TITLE:	TRANSFUSION OF BLOOD AND BLOOD PRODUCTS		
Manual/Policy#:	Patient Care Services: III-B-1	**Division:**	AGH
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Cross Reference(s)	Acute Transfusion Reactions IIIB2		

1. POLICY STATEMENT:

The practices, as outlined in this policy, are required for ordering, issuing and administering blood products at Almonte General Hospital according to Best Practice Guidelines. Routine practices for infection prevention and control purposes must be observed as per Routine Practices.

All Nursing staff involved in any part of the process of administering blood products to patients at the Almonte General Hospital shall be aware of their roles and responsibilities indicated in this policy. Any individual who checks and/or administers blood products at the Almonte General Hospital, must have documentation showing that they have successfully completed their annual on-line transfusion competency program "Transfusion Ontario – Bloody Easy for Nurses" provided by ORBCoN. This documentation shall be maintained by the departmental Nurse Manager.

2. SCOPE:

This policy applies to Almonte General Hospital.

3. DEFINITIONS:

CMV: Cytomegalovirus
IVIG : Intravenous Immune Globulin
ORBCoN: Ontario Regional Blood Co-ordination Network
UPI: Unique Patient Identifier

4. PROCEDURE:

4.1. Ordering of Blood Products for Routine / Elective Transfusions

Transfusion orders may only be written by licensed physicians who are members of the hospital active or courtesy staff. Federal blood safety standards require that the ordering physician (or qualified delegate) obtains written informed consent for blood product therapy, and ensures that there is a valid consent in the patient's chart. This consent, in the form of a signed "Blood Transfusion/Manufactured Blood Products Form" is expected to be completed and in the patients file prior to the retrieval and release of any blood product from the Transfusion Medicine Laboratory. In the event that the patient who is to be transfused is incapable of providing informed consent, consent may be obtained using a substitute decision maker as indicated on the patient chart.

Prior to retrieving any blood product from the laboratory, the assigned nurse must verify that the patient has provided informed consent to receipt of blood products by locating the "Blood Transfusion/Manufactured Blood Products" form. If this form cannot be located, notify the treating physician that the order cannot be placed until consent is obtained, then document the discussion in the

Interdisciplinary Clinical Notes in the patient's chart. Verify the patient has received and read the patient information pamphlet for Blood Product Transfusion.

All requests for blood products must include the following information:

- patient name and medical record number
- name of ordering physician
- patient location
- patient diagnosis
- patient transfusion history
- indication for transfusion
- urgency of request

Blood products may be ordered through one of the following mechanisms:

- Completion of prescription – in the case of an out-patient requiring Rh Immune Globulin
- Request placed in Cerner indicating product required and quantity.

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In all cases in which blood products are required urgently, the Blood Transfusion Laboratory must be telephoned directly at ext. 2229 or paged if technologist is on call.

It is the ordering physician's responsibility to inform the Blood Transfusion Laboratory of medical emergencies in which un-crossmatched Red Blood Cells are required. Requests for un-crossmatched RBCs should initially be made by phoning the Blood Transfusion Laboratory and must be later accompanied by physician signature on the Cerner Issue Voucher form indicating acceptance of un-crossmatched blood products. This physician consent should be provided prior to the issue of blood products.

NOTE: If the time required to complete compatibility testing will jeopardize patient safety (e.g., if patient is massively bleeding), phone, or page, the Lab Technologist to request release of uncrossmatched Red Blood Cells.

4.2. Patient Preparation

4.2.1 I*nfusion Equipment: IV Catheters*

Adequate patient venous access must be obtained, prior to pick-up of blood products.

- 18-20G venous catheters are recommended for most patients.
- 22G venous catheters may be required for patients with small veins, but frequent monitoring of the line for clotting will be required due to slow flow rates.
- 16-18G venous catheters are required for rapid infusing devices to minimize risk of hemolysis of red cells.

