xii. Applicable for female patients ONLY:

History of pregnancy: Yes / No No. of pregnancies:

History of abortion: Yes / No No. of abortions:

xiii. History of transplant:

Date of transplant:

Date:

Signature:

Name:

**PLEASE SEND THIS FORM TO THE BLOOD BANK WITH ALL
 REQUIRED SAMPLES FOR INVESTIGATION**

Page 2 of 2

APPENDIX XII: REPORTING FORM FOR TRANSFUSION-RELATED ADVERSE EVENT

BTS/HV/3/2016

**REPORTING FORM FOR TRANSFUSION-RELATED ADVERSE EVENT
TRANSFUSION MEDICINE SERVICE
KEMENTERIAN KESIHATAN MALAYSIA**

IMPORTANT INFORMATION

1. Every adverse event related to transfusion of blood or blood component shall be managed, investigated and documented accordingly.
2. The form must be completed and returned to the blood bank within 2 weeks of the incident.
3. The blood bank shall retain the completed form and send a copy to the State Transfusion Committee and the National Haemovigilance Coordinating Centre (NHCC), Pusat Darah Negara within a month.

Reported by:

Name:	Designation:
Email:	Tel. No:
Date:	Fax No:

SECTION A: PATIENT DETAILS

Name of Patient:		
NRIC/ Passport No:	Age:	Hospital:
Barcode:	Gender:	Ward:
		Department:

SECTION B: TYPE OF ADVERSE EVENTS

- B1. TRANSFUSION REACTION ☐ (Fill up section C-J)
- B2. ERROR IN TRANSFUSION PROCESS ☐ (Fill up section C-K)
- a) INCORRECT BLOOD COMPONENT TRANSFUSED ☐ (Proceed to SECTION K1 for 'NEAR MISS' on page 4)
- b) NEAR MISS ☐ (Proceed to SECTION K2 for 'INCIDENT' on page 4)
- c) INCIDENT ☐

Near Miss: Any error that has occurred but did not cause any adverse event as it was detected prior to blood transfusion.

SECTION C: ONSET OF ADVERSE EVENT

- C1. IMMEDIATE (within 24 hours of transfusion) ☐
- C2. DELAYED (after 24 hours of transfusion) ☐

SECTION D: BLOOD COMPONENTS IMPLICATED IN THE ADVERSE EVENT

D1. Whole blood	☐	Irradiated:	YES / NO	Filtered:	YES / NO
D2. Packed Cells	☐	Irradiated:	YES / NO	Filtered:	YES / NO
D3. Apheresis Platelet	☐	Irradiated:	YES / NO	Pathogen Inactivated:	YES / NO
D4. Random Platelet	☐	Irradiated:	YES / NO		
D5. Fresh Frozen Plasma	☐				
D6. Cryoprecipitate	☐			Pathogen Inactivated:	YES / NO
D7. Cryosupernatant/ Liver plasma	☐				
D8. Others (please specify)	☐				

SECTION E: DETAILS OF ADVERSE EVENTS

E1. Date of transfusion: (DD/MM/YY)	_____ / _____ / _____
E2. Time transfusion started:	_____ am/pm
E3. Time reaction occurred:	_____ am/pm
E4. Volume transfused:	_____ ml / unit

SECTION F: RELEVANT CLINICAL HISTORY

- F1. Patient's primary / provisional diagnosis: _____
- F2. Indication for transfusion: _____
- F3. History of pregnancy / miscarriage (if applicable): ☐ YES ☐ NO
- F4. a) History of previous transfusion: ☐ YES <3 mths ☐ YES >3 mths ☐ NO ☐ UNKNOWN
b) If YES, component transfused: _____
c) Reaction towards transfusion: ☐ YES ☐ NO
d) If YES, please describe: _____
- F5. Other relevant medical and/or surgical history: _____
- F6. Emergency crossmatch (immediate spin) ☐ YES ☐ NO
- F7. Transfusion with safe "O" or uncrossmatched group specific blood ☐ YES ☐ NO

SECTION G: SIGNS AND SYMPTOMS [Tick all that apply (✓)]

