

TITLE

IN HOME TRANSFUSION OF BLOOD COMPONENTS AND PRODUCTS - ADULT

SCOPE

Provincial: Emergency Medical Services

DOCUMENT

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Transfusion of Blood Components and Products Policy (#PS-59)

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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To establish a standard for safe in-home transfusion of **blood components** and **blood products** for patients receiving in-home transfusions by Calgary Zone Mobile Integrated Healthcare (MIH) program.
- To facilitate compliance with applicable national standards for in-home transfusions.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS**1. Eligibility Requirements**

- 1.1 To be eligible for an in-home transfusion by MIH – Calgary Zone:
 - a) The patient must have received:
 - (i) at least two (2) transfusions within the previous 120 days without serious complications; or
 - (ii) more than four (4) transfusions within the previous year without serious complications; or

- (iii) have approval at the discretion of Transfusion Medicine physician lead
 - b) The patient must be located in a home environment such as, but not limited to a private residence, supportive living, or long term care facility, that has a working telephone and be able to contact 911; and
 - c) A responsible adult must be available to stay with the patient for 60 minutes post administration of the transfusion
- 1.2 Patients must also meet the criteria as indicated in the MIH– Calgary Zone In-Home Transfusion Criteria and Information resource.

2. Referring Physician / Clinic

- 2.1 The referring physician or clinic shall ensure all required pre-transfusion testing specimens are collected using the **Regional Transfusion Service Identification System (RTSIS)**.
- 2.2 The referring physician or clinic shall obtain informed consent from the patient and send a signed copy of the written consent form to the MIH **Assess, Treat, and Refer Coordination Centre (ATRCC)**.
- 2.3 The referring physician or clinic shall complete and send the following documentation to the MIH ATRCC least 24 hours prior to the time of transfusion:
- a) Community Response Team Referral form indicating the blood component or blood product to be transfused and infusion rate; and
 - b) Blood Component/Products Requisition-Adult form with the “from” location documented as “Community Paramedic Program”.
- 2.4 The referring physician must be available for consult during the transfusion or provide a designate.

3. MIH Assess, Treat, and Refer Coordination Centre

- 3.1 Once the referral is received, the **Assess, Treat, and Refer (ATR) Patient Coordinator** will:
- a) Send an email to Transfusion Medicine (TM) notifying them of the request for transfusion at least 24 hours prior to the anticipated time of transfusion to allow time to review the request for appropriateness and product availability;
 - b) If the referral is for red cells, confirm that the type and screen will be obtained and valid at the time of the transfusion, and the patient is wearing the RTSIS# band;
 - c) Schedule and confirm a suitable time for the transfusion;

- d) Schedule two (2) health care practitioners, one of whom must be a **community paramedic** for the transfusion, the other to perform the independent double check;
- e) Notify the referring physician / clinic of the appointment by phone or fax; and
- f) Fax or assign a designate to fax the *Dispense of Blood Components/Products* Form and the *Blood Component/Products Requisition-Adult* Form to Foothills Medical Centre (FMC) Transfusion Medicine (TM) laboratory at least two (2) hours prior to the anticipated time of picking up the blood product and / or component.

4. Procurement of Blood Components and Products

- 4.1 Dispensing of blood components and products shall only occur from FMC TM Laboratory.
- 4.2 The community paramedic or designated health care provider shall bring the completed *Dispense of Blood Components and Products* Form to the FMC TM laboratory when picking up blood components or products.
- 4.3 Sign out of all blood components and products from FMC TM laboratory must be by a community paramedic or designated health care provider and counter-signed by FMC TM laboratory staff.
- 4.4 The FMC TM laboratory will package the blood components or products in the dedicated Community Paramedic Program blood cooler for transport.
- 4.5 Blood components or products must be administered within four (4) hours of removal from the cooler.