4.2.2 *Infusion Equipment: IV Administration Sets*

Transfusions must be administered through tubing appropriate to the blood product being infused and the infusion device used.

- Blood and blood components should only be infused through tubing containing a 170-260 micron filter to capture clots and fibrin debris.
- Fractionated plasma products may be infused through tubing provided by the manufacturer or through standard vented tubing.
- Blood products should be infused through primary lines without piggy-backing or administration

with any medications. Lines should only be primed with a solution appropriate to the product being infused.

- 0.9% normal saline should be used for priming and flushing for all blood products except IVIG. **D5W should be selected when infusing IVIG**.
- Tubing used for the infusion of blood component products (whole blood, Red Blood Cells, platelets, plasma, cryoprecipitate and cryosupernatant) should be changed every six hours. New blood tubing should be used for every platelet transfusion which follows other blood products such as Red BloodCells.

4.2.3 *Infusion Equipment: IV Administration Devices*

Infusions may be administered either by gravity or via an automated infusion device. For lyophilized fractionated plasma products administered as IV bolus, reconstitution should be performed at the point of care using the diluent provided or as per physician order, and the product administered by direct physician infusion as per manufacturer's recommendations. Products administered via infusion (including products injected into mini-bags) may be administered by a Registered Nurse.

4.2.4 *Blood Warming Devices*

Only trained health care professionals are authorized to use this device. These devices are intended to warm blood and blood products and liquids. Refer to the manufacturer's instructions, which can be found on the common drive in the "Laboratory" folder.

4.3. Retrieval of Blood Products

When the blood product is ready for pick-up, the Lab Technologist will alert the nursing unit. A nurse will then proceed to the lab with the Cerner generated Transfusion Medicine Report. Together, the Registered Nurse and Lab Technologist compare the Transfusion Medicine Report, the Component Issue Voucher and the blood product for accuracy of the following information:

- the patient's full name
- the blood product
- blood group, including Rh factor
- donor unit number or lot number
- expiry date
- compatibility status

Once the above information is verified, both the Registered Nurse and the Lab Technologist sign the Cerner Issue Voucher.

Those patient's who have made autologous donations prior to their elective surgery, must present the nursing staff with their green autologous unit tag(s) upon admission to the floor. These patient tag(s) must be brought to the laboratory for comparison with the autologous unit tags(s) prior to the release of any autologous units.

Blood products will only be issued – one unit at a time - by the Blood Transfusion Laboratory to hospital staff who present with a Transfusion Medicine Report.

NOTE: After hours, the RN obtains the blood component from the lab and performs the checks independently prior to leaving the lab. The Nurse must complete the "After Hours Release of Blood/Blood product Log Sheet" which is attached to the Transfusion Medicine refrigerator. Because

blood products which are not stored properly lose potency and may endanger patient safety by increased risk of bacterial growth, infusion of blood products must be completed within 4 hours after removal from the controlled environment.

NOTE: Blood products removed from approved storage for greater than 60 minutes must not be returned to active inventory. After removal from the controlled environment, transfusion or discard of the product must be completed within 4 hours. If the unit has not been completely transfused within 4 hours of removal from a controlled environment, the transfusion must be stopped and the remainder of the unit must be discarded. Once the blood product has been received in the patient care area, take it immediately to the patient. Do not store in any refrigerator other than the laboratory fridge that has been approved by the Blood Transfusion Laboratory as meeting regulatory requirements. If the order to transfuse is cancelled after the product has been issued and the product has been out of the controlled environment for less than 60 minutes, immediately return any issued blood products to the Blood Transfusion Laboratory refrigerator from where it came.

