NTHSSA-WIDE POLICY	
Title: Transfusion of Blood Components and Products	Policy Number: 15-153-V1
Applicable Domain: Lab, Diagnostic Imaging and Pharmacy Services	
Additional Domain(s): Hospital Based Services, Community Health Centre Clinical Services	
Effective Date: 12/04/2024	Next Review Date: 12/04/2027
Issuing Authority: NTHSSA CEO	Date Approved: 12/04/2024
Accreditation Canada Applicable Standard: TM 15.2, 21.0-21.5, 22.0-22.11, 24.0-24.2, 24.4-24.6	

GUIDING PRINCIPLE:

The Northwest Territories Health and Social Services Authority (NTHSSA) values patient's rights to receive safe and competent care; ensuring an effective process for all patients requiring blood components and products.

PURPOSE/RATIONALE:

Provide standardization for the safe administration of blood components and blood products with the goal of supporting clinical practice. This policy ensures the safe handling and transfusion of blood components and blood products for patients within the NTHSSA in compliance with applicable Health Canada blood regulations and standards (i.e. CSA, Canadian Society for Transfusion Medicine [CSTM] and Accreditation Canada).

DEFINITIONS:

Adverse Event: an undesirable and unintended occurrence before, during, or after the administration of blood components or blood products, whether or not considered to be related to the administration (includes transfusion reactions and transfusion related errors).

Authorized prescriber: a health care professional who is permitted by federal and (where applicable) provincial legislation, their regulator college, Northwest Territories Health and Social Services, and practice setting (where applicable) to prescribe medication. For the purposes of this Policy, this definition also applies to health care professionals who are permitted to order blood products and blood components.

Blood Bank Identification number (BBID): the unique number assigned to the patient for the purpose of blood component transfusion. It assists in the

unequivocal identification of patient and blood component as this number is utilized throughout the transfusion process, from collection to transfusion. It is displayed on the patient armband, requisition, collected samples and blood components to be transfused.

Blood component: whole blood, or a therapeutic component of blood intended for transfusion (e.g. red cells, platelets, granulocytes, plasma, etc.).

Blood product: a therapeutic product derived from human blood or plasma and produced by a manufacturing process that pools multiple units (usually more than 12). Also known as: Fractionated Product, Derivative, and Plasma Protein Product (PPP). Examples of blood products are human serum albumin, immunoglobulin preparations, and coagulation products (factors VIII and IX, fibrinogen, anti-thrombin III, etc.).

Compatibility label/tag: the documentation attached to the blood component or product that links the intended recipient to the blood component or product. Information on the label/tag shall include:

i) recipient's full name
ii) recipients' identification number,
iii) lot/unique identification number of blood component or product,
iv) type/name of blood component or product
v) volume/dose
vi) BBID where required.

Compatibility Testing: the activities performed before transfusion to ensure that a blood component will not produce a harmful reaction due to an incompatibility with the recipient's blood. Compatibility testing can include tests for ABO and Rh, tests for clinically significant antibodies, and crossmatch testing. The specific tests will depend on the recipient, the situation, and the blood component being transfused, as specified in the standard operating procedures (SOP) manual of the transfusion service.

Health care professional (HCP): an individual who is a member of a regulated health discipline and who practices within scope and role.

Informed consent: the patient's agreement (or substitute decision-maker) to undergo a treatment/procedure after being provided, in a manner the patient can understand, with the relevant information about the nature of the treatment/procedure(s), benefits, potential risks and alternatives, and the potential consequences of refusal.

Issue: for the purpose of this policy, the process of signing out blood components or blood products from the Transfusion Services.

Most Responsible Practitioner (MRP): the health professional (physician or nurse practitioner) who has responsibility and accountability for the specific treatment/procedure(s) provided to the patient and who is authorized by the NTHSSA to perform the duties required to fulfil the delivery of such a treatment/procedure(s) within the scope of their practice.

Order: a direction given by a regulated health care professional to carry out a specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An order may be written (including handwritten and/or electronic), verbal, by telephone, or facsimile.

Substitute Decision Maker (SDM): a person who has legal authority to make healthcare decisions with or on behalf of the patient.

