

BLOOD PRODUCTS ADMINISTRATION

Indications

- Maintenance or restoration of adequate blood volume.
- Replacement of a specific blood component (red cells, platelets, plasma proteins, coagulation factors) when the deficiency of that component has the potential to cause clinical disease.
- Removal of toxic substances (bilirubin) or excess red cells (hyperviscosity) or in sepsis by exchange transfusion.
- Infants with respiratory disease should have their hematocrit maintained above 40%, to provide adequate oxygen delivery.
- The growing premature may manifest a need for transfusion by exhibiting poor weight gain, apnea, tachypnea or poor feeding.

Types and doses

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> ▪ PRBC (10 - 15 ml/kg, usually times 2, 12h apart) ▪ Platelet (5 - 10 ml/kg) ▪ Plasma (10 - 15 ml/kg) ▪ Cryoprecipitate (5 ml/kg) | } | <p>Labile Blood Products</p> |
| <ul style="list-style-type: none"> ▪ Albumin 5% or 25% (10 ml/kg) | | <p>Non-labile blood product</p> |

Crossmatch

- For any baby **under 4 months** of age: sample valid **until patient is 4 months old**.
- For any baby **over 4 months** of age, with **no history of transfusion**: sample valid **28 days**
- For any baby **over 4 months** of age, with **history of transfusion**: sample valid **96 hours**
- For baby who **was discharged**: if a baby is discharged from the M.C.H. and he is readmitted at a later time, a **new crossmatch** must again be drawn and sent to the blood bank even if he is less than 4 months old

Materials

- IV access with largest possible catheter, as per patient's venous access
- Blood product with accompanying blood product distribution voucher
- Blood administration set with 170-260 micron filter (Fenwall blood component infusion set #4C2223 filter)
- Microbore extension set – 74 inch
- Non sterile gloves
- Alcohol cap
- 3 ml NS posiflush syringe

Procedure

○ Order

1. A doctor's order must be **entered into OASIS** for the administration of any blood product and it must be **written in the chart** on the order sheet.
 - Patient's **full name**
 - Medical Record Number (**MRN**)
 - **Type & quantity** of blood product
 - **Medication** related to transfusion (pre, per, post) if needed, i.e. Lasix
 - **Rate/time** of blood administration
2. **Acknowledge** the order on oasis
3. Connect to **Trace Line**
4. Enter the patient **MRN** number and click on it
5. Click on **request** (top left)
6. Click on **create** (bottom right)
7. Select **physician's** name
8. Click on **blood product** and choose what has been ordered
9. Click on **validate**
10. At the question, "this patient already has a valid sample, proceed anyway" answer "**yes**"
11. **Call blood bank** to confirm your order (34078/66488)
12. When ready to administrate blood product, **send yellow slip**, stamped with baby's name, with the pneumatics to blood bank and be ready to retrieve it.

○ Verification

1. Physician's order is verified
2. Verify the patient's blood type and cross match results reported on Trace Line
3. **2 nurses** check **at the bedside** the green voucher that comes with the unit against:
 - Patient's **identity** (first and last name, MRN number)
 - **Name/type** of product
 - **Blood group and Rh** (if applicable) of product vs patient
 - Product's **donation/lot number**
 - **Expiration date/time** of the product
 - **Special requirements** related to the patient's directives (i.e. CMV negative, irradiated)
 - **Aspect** of product and container
 - Patient's hospital identification **bracelet**
4. Both nurses must sign the voucher. It must be dated and attached to the Hematology Record of the patient's chart at the time of administration