- G1. General: ☐ Chill ☐ Rigors ☐ Fever ☐ Nausea ☐ Haemorrhage
☐ Restlessness / Anxiety ☐ Vomiting ☐ Cyanosis
☐ Others (specify) _____
- G2. Cardiovascular: ☐ Chest pain ☐ Palpitation ☐ Others (specify) _____
- G3. Skin: ☐ Oedema ☐ Flushing ☐ Hives ☐ Itching ☐ Pallor
☐ Jaundice ☐ Urticaria ☐ Petechiae ☐ Rash
- G4. Pain: ☐ Infusion site pain ☐ Abdominal pain ☐ Chest pain
☐ Flank pain ☐ Headache ☐ Back pain
☐ Other pain (specify) _____
- G5. Renal: ☐ Oliguria ☐ Anuria ☐ Dark coloured urine
- G6. Respiratory: ☐ Cough ☐ Hypoxia ☐ Dyspnoea
☐ Wheezing ☐ Others (specify) _____
- G7. Patient's baseline observations prior to reaction: Temperature: ____°C, BP: ____ Pulse rate: ____ RR: ____ SPO₂ ____
- G8. Patient's baseline observations at time of reaction: Temperature: ____°C, BP: ____ Pulse rate: ____ RR: ____ SPO₂ ____

SECTION H: RELEVANT INVESTIGATIONS

- H1. Chest X-ray findings (specify): _____
- H2. Relevant pre-transfusion laboratory investigation results:
Full blood count: _____
Liver Function: _____
Coagulation Test: _____
- H3. Relevant post-transfusion laboratory investigation results:
Full blood count including Reticulocyte count: _____
Liver Function: _____
Coagulation Test: _____
Red cells antibodies: _____
Haptoglobin: _____
Blood C&S Patient: POS/ NEG Organism: _____
Blood C&S Donor: POS/ NEG Organism: _____
Urine FEME: _____
☐ Haemoglobinuria ☐ Hematuria
- H4. State other relevant investigations if any: _____

SECTION I: PATIENT OUTCOME FROM THE ADVERSE EVENT

11. Recovered with no ill effects ☐

12. Recovered with illness (morbidity) ☐

Time frame of recovery _____

Specify the morbidity _____

13. Death ☐

14. a) Unlikely related to transfusion ☐

b) Probable related to transfusion ☐

c) Possible related to transfusion ☐
SECTION J: TYPE OF ADVERSE EVENTS: [Tick where applicable]

Section	Events	✓	*
J1	Incorrect Blood Component / Product Transfused (Proceed to SECTION K for 'IBCT' on page 4)		*
	J1.1. Acute Immune Haemolytic Anaemia		*
	J1.1a. ABO incompatible		*
	J1.1b. Other red cell incompatibility (e.g. Rh positive given to Rh negative)		*
	J1.2. Blood is compatible but meant for another patient		*
	J1.3. Others :		
	J1.3a. Special requirement not met (e.g. irradiated, filtered, phenotyped)		*
	J1.3b. Inappropriate transfusion (e.g. wrong component)		*
J2	Delayed Haemolytic Transfusion Reaction		*
J3	Non-immune hemolytic reaction (due to mechanical factor, osmotic, heat, cold, etc)		*
J4	Febrile Non- Haemolytic Transfusion Reaction (FNHTR)		
J5	Allergic Reaction		
	a) Mild (Rash / Urticaria)		
	b) Moderate (Anaphylactoid)		*
	c) Severe (Anaphylactic Transfusion Reaction)		*
J6	Transfusion-Related Acute Lung Injury (TRALI)		*
J7	Transfusion-Associated Circulatory Overload (TACO)		*
J8	Transfusion-Associated Dyspnoea (TAD)		*
J9	Transfusion-Associated Graft-versus-Host Disease (TA-GvHD)		*
J10	Post-Transfusion Purpura (PTP)		*
J11	Post-Transfusion Infection : Virus (please specify) _____		*
J12	Post-Transfusion Infection : Bacteria (please specify) _____		*
J13	Post-Transfusion Infection : Parasite (please specify) _____		*
J14	Handling and storage error		*
J15	Equipment related (e.g. faulty waterbath, transfusion set, etc)		*
J16	Others , please specify :		*

* Please send detailed report for all transfusion reaction except for FNHTR & mild allergy.