Transfusion Reaction: an undesirable and unintended response to the transfusion of blood components or blood products that is considered to be definitely, probably, or possible related to the transfusion. Transfusion reactions can be acute (e.g. up to 24 hours) or delayed (e.g. months to years).

Transfusion Reaction Investigation: an investigation consisting of a review of patient symptoms, blood component or blood product compatibility, pre- and post-transfusion laboratory testing, and other diagnostic tests as required to determine the cause of a transfusion reaction.

Type and Screen (also known as Group and Screen): testing group that includes tests to determine patient ABO and Rh type (Group/Type) and screening tests for the detection of clinically significant antibodies in the patient serum or plasma. Antibodies detected may be auto-antibodies formed against the patient's own cells, or allo-antibodies which formed after exposure to foreign red blood cells from a previous exposure (ex. blood transfusion, pregnancy, organ transplant). Results must be available before cross matched red blood cell units can be issued.

SCOPE/APPLICABILITY:

Compliance with this document is required by all Northwest Territories Health and Social Services Authority (NTHSSA) employees, members of the health care staff, students, and other persons acting on behalf of NTHSSA (including contracted service providers as necessary).

Refer to documents **TMMM140000 Roles and Responsibilities in the Transfusion Process and TMM140001 Roles and Responsibilities in the Transfusion Process – detailed** for more information for scope of practice and roles within the Transfusion Process.

PROCEDURE:

1. Informed Consent

1.1. The Most Responsible Practitioner (MRP) shall obtain express written **informed consent** prior to the transfusion of blood components and products.

1.2. The MRP is responsible to inform the patient of the blood component or products they are receiving, the risks, benefits, and clinically appropriate alternatives to a transfusion, in words appropriate for age and culture. Time must be allowed for the patient to ask questions to ensure informed consent is received.

1.3. This documentation shall include the signature of the patient or substitute decision maker (SDM) on the appropriate NTHSSA blood components and products consent form. The consent form shall then be attached to the patient's health care record.

1.4. Documentation of refusal of blood transfusion shall be attached to the patient health care record and also forwarded to the Laboratory to be recorded in the patient Electronic blood transfusion record for the applicable stay.

1.5. Authorization of transfusion in the absence of informed consent shall only occur when the transfusion is urgently needed to preserve the patient's life **and** the patient is unable to give informed consent and no legal representative is available to give informed consent on behalf of the patient and no evidence exists of an advanced directive that refuses the transfusion of blood or blood products.

2. Competency

2.1. The transfusion of blood components and products is restricted to HCP's practicing within their scope of practice and who have demonstrated competency in transfusion with clinical education and training.

2.2. It is the duty and responsibility of all HCPs to self-identify learning needs and undertake appropriate measures to ensure ongoing and continual competency, as determined by their governing bodies and specific work settings.

2.3. Refer to documents **TMMM140000 Roles and Responsibilities in the Transfusion Process and TMM140001 Roles and Responsibilities in the Transfusion Process – detailed** for more information for scope of practice and roles within the Transfusion Process.

3. Collection of Pre-transfusion Specimen(s)

3.1. An order from an authorized prescriber is required to type and screen and/or crossmatch a patient.

a) Note: Not all blood products require a type and screen and/or crossmatch specimen. Refer to NTHSSA monographs for specific product information.

3.2. If the patient is already wearing a BBID band, the health care provider must confirm that the associated testing is expired before removing the band. This may be done by checking the testing report or contacting the Laboratory/Transfusion medicine.

3.3. A type and screen order may be followed by a crossmatch order when the order to transfuse is present.

3.4. Blood components may be transfused prior to type and screen and cross match testing in **emergency situations only**, refer to Program SOP: Unmatched Blood – Requesting and Administration Procedure.

3.5. Pregnant patients, patients who have had a transfusion within the last three (3) months or patient history of transfusion or pregnancy is unknown must be re-tested and re-cross matched every ninety-six (96) hours before receiving blood components.

3.6. Inpatient neonate specimens may be valid for 120 days (i.e. 4 months) post gestation as long as the neonate has never been discharged home or to an outpatient setting.

3.7. A transfusion of red blood cells order may only occur concurrently with an order for crossmatch or at a later time. The administration of blood components and products shall require a transfusion order from an authorized prescriber.