4.3.1 *Emergency Release of Blood Products*

In the event that blood is required urgently, and lab staff are unavailable to process the request, pre-tagged group O Rh Negative units indicating their status as "blood not crossmatched" will be available in the transfusion medicine refrigerator for retrieval. The ordering physician must sign the transfusion medicine request form indicating his/her approval of the use of such units prior to the removal of the blood from the laboratory. If possible, a pre-transfusion blood sample should be obtained from the patient prior to the infusion of any blood products. Nursing staff will be responsible for completing the issue voucher tag with the patient's demographics, and completion of the "Emergency Issue of Blood Components Log" that is attached to the transfusion medicine refrigerator. The lab staff should be called in to perform the necessary compatibility testing as soon as possible.

Product bag/container and any residual product must be disposed of into a Biomedical Waste container.

4.4. Point-of-care Checking of Blood Products

Only Red Blood Cells are crossmatched and the result of this crossmatch are listed on the product compatibility label which is attached to the unit. Red blood cells, platelets and plasma must be ABO compatible with the patient, as per the following table:

Patient ABO Group	Compatible Red Blood Cells	Compatible Platelets & Plasma
A	A, O	A, AB
B	B, O	B, AB
AB	AB, A, B, O	AB
O	O	O, B, A, AB

In some cases, the patient's ABO group may not be defined because they have either not been grouped by the Blood Transfusion Laboratory, or they may have undergone an ABO-incompatible transplant. In such cases, point-of-care assessment of blood product compatibility will not be possible. In some cases, the Blood Transfusion Laboratory may issue platelets whose plasma is not compatible with the patient. This practice is considered safe due to the relatively small quantity of plasma transfused with each standard dose of platelets. Note that ABO compatibility does not guarantee that a patient will not experience an acute or delayed hemolytic transfusion reaction.

In most cases, Rh-matching of blood and blood components is attempted in order to avoid immunizing patients against the RhD antigen, or to conserve the use of Rh negative blood products. Accordingly, Rh-negative patients should preferentially be issued Rh-negative blood products, and Rh-positive patients should be issued Rh positive blood products. Occasionally however, a patient's other blood product requirements will necessitate that they receive a product that is not RhD concordant. When an Rh-negative patient is issued Rh-positive Red Blood Cells or platelets, the Blood Transfusion Laboratory will also offer the ordering physician Rh-immune globulin to prevent the patient from developing an anti-D antibody. Positive patient identification must be performed prior to the administration of any blood product. This process must be performed either by an RN or an RNA qualified to administer blood products, one of whom will be responsible for initiating the transfusion. Both staff must independently confirm that the patient name and UPI number on the product label exactly match what is printed on the patient's attached wristband, and both must document in the patient's chart that this check was performed.

4.5. Administration of Blood Products by Registered Nurse

a) Perform hand hygiene as per Hand Hygiene Protocol.

b) Confirm that adequate vascular access has been obtained and the appropriate infusion tubing and priming solution selected, as per policy. Run priming solution at a rate sufficient to keep the vein open.

c) Confirm that all pre-transfusion medications ordered for the patient have been administered.

d) Obtain baseline vital signs (HR, BP, RR, temp, SpO2%).

e) Confirm that the blood product received is what was ordered.

f) Confirm that the blood product received matches what was ordered in the patient's chart. If a product with special attributes was ordered (e.g., CMV seronegative, irradiated, washed), verify that these attributes are documented on the product.

g) Confirm that the name and UPI on the compatibility label attached to the unit exactly match the name and UPI in the patient's chart.

h) Visually inspect the product received to confirm that the:
   - expiry date has not been exceeded
   - container is intact and not leaking (e.g., ports intact on blood bags and caps unopened on fractionated plasma products)
   - product is the expected color (plasma-containing products should be straw-colored but may have green or pink tint)
   - product has the expected consistency (free of air bubbles, clumps or precipitates; red blood cells should have no hemolysis; platelets should "swirl" when agitated gently)

i) Confirm that the compatibility label indicates that the product is compatible with the patient.

j) Confirm that the component Issue Voucher matches the correct blood product.

