PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

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Infusion of Granulocytes

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PBMT-GEN-042
INFUSION OF GRANULOCYTES

1 PURPOSE

1.1 To outline the procedure and nursing responsibilities for administering granulocytes to the pediatric transplant patient.

2 INTRODUCTION

2.1 Granulocytes, a type of blood product, may be indicated in the setting of neutropenia and/or infection and are administered as an action to provide the patient with circulating granulocytes.

2.2 Blood products:

2.2.1 May be administered to pediatric patients through a central line or peripheral line. If a central line is not available, in pediatrics, a 24 gauge or larger peripheral catheter size is preferred.

2.2.2 May be infused alone or with normal saline solution.

2.3 Granulocyte Special Precautions:

2.3.1 ABO incompatible products must be plasma depleted and/or red blood cell (RBC) depleted before administration.

2.3.2 If possible, avoid transfusions of other bloods products with 4 hours of granulocyte infusions.

2.3.3 Do not infuse granulocytes within 4 hours (pre and post) of any amphotericin containing product (i.e. Amphotericin B, ABLC, and Ambisome).

2.3.4 Do not infuse granulocytes on pump that has a pumping mechanism that could crush cells (i.e. volumetric pump). Do not use Plum A+ or OMNIFLOW PUMP.

2.3.5 Granulocytes are NOT compatible with dextrose-containing solutions.

2.3.6 Infuse over a minimum of 2 hours or per physician or designee instructions.

2.3.7 Do not leukoreduce!

2.3.8 **All granulocyte products must be irradiated prior to infusion**. Nursing must verify that the product has an irradiation sticker attached.

2.3.9 Requires premedication prior to infusion.

3 SCOPE AND RESPONSIBILITIES

3.1 Interdisciplinary: requires an order by a physician or designee in the electronic medical record.

3.2 Registered nurses (RNs):

3.2.1 May administer granulocytes after successful completion of the blood administration test and demonstration of clinical competency with their preceptor.

3.2.2 Must re-validate their clinical competency to administer granulocytes on an annual basis.

3.3 Other licensed personnel (advanced practice providers or physicians) may administer blood products after demonstration and validation of clinical competency.

4 DEFINTIONS/ACRONYMS

4.1	EHR	Electronic Health Record
4.2	HUC	Health Unit Coordinator
4.3	PPE	Personal Protective Equipment
4.4	RBC	Red Blood Cell
4.5	RN	Registered Nurse
4.6	STCL	Stem Cell Laboratory
4.7	IV	Intravenous

5 MATERIALS

5.1 The Standard 170 or 180µ blood administration set (Micron Filter) should be used for each infusion.

5.2 Normal Saline Flush.

5.3 Gloves (non-sterile).

5.4 Alcohol Pads.

5.5 Granulocytes to infuse by syringe pump as directed by physician.

6 EQUIPMENT

6.1 Must use Alaris syringe pump with Medex 60-inch Extension Set Apv 2.4 mL (product # 5360225).

7 SAFETY

7.1 Personal Protective Equipment (PPE) must be worn when handling any blood products.

8 PROCEDURE

8.1 Patient Assessment

8.1.1 Assess patient for prior infusion reactions. Notify the physician or designee if the patient has a known history of infusion reactions.

8.1.2 Assess the central venous line or peripheral intravenous (IV) site for patency.

8.1.3 Assess and record vital signs pre-administration, 10-20 minutes into infusion, and at completion of infusion.

8.1.4 Observe the patient continuously for the first 5 minutes of infusion and then hourly for signs and symptoms of infusion reaction:

8.1.4.1 fever

8.1.4.2 chills

8.1.4.3 anaphylaxis

8.1.4.4 hypotension

8.1.4.5 tachycardia

8.1.4.6 dark or red urine

8.1.4.7 rash, hives

8.1.4.8 back pain

8.1.4.9 shortness of breath

8.1.4.10 urticaria

8.2 Obtaining and Verifying Blood Products

8.2.1 The Stem Cell Laboratory (STCL) staff person will notify the care nurse that granulocytes are available for infusion. The care nurse will confirm that the patient is able to receive the infusion.