3.8. The indication for transfusion, the order for transfusion, and the requisition request for component or product shall be documented on the health record.

3.9. Requests for blood components shall be documented and shall contain sufficient information to allow for unequivocal identification of the recipient. Verbal requests may be accepted in emergency circumstances but shall be followed up with the appropriate written documentation. The transfusion order for blood components or products shall include:

a) Recipient's first and last name;
b) Recipients date of birth;
c) Unique patient identifier (such as medical record number or personal healthcare number [PHN]);
d) Type and amount/volume of blood component and product;
e) Rate of infusion or duration;

f) Date and time of transfusion;
g) Any special requirements (e.g. use of a blood warmer or pressure infusion devices)
h) Sequence of infusion if more than one type of blood component or product is to be transfused;
i) Any pre-/post medication orders or pre/post laboratory tests required.

3.10. Pre-transfusion specimen labels and/or requisitions shall include:
a) Recipient's full first and last name;
b) Recipients date of birth;
c) At least one other unique identifier, such as health care number or medical record number;
d) Blood bank identification number (BBID);
e) Date and time of collection;
f) Identification of HCP collecting the specimen;
g) Identification of witness collection.
h) Requisitions also require: the recipient's location, blood component requested, the required volume or quantity of the component; and special requirements, if any. Refer to Program SOP: Completing a Request for Blood Components or Blood Products.

3.11. When collecting specimens' health care providers must follow NTHSSA SOP: SCM20900 Blood Bank Collection and NTHSSA Policy: Client Identification

3.12. Following collection of the blood specimen, a transfusion identification band containing the BBID shall be secured to the patient for patients receiving blood components only (e.g., packed red blood cells).
a) Complete patient and family education that the BBID must be worn until it expires, or an authorized prescriber has confirmed a transfusion is no longer needed.

3.13. The Laboratory/Transfusion medicine must reject any type and screen specimen not meeting the requirements outlined in 3.8 and 3.9. No exceptions will be considered.

4. Obtaining Blood Components and Products

4.1. To obtain blood components and products from Transfusion Medicine/Laboratory, a handwritten hard copy document with the following patient identification information is required:
a) Patient full first and last name;
b) At least one other unique identifier;
c) Type of requested blood component or product;
d) Amount/dose of requested blood component or product.
i. Confirmation of this information shall be done at the time the

blood component or product is issued.

4.2. All blood components and products shall be inspected for abnormalities immediately prior to removal from Transfusion Medicine/Laboratory. When an abnormality is detected, the blood component or product must not be used, refer to Program SOP: TMM90200 Visual Inspection of Blood Components and Blood Products, or Appendix A: Inspection of Blood Component or Product.

4.3. All blood components and products must have a compatibility label/tag attached in order to be issued from Transfusion Medicine/Laboratory. Blood components and products that do not have a compatibility label/tag attached must not be removed from Transfusion Medicine/Laboratory.

4.4. Blood Components and Products will only be issued at a max of one at a time from the laboratory for immediate transfusion, unless situation is life threatening and there are two IV lines for transfusion administration available, and/or the Rapid Infuser is in use.

4.5. When blood components and products are issued from Transfusion Medicine/Laboratory, the information listed in section 4.1 and 4.2 above must be documented in a manner that links the blood component or product with the request and the intended recipient. This documentation shall occur through one of the following means:

a) Manual data entry into the Laboratory Information System;

b) Paper transfusion log (when a laboratory technologist is not available after hours).

5. Verifying Blood Components or Products and Patient

5.1. The HCP administering the transfusion shall confirm and document that the identity of the patient is correct, and that the blood component or product that is about to be transfused matches the order for the transfusion.

5.2. Unequivocal identification of both the patient and the blood component or product to be transfused is required. This shall be accomplished through a double check process involving a second HCP (double check is completed with either a laboratory technologists or registered nurse).

a) Only a laboratory technologist, registered nurse or physician may transport blood components or products within the facility.

b) Verify the ABO and Rh compatibility, two (2) patient identifiers, unique product ID number and crossmatch number match on the blood product, blood sign out book and patient identifier (refer to appendix B: Table 1: ABO Compatibility and Table 2: Rh compatibility of red blood cells and

Program SOP: TMM40600 Transfusing Rh Negative Patients with Rh Positive Components).

