

BLOOD TRANSFUSION SERVICES

2023-2024

USER MANUAL



Authorized by:

HEAD PATHOLOGY UNIT
HOSPITAL TRANSFUSION COMMITTEE

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The blood centre is licensed by Maharashtra FDA and is a member of the Federation of Bombay Blood Centres and is also registered with State Blood Transfusion Council (SBTC).

- **LIST OF SERVICES**

- ✚ Blood Donation
- ✚ Donor counselling
- ✚ Component preparation
- ✚ Transfusion Transmissible Disease (TTI) testing
- ✚ Blood Component storage
- ✚ Immuno-hematological testing

- **LIST OF TESTS**

- ✚ Blood Typing ABO and RhD
- ✚ Cross matching
- ✚ Coomb's test/Antiglobulin test: Direct (DCT) and Indirect (ICT)
- ✚ Rh antibody titre
- ✚ TTI Testing: HIV, HbsAg, HCV, Syphilis, Malaria

- **LIST OF BLOOD COMPONENTS PREPARED**

- ✚ Packed Red blood Cells (PRBCs)
- ✚ Random Platelet concentrates (RDP)
- ✚ Fresh Frozen Plasma (FFP)
- ✚ Cryoprecipitated Anti- hemophilic factor

- **IMPORTANT CONTACT NUMBERS**

Sr	Room	Extension	Direct number
1	B1- Serology	28361	022-25598361
2	Emergency lab	28366	022-25598366
3	Resident room	28349	022-25598349
4	TTI room	28362	022-25598362
5	Donor room	28364	022-25598364
6	Component separation room	28368	022-25598368
7	Dr Prachi Gaddam	28353	022-25598353
8	Dr. Raji Naidu	28351	022-25598351
9	Dr. Uma Chaturvedi	28355	022-25598355

• SAMPLE COLLECTION

Refer to following chart to select correct type of collection tube for each test

TUBE			
TEST	EDTA	SERUM SHORT	SERUM LONG
Blood Grouping	√	√	
Cord Blood for Grouping	√		
Cross Match	√	√	
DCT	√		
ICT		√	
Rh Titre		√	
HIV, HBsAg, HCV			√

Label the sample with:

1. Name
2. CHSS number
3. Ward

* Sample should be properly labelled and details should match with that in the form/request.

* Incompletely filled form/mismatch between sample and form/ form without sample will not be accepted.

• HOW TO ORDER A TEST ON HMIS:

Please follow the steps to correctly place a request for tests in Blood Centre.

1. Create encounter for patient/ select an IP patient
2. Go to “Services” and select “Service Order” from drop down
3. Click “Service Browser”

4. From the pop up window, select Category- Lab tests, Subcategory- Blood Bank. The list of tests will come. Choose desired tests from the menu.

ServiceName	Service Category	
Blood typing; ABO and RhD	LAB TESTS	☐
Cross Matching	LAB TESTS	☐
Direct Coombs Test	LAB TESTS	☐
Dummy Test BLOOD BANK	LAB TESTS	☐
Grouping	LAB TESTS	☐
Indirect Coombs Test	LAB TESTS	☐
Rh Antibody Titre	LAB TESTS	☐
Total rows: 7		

- After selecting the tests, they will appear on main window. Choose priority as Routine or Urgent and then click “Add Orders”

- The desired tests will be seen in the list. The tests can be viewed/cancelled/rescheduled.

- Request for Cord blood grouping is to be sent on requisition form clearly mentioning mother's blood group and other details.

- **REQUEST FOR CROSS MATCHING:**

Follow these while sending a cross match request:

1. Completely fill the cross match request form

Form is available in the wards and ICU or can be downloaded from here:

[CROSS MATCH REQUISITION.pdf](#)

2. Clearly mention the component and quantity of units required
3. Properly label the samples and sent to blood centre along with requisition.
4. For preoperative/ ANC/ non-emergency cases, cross match request can be sent at the time of admission and preferably in routine working hours (8am till 4pm)
5. However, the Blood Grouping should be done at the time of evaluation/ pre-surgical checkup in order to conveniently arrange blood as per patient's group at the time of surgery or delivery
6. Blood components can be sent for irradiation for specific indications (neonatal transfusions, thalassemic patients etc) to Tata memorial hospital. Request for irradiation should be informed to the blood centre at the time of sending cross match request.