5. Equipment and Medications

- 5.1 The community paramedic will be responsible for supplying the infusion devices (infusion pump and gravity device) and the appropriate tubing (filtered or non-filtered) for transfusions.
- 5.2 In the event of an infusion pump failure, the community paramedic shall complete the infusion manually.
Note: If the transfusion is infused through a central venous access device, they must obtain another pump.
- 5.3 AHS issued smart phone or laptop / tablet with AHS approved video software.
- 5.4 The community paramedic performing the transfusion will ensure the following emergency equipment is immediately accessible during the transfusion:
 - a) oxygen source;

- b) oxygen tubing;
 - c) nasal cannula and/or oxygen mask;
 - d) suction;
 - e) bag valve mask (BVM) & oropharyngeal airway (OPA);
 - f) additional intravenous solutions; and
 - g) cardiac monitor.
- 5.5 The community paramedic will ensure the following emergency medications are immediately accessible during the transfusion:
- a) epiNEPHrine 1:1000 (1 mg/mL) injectable;
 - b) diphenhydrAMINE (50 mg/mL) injectable;
 - c) furosemide (10 mg/mL) injectable; and
 - d) dexamethasone (10 mg/mL) injectable.
- Note:** The administration of these medications is as per the applicable Alberta Health Services EMS Medical Control Protocols (MCPs) or as per the Transfusion Medicine physician.
- 5.6 The community paramedic will ensure they have the following infection and prevention control equipment on scene:
- a) alcohol based hand rub;
 - b) personal protective equipment to include:
 - c) non-sterile medical gloves;
 - d) safety glasses, or a face shield;
 - e) isolation gown;
 - f) procedure mask and N95 respirator;
 - g) sealable bio-hazardous waste bag, solidifying agent and;
 - h) AHS approved disinfecting wipes.

6. Prior to Transfusion

6.1 The community paramedic performing the transfusion and one (1) other health care provider who is either on scene or available by video-conferencing software, shall confirm on the patient chart copy / cross match tag that the following information has been matched and verified for all units to be transfused. The on-scene paramedic will document the verification of:

- a) the blood component and/or product received is consistent with the transfusion order;
- b) for RBC or platelets, ABO-Rh blood group on the transfusion tag matches the ABO-Rh group on the component label;
- c) ABO-Rh blood group of the component received is compatible with patient's blood type;
- d) component and/or product expiration date has not passed;
- e) component and/or product number on container matches component and/or product number on the tag; and
- f) component and/or product has no abnormalities, such as, but not limited to clots, abnormal colour or leaks.

Note: If a discrepancy is found, stop the process until the discrepancy is resolved and FMC TM laboratory is contacted

6.2 In the event of virtual technology failure, the community paramedic shall contact ATRCC to request an on-scene second healthcare provider to conduct the verification.

6.3 The community paramedic must perform a baseline assessment of the patient within 30 minutes of initiating the transfusion which includes, but is not limited to:

- a) temperature;
- b) blood pressure;
- c) heart rate;
- d) respiration rate; and
- e) oxygen saturation.

6.4 If there are any concerns with the patient's baseline assessment or the patient's condition, the community paramedic must consult with referring physician prior to initiating the transfusion.

6.5 The community paramedic shall:

- a) confirm written (signed) consent has been obtained and documented;
- b) refer to a specific blood component and product monograph for the specific:
 - (i) blood administration infusion set(s) required;
 - (ii) compatible intravenous solution required; and
 - (iii) order of the product or component to be administered.
- c) ensure patient has a patent, healthy vascular access site;

Note: The minimum size that can be used for transfusion is a 24 gauge catheter. (Y connector at IV site should be established);

- d) select the largest lumen available for the transfusion if transfusing through a multi-lumen central venous catheter;
- e) administer applicable pre-transfusion medications as per the referring physician order; and
- f) instruct the patient to notify them immediately if they experience any of the following symptoms:
 - (i) hives or itching;
 - (ii) feeling feverish or chills; (iii) difficulty in breathing;
 - (iii) back pain or pain at the infusion site; and/or
 - (iv) any feeling different from usual.

6.6 Additional information is available in the Alberta Health Services *Transfusion of Blood Components and Products Learning Module*.

Note: See individual sections for specific component and product administration information in the Alberta Health Services *Laboratory Services Transfusion Medicine Blood Components and Products Information/Monographs*.

6.7 In the presence of the patient, immediately prior to initiation of transfusion, the attending community paramedic(s) shall confirm the following:

- a) patient identification (refer to the Alberta Health Services Patient Identity Verification Policy); and
- b) RTSIS on the transfusion documentation/tag matches RTSIS on the patient transfusion service identification band.

Note: If a discrepancy is found, stop the process until the discrepancy is resolved and FMC TM laboratory is contacted.

