

MINIMUM REQUIREMENT FOR ESTABLISHING A HOSPITAL BLOOD BANK

OCT 2018

(For Non Teaching Hospitals with **annual donation** collection 1000-1200)

Under the new Blood Transfusion Legislation and the National Blood Policy, Hospital Blood Bank means a hospital unit which receives and stores screened blood and blood components ordered from its Regional Blood Centre, performs blood grouping and compatibility testing, and issues blood and components for clinical use within the hospital.

Basic Functions of a Hospital Blood Bank after the Reform:

1. Storage of blood and blood components.
2. Patient blood grouping and compatibility testing.
3. Detection and identification of atypical antibodies in patient serum.
4. Issuance of blood and blood components on clinician's request.
5. Traceability and haemovigilance.
6. Proactive role in hospital transfusion committee.



However considering the ground realities and considering the fact that the new system will be a gradual transition, following basic requirements are given below for establishing a blood bank at a non teaching hospital. It must also be kept in mind that these recommendations are only for the transitional phase. The safe blood transfusion is only possible when all establishments are working according to Punjab Safe Blood Transfusion Ordinance 2016.

Following important must also be noted:

1. The requirements are only for the low workload (1000-1200 donations) per year.
2. The provision of component preparation facility is mandatory if there is requirement for components.
3. Provision of more space, equipment and staff is appreciable.
4. PBTA recommends all screening for blood donation by ELIA or CLIA from January 2019.
5. Professional security, staff room and risk management must be considered.

PLANNING

Accessibility: The hospital blood bank will function around the clock to provide services to emergency patients as well as to patients with routine procedures requiring transfusions. It may be allocated close to other emergency service delivery facilities of the hospital.

Hours of Operation: The blood bank of a hospital operates 24 hours, seven days a week, to ensure that blood is available to patients at all times, and particularly in the case of emergencies. The administration will have to provide security and staff facilities designed to suit the hours of operation.

Biosafety: All blood and blood products should be considered bio-hazardous, and policies for the protection of staff and patients should be in place. Immediately accessible hand washing facilities should be provided in the area where blood and blood products are handled.

Blood and Sample Registration: All blood samples and blood products entering or leaving the blood bank should pass through a central reception and/or registration point and have to be documented. The delivery of blood and blood components for transfusion should be through an authorized person held accountable. The hospital policy for safe delivery of blood and blood components to the patient will be followed.

Blood Disposal/Biological Waste Disposal: Items requiring disposal include all used disposables like pasteur pipettes, disposable micro-pipette tips, test tubes, micro-plates, sharps, blood stained swabs & gauzes, blood samples, and blood bags that have passed their expiry date. This waste should be treated as per hospital policy for biological waste disposal.



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Blood Storage: The blood and blood components (red cells, FFPs and platelets) require different temperatures for storage. Plasma is stored at -30°C or below, platelets at $20-24^{\circ}\text{C}$ with agitation, while whole blood and RBC concentrates are stored at $2-6^{\circ}\text{C}$. According to WHO recommendations following must be observed:

1. Blood must never ever be stored in domestic refrigerator or an altered domestic refrigerator.
2. The blood storage cabinet must have temperature record.
3. All components must be stored in specific storage cabinets.

Building Fabric: Concerning the physical environment of HBB, attention should be paid to selecting materials for their durability, fire safety and ease of cleaning and disinfecting. Material selection should conform to GMP requirements. Bench materials should have smooth, non-porous surfaces which are not corrodible and are reagent resistant.

Air Conditioning: Due to the extreme weather conditions in most parts of the country and for optimal operation of storage cabinets, the blood bank air conditioning should be maintained as below:

$24^{\circ}\text{C} \pm 2^{\circ}\text{C}$ DB / 50 % RH \pm 10 % in summer;

$21^{\circ}\text{C} \pm 2^{\circ}\text{C}$ DB / 40 % RH in winter.

AREAS OF BLOOD BANK.

The blood bank is a restricted area, and only authorized persons are allowed to enter and work in this section of the hospital.

