1. Purpose

To define policies for rational use of blood and blood products.

2. Scope

All the blood and blood products transfusion services.

3. Responsibility

- Doctors
- Head, Transfusion medicine
- Staff Nurse
- Blood transfusion committee
- Blood Bank Technicians

4. Abbreviation

- NABH: National Accreditation Board for Hospitals and Healthcare providers
- COP: Care of Patients
- ACLS: Advanced Cardiac Life Support
- BLS: Basic Life Support
- NOK: Next of Kin
- UHID: Unique Hospital Identification Number
- WHO: World Health Organization

5. Reference

- **NABH:** NABH Standards for Hospitals, Fifth Edition, April 2020.
- **COP.7:** Documented procedures define rational use of blood and blood products. (**OEa –h**).

6. POLICY:

6.1 All activities related to the transfusion of blood should be in accordance to the Drugs and Cosmetics Act, 1945 issued by the Government of India., NACO guidelines.

6.2 A blood transfusion has the potential to be a hazardous and hence a transfusion should only be given if the potential clinical benefits outweigh the potential risks to the patients.

6.3 The blood and blood component will be processed and issued only in the licensed blood bank and by trained and authorized personnel. The process and monitoring of the transfusion reaction process will be done only by nursing staff and medical officers authorized and suitably trained.

6.4 Without a duly filled requisition form by the medical staff signed by a medical officer, blood bag or any type of component shall not be issued to the recipient.

6.5 The Doctor should explain the need of transfusion to the patient or family members.

Ensure that Blood and blood products transfusion consent from patient or guardian is in place before transfusion.

6.6 Consent should be taken for every transfusion. However, with the same consent can give multiple transfusions in same sitting but if the same is given over 24 hours or 2 hours apart then a separate consent is required.

6.7 All transfusion processes will be monitored for adverse reactions, both hemolytic and non-hemolytic and all adverse outcomes are suitably documented and appropriately treated. All blood bags issued by the blood bank are traceable and such records are maintained in blood bank.

6.8 During emergency, blood will be issued prior to complete cross matching. Cross match will be duly completed. Request has to be accompanied with a special consent to use uncross matched blood duly signed by the treating physician.

6.9 All positive samples of HIV, Hepatitis shall be discarded as per Biomedical Waste handling rules.

7. Applicable Laws and Regulations:

1. Drugs and Cosmetics Rules, 1945 Part X B and XII B.
2. Standards for Blood Banks & Blood Transfusion Services, NACO2007
3. NABH guidelines for blood banks.

8. Training of Staff

Hospital Transfusion committee in coordination with HR department is responsible for training the staff on the policies of blood transfusion. All staff in blood bank shall be trained in Blood transfusion medicine periodically.

9. Mode of Training:

This policy document is available with Blood Bank, all the nursing stations, critical care units, operation theaters, nursing superintendent. Additionally, the staff is trained through sessions periodically as defined below:

1. Consultants - Orientation program once a year
2. Registrars/ residents / Duty Doctors – Once in every 6 months
3. Nursing Staff - Once in every 6 months
4. Blood Bank Staff - Once in every 6 months

10. Analyzing Transfusion Reactions

The policy documents detail the management of transfusion reactions, the data is compiled by the Blood Bank Officer and is analyzed during transfusion committee meeting conducted quarterly. The committee has the authority to initiate the corrective and preventive actions along with the responsible person.

11.Procedure

1. Blood and blood products used are as follows:
    - Packed Red Cells
    - Fresh Frozen Plasma
    - Platelet Concentrate
    - Cryo precipitates
2. Patient's blood group should be checked during the first admission at the blood bank.
3. The reason for transfusion should be explained to the patient or his relatives.
4. Treating doctors shall be responsible for ensuring the appropriateness of each blood / blood product they prescribe for an individual patient.
5. **Treating Doctors & Nursing Supervisor** shall be responsible for obtaining consent for blood donation.
6. **Blood request** should contain all required information like name, age, UHID No, Consultant, Ward, bed no, time of requisition, diagnosis, indications, component, volume further mentioning emergency, immediate or routine.

