For the purpose of this policy:

This policy describes the processes for administering blood products in both urban and rural acute facilities. The processes for obtaining blood products differ amongst facilities. The policy describes the process for obtaining blood products in the urban and Humboldt hospitals. The Rural Appendix A identifies the differences in obtaining blood products in the rural sites.

**Blood Product** will be used to identify blood, blood components, and plasma protein products (previously known as fractionation products) collectively.

**Practitioner** will be used when referring to Physician and Registered Nurse (Nurse Practitioner) (RN(NP)).

**TMS** will be used when referring to the Transfusion Medicine Service.

**Transfusionist** will be used when referring to one of the following persons administering a blood product: Registered Nurse (RN), Registered Psychiatric Nurse (RPN), Graduate Nurse (GN), Graduate Psychiatric Nurse (GPN), Registered Nurse (Nurse Practitioner) (RN(NP)), Physician, Clinical Perfusionist, or Licensed Practical Nurse (LPN)/Graduate Licensed Practical Nurse (GLPN) who has completed the IV Therapy/Blood and Blood Products Completer Course or equivalent.

**DEFINITIONS**

**Adverse Reaction**: a reaction that is not intended or desired and is definitely, probably, or possibly a response to the administration of blood products.

**Autologous blood product**: a product donated by the patient.

**Blood/Blood Components**: packed red blood cells, platelets, plasma, cryoprecipitate, and hematopoietic progenitor cells. This includes autologous product(s).

**Crossmatch**: test to determine incompatibilities between donor and recipient blood prior to transfusion; used to verify ABO compatibility and the presence of antibodies.

**Divided Unit**: blood components divided in smaller portion sizes and administered as a partial unit. Requires a practitioner’s order.
Emergent/Life-threatening Circumstance: a situation in which a delay in treatment with blood products may be deleterious or detrimental to the patient.

Group & Screen: test to determine the specific ABO and Rh group as well as an antibody screen.

ABO Group & Rh Type: test to determine the specific ABO and Rh group; does not include an antibody screen.

Plasma Protein Products (previously known as Fractionation Products): any product manufactured from human plasma (e.g. albumin, immunoglobulin and clotting factors).

Priority/Turn Around Time: time from a blood specimen being received in the TMS lab until the blood product is available for transfusion. Used on the Test Request Form to allow for appropriate triage and processing of requests by the TMS. Times do not apply for patients with irregular, known or unknown, antibodies.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Approximate Turn Around Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat</td>
<td>Less than 1 hour</td>
</tr>
<tr>
<td>Urgent</td>
<td>Within 4 hours</td>
</tr>
<tr>
<td>Routine</td>
<td>Within 24 hours</td>
</tr>
</tbody>
</table>

*Stat & Urgent priorities not available in rural sites - See Rural Appendix A

1. PURPOSE

1.1 To ensure safe administration of blood products.

1.2 To ensure a record of each transfusion is maintained in the medical record.

1.3 To ensure prompt reporting and management of adverse reactions related to the administration of blood products.

1.4 To provide information for patients receiving blood products.

2. POLICY

2.1 A practitioner order is required to administer blood products. The order shall include:

- Patient label or a minimum of two patient identifiers, e.g. full name and Provincial Health Number (PHN) or Medical Record Number (MRN)
- Type of product
- Number of units and/or volume and/or dose (Neonates/Pediatrics: volume or dose must be specifically prescribed)
- Rate of infusion or time over which the blood product is to be administered
- Date and time of the transfusion
- Clinical indication for transfusion

And when/if applicable:

- Product specifications (e.g. irradiated CMV negative, etc.)
- Use of a blood warmer
- Use of a pressure infusion device
- Pre and post transfusion medication
- Sequence in which multiple products are to be transfused
- Divided unit administration
Note: A specific practitioner order is required to approve administration of expired or outdated products, uncrossmatched blood, or serologically incompatible blood.

2.2 Verbal or telephone orders will be accepted in emergent/life-threatening circumstances only and when consent has been obtained. Verbal or telephone orders must be co-signed within 24 hours.

2.3 Consent: Refer to SHR Policy & Procedure #7311-50-004 “Informed Consent for Blood/Blood Components And Fractionation Products For Transfusion” for complete information on consent for blood products.

2.4 Blood products that arrive with a patient transferred from a site outside of or within SHR that have not been accessed, will be returned to the TMS. Blood products infusing at the time of transfer or admission may be continued.

Note: The TMS is responsible for documenting the final disposition of all blood products and accordingly must be notified of all blood products that accompany the patient.

2.5 The patient or person providing consent will be given a copy of the SHR pamphlet “Blood Transfusion Information for Patients” (Printing # 10151).

