Intravenous Immunoglobulin (IVIG): Administration and Patient Care

Site Applicability

PHC Acute Care Sites

Practice Level:

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

- Completion of initial education and annual Nursing Competency: Blood/Blood Product Administration Course online in Learning Hub required by nursing (RN, LPN, RPN)

Licensed Practical Nurses (LPNs) or Registered Psychiatric Nurses (RPNs) may be the **second person** required for the process of patient/product identification but **CANNOT** act as the transfusionist.

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

Requirements

1. Administration of IVIG must be done in accordance with guidelines set by the Provincial Blood Coordinating Office (PBCO) and the Canadian Standards for Transfusion Medicine (CSTM)
2. A provider order is required for the administration of all IVIG products and must contain:
   - Patient identification (first and last name, unique identifier)
   - Type and amount of product,
   - Date time and rate of administration,
   - Pre and post transfusion medication orders (if any) and
   - Reason for transfusion
3. Transfusion of IVIG cannot begin until one of the following is obtained:
   a. Consent for Transfusion of Blood and/or Blood Products (FormFast Form ID - 2750) **OR**
   b. Certification of need for Emergency Transfusion of Blood and/or Blood Products: Emergency Waiver (FormFast Form ID - 2749)
4. If there is a REFUSAL to Accept Transfusion of Blood and/or Blood Products (FormFast 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; In the out-patient

setting consent is valid for one year unless the patient's condition or disease trajectory changes - as assessed by the most responsible provider

6. **Identification bands** are required for the transfusion of any matched blood products and all efforts should be made to apply an identification band to the patient. If the patient refuses or cannot wear an identification band, consult Transfusion Medicine for direction.
7. **Subcutaneous Immune Globulin (SCIG):** Patients on pre-existing SCIG home infusions may self-administer product while in hospital with own supplies. If patient cannot administer product to self without assistance from hospital staff then it cannot be given, consider temporary treatment with IVIG. Staff to document in free-text note if self-infusions occur.

Need to Know

1. **The Transfusionist** is responsible for assessing the patient *before, during and after* transfusion.
2. **LPNs / RPNs** may take and record vital signs
3. Medications or other IV fluids may **NOT** be added to IVIG or to administration sets used for transfusion. This includes any secondary lines, ports for IV direct AND Y-type connectors.
4. IVIG MUST be administered by infusion pump using vented 15 micron filter straight tubing set
5. IVIG is currently licensed for use in primary immune deficiencies, secondary hypogammaglobulinemia, ITP, chronic inflammatory demyelinating polyneuropathy, multifocal motor neuropathy, Myasthenia Gravis , Guillain-Barre syndrome, Kawasaki Disease, Group A streptococcal fasciitis with associated toxic shock and Staphylococcal toxic shock
6. All patients to be started on IVIG require baseline group and screen.
7. IVIG administration should begin as soon as possible once the product is available. Do NOT refrigerate on unit
8. To avoid bubbles in IVIG:
    a. Allow product to come to room temperature (do not heat)
    b. Avoid shaking or agitating the bottle when handling
    c. Place bottle on flat surface and spike at a 90° angle
9. **Vascular (venous) Access** is required for the transfusion of IVIG, approved forms of access are:
    - Peripheral IV catheter all gauge sizes: 16, 18, 20, 22, 24 (26 to 29 gauge in neonate/pediatrics)
    - Midline catheter 3Fr or 4Fr: use with CAUTION and monitor for signs of upper extremity deep vein thrombosis
    - Central venous catheters: PICC, non-tunneled CVC, tunneled CVC
    - Large-bore central venous catheters: Hemodialysis CVC, percutaneous sheath, any catheter larger than 7Fr. (O.R., Critical Care, ED and Hemodialysis only)
    - Intra Osseous device: **ONLY** in ED, Critical Care and in **emergency situations**
10. Physician assessment and medical history review is required to determine any contraindications for a particular IVIG brand.

