TITLE: BLOOD ADMINISTRATION

PURPOSE:
To set guidelines and to define the responsibilities for the proper administration of blood components.

POLICY:

Blood is only administered by a nurse with demonstrated competency in blood administration.

1. Administration of blood must be meticulously monitored. Serious and fatal transfusion reactions have occurred from clerical errors in identification of the correct patient and/or products to be transfused. No amount of checking is excessive when administering blood.
2. Blood specimens are viable for crossmatching for seventy-two (72) hours after collection.
3. A Blood ID band is placed on the patient when blood is collected for Type and Screen.
4. The Blood ID numbers on units being transfused must match the armband before the blood is given.
5. If the Blood ID band becomes detached from the patient's arm or leg, a new sample is collected with a new BB armband.
6. Following transfusion, the blood transfusion form or a copy is attached to the patient's medical record. Do not remove the tag from the unit of blood until the transfusion is complete.
7. Standard Precautions are adhered to by the nurse during this procedure (see the Infection Control Policies). The SHANDS Jacksonville Consent for Blood Transfusion must be obtained, completed, witnessed and signed by the patient and one consent is sufficient per hospital stay. A Consent for Blood Transfusion is not required if the physician orders the blood transfusion for emergency purposes.

Special Considerations

1. **DO NOT GIVE MEDICATIONS IN BLOOD.**
2. The only IV solution that is to be hung with blood products is sterile 0.9% sodium chloride.
3. Do not piggyback blood or blood products into any existing IV.
4. The transfusion apparatus should be replaced after the administration of blood products, before beginning IV fluids (minute amounts of blood increase the spectrum of pathogens capable of growing in dextrose containing IV fluids).
5. Do not use filter over 4 hours. A new transfusion apparatus should be used for each unit of blood. Delay between the administration of units increases the hazards of bacterial contamination. Debris accumulation on the filter slows the rate of infusion.
6. Blood is not routinely warmed before transfusion unless massive transfusions are taking place. In these instances, a blood warming coil is used (see the blood warming coil for directions).
7. In life-threatening situations where the initial infusion rates of whole blood exceed 50cc/minute, a pressure administration cuff may be used (see pressure administration). Do not allow pressure to exceed 300 mmHg.
8. **Do not transport** the patient during transfusion, unless emergency situation. If patient must be transported, a RN or LPN must remain with the patient until the patient is returned to the nursing unit. The nurse is encouraged to use an approved IV pump during transport to better control flow rate.
EXCEPTIONS:

In case of emergency, type O negative blood may be given and the physician must sign the permit within twenty-four (24) hours. These units are available from the Transfusion Service.

See separate procedure for Massive Transfusion Protocol.

PROCEDURE:

Equipment:

100cc normal sterile saline solution
IV Tubing
Blood Infusion Set (170 micron standard blood filter, available from the Transfusion Service or Central Supply)

Note: An 18 or 20 gauge may be used on adults and a 22 gauge for neonates or small children.

Requesting Blood Components
1. The physician writes an order for Type and Screen and/or blood components on Physician’s Order for Transfusion Testing, Procedures, and Blood Components.
   a. See Forms Fast #270005 for Adults and #270009 for Neonates
   b. Physician completes Section 1 and Section 2
   c. Transfusion criteria and order codes are listed on page 2 of the order form for reference.
2. Fax a copy of the 1st and 2nd pages to the Transfusion Service, 244-5211
3. If the order is STAT, please call the Transfusion Service at 244-2251
4. Place the order in the computer system.
   a. All orders for blood components must be either entered in the computer or written on a downtime form.
   b. The Transfusion Service does not accept verbal orders.
5. Keep the original order with the patient’s chart.

Documentation of Unit Availability (applies to all patient care units)
When the order is completed by the Transfusion Service, the test results are available in the hospital computer system. The Transfusion Service will call the patient care area when a STAT order is completed.