2.6 Administration Related

2.6.1 Prior to initiation of the transfusion, and in the physical presence of the patient, verification and documentation of all information associating the blood product with the patient must be confirmed by the transfusionist as well as a second qualified transfusionist. See 3.1.13.

2.6.2 Avoid simultaneous administration of blood products. Separate IV sites or CVC lumens should be used if simultaneous administration is required in emergent situations.

Note: When ordered by a practitioner, 0.9% sodium chloride solution may be infused simultaneously with blood or blood components at the most distal Y-site of the administration set.

2.6.3 Medications must not be added to the blood bag or infused through the same tubing as blood products; alternate IV sites should be used. Only in emergent/life-threatening circumstances, after every attempt has been made to secure a second IV line without success, may the transfusion be stopped, the tubing flushed with a minimum of 10 mls 0.9% sodium chloride, or compatible IV solution, at the most distal port, and the medication administered. The tubing must be flushed with compatible IV solution after injecting the medication to prevent mixing of the blood product and medication. The transfusion may then be resumed.

Note: Caution should be used when simultaneously administering medications linked to hypersensitivity reactions via another IV line or CVC lumen since distinction between medication-related symptoms and transfusion reactions may be difficult.

2.6.4 Transfusion of refrigerated blood products shall be initiated within 30 minutes of issue as identified by the time documented on the transfusion tag. The product must be returned to the TMS if it cannot be started within 30 minutes.

2.6.5 All blood components must be infused within four hours from the documented time the product is issued from the TMS, found on the transfusion tag. Plasma protein products must be infused within four hours of accessing the vial unless otherwise
specified in the Manufacturer's Product Monograph. If four hours has elapsed and the transfusion is not complete the transfusion must be discontinued and the remaining product returned to the TMS with clamped tubing attached and a male/female luer lock adapter (dead ender) on distal end of tubing. The ordering practitioner and the TMS must be notified of the discontinuation. A practitioner may order a divided unit to be administered when a patient is unable to tolerate an entire unit over the four hour period.

2.6.6 Blood and blood components shall be administered via a non-vented blood administration set with filter. Plasma protein products shall be administered as per the Manufacturers' Product Monograph. Refer to Appendix B.

2.6.7 0.9% Sodium Chloride shall be used to prime blood administration sets used to administer blood and blood components. For plasma protein products, prime the appropriate tubing with compatible solution as identified by the manufacturer’s product insert. Refer to Appendix B.

**Exception:** Neonates/Pediatrics - Prime blood administration set with blood product.

2.6.8 Administration sets must be changed:
- After four consecutive units have been transfused (note: one pooled bag of platelets or cryoprecipitate is equivalent to one unit for transfusion), or
- After 8 hours of use, or
- If more than 60 minutes has elapsed between transfusions, or
- If the filter/administration set becomes occluded, or
- Upon completion of plasma protein product transfusion

2.6.9 Separate administration sets shall be used for different products.

2.6.10 The TMS copy of the transfusion tag must remain attached to the blood product for the duration of the transfusion.

2.6.11 Patients should remain on the nursing unit during administration of all blood products to ensure appropriate monitoring. If an emergent/urgent diagnostic or interventional investigation/procedure is required, the patient shall be accompanied by staff that is qualified as a transfusionist. Reasons shall be documented in the chart when/if it is not feasible for the patient to remain on the unit.

2.7 **Visual Inspection**

2.7.1 All blood products will be visually inspected by the transfusionist prior to accessing the product with the administration set. If the following is observed, or if the container is not intact, do not access the blood product and notify the TMS:
- Clots
- Clumps
- Discolouration
- Particulate matter
- Foreign objects

**Note:** Products shall be returned to the TMS immediately if the decision is made to NOT transfuse. For more information refer to the [Canadian Blood Services Visual Assessment Guide](#)
2.8 **Pressure Infusion Device (Practitioner’s order required)**

2.8.1 Use of a pressure infusion device to increase the rate of a gravity flow infusion must not exceed 300 mmHg.

*Note:* Pressures exceeding 300 mmHg may result in leakage or rupture of bag seams.

2.9 **Blood Warmer (Practitioner’s order required)** - Refer to Appendix F

2.9.1 When using a Blood Warmer, follow manufacturer’s instructions for use.

*Note:* Pressure infusion devices may be used with warming devices when ordered.

2.10 **Coolers**

2.10.1 Blood product issued in a cooler must be used within four hours of issue.

2.10.2 Coolers will be sealed upon issue and should only be opened at the time product is to be transfused. Once opened, blood that is not transfused must be returned to the TMS to be discarded.