7. Sample to be sent in EDTA and plain vacutainers Validity of the sample is for 3 days. Day of collection is Day '0' & expires on the midnight of D3. ABO grouping and Rh typing of the patient sample will be done on 2 samples collected on separate occasions. Each PRBC cross matched for a particular patient will be reserved for 72 hours for that patient. Later the unit will be transferred to the blood bank inventory unless specifically requested by the treating consultant.
8. Sample should be collected with all safety precautions, counter checked with patient's Name & UHID No.
9. Labeling should be done before collection of the sample, at the bed side.
10. Patient should be identified by calling out Patient full name & with UHID no and also from the wrist band.
11. Venous access should be patent with needles with gauge 14-22 for adults & 22-24 for neonates. Care should be taken for hemolysis.
12. Issue only after the patient is prepared for transfusion. **Issue request duly signed by treating physician** should be sent to the blood bank with patient name, age and UHID.
13. Blood should be transported only in cold boxes (Thermocol boxes) with biohazard label. Transfusion should start within 30 minutes of issue.
14. Blood will be issued as one unit at a time unless there is an emergency.
15. Nursing staff shall check the blood and blood products and blood transfusion set attached to the patient under the direct supervision of a medical officer. ***Medical officer along with the nurse will be responsible for the correct and safe administration of blood and blood products in accordance with policy.***

16. Before Transfusion look for two patient identifiers (full name and UHID) on label on the unit, attached tag, Patient's chart and wrist band. **Re-verify the order & expiry date.**
17. Blood bag should be inspected before accepting. Identity of patient & bag must be confirmed at the time of issue. Request form, blood bag label and attached cross match card should be checked. The nurse should counter check the details of the bag and blood issue form with another registered nurse or team leader before administering. Also both should verify transfusion order.
18. Check the blood grouping, expiry date, discoloration and any clots in the blood bag or unit number. If any mismatch found, immediately return back to blood bank.
19. Blood transfusion procedure shall be started only by a trained staff nurse who has privilege to do the procedure in accordance the principles of right medications. Or it should be done by medical officer who has the privilege to do blood transfusion.
20. Should be returned within 20 minutes, if not transfused the old one.
21. Blood should not be stored in ward fridge.
22. Premedication to be given only if indicated.
23. Blood administration tubing should only be flushed with normal saline or the blood component to be transfused. No medication or solution other than 0.9% saline should be administered through the same tubing.
24. She / he shall remain with the patient till the whole procedure is completed. In case of reactions, the reason for it has to be analyzed; this enables to take corrective action.
25. Transfusion should only be started slowly at a rate of 6-8 drops /min for the first 15 minutes After 15 minutes, reassess vital signs and adjust the flow rate to the desired speed if no signs of reactions are noted.

26. Staff administering blood and blood products shall have the responsibility to observe and treat adverse reactions to blood products. All errors, 'near misses' and suspected adverse reactions shall be documented in the patient medical record and reported.

27. In case of any adverse reaction, transfusion should be stopped immediately, treating physician should be informed by the nurse and disconnect the set. Along with the bag, a blood sample should be collected from the opposite arm & to be sent to blood bank (EDTA and plain sample). A fresh urine sample should also be obtained for RBCs & to be sent to blood bank. Keep the line patent with 0.9% saline infusion. Administer post reaction medication as per the doctor's order.

28. **Reaction form** to be sent to the Blood bank if the patient undergoes any transfusion reaction and is analyzed.

29. Blood component transfusion shall not exceed beyond 4 hours. One transfusion set can only be used for 4 hours if multiple transfusions are being done continuously.

30. Treating doctors / Team Member shall document the indication and outcome of transfusion in the patients' medical record.

31. Qualified and experienced Doctor / staff nurse shall administer blood and blood products in accordance with the policy. The nurse who has requested the blood should check it with the details of the issue form and double check with duty doctor and both should sign manually on the form if the information on the bag and issue form matches.

32. Patient shall be constantly monitored by the staff nurses. Blood Bank report shall be attached in the patient file. Transfusion monitoring form should be duly filled and sent back to the blood bank.

33. Patient's blood group rechecked along with cross match as compatibility workup.

34. Test results are also checked.

35. Based on the severity and root cause analysis, if the patient needs any medical attention, an incident report is raised towards the Quality Department.

36. The patient is reassured and made comfortable during this period.

37. The treatment may be resumed after receiving further instructions from the doctor or when no further reactions are noticed.