- 1. Reception Desk and Waiting Area:** A small window counter should be designed for accepting blood samples and the issuance of blood. Blood, blood components and blood samples are received at this counter and similarly blood and blood components are issued with documentation from the same counter for transfusion to the patients.
- 2. Donor Management Area:** Donor management area must be comfortable, spacious and the confidentiality of donor must be maintained. It is preferable that the donor history taking area may be separate from donation area. The number of donation tables depend upon workload of blood bank. Following important must be present in the donation area:



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1. BP apparatus
2. Donor history sheets/tablet.
3. Donor consent form
4. Emergency tray
5. Tourniquets
6. Refreshments

3. Laboratory: The serology laboratory of a HBB performs the following tests:

ABO grouping and Rh(D) typing;
Compatibility testing;
Direct and indirect Coombs tests;
Mandatory screening for TTIs.

Different laboratory working areas should be designed separately from each other. The compatibility testing area must be demarcated and labeled clear from screening area. The component preparation area must also be separately demarcated.

4. Blood and Components Storage Area: Refrigerator and freezer cabinets should be used for storage of blood and blood components by allowing 75 mm of space between the cabinets and 50 mm between the cabinets and walls to permit heat dissipation. The equipment used for storage of blood and blood components is listed below:

- Blood storage cabinet ($4^{\circ}\text{C} \pm 2^{\circ}\text{C}$)
- Plasma Freezer (-30°C or below)
- Platelet incubator with agitator ($22^{\circ}\text{C} \pm 2^{\circ}\text{C}$)

The inventory of blood and blood components must be maintained carefully.

IMPORTANT

1. All samples must be received at blood bank in properly labeled tubes carried by hospital employee.
2. Blood Bag/Component bags must be carried to transfusion area by trained hospital/blood bank employee. (Blood must never ever be carried by attendants of patient)



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3. Post transfusion blood bags must be returned to blood bank. Blood bank must maintain complete record of post transfusion blood bags.

EQUIPMENT.

Name of Equipment	Quantity	Name of Equipment	Quantity
Mixer scale For Blood Collection(Blood Shaker)	As number of donation couches	Water Bath	one
Tube Sealer	one	Reagent Refrigerator	one
Donor Weighing Scale	one	Centrifuge Bench top	one
Hb Testing	one	Blood storage Cabinet	Depending upon workload. Min one
Tube Stripper	one	Refrigerated Centrifuge	Where components are required
Agglutination Viewer	one	Waste Disposal Equipment	As per SOPs

STAFF FOR HOSPITAL BLOOD BANK

Following is the minimum staff requirement for a Non Teaching hospital Blood Bank. The requirement for a teaching hospital blood bank will be more.

1. Lab. Technologist/Technicians 4 (For Three Shifts) 2(For two Shifts)
2. Lab Attendants 2 (For Three Shifts) 1(For two Shifts)



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REAGENTS/CONSUMABLES

Following mandatory consumables must be available in the blood bank.

1. **Antis era:** WHO certified. Only DIAGAST or BIORAD
2. **Blood Bags:** Internationally recognized, best quality, Certified.
3. **Blood Transfusion sets:** Only JMS and TERUMO brands are certified (available in Punjab). **No other blood administration set can be used.** Usage of substandard BT sets or Blood bags may lead to **Disastrous results.**
4. **Screening Kits for TTIs. (HBV, HCV, HIV, MALARIA & SYPHILIS)**

- a. **ICT DEVICES (No longer Recommended by WHO for busy blood banks. Applicable in very low workload (LESS THAN 100 donations per Month) blood banks.**

Only following internationally recognized brands are available in Province and should only be used. (More brands will be added upon verification)

1. DETERMINE (Allere)
2. ABON (Allere)
3. INTEC (Intec)

- b. **ELISA/CLIA**

Only WHO, FDA certified kits must be used. UN certified kits must not be used. The equipment must preferably Automatic.

RECORD MAINTAINANCE

Record must be maintained manually or preferably electronically. Complete Donor and Blood bag Traceability must be easily available. All steps from donor management to blood supply must be carefully recorded. The record of returned blood bags and all reactions and events must also be maintained.

(Samples for record registers can be obtained from PBTA on request)

The yearly data must be communicated to PBTA yearly on prescribed proforma (available at PBTA website)

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