2.11 **Infection Control**

2.11.1 Appropriate personal protective equipment shall be worn when administering blood products.

2.11.2 Upon completion of the transfusion, empty blood and blood component bags, filters and administration sets shall be placed in biomedical waste. Glass plasma protein product vials and spike from tubing will be disposed of in a sharps waste container. The TMS copy of the transfusion tag must be returned to the TMS.

*Note:* Patients on Contact Precautions: Place the TMS copy of the transfusion tag in a clear plastic bag and label with a Contact Precaution sticker before returning it to the TMS.

2.12 **Monitoring**

2.12.1 The patient vital signs (TPR, BP, SpO₂) must be assessed:
- Pre-transfusion - within 30 minutes prior to initiating the transfusion
- 15 minutes after commencing and every one hour until completion
- Upon completion of the transfusion
- At the time of a transfusion adverse reaction
- More frequently as indicated by the clinical situation or ordering practitioner

*Exception: IVIG vital sign monitoring will be assessed:*
- Pre-transfusion - within 30 minutes prior to initiating the transfusion
- 15 minutes after commencing the transfusion
- Prior to each rate increase
- Every one hour until completion once the maximum rate is reached
- Upon completion of the transfusion
- At the time of a transfusion adverse reaction
- More frequently as indicated by the clinical situation or ordering practitioner
2.12.2 Vital signs shall be recorded on the “Transfusion/Infusion Administration and Assessment Record” (Printing #101059). See Appendix D.

2.13 **Adverse Transfusion Reaction - Refer to Appendix C**

2.13.1 The patient requires close monitoring during the first 15 minutes of transfusion as adverse reactions frequently occur during this time period.

2.13.2 The patient shall be observed for signs and symptoms of an adverse reaction during, and for a minimum of six hours following the transfusion. When direct monitoring for six hours after transfusion is not feasible (e.g. patients receiving care in outpatient areas &/or those being discharged following transfusion), the patient or responsible caregiver shall receive instructions about possible adverse reactions and directions for obtaining appropriate health care as necessary.

2.14 **Patient Notification**

2.14.1 The patient shall receive written notification when a blood product has been administered. Nursing will complete the form, “Notification of Administration of Blood and/or Blood Products” (Printing #103854). Only one form is required per hospital stay regardless of type or number of products administered. See Appendix E.

3. **PROCEDURE**

3.1 **Pre-transfusion**

3.1.1 Verify and review the consent on the chart.

3.1.2 Review practitioner orders.

3.1.3 Complete “Test Request Form” (Printing #101058), if applicable (see Note). The appropriate priority must be identified. The individual responsible for collecting the blood sample must ensure proper identification of the patient by directly comparing two patient identifiers on the form with the patient identification band. The blood sample must be labelled in the presence of the patient with a minimum of two patient identifiers (i.e. full name and PHN or MRN). Send the Test Request Form and sample to the TMS.

**Note:** A Group and Screen must be performed:
- Every 96 hours when administering whole blood or red blood cells
- once per hospital stay when administering platelets and plasma
- infants less than four months old - twice during initial hospital admission

**Exception:** With practitioner approval, in emergent/life-threatening circumstances, blood may be issued before completion of compatibility testing.

3.1.4 Provide, and document in the chart, teaching and/or information given to the patient, parent, legal guardian, or substitute health care decision maker regarding the transfusion:
- Explain the purpose of the transfusion and monitoring required
- Instruct the patient to remain on the nursing unit during the transfusion
- Instruct the patient, parent, legal guardian, or substitute health care decision maker to notify nursing staff if any of the following develop:
Pain | Nausea or vomiting | Chills or rigors
---|---|---
Dyspnea | Urticaria, rash, or pruritus | Anxiety
Diaphoresis | Dizziness or weakness | Fever or cold sensation
Bleeding | Tachycardia | Any change in condition

3.1.5 Complete the “Blood Product Request Form” (Printing #103220) to request the blood product as ordered by the practitioner. The TMS will phone when the product is ready to be issued.

Note: Rural sites: See Appendix A

3.1.6 Establish IV access using an appropriate size cathlon for the patient and situation. The gauge must be large enough to prevent hemolysis and to allow flow of the product within the specified administration time.

Note: Recommended: Adults – 18 gauge, Pediatrics – minimum 25 gauge

3.1.7 Connect the blood administration set directly to the IV hub or to a luer lock extension tubing. Extension tubing volume must not exceed 2.0 ml.

Note: In the event of an adverse reaction, the transfusion must be stopped, no further blood infused, and IV access maintained by infusing 0.9% sodium chloride using new IV tubing.

3.1.8 Obtain pre-transfusion vital signs within 30 minutes prior to initiating the transfusion. The practitioner must be notified if the patient is febrile and an order obtained to proceed with the transfusion.