11. Measure and record the patient's height and weight at least:
    - every six months for adult patients
    - at each visit/cycle for pediatric/pregnant patients
    - If the patient reports significant weight loss or gain
12. Transfusion Medicine Laboratory (TML) will determine "whole" or total doses – the total dose will be provided by TML. The dose will be "rounded" to the nearest 5 g vial for adult dosing (The vial/ bottles in grams are: 5 g = 50 mL, 10 g = 100 mL and 20 g = 200 mL, 30 g = 300 mL). The dose delivered from the lab is a combination of these volume sizes.
13. TML will not mix different brands at a single administration (i.e. for total dose all bottles will be the same brand).
14. It is **NOT** necessary to slow down the infusion rate when switching lot numbers (only vital signs are required).
15. If more information on a product is required, the product monograph can be requested from TML.
16. 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 & Supplies:

1. IVIG
2. Transfusion Medicine Laboratory Transfusion Record (comes with product)
3. Cerner banner bar (or face sheet in Chartlet)
4. Non sterile gloves
5. Alcohol swabs
6. Infusion pump
7. Administration tubing: Vented 15 micron filter straight tubing set
8. Transfusion Reaction Line - Primary IV set (macro tubing) and 500 mL bag normal saline
9. NS for flush

Protocol

Steps

Prepare for Transfusion:

1. Ensure the following are on complete/available:
    a. Provider order
    b. Group and Screen as required
    c. Completed **Consent** for Transfusion of Blood and/or Blood Products (Form ID - 2750) or Certification of need for Emergent Transfusion of Blood/Blood Products: Emergency Waiver (Form ID - 2749).
2. Ensure patient has patent vascular access
3. Ensure patient has identification band and allergy wristband (if appropriate) in place
4. Prepare and administer pre medications (as / if ordered).
5. Conduct a **baseline patient assessment within 30 minutes of transfusion** that includes**:**
    a. Vital signs**:** BP, HR, T^o, 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 IVIG by sending product request form to TML, TML will only issue ONE bottle at a time (except MSSU when the patient is receiving on-going treatment)
    a. It is the responsibility of the transfusionist to ensure the full dose is given and to **ONLY** complete the task in Cerner once all bottles have been administered
    b. TM will add a comment to the tag indicating total dose and number of bottles
2. Inspect product for any discoloration, clumps or leaks. Call TML if any concerns, anticipate returning product.

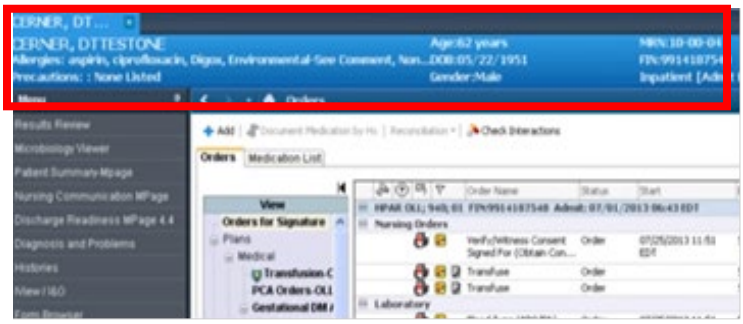
Check the Blood / Blood Products:

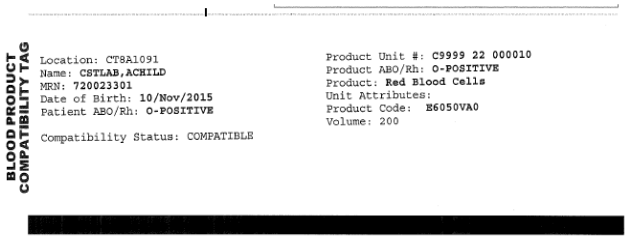
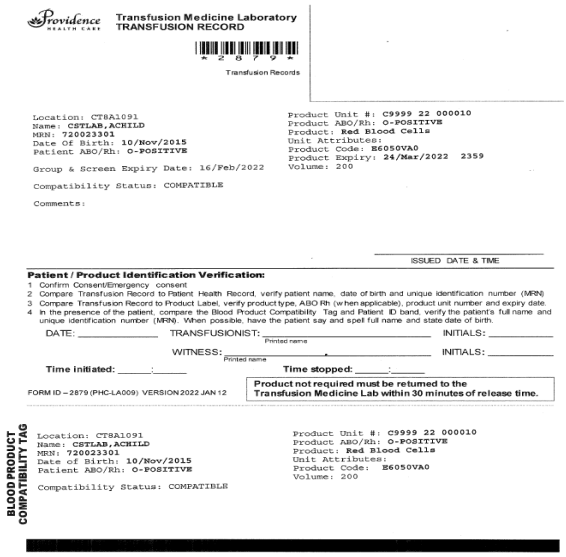
1. The checks shall be completed by two qualified health care professionals (see Practice Level)
    a. The person initiating the checks will be the transfusionist and is the one administering the IVIG and completing the documentation
2. Checks should be completed immediately prior to administration of product and in the presence of the patient
3. **Compare and verify** the required information is **exactly the same in each place**
    - Each of the two people required for checking the IVIG takes a turn reading and when needed spelling the information on the documentation they have

- The person listening compares the information they are hearing to the documentation

4. The following are checked on the Transfusion Record, Cerner Banner bar, 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
   - Product unit number
   - Product expiry date and time
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 IVIG)

Steps:

<table>
<tr><th>1. Transfusionist</th><th>Person two</th></tr>
<tr><td> 
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: _____
Printed name
WITNESS: _____ INITIALS: _____
Printed name
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</td><td> 
</td></tr>
<tr><td>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</td><td>Read back to confirm from 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</td></tr>
<tr><td colspan="2">Confirm information is exactly the same on both documents</td></tr>
</table>

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	

<table>
<tr><th>3. Transfusionist</th><th colspan="2">Person two</th></tr>
<tr>
<td>
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:
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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: _____
Printed name
WITNESS: _____ INITIALS: _____
Printed name
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
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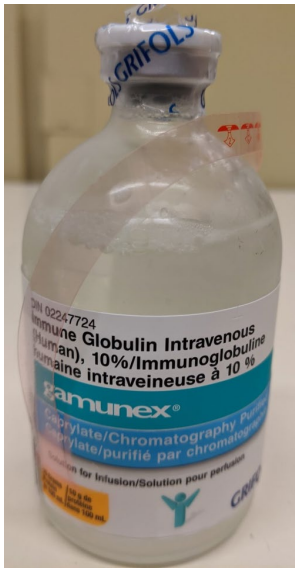
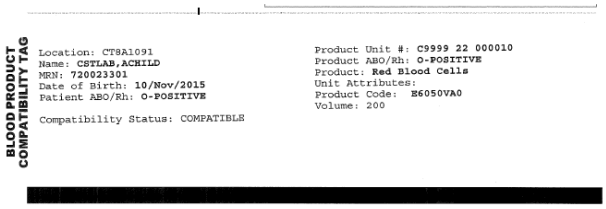
<td> 
</td>
<td> 
</td>
</tr>
<tr>
<td>Read from Transfusion Record (say it out loud)
a) Type of product and ABO group
b) Product Unit number
c) Product expiry date and time</td>
<td colspan="2">Read back to confirm from blood product label on product (say it out loud)
a) Type of product and ABO group
b) Product Unit number
c) Product expiry date and time</td>
</tr>
<tr>
<td colspan="3">Confirm information is exactly the same in both places</td>
</tr>
</table>

4. Transfusionist	Person two
Final Check – 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 patient state their first and last name and date of birth	

Transfuse Product:

1. Ensure baseline assessment completed and documented
2. In the presence of the patient spike the product, prime IV administration set and hook up to patient's vascular access. To ensure **proper venting**:
    a. Close roller clamp on IV set
    b. Place bottle on a flat surface and spike at a 90° angle
    c. Invert and hang bottle on IV pole
    d. Squeeze drip chamber to ½ full
    e. Open vent on drip chamber: this allows air to enter the bottle