8.2.2 Granulocytes will be transported from the Stem Cell Laboratory to the patient care unit.

8.2.3 Administer pre-medications, if ordered, when granulocytes are available and patient is ready for infusion.

8.2.4 Ensure there are emergency medications available as ordered.

8.2.5 The STCL staff will coordinate delivery of the product to the patient care area.

8.2.6 When granulocytes arrive on the patient care unit, the nurse will verify that the product has been irradiated by checking the sticker on product. If product is NOT irradiated, notify the physician or designee immediately and DO NOT GIVE PRODUCT.

8.2.7 The product should be administered immediately on arrival to the care unit. If the patient is not ready within 10 minutes of product arrival, place the product on the rotator at a speed of 6-8 rotations per minute at

room temperature. See related procedure: PBMT-GEN-043 *Use of Lab-Line Maxi Rotators.*

8.2.8 When ready for infusion, draw product into 1or 2 of the 60 mL syringes and place in syringe pump with Medex tubing.

8.2.9 Verify all identification information at the bedside by two licensed professionals (one a RN) upon receipt of the product. Verify the following identification information:

8.2.9.1 Patient's name and medical record number on armband must match the label on the product bag.

8.3 Completion and storage of STCL-FORM-056 *Cellular Therapy Infusion Request Form*

8.3.1 Complete applicable remaining sections of STCL-FORM-056 *Cellular Therapy Infusion Request Form.*

8.3.2 Sign, date, and time signifying product arrival.

8.3.3 Sign, date, and time signifying verification of the product and patient has occurred.

8.3.4 Once the form has been completed in its entirety, place the completed form at the Health Unit Coordinator (HUC) desk to be scanned into the electronic health record (EHR).

8.3.5 Once the form has been scanned, send the original form to Medical Records for permanent storage.

8.4 Special Consideration:

8.4.1 Make every effort to start infusion of the granulocyte products within 30 minutes of receipt of product from the Stem Cell Laboratory.

8.5 Don Gloves.

8.6 Using aseptic technique draw Granulocyte product into a 60 mL syringe connected to bag.

8.7 Prime the tubing.

8.8 Clear the infusion line with Normal Saline.

NOTE: Medications or solutions other than Normal Saline (0.9%) may not be added to blood products or infusion lines.

8.9 Clean the central venous line catheter cap with alcohol prep pad.

8.10 Connect tubing to the patient's infusion access and administer via syringe pump. DO NOT INFUSE ON PLUM A+ OR OMNIFLOW PUMP.

8.11 Infuse granulocytes cells at a rate specified by the medical order, over no less than 2 hours.

8.12 Record volume of granulocytes transfused on Intake and Output Form.

8.13 All infusions shall be traced from infusion bag or syringe, as applicable to the tubing insertion point of the catheter to verify the correct fluid is infusing into the correct port with each bag or syringe tubing change, and with each change in caregiver.

8.14 Flush the patient's infusion access as per central line or peripheral IV protocol.

8.15 Place empty blood product bags, syringes, and tubing in hazardous waste container.

8.16 Patient Monitoring

8.16.1 Follow Duke University Hospital Process Standard for Blood Products Administration.

8.17 Documentation

8.17.1 Document infusion/procedure in the electronic medical record.

8.17.2 Reportable Conditions are listed in Table 1.

Table 1. List of Reportable Conditions and Corresponding Actions

Reportable Condition	Action
Hypotension Anaphylaxis Chills Temperature Elevation > 1 degree Celsius Dark or red urine Tachycardia Dyspnea Back pain	**STOP THE INFUSION** and notify the physician or designee. Administer interventions as ordered.
Rash Hives (Urticaria)	Stop infusion. Contact the physician or designee regarding antihistamine administration.

9 RELATED DOCUMENTS/FORMS

9.1 STCL-FORM-056 Cellular Therapy Infusion Request Form

9.2 PBMT-GEN-043 Use of Lab-Line Maxi Rotators

10 REFERENCES

10.1 Accreditation Requirements Manual of the American Association of Blood Banks, Current Edition

10.2 The Duke Hospital Blood Administration Policy

10.3 The AABB Technical Manual, Current Edition

11 REVISION HISTORY

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09	Sally McCollum	- Biennial review: SOP updated to remove PBMT nomenclature.

Signature Manifest

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