3.1.9 Prime the blood administration set with normal saline unless transfusing a plasma protein product, then refer to the Manufacturer’s Product Monograph for compatible IV fluid and appropriate administration set. Clamp the Normal saline tubing once the line is primed. If a filter is used it should be completely wet and the drip chamber 1/3 to 1/2 full prior to initiating the transfusion. Fluid levels must remain above the filter line at all times.

Exception: Neonates/Pediatrics – Prime administration set with blood product.

3.1.10 If ordered, pre-medicate the patient; usually 30 minutes prior to transfusion.

3.1.11 To obtain the product a completed “Blood Product and Component Pickup Slip (Printing #102930) is required:
- RUH: Page the TMS porter. The TMS porter will write the following on the slip: patient’s full name, PHN or MRN, type and amount of product to be issued. When TMS porter not available, unit staff will take the completed slip to the TMS.
- RUH OR: Phone TMS with request. Place completed Product Request Form in OR blood fridge.
- SPH & SCH: Unit staff will take the completed slip to the TMS.
- Rural sites: See Appendix A

Note: Blood components or plasma protein products must not be left without the acknowledgement of the staff at the patient location.

3.1.12 Visually inspect the product as per 2.7.
3.1.13 The transfusionist will verify the following in the presence of the patient, along with a second qualified transfusionist:

- The transfusion tag with the patient identification band - full name with correct spelling and PHN &/or MRN. 
  **Note:** See SHR regional policy, Verification of Identification #7311-60-017
- The transfusion tag with the practitioner order - patient's full name with correct spelling, provincial health number, blood product including amount or dose, special requirements.
- The transfusion tag with the Transfusion Medicine chart report - patient ABO and Rh group (if applicable).
- The transfusion tag with the product to be transfused - unit number, donor ABO and Rh group (if applicable), lot number and volume (if applicable).
- Product expiration will not occur during the time of transfusion.

**Note:** If the above criteria are not met, do not initiate the transfusion and notify the TMS.

3.1.14 Affix the chart copy of the transfusion tag to the “Transfusion/Infusion Administration and Assessment Record” (Printing #101059). Verify and document on the form that all the required checks are completed.

**Note:** In rural, record unit number/lot number if tag not available.

3.1.15 The remaining portion of the transfusion tag must remain attached to the product for the duration of the transfusion.

3.2 **Administration**

3.2.1 Initiate the transfusion. Refer to Appendix B for specific administration guidelines.

3.2.2 Assess vital signs and monitor for adverse reactions. Refer to 2.12 and 2.13.

3.3 **Post Administration**

3.3.1 Assess post-transfusion vital signs.

3.3.2 Following the transfusion, and in the absence of an adverse reaction, flush the administration set with compatible solution to clear remaining blood product. Disconnect the administration set from the patient.

3.3.3 Discard the administration set and blood product container as per 2.11.2.

3.3.4 Continue to observe for signs and symptoms of a delayed adverse transfusion reaction for a minimum of six hours. See 2.13.2.

3.3.5 Document the completion time, and whether a reaction occurred, on the transfusion copy of the transfusion tag and return to the TMS.

3.3.6 Complete and give the patient a “Notification of Administration of Blood and/or Blood Products” (Printing #103854). Refer to 2.14.
3.4 **Documentation**

3.4.1 The chart copy of the transfusion tag shall include:

- Signature of the transfusionist and the second transfusionist participating with identification and verification of correct patient and product. Initials are not acceptable.
- Date of transfusion
- Start and stop time of the transfusion
- The occurrence of a transfusion adverse reaction

3.4.2 Document the following on the “Transfusion/Infusion Administration and Assessment Record” (Printing #101059):

- Valid practitioner order present
- Valid patient consent present
- Patient education complete
- Patient identification performed at bedside
- Visual inspection performed
- Product/Lot number and compatibility checks performed
- Expiry date and time checked
- Infusion rates
- Vital signs
- Any adverse reaction and actions taken
- Total volume infused
- “Notification of Administration of Blood and/or Blood Products” form provided
- Use of pressure infusion device and amount of pressure
- Use of blood warmer and temperature during administration

4. **REFERENCES**


Saskatoon Health Region. (2013). SHR Region-Wide Policy and Procedure Manual: Verification of Identification, 7311-60-017


Rural Appendix

In rural facilities laboratory services typically manages the ordering and obtaining of blood products from the service provider. Requisition forms vary at each site.