Preparing the Patient
Prepare the patient for blood administration. The procedure should be explained to the patient in order to minimize apprehension.
1. Ensure that a signed informed blood consent (Core Policy 2.10) is on the chart. Do not proceed with blood administration procedure until consent is obtained.
2. Prepare a 100cc bag of NS solution
3. Select a vein in either arm using the most distal site, if indicated
4. Perform the venipuncture per policy, if indicated.
5. Keep vein open with normal saline until the blood is received from Transfusion Service and checked.
6. Vital Signs
   a. Vital signs should be taken immediately prior to picking up the blood or starting the transfusion.
Vital signs include pulse, temperature, respiration, and blood pressure.

b. Do not give the blood if the temperature is above 101°F (orally) without notifying the physician. If the physician orders the blood given with a temperature elevation, document as a physician’s order.

Blood Issue

1. Blood for one patient will be issued at a time to one person by the Transfusion Service.
2. One person cannot pick up blood component(s) for more than one patient.
3. In general, only one blood component will be issued at a time.
   a. Exceptions include multiple blood components to Surgery or Massive Transfusion Protocol (MTP). Units are packed in a cooler. See separate Transfusion Service policy for blood issue in cooler.
4. Any Nursing staff member can pick up blood with an employee badge.
5. Blood components are sent to the Pavilion nursing units by pneumatic tube system.
6. Bring the original Physician Order Form to the Transfusion Service to pick up blood.
   a. The Physician Order Form will be used for each issue of blood component until the order is completed.
7. The Transfusion Service personnel will issue the blood component per department policy.
8. The blood component is taken directly and immediately to the patient’s bedside.
9. Never store blood in an unmonitored refrigerator such as is found in a nursing station.
10. Blood must be started within twenty (20) minutes after taking it from the TS.
    a. If the transfusion cannot be started, return the blood immediately within 30 minutes of issue to the Transfusion Service. Delay in return will force the component to be discarded.
11. Inspect the blood for gas bubbles, clots, and any abnormal color or cloudiness. Return to Transfusion Service if suspicious in appearance.
12. All blood components must be given with a blood administration tubing set.
13. Aseptic administration is vital. If the transfusion is to be delayed after the seal on the container is broken, the blood should be returned to the TS for disposal and a fresh unit obtained.
14. Each blood component will have a sticker identifying the unit to the patient. A copy of this sticker is placed on the Transfusion Record (Forms Fast #270031). The sticker remains attached to the blood component at all times. The blood component must always be positively identified to the recipient.
Blood Verification

1. Before beginning the transfusion, it is extremely important to correctly identify the patient and the blood product. A RN and a second RN or LPN must carry out the identification checks.

2. **This verification must be at the patient bedside.**

3. Check the physician's orders against the bag as to the type and amount of blood ordered.
   a. If the physician ordered any special requirements, make sure the component meets those orders. Example: irradiated, CMV-negative, leukodepleted or leukopenic, etc.

4. Utilize the following table when checking the patient against the physician order, blood component, patient armband and Typenex band.
   a. **Notify the TS immediately of any discrepancy. Do not start the transfusion until the discrepancy is resolved.**

<table>
<thead>
<tr>
<th>Check for:</th>
<th>Must match what is on the:</th>
<th>Patient’s Chart</th>
<th>Patient’s Hospital Armband</th>
<th>Patient’s Typenex Armband</th>
<th>Blood Bag Label-Primary label on product</th>
<th>Patient Label on top part of blood component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician’s order</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient’s first and last name</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Medical Record (8-digits)</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient’s Typenex #</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient’s ABO/Rh</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donor ABO/Rh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expiration date/time of blood component</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of component ordered for transfusion</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Both nurses indicate on the Transfusion Record that this verification process has been completed by signing the form. (2 signatures required).

