SUBJECT: **TRANSFUSION OF BLOOD PRODUCTS AND COLLOID SOLUTIONS**

Purpose: To delineate the policies and procedures to ensure safe administration of blood products and colloid solutions

Physician Order: Yes

Performed by: RN

Type of Blood/Colloid Products: Whole Blood, Packed Red Blood Cells (PRBC), Fresh Frozen Plasma (FFP), Platelets, Cryoprecipitate, Albumin

Equipment Required:

Type of Blood Products	Equipment Required
Whole Blood; Packed Red Blood Cells (PRBC); Fresh Frozen Plasma (FFP); Cryoprecipitate	• Y Type blood administration tubing • IV solution – 0.9% normal saline (Adult – 500 mL; Pediatric 50-250 mL per MD orders) • Infusion pump
Albumin	• IV tubing with standard filter (supplied by pharmacy) • Infusion pump

Policy Statements:

1. There must be a completed Consent to Blood Transfusion in the patient's chart.
   Exception: Albumin
   Key Point: It is the responsibility of the provider to obtain the informed consent. Religious/personal preferences must be considered.

2. For inpatients, the consent is valid for the length of hospitalization or until the risks or alternatives change based upon the patient's condition. For outpatients, the consent is valid for 30 days.
   Key Point: Outpatient consent is not valid for inpatient use.

3. If the patient refuses a blood transfusion, a Refusal for Blood Transfusion form must be completed. Disseminate the information to all staff by attaching a note stating, "No Blood Products" on the front of the chart. Document on the “Transfusion History” section of the “Admission History Adult” form in Electronic Health Record (EHR). Notify physician.

4. After the consent is obtained, the nurse is responsible to give the “Patient’s guide to blood transfusion” handout to the patient.
   Exception: When transfusing Albumin

5. Ensure the patient has a patent IV site with an appropriate gauge size.
   1. Adult – 20-24 gauge based on vein size and patient preference (18-20 gauge for rapid transfusions)
   2. Pediatric – 22- 24 gauge

6. No medications may be administered with or added to any blood product.
   Key Point: Use an alternative IV site for administration of other IV products during the transfusion or obtain an order to hold all other infusions during this time.

7. No blood products obtained from the Blood Bank will be transfused if the patient's temperature is greater than or equal to 37.8°C without a specific written physician's order indicating the transfusion can be given with a temperature of 37.8°C or greater.
   Key Point: Premedication may be ordered by the physician. Fever is rarely a contraindication for transfusion. A febrile non-hemolytic transfusion reaction is defined as a rise in temperature greater than 1^0c from a pre-transfusion level when no other explanation for the fever exists.

.

8. All blood products must be initiated promptly once picked up from the lab and completed within 4 hours.
   Key Point: Blood is not to be stored on the unit, nor put on ice or in a refrigerator to cool. Only the Blood Bank has controlled temperature storage

9. Two verifiers (RN, Physician, or IV Certified LVN) must verify at the bedside that the information on the Crossmatch Transfusion Record form, the label on the unit of blood, and the patient's identification band, are matching. Two patient identifiers must be verified – patient's name and Medical Record Number (MRN). If any of the elements do not match, the Blood Bank must be notified and the blood product returned to the Blood Bank **immediately**.

10. Do not administer blood products with any solution except for 0.9% Sodium Chloride (Normal Saline).
    Key Point: Other IV solutions may clot or hemolyze the blood.

11. An RN is to stay with the patient during the first 15 minutes of initiating the transfusion. **After** the first 15 minute observation is completed by the RN, an LVN may monitor vital signs, IV site, and signs of a transfusion reaction.
    Key Point: An anaphylactic reaction is most likely to occur before the first 50ml have been transfused.

11. Rate of blood product transfusion is determined by the provider.
    Key Point: Transfusion of any blood products is NOT to exceed 4 hours.

12. All blood transfusions are recorded under the blood administration section on iView and I&O.

13. Discard the blood administration tubing and empty blood bag into the biohazard waste container.

I. TYPE AND CROSSMATCH

The patient's blood type must be pre-determined in order to safely transfuse the correct blood type.

1. Review provider's order.
2. Print specimen label.
3. Obtain a blood sample and place in a red top tube.
4. Send scanned/signed specimen to lab.
5. The lab will determine the patient's blood type.
6. The blood specimen is valid for at least 3 days.
   Key Point: If the provider requests a blood transfusion after the third day, check with the lab if the blood sample has expired. If it has expired, obtain a new blood specimen for compatibility testing.