<table>
<thead>
<tr>
<th>Site</th>
<th>Priority - Routine Turn Around Time*</th>
<th>Service Provider/Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosthem</td>
<td>24 – 48 hours</td>
<td>Saskatoon TMS</td>
</tr>
<tr>
<td>Lanigan</td>
<td>24 – 48 hours</td>
<td>Saskatoon TMS</td>
</tr>
<tr>
<td>Watrous</td>
<td>24 – 48 hours</td>
<td>CBS Regina</td>
</tr>
<tr>
<td>Wynyard</td>
<td>24 – 48 hours</td>
<td>CBS Regina</td>
</tr>
<tr>
<td>Wadena</td>
<td>24 – 48 hours</td>
<td>CBS Regina</td>
</tr>
</tbody>
</table>

*Rural turn around times are based on available bus service. This may affect how quickly the product can be made available.

Storage containers are used to ship blood products from the supplier to the rural transfusing site.
- The containers are for shipping purposes only.
- It is a nursing responsibility to receive the shipment when laboratory staff is not available.
- Ensure the tamper-proof seal is intact before removing the product from the container.
- Blood products must be returned to the supplier if the shipping time, from supplier to transfusing site, exceeds 24 hours.

When laboratory staff is not available, it is a nursing responsibility to obtain the blood product from the laboratory, following established protocol.

When a blood product must be returned to the Supplier (e.g. not initiated within 30 minutes of issue, transfusion not completed within four hours, adverse reaction) it is returned to the site laboratory department.
# Blood Product Administration Guidelines

<table>
<thead>
<tr>
<th>Blood Product</th>
<th>Description (approximate volume)</th>
<th>Pre-transfusion Testing</th>
<th>Administration Method</th>
<th>Administration Rate (unless emergent/life-threatening situation)</th>
<th>Indications &amp; Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red Blood Cells</strong></td>
<td>- 250 - 350 ml = 1 Unit (volume indicated on unit)</td>
<td>- Group &amp; Screen required every 96 hours. Exception: infants less than four months – required twice during admission. Contact TMS for confirmation. - For administration, ABO &amp; Rh compatibility and antibody screen required. - Note: in emergent/life-threatening circumstances the practitioner may order uncrossmatched product.</td>
<td>Blood Administration Set (gravity or infusion pump) - change after 4 consecutive units or after 8 hours, when 60 minutes has elapsed between transfusions or filter set occluded. - Compatible with normal saline only. - Monitoring Requirements: Refer to 2.12</td>
<td>- Adults: Transfuse slowly for first 15 minutes (50 ml/hour) then as ordered. - Pediatrics/Neonates: transfuse slowly for first 15 minutes (1 ml/kg/hr, up to 50 ml) then as ordered. - Usually over 2 hours, may be infused as rapidly as clinically tolerated; maximum 4 hours from issue. - Pressure Infusion Device: when ordered set to maximum of 300 mmHg.</td>
<td>- Anemia - Acute blood loss - Improve or restore oxygen carrying capacity of hemoglobin.</td>
</tr>
<tr>
<td><strong>Plasma</strong></td>
<td>- Volume indicated on label - approx. 30 minutes required to thaw for issue</td>
<td>- ABO Group &amp; Rh Type on current admission. Contact TMS/lab prior to collection to confirm - For administration, ABO compatibility required; Rh compatibility not required.</td>
<td>Blood Administration Set (gravity or infusion pump) - change after 4 consecutive units or after 8 hours, when 60 minutes has elapsed between transfusions or filter set occluded. - Compatible with normal saline only - Monitoring Requirements: Refer to 2.12</td>
<td>- Adults: transfuse slowly for first 15 minutes (50 ml/hour) then as ordered. - Pediatrics/Neonates: transfuse as ordered. - Usually over 30-120 minutes, may be infused as rapidly as clinically tolerated, maximum 4 hours from issue. - Pressure Infusion Device: when ordered set to maximum of 300 mmHg.</td>
<td>- Clotting factor replacement - Plasma protein deficiency - Massive transfusion protocol - Exchange transfusion.</td>
</tr>
<tr>
<td><strong>Platelets</strong></td>
<td>- Pool of 4 units buffy coat platelets: 300-350 ml - Apheresis - single donor platelets: 250-300 ml - HLA-matched single donor platelets - Pediatrics - ordered as volume (mls) to be administered</td>
