NICU: Blood/Blood Product Transfusion for Newborns

Site Applicability

SPH NICU, SPH OR

Practice Level

Registered Nurses (RNs), Nurse Practitioners (NPs), Physicians, Perfusionists and Anesthesia Assistants (AAs) may transfuse blood/blood products and are referred to as the **Transfusionist** in this document.

- Completion of initial education and annual Nursing Competency: Safe Transfusion Practice: Second Edition (5523)
- NICU orientation also required for nurses

Employed Student Nurses (ESN's) and Student Nurses (SNs) **CANNOT** act as the transfusionist or the second person for patient/product identification but can observe the transfusionist.

Requirements

1. Verification of blood/blood products and patient identification by 2 qualified personnel is required.
2. A provider order is required for the administration of all blood products/components and must contain:
   - Patient identification (first and last name, unique identifier),
   - Type and amount of product,
   - Date time and rate of administration,
   - Sequence in which multiple components are to be transfused (if applicable),
   - Modifications to product or special requirements if any,
   - Use of special equipment e.g., rapid transfuser (other than blood warmer in critical care),
   - Pre and post transfusion medication orders (if any) and
   - Reason for transfusion
3. Transfusion of blood/blood products cannot begin until one of the following is obtained:
   a. Consent for Transfusion of Blood and/or Blood Products (Form ID - 2750) or
   b. Certification of need for Emergency Transfusion of Blood and/or Blood Products: Emergency Waiver (Form ID - 2749)
4. If there is a REFUSAL to Accept Transfusion of Blood and/or Blood Products (Form ID - 2751), do not transfuse until consent is obtained.

5. In the **in-patient** setting consent is valid for the duration of that admission.
6. **Identification bands** are required for the transfusion of any matched blood/blood products and all efforts should be made to band the patient. If the patient cannot be banded or refuses to be banded consult transfusion medicine for direction.
7. Blood /blood products must be administered in accordance with the guidelines set by Health Canada, the Canadian Standards for Transfusion Medicine (CSTM) and the College of Physicians and Surgeons of British Columbia's Diagnostic Accreditation Program (DAP).

Quick Links:

Need to Know

1. **The Transfusionist** is responsible for assessing the patient *before, during and after* transfusion.
2. In an emergency, the transfusionist is authorized to act on an order to initiate a transfusion when the Certification of need for Emergent Transfusion of Blood and/or Blood Products: Emergency Waiver is completed. Document any actions pertaining to informed consent.
3. Blood/blood products to a neonate must be administered with an infusion pump. Ensure appropriate IV tubing is used for all blood/blood products: See Blood Product Information: Quick Reference Guide (Appendix A).
4. **DO NOT add** medications or other IV fluids to blood/blood products or to administration sets used for transfusion. This includes any secondary lines, ports for IV direct and Y-type connectors.
5. **Vascular (venous) Access** is required for the transfusion of all blood/blood products, approved forms of access are:
    - Peripheral IV catheter all gauge sizes: 26 or larger
    - Umbilical Venous catheter: 3.5 French or larger
6. Blood/blood products that have been transported with a patient from another hospital must be sent directly to Transfusion Medicine Laboratory (TML) for inspection. **DO NOT** transfuse products. **DO NOT** open transport box.
7. In emergency situations, TML will send a full bag of emergency un-matched O negative blood to the NICU and NICU staff will be responsible for filtering the blood prior to administration. In an elective

transfusion, TML will send a cross matched pre-filled syringe of blood and filtration will not be required by NICU staff.

8. **Cleaning: DO NOT** clean or wipe blood product bags/containers outside of TML - this includes using alcohol wipes, Cavi-wipes or any other products.
9. If more information on a product is required, the product monograph can be requested from TML.
10. The product compatibility tag MUST remain attached to the product throughout the transfusion. At the end of the transfusion, if no reaction has occurred, discard the tag in the confidential waste. If a reaction has occurred leave tag attached to the product and return to TML. If a product is found hanging without a product compatibility tag attached, immediately stop the transfusion, and call the physician/NP and TML. Immediately return administration line and product to TML.