CHECKING THE REPORT:

1. Reports can be viewed on HMIS in Lab section

2. Cross match reports are also sent separately to the wards. It takes around 60 minutes for issuing the cross match report after receipt of sample.
 - a. Bag issue entry is done on the same reports in front of each bag.
 - b. Cross check the patient details
 - c. Cross match report is valid for-
 - i. 48 hours from the date mentioned
 - ii. For issue of maximum 2 blood bags.

Repeat request for issue should be sent in either of these situations.

3. Cord blood reports are also issued to wards separately

- **REQUESTING ISSUE OF BLOOD COMPONENTS:**

1. Inform telephonically in blood centre and check availability of blood component.
2. Mention issue request in patient's file
3. **Send patient's file with issue note and insulated container for carrying blood bag to blood centre**
4. PRBC will be issued as per cross match report. In routine situation, RDP and FFP do not require cross-match before issuing. However prior blood grouping is mandatory.
5. Component is issued along with blood transfusion set/ appropriate filter.
6. PRBC and RDP can be issued on receipt of issue request. FFP require prior thawing for around 30 minutes before issue.
7. For emergencies, blood can be issued within 30-45 minutes of receiving requisition.

- **TRANSPORT TO THE WARDS:**

1. Unit of blood for transfusion should be collected from blood centre just prior to starting the transfusion.
2. After issue, the Blood component should reach directly to the ward without any delay.
3. Routine warming of blood is not needed. In any case, the issued component should NOT be stored in ward refrigerator/ other container/ countertop after the issue from blood centre.
4. **Administration of whole blood/ packed cells should be started within 30 minutes of issuing from blood centre.**
5. Except in emergency, avoid transfusing blood at night both for patient's convenience and for transfusion to be under observation.

- **REQUESTING BLOOD COMPONENTS FROM OUTSIDE BLOOD CENTRES:**

1. If the particular component is not available in our blood centre, then the component can be requested from outside blood centres.
2. Confirm the non-availability of that particular component in blood centre and send **Form No 1 with samples to blood centre**

[FORM NO 1.pdf](#)

3. Blood centre staff will check the availability of the components in any of the outside blood centre and accordingly **Form no 2** will be issued.
 - The patient's relative will then take this Form No 2 to the outside blood centre and procure the required component. The copy of the form no.2 and receipt of blood component is required to be kept for reimbursement of charges by the patient.

- **REQUESTING STORAGE OF BLOOD BAGS:**

1. Components procured from outside blood centre should be taken directly to the ward and immediately administered. If the transfusion set is not provided by issuing blood centre
2. If the component is required to be stored in the blood centre due to any reasons, a completely filled storage request should be sent along with blood component to the blood centre.

[STORAGE REQUEST.pdf](#)

3. If the component issued from outside blood centre could not be utilized for that particular patient, the same request form (second half portion at the bottom) should be filled by treating doctor for de-reserving the component.

• ADMINISTRATION OF BLOOD COMPONENTS:

A physician or a qualified nurse should administer blood components

1. Pre-administration Checks

Appropriate consent is taken before transfusion.

[CONSENT FOR BLOOD TRANSFUSION.pdf](#)

Step 1: Check the patient's notes for-

- The component prescribed
- Any special requirements e.g. leucodepletion, warming, irradiation etc.
- Any pre-medication ordered e.g. diuretic

Step 2: Ask the patient for –Name, Surname, CHSS number.