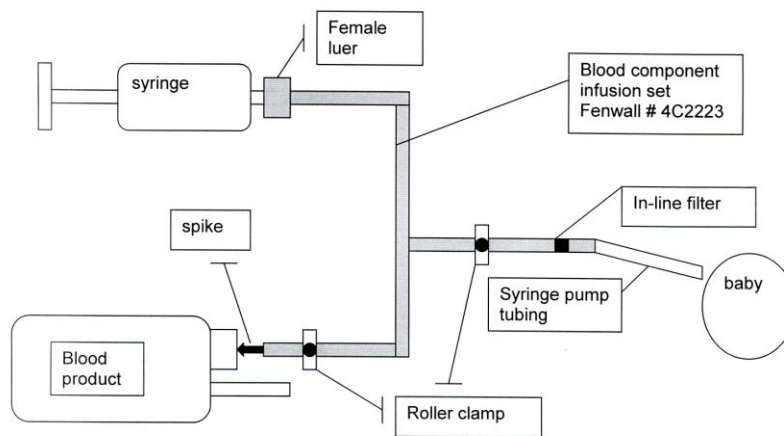
○ Specials considerations

- The infusion of labile blood products **must be completed within 4 hours** from removal of a controlled environment
- For central lines, labile blood products should preferably be connected to **proximal port**
- Labile blood products **cannot be infused** through an IV lumen **with TPN, colloids or crystalloid solutions containing calcium** (i.e. Ringer's Lactate) or solutions **containing glucose** (i.e. D5W). Risk of blood clotting or hemolysis
- **No medications** or solutions should be **added** to the blood product or **infused** through the same tubing during the transfusion
- All blood products **must be filtered, except Albumin**, during the infusion to retain blood clots and particles potentially harmful to the recipient

- **Peripheral intravenous** site and **umbilical double lumen** can be utilized for the administration of blood products. Blood transfusions **through a PICC line** are only given in exceptional circumstances and **require a physician's order**

- Administration

1. The blood product must be gently agitated before use
2. Close all clamps and connect blood component infusion set to extension set (syringe pump tubing).
3. Insert the spike into blood component container (bag).
4. Attach syringe to female luer.
5. Open roller clamp.
6. Draw fluid from blood component container into syringe.
7. Close clamp to blood component. Open clamp to patient and prime the administration set.
8. Install the syringe on the syringe pump.
9. Connect the extension set to the patient.
10. Start the transfusion at the ordered rate (see below)
11. Nurse must stay with the patient for the initial 15 minutes.
12. At the end of transfusion, remove the extension, flush the line with a 3 ml posiflush and put an alcohol cap.
1. The transfusion set (blood bag, filter and syringe pump tubing) should be kept, in the Ziploc bag, at the bedside for 24 hours post-transfusion then discarded in the biohazard yellow box (in dirty utility room) if there is no transfusion reaction



- Rates

Platelets: safe to be transfused over 4 hrs, but can be given more rapidly if specified by doctor in his order.

- For **ELBW**: 2 mL/kg/hr might not reach the baby in the first 15 min:
 - If given through PIV, once transfusion is connected, you can bolus 0.3 ml via bolus function of pump to reach the baby
 - If given through UVL, start with higher rate (3.5 ml/kg/hr)

- Documentation

- Record in nursing notes (in red):
 - **Site** of infusion
 - **Quantity** administered
 - Product **type and unit #**
 - **Rate**
 - **Vital signs** (HR, RR, O2 sat with FiO₂, BP,T) **before, after 15 min of infusion and at the completion of transfusion**

➤ Patient's **tolerance**.

- 13:00: Transfusion started via PIV on right hand of 30 cc of PRBC (#560 6 345567), at 6ml/hr. HR 140, RR 60, sat 98% in 30% O₂, BP 55/30 (38), T 36.8
- 13:15: Transfusion infusing, well tolerated. HR 130, RR 60, sat 97% in 30% O₂, BP 56/32 (38), T 36.7. Infusion rate increased to 10.5 ml/hr
- 15:00: Transfusion finished and well tolerated. HR 120, RR 55, sat 96% in 30% O₂, BP 60/35 (40), T 36.7

- Record all blood products **on the fluid balance sheet**, in red
- **Confirm** completion of transfusion within 24 hours, to Transfusion Services **via TraceLine or by sending** the completed bottom part of the blood product distribution voucher to Blood Bank

Adverse reaction

○ Signs

- Irritability
- Elevated temperature
- Tachypnea
- Tachycardia

○ What to do

- Inform physician
- Discontinue transfusion
- Draw new blood specimens (Type & Screen and blood cultures x 1)
- Complete Transfusion Service requisition

	Labile products	Stable products
Pediatric Population	<p>Population 1: birth to four (4) months of age <i>(RBC, plasma, platelets, cryoprecipitates)</i></p> <ul style="list-style-type: none"> ▶ 0 to 15 mins: 2 mL /kg/hr ▶ 15 mins to end: 3.5 mL/kg/hr until completed max 4 hrs for transfusion <p>Population 2: four months and older</p> <ul style="list-style-type: none"> ▶ 0 to 15 mins: 15 mL/hr or ¼ final rate – maximum 50 mL/hr ▶ 15 mins to end: prescribed rate (max 4 hrs) 	<ul style="list-style-type: none"> ▶ Albumin: 5%: max 5 mL/min 25%: 1 – 2 mL/min ▶ IVIg: dependent on patient's weight, indication and specific product. As per MD prescription ▶ Coagulation factors: as per product monograph