<td>- ABO Group &amp; Rh Type on current admission. Contact TMS/lab prior to collection to confirm testing for chronically transfused patients. - Incompatible platelets may be transfused when compatible platelets are not available. - If Rh incompatible platelets are transfused, TMS may request a practitioner order for Rh Immune Globulin.</td>
<td>Blood Administration Set (gravity or infusion pump) - change after 4 consecutive units or after 8 hours or when 60 minutes has elapsed between transfusions or filter set occluded (note: one pooled bag of platelets is equivalent to one unit for transfusion). - Compatible with normal saline only. - Monitoring Requirements: Refer to 2.12</td>
<td>- Adults: Transfuse slowly for first 15 minutes (50 ml/hour) then as ordered. - Pediatrics/Neonates: transfuse as ordered. - Usually over 20-60 minutes, but may be infused as rapidly as clinically tolerated, maximum 4 hours from issue.</td>
<td>- Thrombocytopenia and bleeding prophylaxis - Bleeding with platelet dysfunction - Massive transfusion protocol.</td>
</tr>
<tr>
<td>Blood Product</td>
<td>Description (approximate volume)</td>
<td>Pre-transfusion Testing</td>
<td>Administration Method</td>
<td>Administration Rate (unless emergent/ life-threatening situation)</td>
<td>Indications &amp; Actions</td>
</tr>
<tr>
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</tr>
</tbody>
</table>
| Cryoprecipitate                   | - Contains Factor 8, fibrinogen, & von Willebrand’s factor  
- Allow 20 minutes for thawing and pooling  
- Each bag contains one SHR Standard Adult Dose (10 units; approximate volume 50-150 ml)  
- Pediatric dose dependent on fibrinogen level | - ABO Group & Rh Type on current admission. Contact TMS/lab prior to collection to confirm | Blood Administration Set (gravity or infusion pump) - change after 4 consecutive units or after 8 hours or when 60 minutes has elapsed between transfusions or filter set occluded (note: one pooled bag of cryoprecipitate is equivalent to one unit for transfusion)  
- Compatible with normal saline only  
- Monitoring Requirements: Refer to 2.12 | Infuse as ordered, usually over 10-30 minutes, may be infused as rapidly as clinically tolerated, maximum within 4 hours after pooling | - Fibrinogen replacement  
- Diffuse microvascular bleeding  
- Massive transfusion protocol (Standard adult dose = 8 pooled units) |
| Albumin                           | - supplied as a 5% (50, 250, or 500 mL vial) or 25% (50 or 100 mL vial) solution | - None required | - Primary IV infusion set for pump with vent open  
- Filter not required  
- Compatible with normal saline, dextrose, ringers lactate  
- Monitoring Requirements: Refer to 2.12 | - 5% solution: transfuse at 5 mL/minute (300 mL/hr) or less  
- 25% solution: transfuse at 1-2 mL/minute (60-120 mL/hr) or less  
- Pediatrics: transfuse as ordered  
- Total dose must be infused within 4 hours of accessing the vial  
- Refer to package insert for more information | - Volume expansion/replacement  
- Liver failure  
- Hypoproteinemia  
- Neonatal hemolytic disease |
| Rh Immune Globulin (RhIg, anti-D immune globulin, WinRho® SDF) | - A gamma globulin containing anti-D(Rh) antibody  
- Supplied in a glass vial as a liquid or as a powder (lyophilized) | - Group & Screen required:  
  - during the current pregnancy  
  - Or  
  - as requested by TMS | - Administered IV or IM as ordered  
- Lyophilized formulation must be administered within 4 hours of reconstitution. Reconstitute with supplied sterile diluent as per package insert  
- Liquid formulation does not require further reconstitution  
- Filter not required for IV administration  
- Liquid compatible with NS only  
- Lyophilized compatible with NS and D5W  
- Monitoring Requirements: Refer to 2.12 | - IV: 1500 IU (300ug) per 5-15 seconds  
- IM sites: deltoid muscle or anterolateral aspects of upper thigh preferred  
- Refer to package insert for more information | - Prevention of Rh immunization  
- ITP |
## Intravenous Immune Globulin (IVIG)