SECTION K: ERRORS AND INCIDENTS IN TRANSFUSION PROCESS [Tick all that apply (✓)]**K1. IBCT AND NEAR MISSES IN TRANSFUSION PROCESS.**

No	CLASSIFICATION OF ACTUAL ERRORS / NEAR MISS	
1.	ERROR IN WARD	
	a) Sampling error at time of blood taking	
	b) Labelling error at time of blood taking	
	c) Cause cannot be determined	
2.	TESTING (BLOOD BANK)	
	a) Technical error	
	b) Transcription error	
	c) Blood issued meant for another patient	
3.	BLOOD ADMINISTRATION IN THE WARD	
	a) Failure to check the blood against patient's full identity.	
	b) Others (please specify)	

**K2. OTHER INCIDENTS RELATED TO TRANSFUSION PROCESS.
(Tick ✓ where applicable)**

a)	Sharing same ID (IC, UNHCR, Passport)	
b)	Possible blood grouping error in other hospitals / clinics	
c)	Error in previous admission	
d)	Others (please specify)	

K3. ERROR/ INCIDENT DISCOVERED (Tick ✓ where applicable)

- ☐ Pre-Transfusion
☐ During Transfusion
☐ Post-Transfusion

Please describe in detail how error was discovered (additional pages to be filled if necessary):

Please send root cause analysis (RCA) report for all IBCTs and Near Misses.

APPENDIX XIII: BLOOD/ BLOOD PRODUCT TRANSFUSION CHECKLIST

HRPB/TRANS/CTU/FORM-01

SENARAI SEMAK TRANSFUSI DARAH / KOMPONEN DARAH
(BLOOD / BLOOD PRODUCT TRANSFUSION CHECKLIST)
JABATAN PERUBATAN TRANSFUSI HOSPITAL RAJA PERMAISURI BAINUN

I. MAKLUMAT PESAKIT (PATIENT INFORMATION)

Nama (Name) :

No. KP (I/C No.) : No. R/N (R/N No.):.....

Wad (Ward) : Tarikh (Date) :

Pakar Perunding (Huruf Besar) :

Consultant (Block Letters) :

II. PENGESAHAN DARAH / KOMPONEN DARAH (VERIFICATION OF BLOOD / BLOOD PRODUCT)

A. Pastikan darah / komponen darah adalah sepadan dengan memeriksa borang permohonan darah, 'compatibility label' dan beg darah :
(Verify blood or plasma is compatible by checking blood request form, compatibility label and blood bag) :

	Req. form	Comp. label	Blood bag	Dr	J/T
i. Nama Pesakit (Patient's Name) :					
ii. No. KP (I/C No.) :					
iii. Kumpulan Darah & Rh (Blood Group & Rh) :					
iv. No. Beg Darah (Blood Bag No.) :					
v. Jenis Darah / Komponen Darah :					

Nama Pegawai Perubatan : Nama Jururawat Terlatih :

(Name of Medical Officer) (Name of Staff Nurse)

Tandatangan (Signature) : Tandatangan (Signature) :

B. Pastikan dengan pesakit yang menerima darah/ komponen darah (Verify with patient receiving blood/ blood product) :

	Dr	J/T
i. Tanya pesakit / waris (Asking patient/ relative)		
ii. Pastikan nama dan No. K/P pada gelang tangan <i>(Verify patient's name and I/C No. on the wrist band)</i>		

Nama Pegawai Perubatan : Nama Jururawat Terlatih :

(Name of Medical Officer) (Name of Staff Nurse)

Tandatangan (Signature) : Tandatangan (Signature) :

C. Prosedur Transfusi (Transfusion Procedure) :

No. Beg Darah (Blood Bag No.) :

Masa mula transfusi (Time of commencement) :

Masa tamat transfusi (Time of completion) :

Reaksi Transfusi (Any reaction) : Ya (Yes) Tidak (No)

Jika ada, sila nyatakan (If yes, please state reaction) :

Nama (Name) :

Tandatangan (Signature) :

Nota: Senarai semak **mestilah** dilakukan seboleh-bolehnya oleh dua orang (doktor / jururawat terlatih/penolong pegawai perubatan) bersama pesakit. Jika tiada doktor, pemeriksaan hendaklah dilakukan oleh dua orang paramedik (penolong pegawai perubatan / jururawat terlatih).
(Checklist preferably must be done by two persons (doctor / nurse/ medical assistant) at the bedside with the patient. If doctor is not available, checklist must be done by two paramedics (medical assistant / staff nurse).
 Borang perlu disimpan di dalam fail pesakit untuk rujukan selanjutnya.
(Form is to be kept in patient notes for further reference).