- 6.8 Do not remove the transfusion tag from the blood component and / or product until the transfusion is complete.

7. Administration of Transfusion

- 7.1 Blood components must not be removed from the cooler until the patient has been assessed as ready and the paperwork is verified to be correct.
- 7.2 The community paramedic shall document the time the blood component is removed from the cooler on the patient chart copy / cross match tag to demonstrate storage at the appropriate temperature.
- 7.3 The community paramedic shall perform hand hygiene prior to the transfusion and before each re-assessment.
- 7.4 The community paramedic shall:
- gather and set up equipment;
 - ensure the patient is comfortable;
 - prime the intravenous line with the appropriate intravenous solution; and
 - label tubing as per the Alberta Health Services Invasive Infusion and Tubing Verification Policy.
- 7.5 Attach the blood component or product to the tubing, and initiate the flow at the prescribed rate. Refer to Alberta Health Services *Transfusion Medicine / Laboratory Services Blood Components and Products Information / Monographs* for component and product-specific administration rates.

Note: Blood components and products must be administered for the first 15 minutes at a rate of 60 mL/hour or one (1) mL/minute.

8. Monitoring of Transfusion

- 8.1 Monitoring of patient vital signs starts when each new bag of blood component or product reaches the vascular access site.
- 8.2 With each new bag of blood component or product the community paramedic shall remain with the patient and must not perform any other tasks for the first five (5) minutes and keep the patient in view for the next ten (10) minutes.
- 8.3 Perform re-assessment of vital signs at 15 minutes post-initiation of transfusion, and every hour for the remainder of the transfusion. Refer to Alberta Health Services *Transfusion Medicine / Laboratory Services Blood Components and Products Information / Monographs* for product-specific monitoring requirements.

Note: Assess vital signs more frequently if indicated by the clinical situation or referring physician's orders.

8.4 If additional blood components and products are required:

- a) maintain intravenous access infusing the appropriate maintenance solution between products to keep the vein open;
- b) repeat above sections six (6) through eight (8) for each component and product to be transfused.

Note: Change the blood administration set every eight (8) hours or prior to any platelet transfusions.

9. Adverse Reactions

9.1 Refer to the Alberta Health Services Transfusion Medicine/ Calgary Laboratory Services *Acute Transfusion Reaction Chart and the Mobile Integrated Healthcare Transfusion Practice Support Guide* for information on **adverse reactions**.

9.2 In situations where an adverse reaction is suspected:

- a) immediately stop the transfusion;
- b) maintain intravenous access site using a new intravenous infusion set and compatible intravenous solution;
- c) assess vital signs including electrocardiogram (ECG);
- d) treat adverse reactions as per applicable AHS EMS MCPs (e.g. allergic reaction, anaphylaxis, shock) or as per directed by the TM physician;
- e) immediately notify FMC TM laboratory of suspected adverse reaction;
- f) for RBC transfusions, whenever possible:
 - (i) obtain a blood specimen (use lavender top tube);
 - (ii) ensure sample is labelled with patient identification and the RTSIS band number; and
 - (iii) place in cooler to be dropped off at FMC TM laboratory; and
- g) notify the referring physician of suspected adverse reaction.

9.3 Ensure all blood components and products, tubing, solutions, and transfusion tags are not discarded until direction is received from FMC TM laboratory.

9.4 Complete a Calgary Laboratory Services *Adverse Reaction to Blood Transfusion or Transfusion Event Notification* form and place into cooler and return cooler

10. Post-transfusion

- 10.1 The community paramedic must continue to monitor the patient for at least 30 minutes after the transfusion is completed and must ensure that a responsible adult is able to remain with the patient for 60 minutes after the transfusion.
- 10.2 **Note:** If a responsible adult is not available to stay with patient for 60 minutes post transfusion, the community paramedic shall stay with the patient.
- 10.3 Flush the intravenous line to ensure all blood component and product are visibly clear from the line.
- 10.4 Clean and disinfect any visible soiling on the cooler.
- 10.5 Dispose of needles, empty blood containers and tubing sets into a bio-hazardous waste container using routine practices to reduce the risk of exposure to blood and body fluids.
- 10.6 **Note:** Empty blood component/product containers must be disposed of in a biohazard waste container located in a secure location at hospital. The coolers should not be returned with empty blood product / component containers unless instructed by TM to do so.
- 10.7 Ensure the patient has a wallet card from the *Notification of Administration of Blood Components & Blood Products Transfusion Card*.
- 10.8 **Note:** If patient already has wallet card, there is no need for the community paramedic to complete an additional card.
- 10.9 Review transfusion education with patient and provide a printed copy for patient and caregivers.
- 10.10 Place a follow up phone call to the patient or caregiver two (2) hours after the transfusion to confirm the absence of adverse reaction and document the conversation in the electronic patient care record (ePCR).