**Description** (approximate volume):
- Concentrated immunoglobulins manufactured from pooled plasma.
- Concentration, volume, and form vary by brand.

**Pre-transfusion Testing**:
- None required.
- Obtain patient weight.

**Administration Method**:
- Primary IV infusion set for pump with vent open.
- Filter not required.
- Compatibility with IV solutions varies by brand.
- Refer to product insert.

**Administration Rate (unless emergent/life-threatening situation)**:
- Administration rates vary by brand.
- Transfuse slowly for first 30 minutes, gradually increase every 30 minutes, as tolerated, to the maximum rate as ordered or as identified in the product insert. Each rate increase should be no more than double the previous rate.
- Total dose must be infused within 4 hours of accessing the vial.
- Note: reactions are more likely with faster rates of infusion.
- Note: infusion rates apply for total dose to be administered, not each vial.
- Refer to product insert for more information.

**Indications & Actions**:
- Immunoglobulin replacement.
- Primary and secondary immunodeficiency.

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**Prothrombin Complex Concentrates (Octaplex\® or Beriplex\®)**

**NOTE**: This product contains heparin so do not use if there is a known allergy to heparin or in suspected or proven Heparin Induced Thrombocytopenia (HIT).

**Description** (approximate volume):
- Supplied as dried FII, FVII, FIX, FX concentrate requiring reconstitution with supplied diluent. Each vial results in 20 mL containing 500 units FIX.
- Recommended dose for most adult patients is 40 mL (2 boxes) IV.
- Dosing may be based upon INR and body weight. The dose is rounded to the nearest whole vial (20 mL).
- A single dose should not exceed 3000 IU (120 mL) of Octaplex\® or 5000 units of factor IX (Beriplex\®).

**Pre-transfusion Testing**:
- None required.
- The use of Vitamin K is appropriate in combination with Octaplex\® or Beriplex\®. Dose & route of Vitamin K is tailored to clinical circumstance.

**Administration Method**:
- Does not require a filter or Blood Administration Set.
- Compatible with NS.
- Reconstitute product as directed.
- Once reconstituted use a syringe to withdraw the product.
- Syringe can be placed on an infusion pump.
- Use immediately after reconstitution.
- Monitoring requirements:
  - Refer to 2.12
  - INR immediately post-dose. Repeat in 6 hours and as ordered.

**Administration Rate** (unless emergent/life-threatening situation)**:
- Octaplex\®:
  - Infusion rate: initially 1 ml/min followed by 2 – 3 mL/min.
  - Refer to package insert for more information.
- Beriplex\®:
  - Infusion rate should not exceed 8 mL/min.
  - Refer to package insert for more information.

**Indications & Actions**:
- INR ≥ 1.5 (caused by Warfarin therapy) AND need for immediate reversal of Warfarin due to:
  - serious or life-threatening bleeding,
  - requiring unplanned surgical procedures which cannot be delayed a minimum of 6 hours.
- NOTE: Octaplex\® & Beriplex\® contain vitamin K dependent coagulation factors and may be considered a warfarin antidote. It will not work in other coagulation disorders.

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Refer to the manufacturer’s product monograph (package insert) supplied with the product or contact the TMS for administration information on blood products not listed in the Administration Guidelines. Contact the Saskatchewan Bleeding Disorders Clinic (Royal University Hospital) for patients with identified bleeding disorders and/or orders for factor products to determine if administration protocols are in place.
Immediate Management of a Transfusion Adverse Reaction

1. **STOP TRANSFUSION.** Ensure no further volume of blood is administered. Maintain IV access by infusing 0.9% sodium chloride at 50mLs/hr using new IV tubing.

2. **Obtain vital signs:** TPR & BP, SpO2 (if applicable)

3. **Re-check identification** of patient and blood product.

### PHONE

<table>
<thead>
<tr>
<th>PHONE</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUH</td>
<td>2179</td>
</tr>
<tr>
<td>SCH</td>
<td>8204</td>
</tr>
<tr>
<td>SPH</td>
<td>5168</td>
</tr>
<tr>
<td>Humboldt</td>
<td>306-682-8128</td>
</tr>
<tr>
<td>Lanigan/Rosthern</td>
<td>306-655-2179 RUH</td>
</tr>
<tr>
<td>Other rural sites</td>
<td>306-347-1607 CBS Regina 306-527-8077 (after hours)</td>
</tr>
</tbody>
</table>

### COMMON SIGNS & SYMPTOMS OF A TRANSFUSION ADVERSE REACTION

(including but not limited to the following):

- **Fever:** ≥ 1°C in temperature from baseline AND temperature > 38°C during transfusion or within 6 hours of the completion of the transfusion OR temperature ≥ 39°C regardless of baseline temperature
- **Hypotension:** severe reaction – systolic BP drop ≥30 mmHG OR “shock” during or within 6 hours of the completion of the transfusion
- **Tachycardia:** severe reaction – increase HR to ≥120 beats per minute OR an increase ≥40 beats per minute from baseline during or within 6 hours of the completion of the transfusion
- **Chills or Rigors**
- **Nausea &/or vomiting**
- **Urticaria or Rash**
- **Diffuse Hemorrhage**
- **Dyspnea**

### YES

- **CONTINUE TRANSFUSION?**

### NO

- Administer medications as ordered
- Continue transfusion cautiously
- Monitor symptoms for increasing severity & notify physician as needed
- Upon completion, complete transfusion tag and return to TMS. If requested, return the blood component bag, clamped administration set, and attached IV fluids in closed clear plastic bag.
- Document event & management in patient chart

- Draw blood work as per TMS request and physician order
- Place product, clamped administration set, and attached IV fluids in clear plastic bag and close.
- Return to TMS as requested.
- Immediately hand deliver transport bag and contents to TMS.
- Document event & management in patient chart

### TRANSFUSION ADVERSE REACTION BLOOD WORK

*TMS will request the following blood work be collected from the patient if the physician directive is to discontinue the transfusion. A physician’s order is required for the following tests. The blood sample should be drawn from the opposite arm or another CVC lumen when possible.