Versi 2 : 2025

APPENDIX XIV: REFERRAL LETTER FOR AUTOLOGOUS PREDEPOSIT

Referral letter for autologous pre-deposit (addressed to the doctor in charge of the pre-deposit programme)

Dear _____

This patient has requested autologous pre-deposit for his/her operation. I have discussed this with the patient, with appropriate reference to the Guideline for Pre-operative Autologous Donation and am of the opinion that he/she is medically suitable for the procedure.

I would be grateful if you could see him/her with a view of making the necessary arrangements.

Patient's name (Mr/Mrs/Ms): _____

Date of Birth: _____ I/C number: _____

Ward: _____ R/N: _____

Address: _____

Date of admission: _____

Date of operation: _____

Planned procedure: _____

Underlying pathology: _____

Requested number of donations (maximum is 4): _____

Haemoglobin (g/dL) : _____

Additional remarks: _____

Referring consultant clinician : _____

Signature : _____

Name (BLOCK LETTER) : _____

Date : _____

APPENDIX XV: CONSENT FORM FOR AUTOLOGOUS PREDEPOSIT

Consent for autologous transfusion

The purpose of autologous transfusion has been explained to me by Dr _____ who has also explained its possible complications and hazards.

I agree to my blood being withdrawn and stored for autologous transfusion.

I understand that it may not be possible for technical reasons to return to me all or any of the units which I donate.

I understand that it may be necessary to supplement my autologous transfusion with blood from volunteer donors from the Transfusion Services.

I agree to my blood being tested for HbsAg, anti-HCV, anti-HIV and RPR. In the event of a positive result in any of these tests, I agree to the clinician in charge of my case being informed.

Signature :

Date :

Witness :

APPENDIX XVI: IMMUNOHAEMATOLOGY TEST REQUEST FORM (HRPB)

HRPB/TRANS/IH/FORM-04

		JABATAN PERUBATAN TRANSFUSI, HRPB, IPOH			
		PERMOHONAN UJIAN IMMUNOHEMATOLOGI			

A	Nama Pemohon / Pegawai Perubatan														
	Hospital														
	Jabatan / Wad		Tandatangan / Cop rasmi												
	Telefon														
B	Nama Pesakit														
	No IC / Pasport		Bangsa / Etnik												
	Jantina		Aras Hb												
	Diagnosis Pesakit														
SEJARAH KLINIKAL / TRANSFUSI															
C : JENIS PERMOHONAN UJIAN															
Tanda (✓) pada ruang ujian yang diperlukan	☐	☐	☐	☐	☐										
Maklumat Ujian	<i>Ujian Ab Identification Sahaja</i>	<i>Ujian Ab Identification & GXM/bekalan darah</i>	<i>Crossmatch (GXM) & bekalan darah</i>	<i>Bekalan beg darah Fenotip sahaja</i>	<i>Lain-lain ujian</i>										
Kumpulan Darah ABO/Rh															
Keputusan Ujian Saringan Antibodi															
Jenis Antibodi Terdahulu (jika ada)															
Unit darah yang diperlukan															
Tarikh diperlukan															
Jenis Fenotip yang diperlukan															
Sampel Darah	PERLU	PERLU	PERLU	TIDAK PERLU	PERLU										
Borang GXM PER-SS-BT-105 (Pind 1/2016)	Jika perlu	PERLU	PERLU	TIDAK PERLU	TIDAK BERKAITAN										
PERHATIAN: 1. Hantar sampel darah sebanyak 12 ml iaitu 4 tiub EDTA dengan 3 ml sampel darah setiap satu bersama Borang Makmal PER-PAT 301 yang telah lengkap diisi. 2. Isi borang ini dengan lengkap dan tepat. 3. Permohonan ini akan ditolak sekiranya: - Maklumat borang dan tiub tidak lengkap - Borang tidak disertakan bersama sampel - Menggunakan tiub sampel yang salah - Bilangan tiub / isipadu yang tidak mencukupi Maklumat penolakan akan dimaklumkan terus kepada makmal yang memohon ujian. 4. Bagi permohonan ujian khas, sampel hanya boleh dihantar setelah perbincangan dibuat antara hospital dan JTMP y/m Unit Immunohematologi, HRPB.			Nama Pegawai Perubatan (MO) HRPB yang dihubungi <table border="1"> <tr> <td>Kod MO HRPB</td> <td>Tarikh Permohonan</td> </tr> <tr> <td colspan="2">Untuk kegunaan Unit IH, HRPB sahaja</td> </tr> <tr> <td>Nombor rujukan makmal</td> <td>Tarikh sampel diterima</td> </tr> <tr> <td colspan="2">Nama & t/tangan JTMP IH yang menerima sampel</td> </tr> <tr> <td colspan="2">Catitan:</td> </tr> </table>			Kod MO HRPB	Tarikh Permohonan	Untuk kegunaan Unit IH, HRPB sahaja		Nombor rujukan makmal	Tarikh sampel diterima	Nama & t/tangan JTMP IH yang menerima sampel		Catitan:	
Kod MO HRPB	Tarikh Permohonan														
Untuk kegunaan Unit IH, HRPB sahaja															
Nombor rujukan makmal	Tarikh sampel diterima														
Nama & t/tangan JTMP IH yang menerima sampel															
Catitan:															