    NOTE: close vent prior to spiking the next bottle
3. Set **Initial** infusion rate.
    - As per Provider's Orders or per Generic IVIG Rate Table (Appendix A)
    - A slow initial rate (0.5 mL/kg/hour) is recommended for all patients.
    - Transfusionist must remain within view of the patient for the first 5 minutes
    - Check the actual volume of the product for pump programming (VTBI)

4. Increase the rate:
    - After the initial 15 minutes at a slower rate, increase the rate as per Provider's orders, product monograph or use the Generic IVIG Rate Table (Appendix A) as a guide.
    - Prior to each rate change assess the patient's tolerance
    - Rapid infusion is not recommended in the following: elderly, diabetic, obese, those with cardiac disease, renal failure, history of thromboembolic events or dehydration
    - Rate does **NOT** need to be decreased between bottle changes

Patient Assessment:

1. Transfusionist must remain within view of the patient for the first **5 minutes** of the transfusion
2. Measure and record vital signs:
    a. 15 minutes after initiation of infusion
    b. Prior to rate changes
    c. When switching lot numbers
    d. Every 60 minutes after maximum rate is achieved
    e. Upon completion of infusion
3. Monitor for signs and symptoms of a transfusion reaction:
    - Refer to Appendix B for further management
    - If **ACUTE** non-transient signs and symptoms occur:

- 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. Flush tubing with a 50 mL minibag of NS
2. 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)
3. For CVC (including PICC) - an additional 20 mL NS flush (using NS pre-filled syringes) is required.
4. For peripheral IV line – an additional 5 to 10 mL NS flush (using NS pre-filled syringe) is required.

Documentation:

1. Complete Transfusion Record. **Ensure two signatures** appear on record (witness and transfusionist). File in the patient's chartlet.
    a. In the **O.R., ED and Critical Care:** when pre-checks are completed the two staff completing the checks will both sign as witness; the staff administering the product will sign as transfusionist.
2. CERNER: Document in the **Blood Product Administration** Band in the Interactive View and I&O section:
    a. Vascular access device transfused through (e.g. PIV, CVC, PICC, or IVAD, etc.) – choose appropriate Dynamic Group and Lumen Type.
    b. Blood product transfusion education
    c. Vital signs
    d. Volume of product infused at end of transfusion
3. Document as a free text note any change in patient condition related to the transfusion or any interruptions to transfusion.
4. Document in the **handoff tool**: situational awareness section if patient required rate outside of IVIG table
5. Once all the product in the order has been administered complete the Cerner task.

Patient Education:

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

2 Instruct patient to report to staff any unusual symptoms (See B-00-13-10068) promptly

3 If the patient is being discharged within 24 hours or is an outpatient give "After your Transfusion" pamphlet for aftercare and delayed transfusion reaction reporting information

4 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 and Resources:

1. B-00-12-10065 – Blood/Blood Product Administration
2. B-00-13-10068 - Blood/Blood Products: Transfusion Reaction Identification and Management
3. Transfusion Medicine: Blood Product Fact Sheet
4. Transfusion Medicine: Laboratory Manual
5. BC Provincial Blood Coordinating Office: IVIG Provincial Program
6. Nursing Competency: Blood/Blood Product Administration Online Learning Hub

References:

1. BC Provincial Blood Coordinating Office (PBCO). (2021). *Intravenous immune globulin: provincial program*. Retrieved from: https://www.pbco.ca/index.php/programs/ivig-provincial-program
2. 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
3. Laureano, M., Khandelwal, A. & Yan, M. (2022). *Transfusion Reaction. In Clinical guide to transfusion* (Chapter 10). https://professionaleducation.blood.ca/en/transfusion/clinical-guide/transfusion-reactions
4. Canadian Society for Transfusion Medicine (2021). *Standard for hospital transfusion services* (Version 5). Ottawa, ON.
5. Canada Standards Association (2020). *Blood and blood components Z902-20*. Mississauga, ON.
6. College of Physicians and Surgeons of British Columbia (2023). *Diagnostic accreditation program: Accreditation standards 2023* (Version 1.7). Retrieved from: https://www.cpsbc.ca/files/pdf/DAP-AS-Laboratory-Medicine-V1.7.pdf
7. Ontario Regional Blood Coordinating Network (2018). *Intravenous immune globulin toolkit for Ontario*. Retrieved from: http://transfusionontario.org/en/documents/?cat=ivig
8. Rutledge, S. & Lazarus, A. (2018). Immune globulin products. In Clinical guide to transfusion (Chapter 4). Retrieved from: https://professionaleducation.blood.ca/en/transfusion/clinical-guide/immune-globulin-products