Equipment and Supplies

1. Blood/blood product as supplied by TML
2. Transfusion Medicine Laboratory Transfusion Record (comes with product)
3. Patient's Banner Bar in Cerner
4. Nonsterile gloves
5. Infusion pump
6. Appropriate administration tubing See: Blood Product Information: Quick Reference Guide (Appendix A)
7. Transfusion Reaction Line - Primary IV set (macro tubing) and 50 mL bag normal saline
8. Compatible IV solution for flushing: See Blood Product Information: Quick Reference Guide (Appendix A)

Procedure

Steps

Prepare for Transfusion

1. Ensure the following are on complete/available:
   a. Provider's order
   b. Group and Screen as required for product being administered. See: Blood Product Information: Quick Reference Guide (Appendix A)
   c. Completed **Consent** for Transfusion of Blood and/or Blood Products or Certification of need for Emergent Transfusion of Blood/Blood Products: Emergency Waiver
2. Ensure patient has patent vascular access. See Blood Product Information: Quick Reference Guide (Appendix A)
3. Ensure patient has identification band in place
4. Prepare and administer premedication's (as / if ordered)
5. Conduct a **baseline patient assessment within 30 minutes of transfusion** that includes**:**

a. Vital signs: BP, HR, T°, RR and SpO_2
b. Signs or symptoms that may be confused with a transfusion reaction
c. Focused systems assessment based on history: i.e., Cardiovascular assessment if circulatory overload is a risk

6. Ensure transfusion reaction line available at bedside.

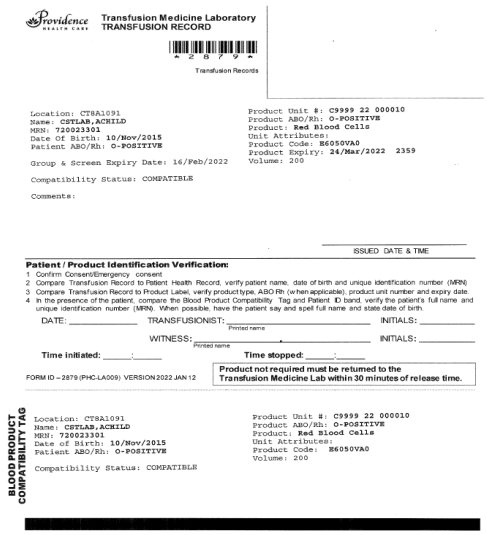
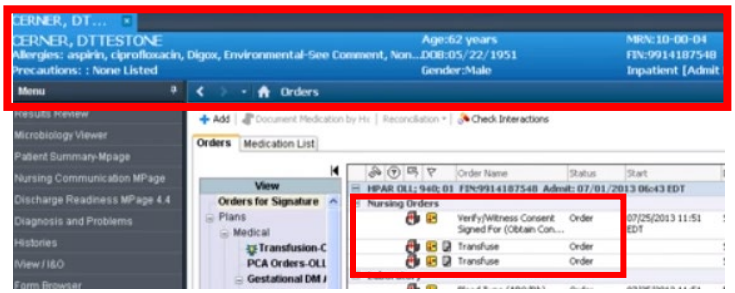
Obtain Product:

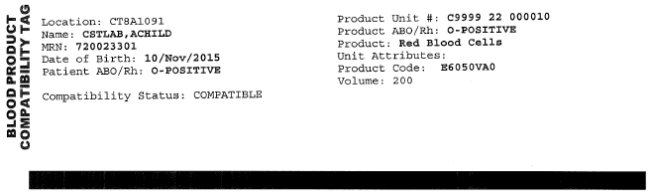
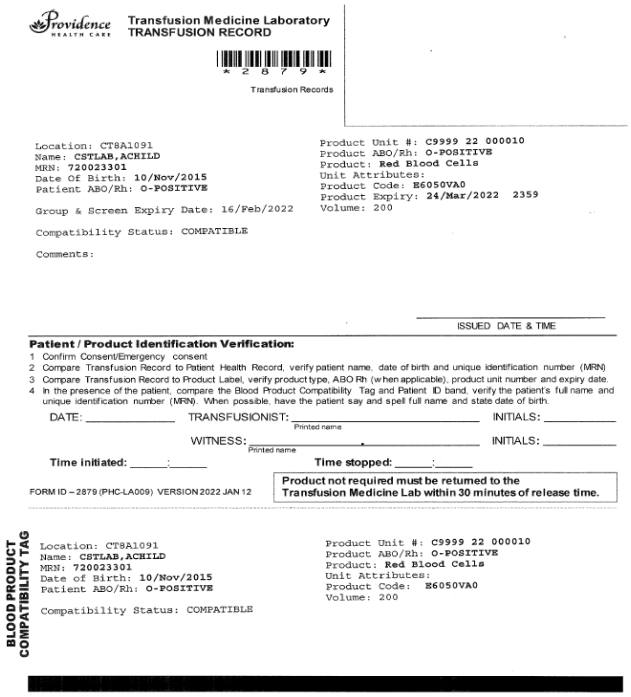
1. Obtain blood/blood product by sending product request form to TML, TML will only issue one product at a time, unless massive transfusion protocol initiated
2. Inspect product for any discoloration, clumps or leaks. Call TML if any concerns, anticipate returning product.
3. Product transfusion must begin within **30 minutes from the time product issued from TML.** If the transfusion is delayed return product to TML or a TML approved and monitored fridge or cooler (**NOT** ward fridge) immediately.