6. All blood components are labeled according to an international standard known as ISBT-128. See end of the policy for example of how to read a blood component label.
Administration

Blood components must be administered by either a RN or LPN under the direct supervision of a RN. “Direct Supervision” means the RN is on the premise and immediately available. (Florida Nurse Practice Act, Chapter 64B9-12)

Packed RBC/Leukodepleted RBC (any red blood cell product)
Assume average volume = 250 mL per unit

1. Set up the unit for transfusion.
   a. Allow the blood to run through the blood transfusion set.
   b. Hang the unit of blood about a meter (3 - 4 feet) above the level of the patient's heart.
   c. Piggyback the blood into the normal saline (optional)
2. Except in a life-threatening situation, the initial infusion of blood and blood products should be conservative. Using this approach, many hazardous reactions can be averted due to the small volume of cells infused in the first few minutes.
   a. For the first 15 minutes of a transfusion, the blood should be administered at 2-5 ml/min.
   b. If after 15 minutes, there is no sign of reaction and the patient is not in danger of circulatory overload, the rate should be increased so that the transfusion of packed cells is completed in 1 - 2 hours.
   c. Transfusions should be completed in a maximum of 4 hours.
      1. If the physician requests the infusion to exceed 4 hours, contact the TS and the unit can be split into 2 parts. This is helpful for patients at risk for circulatory overload.
3. ABO/Rh Compatibility Chart for Red Blood Cells

<table>
<thead>
<tr>
<th>Patient Blood Type:</th>
<th>Transfuse RBC Blood Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O only</td>
</tr>
<tr>
<td>A</td>
<td>A, O</td>
</tr>
<tr>
<td>B</td>
<td>B, O</td>
</tr>
<tr>
<td>AB</td>
<td>AB, A, B, O</td>
</tr>
<tr>
<td>Rh-Positive</td>
<td>Rh-Positive or Rh-Negative</td>
</tr>
<tr>
<td>Rh-Negative</td>
<td>Rh-Negative</td>
</tr>
</tbody>
</table>

4. A leukopoor filter may be used for patient with one (1) or more of the following criteria:
   a. A documented post transfusion febrile or allergic reaction by the patient that cannot be explained otherwise,
   b. Chronic anemia requiring multiple transfusions,
   c. Medical conditions in which multiple transfusions are expected, e.g., malignant disease.
Use of leukopoor or leukodepleted red blood cells must be requested by the physician or the Transfusion Service Medical Director.
Platelets
Volume of platelethphresis is listed on the label.

1. Plateletpheresis – the equivalent to 6-10 platelet concentrates but from a single donor in one pack (volume of cells usually 200-300cc).
2. Follow the guidelines for RBC administration using a blood component infusion set.
3. Gently rotate the bag to mix the platelets thoroughly prior to transfusion.
4. Transfuse platelets (200-300cc total) over a period of 30-60 minutes.
5. *Platelets are always stored at room temperature. Never place platelets on ice or in a cooler.*
6. It is best to give ABO/Rh-specific when available, but substitutions may be made depending on availability from the blood supplier.

Pooled platelet concentrates may be substituted for platelethphresis. Administration is the same. Pooled platelets expire 4 hours from pooling.

Cryoprecipitate (Factor VIII) for treatment of Factor VIII clotting deficiency – the insoluble portion of plasma recovered from fresh frozen plasma.

1. Order component in HIS and list how many units are desired in pool. The Transfusion Service will pool the product into 1 bag for administration.
2. Administered same as pooled platelets. The product expires 4 hours from pooling.
3. Any ABO/Rh type can be given.

Plasma – Fresh frozen plasma (FFP) can be administered for treatment of multiple clotting factor deficiencies.

1. Notify the Transfusion Service one (1) hour before the infusion so it can be thawed.
2. Administered with a straight line set.
3. If administered for a clotting factor, give as rapidly as possible: one (1) unit in less than one (1) hours.
4. ABO-specific or compatible is selected for transfusion. The procedure for administration of packed red cells is followed.
5. ABO Compatibility for FFP

<table>
<thead>
<tr>
<th>Patient Blood Type</th>
<th>Can give FFP type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O, AB</td>
</tr>
<tr>
<td>A</td>
<td>A, AB</td>
</tr>
<tr>
<td>B</td>
<td>B, AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB only</td>
</tr>
<tr>
<td>Either Rh-Positive or Negative</td>
<td>Either Rh-Positive or Negative</td>
</tr>
</tbody>
</table>
Monitoring During Infusion

The nurse observes the patient closely. Vital signs are taken immediately prior to obtaining the blood, within fifteen (15) minutes after initiating the transfusion and every hour until 1 hour AFTER the transfusion has been discontinued. The patient is also monitored during the transfusion for signs and symptoms of reactions. Place the patient's call bell within reach and instruct the patient to call if any reaction symptoms are noticed such as: chills, nausea, headache, low back pain, fever or itching. Document observations on the Transfusion Record.