5.3. The following verifications must occur at the bedside of the patient, immediately prior to transfusion:

a) Patient identification using two patient identifiers (refer to the NTHSSA Wide Policy: Client Identification)

b) The BBID on the transfusion documentation/tag matches the BBID on the patient's transfusion service identification armband.

6. Administration and Monitoring of Blood Components and Products

6.1. Only Health Canada and NTHSSA approved infusion devices shall be used for transfusions. Blood components shall be transfused through a sterile, pyrogen-free transfusion set that has a filter designed to retain particles potentially harmful to the recipient. Devices should be in good working order with maintenance performed per manufacturer's manual or standards for maintenance.

a) Administration sets are changed:

i. As needed, but at least every eight (8) hours or as per manufacturer's direction.

ii. When platelets are to be transfused after other blood components (refer to the Transfusion Medicine platelet monograph); and

iii. When switching from one blood product to another blood product.

6.2. Blood components to be transfused must be compatible with patient and compatibility testing shall be completed prior to the transfusion of blood components.

a) Transfusion of blood components prior to the completion of compatibility testing shall only occur when transfusion is urgently needed to preserve the patient's life and a written order by a physician is documented taking responsibility for transfusion of uncrossmatched blood and clinical indication is documented.

6.3. Blood components and products shall be transfused over a maximum of four (4) hours from the time of issue or removal from a temperature-controlled environment.

6.4. Blood components and documentation shall be returned to the transfusion service/laboratory immediately when:

a) The transfusion is cancelled; or

b) The transfusion has not been initiated and cannot be completed within four hours from the time of issue; and

c) The transfusion is not initiated within 60 minutes of removal from a temperature-controlled environment.

6.5. In situations when it is necessary for the patient to continue a transfusion away from the initial patient care area, a clinical handover of the patient's transfusion care shall occur and be documented in the patient's health care record.

6.6. Patients shall be monitored throughout blood component and product transfusions for adverse reactions. See specific blood component and product administration procedures and monographs for monitoring requirements.

6.7. Under no circumstances shall medications be added to blood component and product unless otherwise stated in the blood component and product information/monograph and after consultation with Transfusion Medicine/Laboratory.

a) If administration of medication is required at the same time as the transfusion of a blood component or blood product, a second venous access site or a different lumen of a central venous access device (CVAD) should be used for medication administration, where possible.

i. If there is an absolute need to administer a medication while the blood is transfusing and there is limited IV access, consultation with Transfusion Medicine is recommended for options available.

6.8. Do not transfuse any blood components or products which were transported from another site with the patient. Return product immediately to the transfusion service/laboratory.

7. Reporting of Adverse Reactions

7.1. The HCP shall notify an authorized prescriber and Transfusion Medicine/Laboratory, even if no intervention was required.

7.2. Where there is a possible adverse reaction to a blood component or product, an adverse reaction investigation is required. Refer to the Program SOP: Incident Management Procedure and Program SOP: Adverse Transfusion Reaction Identification and Management procedure.

7.3. Follow NTHSSA Wide Policy: Adverse Transfusion Reaction Reporting for reporting requirements for blood components and blood products.

8. Documentation

8.1. All blood components and products transfused shall be documented on the patient's health care record.

8.2. Documentation of the completed transfusion shall be forwarded to Transfusion Medicine/Laboratory as applicable (i.e. complete the tag attached to the blood component, copy of transfusion record/product Rx form).

8.3. Documentation of transfusion shall be retained per facility retention requirements, requirements from the Canadian Standards Association and the Government of Canada.

9. Patient Notification

9.1. All patients who have received blood components and products must receive written notification of the transfusion see NTHSSA Wide Policy: Notification of Transfusion.

PERFORMANCE MEASURES:

100% of NTHSSA HCP who are authorized within their scope of practice to participate in blood component and products transfusion are aware and compliant with this procedure and associated policies.

Chart audits to monitor compliance – completion of transfusion records as outlined in procedures relating to this policy.