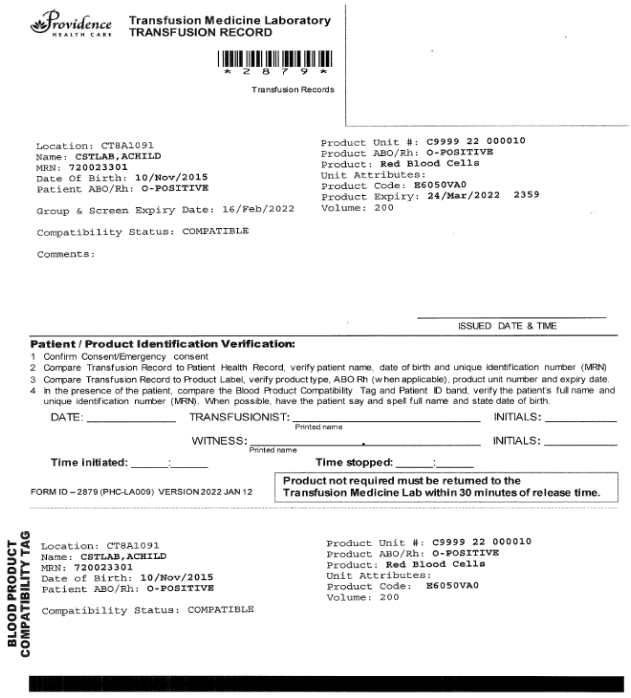
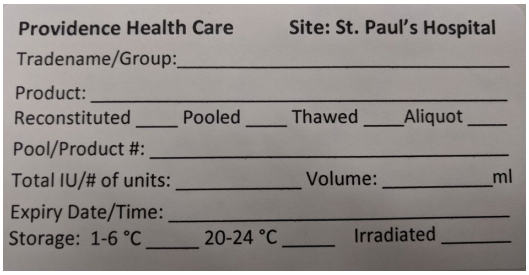
Check the Blood / Blood Products:

1. The checks shall be completed by two qualified health care professionals (see Practice Level)
   a. The person initiating the checks will be the transfusionist and is the one administering the product and completing the documentation
2. Checks should be completed immediately prior to administration of product and in the presence of the patient
3. **Compare and verify** the required information is **exactly the same in each place**
   a. Each of the two people required for checking the product takes a turn reading and when needed spelling the information on the documentation they have
   b. The person listening compares the information they are hearing to the documentation
4. The following are checked on the Transfusion Record, Patient banner bar in Cerner, Product compatibility Tag, Product Label and Patient Identification band:
   - Patient first and last name (including spelling)
   - Patient unique identifier (MRN)
   - Patient date of birth
   - Type of product and ABO group (e.g. red blood cells, A positive)
   - Product unit number/Lot number
   - Product expiry date and time
   - Any special requirements (e.g. irradiation)
5. If **ANY** information **does not EXACTLY** match from one document to the next immediately contact the TML for further instruction (and prepare to return the product)

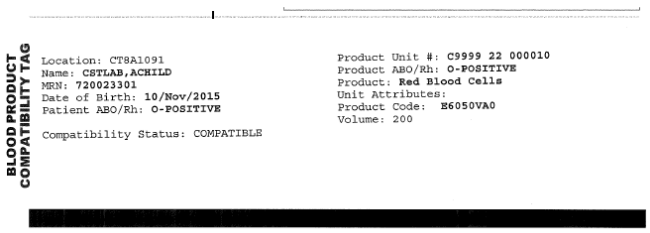
Steps:

1. Transfusionist	Person two
 Providence HEALTH CARE Transfusion Medicine Laboratory TRANSFUSION RECORD Transfusion Records Location: CT8A1091 Name: CSTLAB,ACHILD MRN: 720023301 Date Of Birth: 10/Nov/2015 Patient ABO/Rh: O-POSITIVE Group & Screen Expiry Date: 16/Feb/2022 Compatibility Status: COMPATIBLE Comments: Product Unit #: C9999 22 000010 Product ABO/Rh: O-POSITIVE Product: Red Blood Cells Unit Attributes: Product Code: E6050VA0 Product Expiry: 24/Mar/2022 2359 Volume: 200 ISSUED DATE & TIME Patient / Product Identification Verification: 1 Confirm Consent/Emergency consent 2 Compare Transfusion Record to Patient Health Record, verify patient name, date of birth and unique identification number (MRN) 3 Compare Transfusion Record to Product Label, verify product type, ABO Rh (when applicable), product unit number and expiry date. 4 In the presence of the patient, compare the Blood Product Compatibility Tag and Patient ID band, verify the patient's full name and unique identification number (MRN). When possible, have the patient say and spell full name and state date of birth. DATE: TRANSFUSIONIST: INITIALS: WITNESS: INITIALS: Time initiated: Time stopped: FORM ID – 2879 (PHC-LA009) VERSION 2022 JAN 12 Product not required must be returned to the Transfusion Medicine Lab within 30 minutes of release time. BLOOD PRODUCT COMPATIBILITY TAG Location: CT8A1091 Name: CSTLAB,ACHILD MRN: 720023301 Date of Birth: 10/Nov/2015 Patient ABO/Rh: O-POSITIVE Compatibility Status: COMPATIBLE Product Unit #: C9999 22 000010 Product ABO/Rh: O-POSITIVE Product: Red Blood Cells Unit Attributes: Product Code: E6050VA0 Volume: 200	 CERNER, DTTESTONE Age:62 years MRN:10-00-04 Allergies: aspirin, ciprofloxacin, Digox, Environmental-See Comment, Non...DOB:05/22/1951 FIN:9914187548 Precautions: : None Listed Gender:Male Inpatient [Admit Menu Orders Microbiology Viewer Patient Summary-Mpage Nursing Communication MPage Discharge Readiness MPage 4.4 Diagnosis and Problems Histories Orders Medication List View Orders for Signature Plans Medical Nursing Orders Verify/Witness Consent Signed For (Obtain Con... Order Transfuse Order Transfuse Order
Using **Transfusion Record** (say it out loud and spell it out loud) a) Patient first and last name b) Patient unique identification number (MRN) c) Date of birth	Read back to confirm from the banner bar in Cerner (say it out loud and spell it out loud) a) Patient first and last name b) Patient unique identification number (MRN) c) Date of birth
Confirm information is exactly the same on both documents	

2. Transfusionist	Person two
	
Read from **blood product compatibility** tag (say it out loud and spell it out loud) a. Patient first and last name b. Patient unique identification number (MRN) c. Date of birth	Read back to confirm from **Transfusion Record** (say it out loud and spell it out loud) a. Patient first and last name b. Patient unique identification number (MRN) c. Date of birth
Confirm information is exactly the same on both documents	

3. Transfusionist	Person two
	
Read from **Transfusion Record** (say it out loud) a) Type of product and ABO group b) Product Unit number and Lot number (if present) c) Product expiry date and time d) Any special requirement e.g. irradiation	Read back to confirm from **blood product label** on product (say it out loud) a) Type of product and ABO group b) Product Unit number and Lot number (if present) c) Product expiry date and time d) Any special requirement e.g. irradiation

Confirm information is exactly the same in both places

4. Transfusionist	Person two
Final Check – MUST be completed in the presence of the patient	
	
Read from **blood product compatibility tag** (say it out loud and spell it out loud) a) Patient first and last name b) Patient unique identification number (MRN) c) Date of Birth	Read back to confirm from **Patient Identification band** (say it out loud and spell it out loud) a) Patient first and last name b) Patient unique identification number (MRN) c) Date of Birth
Confirm information is exactly the same in both places	
Recommended additional check: Have the guardian of the patient state the first and last name and date of birth of the patient	