Procedural Steps: Please note – Sections I – VI apply to blood/blood product administration only.

Section VII applies to Albumin administration only.

II. PREPARATION PROCESS:

a. Review pertinent lab values (Hgb/Hct) to confirm the need for the blood product.

b. Verify that the physician's order includes:

1. Type of blood product to be administered
2. Rate of infusion or period (length of time) of administration
3. Number of units to be transfused
4. Vital Signs per protocol
5. Premedication as ordered

c. Verify the order is complete and the Consent to Blood Transfusion is signed and in the patient's chart.

d. Provide the following patient education and document on the Patient Education record:

i. Indication for the transfusion of the specified blood product
ii. What to expect before, during, and after the transfusion
iii. Signs and symptoms of a transfusion reaction including when/how to report any of these signs and symptoms immediately to the nurse
iv. Patient guide to Blood Transfusion handout must be provided and reviewed with the patient and/or family

e. Obtain vital signs within 30 minutes prior to transfusion and a urine specimen prior to picking up the blood product.

f. When the blood product is available for transfusion, a task "Blood Product Available & Review Transfusion Order" will be assigned. Complete an order for a "Blood Product Pick-up Slip" Reprint the "Pick-up Slip" requisition sheet to provide for Blood Bank.
Key Point: Only one blood product can be picked up at a time.

III. BLOOD PICK UP

a. Trained personnel may pick up the blood product with their employee ID and the pick-up slip.
Key Point: Gloves must be worn when handling/transporting blood products.

b. At the Blood Bank, verify with the Blood Bank technician that the blood bag label and Crossmatch Transfusion Record contain the following identical information:

i. Patient's name and MRN
ii. Type of blood product (PRBCs, FFP, etc.)
iii. Blood Bank identification number (donor number)
iv. ABO and Rh type: ABO and Rh type on the primary label of the donor unit must agree with those recorded on the Crossmatch Transfusion Record and compatibility label
v. Expiration date of blood product
vi. Date and time issued

Key Point: This is the actual time the unit of blood was removed from the controlled temperature storage.

c. If FFP is going to be transfused, RN must call 15-30 minutes before picking up to allow thawing of the product. The FFP must be transfused over 30 – 60 minutes after thawing.

IV. INITIATING THE TRANSFUSION

a. The two verifiers must ensure that the:

i. Physician's order is present and complete
ii. Blood consent is signed and complete
iii. Following information on the Crossmatch Transfusion Record form and blood component bag matches:
   a. Name and MRN
   b. Patient ABO/Rh
   c. Donor ABO/Rh
   d. Expiration date
   e. Component type
   f. Unit number

b. Notify the Blood Bank if any discrepancies are noted and do NOT start infusing the blood product.
Key Point: If a discrepancy is noted, return to the Blood Bank and complete an event notification.

c. Both parties verifying the information must sign the Crossmatch Transfusion Record form.

d. Obtain and document the baseline vital signs prior to administering the blood.

e. Prepare and prime the tubing.
Key Point: Blood administration sets must be changed with each unit or more frequently if debris in the filter impairs the flow of blood.

f. Inspect the blood product for any abnormalities (color, bubbles).If any abnormalities are noted, immediately return the blood/blood product to the Blood Bank.

g. Invert the bag several times before hanging.

h. Begin transfusion slowly at 120ml/hr x 15 minutes via an infusion pump. Assess for reaction. If no reaction is noted, increase rate as ordered.

V. DURING TRANSFUSION

a. Monitor and document vital signs:

i. 15 minutes after initiating the transfusion
ii. Upon completion of the transfusion
iii. 1 hour after the transfusion has been completed
iv. As needed if warranted by clinical observation of the patient's condition

b. Compare each set of vital signs with the pre-transfusion/baseline vital signs to monitor for transfusion reaction.
c. Assess the patient for any adverse reaction at least every 30 minutes throughout the transfusion and 4- 6 hours post transfusion
d. Transfusion reaction signs and symptoms include:
   1. Increase in patient's baseline temperature more than 1^0C or 1.8^0 F, baseline temp. not lower than 37^0 C or 98.6^0F
   2. Chills/Rigors