- **Transfusion Reaction Investigation**
  - Requisition: SHR Transfusion Medicine Service – Test Request Form (form # 101058)
  - Blood tube: 5 mL EDTA (lavender)
- **Blood Cultures** – if temperature increased ≥ 1°C over pretransfusion temperature AND is > 38°C OR is > 39°C regardless of pre-transfusion temperature.
# Transfusion/Infusion Administration and Assessment Record

**Chart all blood/components on this record.**

## Record start date/completion date and time:

<table>
<thead>
<tr>
<th>Time</th>
<th>Rate of Infusion</th>
<th>temp</th>
<th>HR</th>
<th>BP</th>
<th>resp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
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<tr>
<td>15 min</td>
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<td>1 hour</td>
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<td>2 hour</td>
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<td>3 hour</td>
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<td>4 hour</td>
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<tr>
<td>Post</td>
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</tbody>
</table>

## Place Patient Chart Label for Blood Product Here or Record Unit Number/Lot Number Below

- Unit/Lot number: [Insert Unit/Lot Number]
- Product type: [Insert Product Type]
- Signature: [Insert Signature]
- Signature: [Insert Signature]

Please complete and return Transfusion Medicine Label to Laboratory

## If a Transfusion Reaction is Noted:

- MRP Notified: [Yes/No]
- MAR faxed to Transfusion Medicine: [Yes/No/NA]
- Provincial reaction form #103695 completed: [Yes/No]
- Reaction form sent to Transfusion Medicine: [Yes/No]

## Notes:

[Insert Notes]

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Word Form #101059 01/15 Category: Assessments/History
Not a Form for patient to complete.

Notification Form to be given to patient at discharge or transfer.

(Complete only if patient label unavailable)

Patient Name: ___________________________________________

PHN/MRN: _____________________________________________

During your stay with the Saskatoon Health Region
Admission date: _________, you were given a human blood product.
(mm/dd/yyyy)

If you have any questions regarding this product please contact your physician or the
Saskatoon Health Region Transfusion Safety Officer at (306) 655-0988.

________________________________________________________
(Signature of patient or substitute decision maker) ____________________________
(Date: mm/dd/yyyy)

________________________________________________________
(relationship to Patient) __________________________________________
(Date: mm/dd/yyyy)

________________________________________________________
(Health Care Professional providing discharge/transfer Documentation) _____________
(Date: mm/dd/yyyy)

Copy provided to patient:  □ Yes □ No: ________________

Word Form #103854 10/14 Category: Consents/Release/Transport
BLOOD WARMING DEVICES

Purpose: Rapid infusions of large volumes of cold blood may decrease the temperature of the sinoatrial node causing arrhythmias. Use of blood warmers may decrease the incidence of arrhythmias and cardiac arrest associated with infusion of large volumes of cold blood components (whole blood, red blood cells, and plasma). Use of blood warmers may also decrease the development of rigors in persons with cold agglutinin disease. Usually seen in the OR, ICU, or Emergency Room. Note: Routine warming of blood is not recommended.

Indications:
- Multiple, rapid infusions of cold blood
- Cold agglutinin disease
- Exchange transfusions in infants

Procedure for use of the Ranger® Fluid Warming device:

1. Obtain the warming device from the OR. Obtain the warming cassette set from SPD (sku # 88441). Packed red blood cells must be warmed to room temperature (over 30 minutes) before infusing through the blood warmer. The TMS will ensure the red blood cells are at room temperature prior to issuing.

2. Prime a blood administration set with 0.9% sodium chloride. Clamp the tubing.

3. Slide the empty, flat warming cassette into the slot in the warming unit. Do not prime the warming cassette before sliding it into the warming unit.

4. Attach IV extension tubing to the distal end of the warming set (red port).

5. Attach the blood administration set to the proximal end of the warming set (blue port – inlet line).

6. Open the clamp on the blood administration set and prime the tubing of the warming unit & IV extension tubing.
   a. Invert the bubble trap until it is full
   b. Turn the bubble trap right side up and prime the line going to the patient
   c. Place the bubble trap into the holder on the warming unit.

7. Close all clamps on the warming set and blood administration set.

8. Turn the warming unit on. When the temperature display reads 41°C the unit is ready for use (takes approximately two minutes to warm up).

9. Attach the tubing to the patient, open all clamps, and begin transfusion as per standard procedure.

10. Upon completion of the transfusion close all clamps prior to disconnecting the tubing from the patient &/or warming unit.

Note: If at any time the over-temperature alarm sounds (temperature above 42°C) stop the transfusion. If the temperature does not drop below 42°C within a few minutes discontinue use of the warming device and take to Clinical Engineering. Obtain a new warming device from the OR.