Transfuse Product:

1. Ensure baseline assessment completed and documented.
2. For a product being administered by **IV infusion**:
   - In the presence of the patient attach the syringe/spike the bottle and **prime the IV administration set with blood/blood product**
   - Securely connect tubing to patient's vascular access.
   - Do not administer blood through add-on manifold sets attached to tubing – it is difficult to fully flush through manifold ports and prevent occlusion.
   - Commence infusion **at slow rate** x 15 minutes See: Blood Product Information: Quick Reference Guide (Appendix A)
   - Transfusionist must remain within view of the patient for the first 15 minutes.
   - After first 15 minutes, if no reaction noted, increase transfusion rate as per Provider's Orders and based on volume and infusion time or "time ordered" (e.g. over 2 hours).
   - Check the actual volume of the product ordered for pump programming (VTBI) NOTE: TM will provide an extra 5 mL of product for priming of tubing.
   - Refer to Provider's Orders for specifics re: total infusion time / duration.

Patient Assessment:

- Transfusionist to remain in view of patient for at least 15 minutes after initiation of transfusion.
- Observe for signs or symptoms of transfusion reaction (B-00-13-10068)
- Monitor vascular access site hourly
- Monitor and document patient's VS and assess for signs & symptoms of transfusion reaction:
  - ✓ 15 minutes after start of transfusion
  - ✓ 30 minutes after the start of transfusion
  - ✓ A minimum of every 60 minutes after the start of transfusion
  - ✓ At end transfusion (within 30 minutes).
  - ✓ PRN

If at any time the patient has signs or symptoms of a TRANSFUSION REACTION:

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the transfusion
- **Disconnect** the transfusion line
- **Run** transfusion reaction line at TKVO
- **Notify** the MRP and TML
- **Follow** instructions on the back of the Transfusion Record and from the MRP

Transfusion End:

1. Disconnect administration set from patient and discard in biohazard waste bin (unless a transfusion reaction occurred then follow guidelines in protocol B-00-13-10068)
2. Flush intravenous access with 1 to 2 mL of 0.9% Normal Saline and cap line.

Documentation

1. Complete Transfusion Record. Ensure two signatures appear on record (witness and transfusionist). File in the patient's chartlet.
2. CERNER: Document in the **Blood Product Administration** Band in the Interactive View and I&O section:
   a. Vascular access device transfused through (i.e., PIV, CVC, PICC, or IVAD, etc.) – choose appropriate Dynamic Group and Lumen Type.
   b. Blood product transfusion education
   c. Assessment of vascular access **hourly**
   d. Vital signs
   e. Volume of product infused **hourly**
3. Document as a free text note any change in patient condition related to the transfusion or any interruptions to transfusion.
4. Once all the product in the order has been administered complete the Cerner task.

Patient and Family Education

1 Review purpose of transfusion. Give "About Blood Transfusions" pamphlet to guardian

2 If the patient is being discharged within 24 hours give "After your Transfusion" pamphlet for aftercare and delayed transfusion reaction reporting information to guardian

3 Patient education pamphlets are available in English, Chinese, Vietnamese and Punjabi from the Transfusion Medicine web page or the Print Health Education Resources Catalogue

Related Documents

1. B-00-13-10068- Blood/Blood Products: Transfusion Reaction Identification and Management
2. B-00-13-10164- Intravenous Immunoglobulin (IVIG): Patient Care and Administration
3. B-00-13-10228 - Massive Transfusion Protocol (MTP)
4. Transfusion Medicine: Blood Product Fact Sheet
5. Transfusion Medicine: Laboratory Manual
6. learning Hub course: Safe Transfusion Practice: Second Edition (5523)