3. Itching/Pruritus/ Rash
4. Hives
5. Nausea/ Vomiting
6. Hypotension
7. Hypertension
8. Dyspnea/ Respiratory distress
9. Hypoxia
10. Angioedema
11. Anaphylaxis
12. Acute onset pain
13. Chest pain/ flank pain/back pain
14. Altered mental status/Agitation
15. Hematuria/Change in urine color
16. Feeling of "Doom"/restlessness/anxiety
17. Shock

e. Monitor patients for Transfusion- associated circulatory overload (TACO) and Transfusion-related acute lung injury (TRALI) which may occur within 6 hours of blood transfusion. Signs and symptoms of TACO and TRALI include:

i. Dyspnea
ii. Oxygen Saturation $\leq$ 90% on room air
iii. Fever and chills
iv. Precordial pain
v. Crackles
vi. Cyanosis & hypotension
vii. Jugular vein distension

Key Point: If any signs or symptoms of a transfusion reaction occur, notify physician immediately follow steps in VII. – Transfusion Reaction.

f. Monitor the IV site for signs of infiltration or localized reaction (e.g., redness, swelling)

VI. COMPLETION OF TRANSFUSION

a. Don gloves prior to handling the blood product container.

b. Flush the IV line with 0.9% Normal Saline until clear.

c. Remove the administration set.

d. Re-establish a saline lock or continuous infusion as per order.

e. If there are no signs and symptoms of transfusion reaction, discard the bag and tubing in the biohazard waste container.

f. Remove and discard gloves, perform hand hygiene.

~~g.~~ Assess and document the IV site and patient's condition in the medical record.

h. Post transfusion labs are obtained as ordered.

VII. TRANSFUSION REACTION

a. **Stop** the infusion immediately and notify the physician.

b. Hang a new bag of saline with new IV tubing and keep the vein open.

c. Record vital signs.

d. Assess for additional signs and symptoms of reaction.

e. Continue to monitor the patient's vital signs as indicated by the patient's symptoms.

Key Point: If the patient experiences isolated allergic symptoms such as itching/pruritus or hives transfusion may be held while the allergic symptoms are treated per physician order. Once resolved provider may decide to continue the transfusion.

f. Document all observations and interventions in the medical record.

g. Once patient is stabilized, review with the patient the signs and symptoms of the recent transfusion reaction and document this in the medical record.

h. Complete an Event Notification.

i. Send to the Blood Bank:

i. Lab work up as ordered
ii. Remaining blood with tubing still attached
iii. Both pre and post transfusion urine samples to assess for the presence of free hemoglobin

VIII. ADMINISTRATION OF ALBUMIN

a. Prior to administering Albumin, explain to the patient/family that it is prepared with blood components. Jehovah's Witnesses should be informed before receiving Albumin or any blood components.

b. Obtain the product from pharmacy.

c. Use tubing supplied with ordered product to prime and connect the tubing to the IV site.

d. Infuse as ordered, monitor for signs of circulatory overload (tachycardia, dyspnea, respiratory distress, rales, hypertension, distended neck veins)

IX. DOCUMENTATION

a. Document all vital signs and patient's condition in the medical record.

b. Document on iView and I&O in "Blood Product Administration" section.

~~c.~~ Document the amount of blood product and 0.9% normal saline patient received in the medical record.

d. Document all patient education on the "Blood Products Transfusion" education section on iView and I&O.

Revised By: Victoria Alvarenga, MSN, RN, CNS, CRRN, Laurie Linares, BSN, RN, PCCN & Bincy Mathew, MSN, RN, CMSRN

References:

Gorski, L, Hadaway. L, Hagle, M., Broadhurst, D., Clare. S., Kleidon. T., Meyer, B., Nickel,B., Rowley, S., Sharpe, E., Alaxander, M. (8th ed.). (2021). Infusion therapy standards of practice. Norwood. MA.

Lippincott Procedures. (2022). Transfusion of blood and blood products.

Rancho Los Amigos National Rehabilitation Center. (2019). Transfusion Service Procedure Manual.

11/94 – Revised
09/95 – Revised
08/98 – Revised
05/00 – Revised
12/00 – Revised
01/02 – Revised (split from Policy C109)
11/04 – Revised
11/07 - Revised
11/08 – Revised
12/11 – Revised
04/12 – Revised (combined with Policy C109.1)
12/12 – Revised
09/15 – Revised
07/16 - Revised
06/17 - Revised
09/19- Revised
05/22- Revised
06/23- Revised