

MED-1602	Blood Transfusions
Version No.	1
Content Owner	Vikand Technology Solutions, LLC.

1. 1.1 Definitions

- Blood transfusion: Blood transfusion is the process of transferring blood or blood products into one's circulation intravenously. Transfusions are used for various medical conditions to replace lost components of the blood.
- Donor: a person voluntarily has blood drawn and used for transfusions and/or made into biopharmaceutical medications by a process called fractionation. Donation may be of whole blood, or of specific components directly.

1.2 Responsibilities

- The responsibility of the practitioner who orders and transfuses blood involves the following:
 - Transfusing blood only when it is medically indicated.
 - Warning patients of the potential risks inherent in blood transfusion.
 - Obtaining and documenting informed consent.
 - Correctly identifying the patient, and units of blood to be transfused.
 - Ensuring that appropriate compatibility tests has been performed.
 - Ensuring that the blood has been correctly handled prior to and during transfusion.
 - Ensuring that the blood has not passed its expiry date.
- Permitting responsible persons to administer blood to the patient.
- Transfusing blood at the proper rate.
- Observing and monitoring the patient at the commencement of, and during the transfusion.
- Effectively managing any untoward transfusion reaction.
- Retaining blood samples as required.
- Reporting of untoward reactions or death.
- Tracing, counselling and testing recipients of blood transfusion.

2. Preparation

2.1 Inform:

- All medical Team
- Vikand Medical management team.
- Captain (obtain distance from nearest port and announcement of donor.)
- The Company.

2.2 Reasons for initiating of blood transfusion

- Patient presents with active; non-compressible bleeding:
 - than 4 hours will elapse till transfer to appropriate shoreside medical facility
 - Hb < 10.0 grms/d/l
 - refer to Blood Transfusion Protocol attached

2.3 Preparation of the patient

- The preparation of the patient for transfusion involves documentation of informed consent.
- Informed consent for transfusion means a dialogue has occurred between the patient and the doctor. The significant risks, benefits and alternatives to transfusion including the patient's right to refuse the transfusion will have been discussed.
- Because of this discussion the patient should:
 - Understand what medical action is recommended.
 - Be aware of the risks and benefits associated with the transfusion.
 - Appreciate the risks, and possible consequences of not receiving the recommended therapy.
 - Be given an opportunity to ask questions.
 - Give consent for the transfusion.
 - The consent shall be documented by a consent form or by documentation in the patient's EMR (if available).
- In circumstances where it is not possible to obtain informed consent before proceeding with transfusion (e.g. life-threatening emergency, comatose patient, unaccompanied minor patient), it is acceptable to proceed without consent in the patient's best interests, provided such action is documented in the patient's EMR (if available).

3. Identification and verification of patient.

3.1 The safe transfusion of blood products starts with the positive identification of the patient at the time of drawing a blood sample for compatibility testing.

- 3.2 Identification is carried out by questioning the conscious patient or suitable responsible person.
- 3.3 After taking the appropriate blood samples (green and purple tube vacutainer), these should be clearly labelled at the patient's bedside, with full names, date of birth, date of sample withdrawal.
- 3.4 In an unconscious patient the medical staff may assume the responsibility for identification.

4. Laboratory tests are carried out on the sample to determine:

- QBC
- INR
- Lactate
- Calcium
- Eldon card
- Hep B and C rapid test
- HIV rapid test
- Malaria testing

5. Finding a donor:

5.1 Donors identified, in order of preference:

- Family members
- Sexual partners/ Traveling partners
- Guest/Passengers who are known blood donors with cards
- Guest/Passengers who are blood donors, without cards
- Medical team members
- Crew

5.2 If the first 2 donor preferences are not a match, announcements for Guest/Passengers who are blood donors with blood donor cards are to be selected for a match. Announcements are to be made no later than 19:00 at night unless necessary.

5.3 Donor is sign consent to be tested and screening as well as a case to be opened for the Guest/Passenger.

5.5 Screening of donor:

- Hemodynamically stable/ unstable
- QBC

- INR
- Lactate
- Calcium
- Eldon card
- Hep B and C rapid test
- HIV rapid test
- Malaria testing

5.6 Once the RH and blood grouping has been established of the patient a donor needs to be found that matches the patient.

6. Procedure:

The following guidelines should be adhered to:

- All identification is carried out at the patient's side.
- All information is read aloud by both attendants checking the blood.
- The recipient's name and identification number on the unit must be identical to that on the hospital record (folder).
- The donor's ABO and Rh groups must be recorded on the blood unit (and the transfusion requisition).
- Verification that a compatibility test between the donor and the recipient has been performed.
- The date and time of expiry of the unit must be checked. Expired blood must not be transfused.
- The patient asking for his/her full name, birth date and other relevant details identifies the patient. The questions should be phrased so that the patient gives a specific answer and not just 'yes' or 'no'.
- For example, "What are your full names?" and not "Are you Mr. J Smith?".