Metrics regarding compliance to reading policy and completion of Transfusion education module on Learning Management System (when available)

CROSS-REFERENCES:

1. NTHSSA Wide Policy: Client Identification
2. Program SOP: Incident Management Procedure
3. NTHSSA Wide Policy: Notification of Transfusion

ATTACHMENTS:

Appendix A: Inspection of Blood Component or Product
Appendix B: Compatibility

REFERENCES:

Alberta Health Services. (2022, February). Transfusion of Blood Components and Products Policy and Procedure PS-59 and PS-59-03. Retrieved from, Transfusion of Blood Components and Blood Products policy PS-59 (ahsnet.ca)

Callum JL et al. (2023). Bloody Easy 5.1: Blood Transfusions, Blood Alternatives and Transfusion Reactions. *Ontario Regional Blood Coordinating Network*, Retrieved from, https://transfusionontario.org/wp-content/uploads/2022/10/BloodyEasy5.1_English_Final_2023_Interactive-June-28.pdf

Canadian Blood Services. (2021). *Clinical Guide to Transfusion*. Retrieved from, https://professionaleducation.blood.ca/en/transfusion/clinical-guide-transfusion

Canadian Blood Services. Visual Inspection Tool [Internet]. Ottawa: Canadian Blood Services; 2023 [2024 01 31]. Available from: Visual Inspection Tool | Professional Education (blood.ca)

Canadian Society of Transfusion Medicine. (December 2021) S*tandards for Hospital Transfusion Services, Version 5.*

Canadian Standards Association. (2020). *Blood and Blood Components CAN/CSA-Z902-20*

Government of Canada. (Modified 2023-02-21, Adopted 2014-05-12). *Guidance Document: Blood Regulations*

Vancouver Island Health Authority – Island Health Laboratory Medicine, Pathology & Medical Genetics. (2022, January) Clinical Procedures for Blood Administration

APPROVAL:

April 12, 2024
Date

NTHSSA Chief Executive Officer

Appendix A: Inspection of Blood Component or Product

Abnormality	Description	Action	Reporting
Open ports	Port covers should be intact unless product has been modified. If modified, then must have at least one original port with cover intact.*	Return to the Lab	To the Lab
Purple or black red cell mass	Suspect hemolysis due to either physical destruction of red cells or by bacterial contamination.	Return to the Lab	To the Lab
Discolored plasma or supernatant, if visible. Note: Check unit and segments	Bacterially contaminated plasma may appear a grayish murky color, purple or brown.	Return to the Lab	To the Lab
Bright red plasma color Note: Check unit and segments.	May indicate significant red cell hemolysis	Return to the Lab	To the Lab
No segments	Ensure that at least one donor segment is attached to the unit.	Return to the Lab	To the Lab
Clots	Mix the unit. Observe for clots.	Return to the Lab	To the Lab
Red cell color in the segment(s) is different than in the unit	The red cell color in the segment (s) is significantly lighter than in the unit.	Return to the Lab	To the Lab
Expired	The product must be in date.	Return to the Lab	To the Lab

Appendix B: Compatibility

Table 1: ABO compatibility

Blood group of recipient	Antigen(s) present on recipient red blood cells	Antibody present in recipient blood	Compatible red blood cells from groups	Compatible plasma from groups	May receive platelets from groups
A	A	Anti-B	A, O	A, AB	A, AB, B, O
B	B	Anti-A	B, O	B, AB	B, AB, A, O
AB	A, B	None	AB, O, A, B	AB	AB, A, B, O
O	None	Anti-A, B	O	A, B, AB, O	O, AB, A, B

*From Canadian Blood Services: Clinical Guide To Transfusion: Chapter 9: Blood Administration

Table 2: Rh compatibility of red blood cells

Rh of recipient	May receive from groups
Rh positive	Rh positive or Rh negative
Rh negative	Rh negative*
*It is important to refer to facility policies and procedures for the use of Rh positive red blood cells for emergency release (i.e. uncrossmatched) situations in Rh negative recipients as Rh positive red blood cells may be transfused for women over 45 years old or male patients.	

*From Canadian Blood Services: Clinical Guide To Transfusion: Chapter 9: Blood Administration