Appendices

Appendix A: Generic IVIG Rate Table - Adult

Appendix B: IVIG Infusion Reaction Management

Appendix A: Generic IVIG Rate Table- Adult

This table can be used for all IVIG products.

Specific products available will vary based on inventory at the local site and at Canadian Blood Services, always refer to product monograph or product insert for detailed information.

Start rate (for the first 30 minutes): 0.5 mL/kg/hour

If tolerated, gradually increase rates every 15 to 30 minutes in accordance with the infusion rate increments below. Assess patient for infusion side effects prior to increasing infusion rates.

Maximum recommended rate of infusion is 4 mL/kg/hour or 240 mL/hour whichever is reached first

Rate mL/kg/hr	Patient Weight (in Kilograms) used for Dose Calculation								
	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	110 to 119	120 and above
	Infusion Rate mL/hr								
0.5	20	25	30	35	40	45	50	55	60
1	40	50	60	70	80	90	100	110	120
2	80	100	120	140	160	180	200	220	*240
3	120	150	180	210	*240	*240	*240	*240	*240
4	160	200	*240	*240	*240	*240	*240	*240	*240

*This is the maximum recommended infusion rate endorsed by the **BC Transfusion Medicine Advisory Group**. Please consult the authorized prescriber if the ordered rate exceeds the recommendations on this document.

Caution!

- **Various vial sizes are available (1 gram = 10 mL). Ensure ordered dose is given**
- **Side effects and/or adverse reactions may be more likely when receiving IVIG for the first time, when changing to another IVIG brand, when there is more than 8 weeks since the previous infusion, with high doses of IVIG, with rapid infusion rates, and if the patient is not well hydrated. Consider slower infusion rates and adequate patient hydration (before/ during/after infusion) to minimize IVIG related side effects.**

Consult the product monograph or product insert for more detailed information.

Appendix B: IVIG Infusion Reaction Management

	Send to Transfusion Medicine Lab			
Clinical Signs & Symptoms (S/S)	**Form**	**Sealed Product Container**	**Patient Samples Required**	**Ongoing Transfusion care**
IVIG related, mild transient s/s – side effects that resolve with reduced flow rate or medication	No	No	None	**Consultation with Physician**. Transfusion may be restarted **after** medication at a slower rate with frequent assessment.
Urticaria or pruritis with any blood component/product	Yes	No	None	
Low Risk Fever: fever of 38.9°C or less with NO other signs or symptoms occurring AFTER 15 minutes of transfusion initiation	Yes	No	None	**Consultation with Physician.** Transfusion MAY be restarted at a **slower rate,** with appropriate medication, and frequent vital sign assessments **IF ordered** by the MRP.
IVIG related s/s that are moderate or severe or unresponsive to clinical intervention – refer to ongoing transfusion care	Yes	No	None	**Do NOT restart the transfusion**
Suspected bacterial contamination (see Appendix A)	Yes	Yes (avoid contamination of product)	• 2 EDTA vials • First voided post-reaction urine sample for routine U/A • Patient blood cultures recommended.	
All other unexpected signs or symptoms with any blood component/product	Yes		• 2 EDTA vials • First voided post-reaction urine sample for routine U/A	

**Adapted from VCH D-00-12-30224 Transfusion Reaction: Identification and Management*

Persons/Groups Consulted:

CNL, MSSU/IVT, SPH

Technical Leader, Transfusion Medicine PHC

Medical Lead Transfusion Medicine PHC

Revised by:

Regional Transfusion Medicine Clinician, SPH, MSJ

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Approved By:	PHC
	Professional Practice Standards Committee
Owners:	PHC
	Transfusion Medicine/IVT Therapy