7. Aseptic technique

7.1 Blood is usually transfused through a large needle or cannula, the size of which is selected according to the caliber of the patient's veins. Almost any peripheral vein is suitable for transfusion; however, those in the forearm are best, as the patient's movement will not be restricted. Meticulous skin care and aseptic technique cannot be over emphasized in transfusion therapy as blood acts as an ideal culture medium for bacterial growth. The proposed site for venipuncture should be cleaned.

7.2 Gloves and a sterile field should be used to position cannula for transfusion, but most especially in the immunocompromised and long-term transfusion patients. The site

should never be re-palpated after cleansing.

7.3 During transfusion the transfusion site should be visible through a transparent dressing so that any inflammation or infiltration may be seen immediately. The transfusion should be repositioned if the inflammation is observed.

8. Monitoring the patient

8.1 A critical part of transfusion therapy is monitoring of the patient, whether by a nurse or a medical practitioner. The accurate and quick interpretation of adverse effects could prevent a fatal reaction.

8.2 The unit number, date of transfusion, and the starting and finishing time of each unit transfused should be recorded in the patient's folder.

8.3 All this information should be permanently retained in the patient's EMR (if available).

8.4 Baseline observations of vital signs should be recorded prior to commencing the transfusion.

8.5 The patient is then observed closely for the first 30 minutes of the transfusion to detect any untoward reaction, and to ensure that the desired rate of transfusion is maintained. In cases of major blood loss, pulse, BP, respiratory rate and urinary output should be monitored every 15 minutes throughout the transfusion.

8.6 In less severe cases the recipient's vital signs should be checked every half hour after the initial 30-minute observation.

8.7 Patients at risk for circulatory overload should be observed for 12-24 hours after transfusion.

8.8 If a transfusion reaction is suspected because the patient complains of symptoms or there are clinically significant changes in vital sign measurements, the transfusion must be stopped immediately, the drip set changed, and the vein kept open with a transfusion of normal saline.

8.9 The following actions must be undertaken:

- A member of the medical staff must be contacted immediately.
- The patient's temperature, pulse, respirations, and blood pressure must be recorded.
- All clerical and identity checks must be repeated.
- Further management depends on the type and severity of the reaction.

9. Special Precautions

9.1 Rate of transfusion

- The rate of the transfusion depends on the clinical condition of the patient.

- A patient in acute shock from massive blood loss will require rapid transfusion whereas a patient with chronic anemia should not exceed 2ml per minute. A relatively slow rate of 5ml per minute is recommended for the first 30 minutes and if there is no sign of untoward reaction the rate can then be increased.
- Blood transfusions must be completed within 6 hours of entry of the pack. Blood components that are not used immediately should be stored at the 4 Degrees.

9.2 IV Lines

- Whole blood is administered through a standard blood recipient set, or Y-type giving set. These sets have 170– 240µm mesh filters to prevent the transfusion of clots or coagulation debris.
- The filter should be covered with blood to ensure that the full filtering area is used.

The administration set should be changed:

- When there is a transfusion reaction, in order to prevent further potentially harmful blood entering the patient's system. Before infusing other fluids, e.g., Dextran, Ringers lactate.
- Every 12-24 hours in patients requiring long term transfusion.

Temperature of the blood

- If cold blood is administered at a slow rate it does not appear to affect the circulatory system. However, in cases where rapid transfusion is necessary, complications such as cardiac arrhythmias can be avoided by warming the blood to not more than 37oC. Overheating of the blood can cause extensive hemolysis with renal damage and possible death.
- Under no circumstances should blood be heated in a microwave oven or similar device. This not only results in extensive hemolysis but also causes conformational changes and denaturation of proteins.
- Blood warming is not routinely indicated, and refrigerated blood may be transfused without harm over several hours.

9.3 Additives

- No medications or other fluid should be added to the blood or blood products before or during a transfusion because:
 - Bacterial contamination is a real hazard whenever any unit of blood is entered.
 - A reaction could occur between drug and the anticoagulant or nutrient fluid in the blood, e.g. Dextrose solutions might cause lysis or aggregation of the red cells in the transfusion set.

- Because blood may be administered slowly therapeutic levels of a drug may not be achieved.
- The only fluids that can be given concurrently through the same IV device as a red cell transfusion are:
- Normal saline

10. References:

ACEP Cruise Ship Medicine Section.

As per Flag State Requirements