11. Documentation

- 11.1 The community paramedic must document the transfusion by using the “blood administration” button in treatment section of the ePCR and include the following information in the ePCR:
- date and time of transfusion (start and end);
 - type, volume, and RTSIS number of component and/or product;
 - name of community paramedic transfusing the blood component and/or product;

- d) name of second healthcare provider verifying the blood component and product;
- e) vital signs and times;
- f) any adverse reactions detected and subsequent follow-up (including testing);
- g) patient teaching; and
- h) patient outcomes.

11.2 The community paramedic must attach the following forms to the ePCR:

- a) Community Response Team Referral; and
- b) signed Consent to Treatment Plan or Procedure form.

DEFINITIONS

Adverse reactions means the signs and symptoms of minor or major life-threatening reactions are similar and, at the time of onset, impossible to differentiate. It is critical to obtain a detailed history and perform a thorough assessment prior to initiating blood components / products administration as many of these signs and symptoms may already exist due to the patient's chronic or acute health problems. Adverse reactions in the setting of a transfusion are considered a transfusion reaction.

Assess, Treat, and Refer Coordination Centre (ATRCC) means a location that coordinates referrals for Assess, Treat, and Refer services within the MIH portfolio. The desk is staffed by Community Paramedics who have received additional training and are referred to as Patient Coordinators.

Assess, Treat, and Refer (ATR) Patient Coordinator means a community paramedic that has received additional training to work on the Assess, Treat and Refer Coordination Desk and is responsible for receiving, triaging, processing, scheduling and deploying Community Response Teams.

Blood components means the therapeutic parts of blood used for transfusion, namely, packed red blood cells, plasma, platelets and cryoprecipitate.

Blood products means the therapeutic parts of blood derived from plasma by manufacturing companies. Examples include albumin, intravenous immune globulin, and prothrombin complex concentrates.

Community paramedic means an advanced care paramedic who is registered and entitled under the Alberta Health Professions Act and the Paramedic Professions Regulation (Alberta) to practice as an Advanced Care Paramedic in that province, who has received additional education and training specific to community healthcare, and is working in a role within the EMS Mobile Integrated Healthcare portfolio.

Regional Transfusion Service Identification System (RTSIS) means an identification system used by Calgary Zone Transfusion Medicine to increase safety of the transfusion by establishing a positive, continuous contact between the patient, their specimen, and the cross matched units of red cells.

REFERENCES

- Alberta Health Services Governance Documents:
 - Consent to Treatment/Procedure(s) Policy Suite
 - *Invasive Infusion Line and Tubing Verification Policy (#PS-15)*
 - *Transfusion of Blood Components and Products Policy (#PS-59)*
 - *Patient Identity Verification Policy (#PS-06)*
 - *Mobile Integrated Healthcare Provision of Care*
- Alberta Health Services Forms:
 - *Community Response Team Referral (#19552)*
 - *Consent to Treatment Plan or Procedure (#09741)*
 - *Transfusion Tag Mounting Record (#100741)*
 - *Dispense of Blood Components/Products (CLS form #TM1763)*
 - *Blood Component/Products Requisition - Adult (CLS form #REQ9006TM)*
 - *Adverse Reaction to Blood Transfusion or Transfusion Event Notification (CLS form #TM2034)*
- Alberta Health Services Resources:
 - Community Paramedic In-Home Transfusion Criteria and Information
 - Transfusion Medicine/Laboratory Services Blood Components and Products Information/Monographs
 - Transfusion Medicine/Laboratory Services Acute Transfusion Reaction Chart
 - Transfusion of Blood Components and Products Learning Module
 - Emergency Medical Services Medical Control Protocols
- Non-Alberta Health Services Documents:
 - Canadian Standards Association Blood and Blood Components
 - Canadian Society for Transfusion Medicine Standards for Hospital Transfusion Services

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