k) For blood and blood components, confirm that the unit number in the upper left corner of the supplier label matches the unit number on the compatibility label – and – that the donor ABO/Rh group on the compatibility label exactly matches the ABO/Rh group on the supplier label.

l) For fractionated plasma products, confirm that the lot number on the bottle matches the lot number on the component Issue Voucher.

m) Confirm that the patient's name and UPI on the component Issue Voucher exactly match what is on the patient's wristband. Do not substitute a non-attached identifier such as the hospital blue card or the patient's chart. **NOTE:** ***This step must be performed by two individuals, one of whom will be responsible for infusing the blood product. This is the most important step in point-of-care product checking***. If there is a discrepancy in any of the above steps, immediately notify the Blood Transfusion Laboratory. Do not begin transfusion.

n) Once all product checks have been satisfactorily completed, initiate the transfusion: using aseptic technique and routine practices.

o) Insert the spike of the administration set into the port of the blood bag. If the tubing blocks, try the other port, leaving the original tubing in place but clamped off.

p) After the transfusion has been initiated document on the component Issue Voucher, the date and time the transfusion was started as well as the initials of the two individuals who checked the blood.

q) Run initial transfusion rate at 50 mL per hour or less for the first 15 minutes, and then repeat vital signs and document on the Blood Transfusion Flowsheet.

r) Continue infusing blood product as recommended by the ordering physician. **NOTE:** Fractionated plasma products should be administered according to manufacturer's directions, as described in the package insert, or by physician order.

s) Closely observe the patient throughout the transfusion for any adverse reaction. When leaving the patient, orient him/her to the call bell and instruct the patient to report any symptoms such as fever, chills, rigors, breathlessness, itchiness, pain or bleeding.

t) If an adverse transfusion reaction is suspected, follow procedures as per Acute Transfusion Reactions policy.

u) At completion of transfusion, repeat vital signs and document on the Blood Transfusion Flowsheet and/or in Cerner. Complete any remaining information on the component Issue Voucher, and attach the completed voucher to the Blood Transfusion Flowsheet.

v) If no adverse transfusion reaction is noted within one hour of completion of the transfusion, discard the blood bag/product container into a bio-hazardous waste container (yellow bin).

w) Note the outcome of the transfusion on the Blood Transfusion Flow sheet and/or in Cerner

x) If a transfusion reaction is suspected, stop the transfusion immediately and refer to Policy # IIIb2 Acute Transfusion Reactions for instructions on how investigate / document the event.

y) The Registered Nurse administering the blood product is responsible for completing and delivering the "Notification of Blood Product Administration form" (that will be included with the first unit that is to be transfused to the patient).

4.6. Patient Monitoring

Blood products must only be administered in hospital areas where a Registered Nurse and/or physician is available to provide immediate medical care in the event of an adverse transfusion reaction.

The following information must be documented by the transfusing nurse in the patient's chart for each blood product infused:

- type of product
- time infusion was initiated
- initials of individuals who performed the point-of-care check
- vital signs at baseline, 15 minutes after initiation, and at completion of each transfused product
- time of completion of each transfused product
- outcome of administration, including any adverse events encountered
- volume transfused

5. REFERENCES:

For further information on the blood products which are available and their indications, please refer to the "Blood Easy 3" Guide to transfusions published by ORBCoN and the "Clinical Guide to Transfusion" booklet published by Canadian Blood Services. These two publications are available at the M&S, OBS and ER nursing stations.

Blood Easy 3 is available on-line at www.transfusionontari.org
Clinical Guide to Transfusion is available on-line at www.transfusionmedicine.ca
Bloody Easy for Nurses is available on-line at http://orbcon.transfusionontario.org/nurses/

6. APPENDICES:

OCTAPLEX - Infusion Information Sheet
FEIBA - Infusion Information Sheet
INTRAVENOUS IMMUNE GLOBULIN (IVIG) – Infusion Information Sheet
Appendix A – Blood Transfusion Flow Sheet