Observe the patient carefully. Monitor the patient's temperature, pulse, respiration and blood pressure as indicated. Watch for adverse reactions throughout the transfusion.

1. Transfusion reaction symptoms may even occur after the transfusion is discontinued.
   a. Sudden chiling and fever (any temperature elevation greater than two (2)°F (1°C) over the baseline values).
   b. Headache
   c. Flushing or tachycardia
   d. Hypotension, shock-like state with dry flushed skin
   e. Pain in the abdomen or extremities
   f. Itching and rash
   g. Urticaria
   h. Asthmatic wheezing
   i. Laryngeal edema
   j. Back pain
   k. A heavy oppressive feeling in the chest
   l. Distention of neck veins
   m. Tachycardia, hypertension (often the first sign of hypovolemia)
   n. A fall in BP and vascular depression
   o. Any kind of acute respiratory insufficiency and/or bilateral lung infiltrates on chest X-ray

Transfusion Reaction

1. When symptoms of transfusion reaction are observed:
   a. STOP THE TRANSFUSION IMMEDIATELY!
   b. Change the IV tubing and container, keep the IV line open with normal saline in case IV medication is needed rapidly.
   c. Immediately notify the physician and the TS (Order the transfusion reaction test in the computer system HIS). The Transfusion Service must be notified of any suspected reaction.
   e. Save the blood bag and tubing for the TS
   f. Have the patient's blood drawn per routine collection procedure (new Typenex band)
   g. Collect a urine sample, if instructed by the Transfusion Service.

Note: If the blood is stopped for any reason, the transfusion reaction protocol should be initiated. For mild reactions, (temperature increase less than 2°F) the physician may choose to treat the symptoms and resume the transfusion. In cases where the reaction is purely urticaria, upon a physician order, antihistamines may be administered. After the antihistamines relieve the urticaria, the same unit of blood may be cautiously started.
again, following the protocol for initiating a transfusion and monitoring the vital signs. If the symptoms worsen or new symptoms occur, stop the transfusion and notify the physician again and the TS

If the remainder of blood to be transfused is less than 7cc, give medications as ordered, discontinue the blood unit or return it to the TS Notify the TS and physician.

Blood Warmer

1. Used upon order of the physician.
2. Obtain the blood warmer unit and coil administration set from Surgery.
3. Fill the warmer unit to the desired level with distilled water and plug the unit into an electrical outlet, the temperature is automatically controlled.
4. Prepare the blood with a filter administration set as usual; attach the coil tubing to the blood administration set; immerse the coil in the warmer unit; attach a 28g needle to the set and proceed with the blood administration.

Refusal to Permit Blood Transfusion

1. The patient must sign the Refusal for Blood Transfusion form.
2. Notify the Nurse Manager during normal operational hours or the Administrative Coordinator during evenings, nights, weekends or holidays.
3. Notify the physician.

Discontinuing the Transfusion

1. Take and record a complete set of vital signs.
2. Dispose of the blood bag and tubing in a biohazardous waste container.
3. Continue to monitor the patient for twenty-four (24) hours for signs and symptoms of a transfusion reaction.
4. Complete the Transfusion Record and place in patient’s chart.

References:

- AABB Standards for Transfusion Services, current edition
- Mosby’s Nursing Skills, Shands Jacksonville Infonet
Example of ISBT-128 Blood Component Label:

- Donation Identification Number
- ABO/Rh Blood Groups
- Expiration Date
- Special Testing
- Product Code