References

1. British Columbia College of Nurses and Midwives (2022). *Scope of practice for registered nurses: Standards, limits and conditions*. Retrieved from: https://www.bccnm.ca/RN/ScopePractice/Pages/Default.aspx
2. Canadian Blood Services. Clinical Guide to Transfusion. Retrieved from: https://professionaleducation.blood.ca/en/transfusion/clinical-guide-transfusion July 24th, 2018
3. Canadian Society for Transfusion Medicine (2021). *Standard for hospital transfusion services (Version 5).* Ottawa, ON.
4. Canada Standards Association (2020). *Blood and blood components Z902-20*. Mississauga, ON.
5. College of Physicians and Surgeons of British Columbia (2022). Diagnostic accreditation program: Accreditation standards (Version 1.7). Retrieved from: Retrieved from: Accreditation standards LM | College of Physicians and Surgeons of BC (cpsbc.ca)
6. O' Reilly, C (2020). *Blood administration. In Clinical guide to transfusion* (Chapter 9). Retrieved from: https://professionaleducation.blood.ca/en/transfusion/clinical-guide/blood-administration
7. Lau, W (2017). *Neonatal and pediatric transfusion* (Chapter 13). Retrieved from: Neonatal and pediatric transfusion | Professional Education (blood.ca)
8. Ontario Regional Blood Coordinating Network. (2023). bloody easy 5.1 (5th ed.) Toronto, ON.

Appendix A BLOOD PRODUCT INFORMATION: QUICK REFERENCE GUIDE

1. Group & screen required on current admission
2. Return all products to transfusion medicine that are not being used within **30 minutes of issue**
3. Vascular Access: PIV 26 gauge or larger, umbilical venous catheter 3.5 French or larger

Product	Indication	Turn-Around	Volume mL	Compatible Solution	Tubing	Rate	Additional Information
Red Blood Cell Products	Active Bleeding Anemia	20 to 30 min	Based on weight (syringe) 10 to 15 mL/kg	NS	Standard syringe tubing (product comes pre-filtered by TM)	***Start***: 1 to 5 mL/kg/hr ***Max:*** 150 mL/hr per BCCH	Typical infusion time 3 to 3.5 hr
Plasma Products	Correct Coagulation factors	20 to 30 min	Based on weight (syringe) 10 to 15 mL/kg	NS	Standard syringe tubing (product comes pre-filtered by TM)	***Start***: 5 to 10 mL/kg/hr ***Max :*** 20 mL/kg per BCCH	Typical infusion time 1 to 2 hr
Platelets	Bleeding from platelet function abnormality or thrombocytopenia	5 min	Based on weight (syringe) 10 to 15 mL/kg	NS	Standard syringe tubing (product comes pre-filtered by TM)	***Start***: 10 to 20 mL/kg/hr ***Max :*** 20 mL/kg per BCCH	Typical infusion time 1 to2 hr

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Product	Indication	Turn-Around	Volume mL	Compatible Solution	Tubing	Rate	Additional Information
IVIG- intravenous immune globulin	Primary immune deficiencies, hematological disorders, neurological disorders, solid organ Transplant	30 min	25 to 200 (Bottle) 0.5 to 1 g/kg	NS	Vented Straight Set + 15 micro filter	***1st 30min***: 0.5 mL/kg/hr ***2nd 30min***: 1 mL/kg/hr ***3rd 30min***: 2 mL/kg/hr ***Max***: 4 mL/kg/hr	*For patients with renal dysfunction infuse at lowest rate possible, max rate should not exceed 2 mL/kg/hr
Albumin 5%	Provides volume; minimal literature to support benefits	5 to 30 min (depending on volume)	250 to 500 (Bottle) 10 to 20 mL/kg	NS	Vented straight set tubing with **no** ports	***Start***: 5 mL/hr	Typical infusion time 30 minutes to 2 hours
Albumin 25%	Provides colloid osmotic activity; minimal literature to support benefits	5 to 30 min (depending on volume)	100 (Bottle) 2 to 4 mL/kg	NS	Vented straight set tubing with **no** ports	***Start***: 5 mL/hour ***Max***: 1.5 mL/kg/hr	Do not exceed maximum infusion rate
HBIG- Hep B Immune Globulin	Post exposure prophylaxis for Hepatitis B	5 to 30 min (depending on volume)	Neonatal 0.5 mL (Syringe)	n/a	In Syringe NO filter	**IM** injection	

Persons/Groups Consulted:

Regional Transfusion Medicine Clinician -BCCW

Revised by:

Nurse Educator NICU - PHC

Regional Transfusion Medicine Clinician, SPH, MSJ

Initial Effective Date:	December 1999
Posted Date:	06-MAR-2024
Last Revised:	06-MAR-2024
Last Reviewed:	06-MAR-2024
Approved By:	PHC
	Professional Practice Standards Committee
Owners:	PHC
	Pregnancy, Birthing and Newborn Centre