- Check these details against the details on the patient's file and report
- Cross check the patients identification details against the cross match report.
- Be extra vigilant when checking the identity of the unconscious / seriously ill patient

Do not proceed if there is any discrepancy at any step and contact the blood centre immediately

Step 3: Check the details on the cross match report against the details on the blood unit labels

Look for:

- Blood group – Check the blood group of patient in the file, if previously transfused it should be identical.
- Unit number – the number on the unit must be matched with that on the cross match report and the label on blood bag.
- Expiry date – Components can be transfused upto midnight of expiry date. Do not use any component beyond the expiry date or time
- Type of component – The label on the unit provides information on type and volume of component
- Signs of deterioration, leaks or clumping

Step 4: Checking the unit of blood

- Discoloration or signs of any leakage may be the only warning that the blood has been contaminated by bacteria and could cause a severe or fatal reaction when transfused.

Step 5: Check on patient details before starting blood transfusion

- Check patient's baseline vital signs – temperature, pulse, respiratory rate and BP
 - Record the above baseline vitals in the case file
 - Document time of starting the transfusion
2. Administration of Blood and Blood Component
- Wash hands properly before starting transfusion
 - Verify special needs e.g. filtration, pooling, warming blood
 - After final patient identity check and baseline medical check at the bedside, start transfusion
 - Immediately before transfusion, mix the unit of blood thoroughly by gentle inversion 3-4 times
 - Use standard transfusion set with filters provided by blood centre to remove micro aggregates, small clots and other debris
 - Observe the patient closely for at least 15-30 minutes
 - Only isotonic saline can be used with blood components
 - Do not prime the administration set with 5% Dextrose or Ringer Lactate Solutions; (Dextrose may cause haemolysis of the red cells and calcium in Ringer Lactate can lead to clot formation)
 - Before administering blood, completely flush all the incompatible IV fluids and drugs with normal saline (0.9%)
 - For the first half an hour, patient must be under direct observation
 - The rate of infusion depends on the condition of the patient. It is a recommended practice to start the infusion slowly for the first 15 minutes approximately at the rate of 1-6 ml/min. (24 drops). If after 15 minutes no adverse reaction occurs, the rate can be increased to that recommended by the physician. In most cases, a unit of whole blood or packed cells may be infused in 1½ or 2 hours and always should be completed in 4 hours. An exception is a patient in congestive heart failure or a patient with suspected fluid overload.
 - Platelet/FFP/Cryoprecipitate – transfuse within 30 – 60 minutes
- Change blood filter every 4 hours
3. Monitoring of recipient during transfusion:
- Monitoring should be done for each and every unit of blood or blood component transfused

- Frequency of observation:-

Before the start of the transfusion

15 minutes after starting the transfusion

At least every hour during the transfusion

On completion of the transfusion

4 hours after completing the transfusion

Recording the monitoring of the patient

Record the patient's vital signs in the patient's case notes/file -Temperature / Pulse / respiratory rate/BP

Fluid balance - oral and IV fluid intake, urinary output

Any adverse effects

Post transfusion monitoring – evidence of improved clinical status (HCT. Platelet count, coagulation factors), possibility of DHTR

4. Recording the Transfusion

Following details should be recorded in the patient's case file

- Type and volume of product transfused
- Donation number and blood group of each product/unit transfused
- Time at which transfusion started and completed
- Change of transfusion set if required
- Signature of responsible person for transfusion

	Start transfusion	Complete transfusion
Whole blood/Red Cells	Within 30 minutes	Within 4 hours
Platelet preparations	Immediately	Within 30minutes
Fresh frozen plasma	As soon as possible	Within 30 minutes

• RETURN OF BLOOD COMPONENTS:

1. Once a blood unit is issued, it is not accepted back for use unless it is returned within 30 minutes of issue to blood centre.
2. FFP is stored at -40°C , hence requires thawing before transfusion. FFP once issued (after thawing) has to be immediately transfused. If not immediately transfused after thawing it has to be stored at 4°C and has to be transfused within 12 hours after which it has to be discarded.
3. Platelets once issued should be immediately transfused.

Blood components should be issued strictly at the time of transfusion only. Components will NOT be accepted after 30 minutes of issue.