Versi 1 : 2024

APPENDIX XVII: IMMUNOHAEMATOLOGY TEST REQUEST FORM

PDN/IH/QP-05/01, ver 02
Effective date : 01 October 2024

Permohonan Ujian Immunoematologi (PDN)

Makmal Rujukan Immunoematologi Kebangsaan (MRIK), Pusat Darah Negara, Jalan Tun Razak, 50400 Kuala Lumpur
No telefon : 03-2613 2688 ext 2672 / 5640 (Red Cell / Genotyping), ext 2766 (Platelet)

BAHAGIAN A : Maklumat Pesakit

Nama Pesakit :		Etnik :
No KP / Passport :	Hospital :	Umur :
Diagnosis :	Hb :	Jantina :
Sejarah transfusi :	Ringkasan klinikal :	
** Digalakkan untuk keipikan bersama borang patologi / surat rujukan hospital yang mengandungi maklumat sejarah transfusi / ringkasan klinikal pesakit.		

BAHAGIAN B : Maklumat Pemohon (Tabung Darah Hospital) dan Pelulus Permohonan (PDN)

Maklumat doktor / pemohon	Maklumat MO PDN dihubungi	Sila imbas kod QR berikut untuk akses ke MRIK Customer Referral Guide  bit.ly/MRIKrequestPDN
Nama : Tandatangan : No telefon : Cop rasmi : Tarikh :	Nama : Tarikh : Masa :	

BAHAGIAN C : Maklumat Permohonan Ujian (berdasarkan MRIK Customer Referral Guide, PDN/IH/QP-05/G01)

✓ ujian dipohon	Maklumat sokongan ujian (mandatory untuk diisi)		Ujian / maklumat lain (sekiranya ada) :
Blood Group Investigation	Nyatakan diskrepansi : / penemuan makmal anda		
Anti-human Globulin (AHG) Test	Saringan antibodi : BG : Sel 1 : Sel 2 : Sel 3 : DAT : Jenis antibody terdahulu (jika ada) :		
Crossmatching	No Kod MO PDN : Bil. darah diperlukan :	Blood Group : Tarikh diperlukan : Permohonan khas : (cth : irradiate)	
Transfusion Reaction	Sila sertakan borang haemovigilans dan sampel pesakit/beg penderma seperti yang disenaraikan dalam MRIK Customer Referral Guide.		
Genotyping	Profil sistem darah yang dimohon : Keputusan ujian serologi :		

**** Nota : untuk maklumat persampelan, sila rujuk MRIK Customer Referral Guide melalui kod QR yang disertakan.**

Prepared by : Nurul Munira Bt Yahya

Reviewed by : Dr. Rozi Hanisa Bt Musa

Approved by : Dr. Nor Hafizah Bt Ahmad

Page 1 of 1

APPENDIX XVIII: PLATELET IMMUNOLOGY TEST REQUEST FORM (PDN)

PDN/IH/QP-05/02, ver 02
Effective date : 01 October 2024

Platelet Immunology Test Request (PDN)