38. Staffs who are detailed to carry out the blood transfusion shall be trained to carry out transfusion procedures. Nursing supervisor in charge of training shall give appropriate education to staff in relation to the handling and use of blood products. All clinical staff involved in any transfusion procedures (e.g. prescribing, checking or administration) is responsible for maintaining and updating their knowledge and practice.

39. ***DRUGS MUST NOT BE ADDED TO BLOOD UNDER ANY CIRCUMSTANCES*****.**

40. The blood transfusion committee shall be intimated in case of any serious reaction taking place which results in abrupt stopping or postponing the transfusion.

41. Leftover blood if any or the empty plastic blood container needle and tubing shall be treated as biomedical waste and disposed of according to BMW management rules, 2016, 2018 amendment.

42. The department staff is educated through frequent training programs and is strictly monitored on the adherence to best clinical practices and compliance to the operating procedures.

43. Blood components from other blood banks can be only obtained through MMCH Blood Bank.

12. Blood Transfusion Protocol

a. Informed consent is to be obtained prior to each transfusion.

b. Place an IV Line (Preferably new) with 18G cannula.

c. Prepare the patient by checking the vitals and collecting pre-transfusion urine sample.

d. Cross checking the Blood component by two individuals, preferable junior nurse and senior nurse.

e. Start transfusion at a rate of 4- 6 drops per minute and continue to 30 minutes. Gradually increase the drop rate to 6-8 and then to 10-14 drops by one hour.

f. Closely monitor the vital of patient at an interval of 15 minutes throughout the transfusion.

13. Criteria for transfusion of Blood and Blood Products

1. RBC Transfusion

- HB ≤ 7g /dl
- Acute coronary syndrome with Hb < 8g/dl.
- Adult critical care medical and surgical in-patients treated for sepsis during the First 6 hours of resuscitation with an Hb < 10g/dl.
- Patients with active and clinically and significant bleeding
- Acute active upper Gastrointestinal bleeding

2. Platelet Transfusion:

- Severe Thrombocytopenia
- Patient with hemorrhage with platelet count less than 10000
- Patient on heparin, has coagulopathy
- Anatomic lesion that are likely to bleed
- Bleeding patients or have a scheduled invasive procedure within the next 4 hours of platelet count less than 5000.

3. Plasma Transfusion:

- Active bleeding in the setting of multiple coagulation factor deficiencies (massive transfusion, disseminated intravascular coagulation)
- Emergency reversal of warfarin in a patient with active bleeding where prothrombin complex concentrated with adequate levels of factor VII is not available.
- Replacement of fluid in performing the plasma exchange
- Treatment of Thrombotic and Thrombocytopenic Purpura.
- Elevated INR before a planned surgery or invasive procedure
- Hemorrhagic shock

14. Turnaround Time

1. All components transfusion must be started within 20 minutes.
2. All components transfusions must be completed within 4 hours.
3. PRBCs/ Platelets accepted if returned within 20 minutes of issue/ as indicated by temperature monitoring label.

15. Documentation

Each transfusion must be clearly documented in the medical records including the date and time of transfusion, the clinical indication for transfusion, the type of component or product used, and any transfusion reaction and its management. Maintain blood bank report in the patient chart. Transfusion monitoring form and Blood transfusion reaction form shall be returned to the blood bank. Blood bag label and cross match card attached to blood bag can be discarded.

16. Discarding Blood and Blood Components

1. All unused and returned blood units, units which have passed their expiry date, units which are found positive for HIV, HBs Ag, HCV, VDRL or Malaria during screening are all autoclaved and discarded according to the hospital waste management protocol.
2. Request for disposal of unused blood has to be filled and signed by the doctor and send along with the unused blood for discard to blood bank. Partially transfused bags need not be send back.
3. A discard register will be maintained in blood bank.

17. Forms / Records and References (Forms and records support to implement particular SOP).

1. Blood Request form
2. Request for Issue of Reserved Blood Component
3. Consent for Transfusion of Blood and Blood Products
4. Blood Issue Form
5. Blood Transfusion Monitoring Form.
6. Transfusion Reaction Form
7. Blood Cross Match Card
8. Blood Bag Label
9. Transfusion Reaction Register
10. Blood Issue Register
11. Blood Discard Register
12. Hospital Transfusion Committee Register
13. Blood Bank Report