• DISCARD OF BLOOD COMPONENTS:

1. After transfusion, the empty blood bag and transfusion set should be discarded in following containers:

Part	Bag
Blood Component Bag	Yellow
Transfusion set	Red
Needle	Puncture proof

2. If there is transfusion is stopped mid-way due to transfusion reaction, the bag should be sent to Blood centre.

• PREOPERATIVE/ ANC BLOOD ARRANGEMENT:

1. Ensuring availability of blood unit for patients undergoing a major procedure or due for delivery is of utmost important.
2. It is important to recheck the patient's blood group prior to procedure.
3. Cross match request and blood sample should be sent to the blood centre at least a day prior to the procedure to ensure the availability of blood units.
4. In order to make Blood centre aware of future requirement of blood units, relative/ patient should be sent with this slip to blood centre.

[PREOP ANC BLOOD ARRANGEMENT.pdf](#)

5. It is duty of treating doctor to emphasise importance of voluntary blood donation and to encourage relatives of patients for arranging voluntary blood donors.

• BLOOD DONATION ELIGIBILITY AND DONOR SELECTION CRITERIA:

To be eligible for blood donation, donors should fulfil the following requirements:

1. Age group of 18 to 60 years. Donors more than 60 years but up to 65 years can be accepted if he /she has donated more than once between the age of 55-60 years.
2. Weight not less than 45 kilograms for 350ml and 55kg for 450ml blood collection.
3. Temperature and pulse- normal
4. The systolic and diastolic blood pressures should be within acceptable limits without medication. (100-140 systolic and 60-90 diastolic with or without medications and without any evidence of end organ damage or any alteration of dosage in last 28 days.
5. Haemoglobin- more than 12.5 g/dl.

6. Free from acute respiratory diseases
7. Free from any skin disease at the site of phlebotomy
8. Free from any disease transmissible by blood transfusion, in so far as can be determined by history and examination indicated above
9. The arms and forearms of the donor shall be free from skin punctures or scars indicative of professional blood donors or addiction of self-injected narcotics
10. Donation interval: For whole blood donation, once in three months (90days) for males and four months (120 days) for females.
11. Donor is counseled and provided information about:
 - Need for blood
 - Need for voluntary donation
 - Regarding transfusion transmissible infections
 - Need for questionnaire and honest answers
 - Safety of blood donation
 - How the donated blood is processed and used
 - Tests carried out on donated blood

DONOR QUESTIONNAIRE:

The donor registration form for donors has an elaborate medical history questionnaire which has to be answered by the donor. These questions are necessary to ensure, to the extent possible, that it is safe for the donor to donate blood and the blood to be transfused.

[5.DONOR QUESTIONNAIRE.pdf](#)

DONATION TIMING:

Eligible donors can come for blood donation to the blood centre between 9am- 1pm from Monday to Saturday (except public holidays).

PROTOCOL FOR TRANSFUSION REACTION WORK UP:

Transfusion reaction is any unfavourable transfusion related event occurring in a patient during or after transfusion of blood components.

In any case of transfusion reaction, inform the blood centre staff immediately.

Send blood bag, transfusion set, Post – transfusion sample (EDTA and plain), urine sample along with transfusion reaction work up form.

Send the following for lab investigations:

1. Repeat ABO & Rh (D) Grouping- Blood Centre
2. Repeat Antibody Screen and Cross Match- Blood Centre
3. Indirect/ Direct Antiglobulin Test- Blood Centre
4. Complete Blood Count (CBC) - Hematology/ Clinical pathology
5. Urine for routine microscopy- Clinical pathology
6. Coagulation Screen- Hematology/ Clinical pathology

Send clotted Blood sample to Biochemistry Lab for:

7. Renal function test (urea, creatinine and electrolytes)
8. Liver function tests (bilirubin, ALT and AST)

Send Blood culture in special blood culture bottles to Microbiology Lab.

TRANSFUSION REACTION FORM:

Completely fill the transfusion reaction work up form and send to Blood Centre for workup.

Blood Centre will receive the samples and form and proceed with work up of transfusion reaction.

[6. TRANSFUSION REACTION FORM.pdf](#)