Makmal Rujukan Imunohematologi Kebangsaan (MRIK), Pusat Darah Negara, Jalan Tun Razak, 50400 Kuala Lumpur
No telefon : 03-2613 2688 ext 2766 (Platelet), ext 2672/5640 (Red Cell / Genotyping)

IMPORTANT : Note on Platelet Immunology Test Request 1. All platelet Immunology case must be discussed with specialist (on-call) PDN for approval of referral. 2. Collect fresh sample before sending. All samples must reach lab within 48 hours. Sample reception is during office hours only. 3. New case of PXM must be requested with PAb. However, if PAb is neg, PXM may be cancelled. 4. For additional PXM request (initial case of less than 2 weeks), please call MO PDN (on-call) to check on sample availability. If sample is still available, verbal request is accepted. If new sample required, please send the samples together with this form. 5. For all PXM request , please advise MO on-call PDN to raise PXM notification form to the lab, once request approved.	MRIK Referral Guide  bit.ly/MRIKrequestPDN
--	--

Detail of patient and requesting doctor			
Patient's name :	Age :	Ward :	
ID No :	Gender :	Hosp name :	
Platelet count :	Pregnant : ☐ Yes ☐ No	Ethnicity :	Details of medical officer requesting :-
Indication** Diagnosis:	<u>Select test required</u> ☐ Platelet antibody identification (PAb) ☐ NAIT investigation ☐ NAIT family HPA genotyping (only if NAIT is positive for anti-HPA) ☐ Platelet Crossmatch (PXM) supply • See note above, point # 3-5 • Name of MO PDN spoken to :		Signature : Name : Official stamp : Tel num. : Date and time :
			Name of specialist (PDN) approving :

Clinical History			
Clinical presentation, sign and symptom. Preliminary / working diagnosis. History of medication.		FBP result to rule out pseudo-thrombocytopenia:	
History of blood product transfusion, platelet count trend. Indication of immune-mediated thrombocytopenia.			
For NAIT case only	History of current delivery – birth history / ICH / IUT / onset of thrombocytopenia		
	Family history of previous miscarriage / stillbirth / pre-mature / NAIT delivery and severity / platelet dysfunction		
	History of mother in current pregnancy / delivery. Any miscarriage / stillbirth ?	Gravida : Para :	History of antenatal ITP / Autoimmune disease and medication received :
	Availability of father's sample	☐ Available and sent together with this request ☐ Not available Reason :	

** Whole blood volume. Do not spin / process.

NAIT case - Mother : 10ml EDTA tube and 10ml in plain tube (biological parent sample)
- Father : 10ml EDTA tube
- Baby : 1ml in EDTA tube

PTR and PTP case - Platelet crossmatch
- 10ml in EDTA tube, and 10ml plain tube

ITP case - 10ml plain tube, and 10ml in EDTA tube (if plt > 20 x 10⁹/L)
- 15 – 20 ml in EDTA (if plt 10 - 20 x 10⁹/L)
- 2ml in EDTA if plt <9 x 10⁹/L

Prepared by : Nurul Munira Bt Yahya

Reviewed by : Dr. Rozi Hanisa Bt Musa

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5.0 ABBREVIATION

LIST OF ABBREVIATIONS USED

BBISv2	Blood Bank Information System version 2
CTU	Clinical Transfusion Unit
DIC	Disseminated intravascular coagulopathy
EDTA	Ethylenediaminetetraacetic acid
FFP	Fresh frozen plasma
GSH	Group, screen, hold
GXM	Group and crossmatch
Hb	Haemoglobin
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HRPB	Hospital Raja Permaisuri Bainun
HUS	Haemolytic uraemic syndrome
IH	Immunohaematology
ITP	Immune thrombocytopaenia purpura
IC	Identification card
MO	Medical officer
MOU	Memorandum of understanding
MLT	Medical Laboratory Technologist
MSBOS	Maximum surgical blood ordering schedule
NAIT	Neonatal alloimmune thrombocytopenia
NAT	Nucleic acid test
RPR	Rapid plasma reagin
PDN	Pusat Darah Negara
PTP	Post transfusion purpura
RBC	Red blood cells
TA-GVHD	Transfusion associated graft versus host disease
TAT	Turnaround time
TML	Transfusion microbiology laboratory
TTP	Thrombotic thrombocytopenic purpura