PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

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Continuous Platelet Infusion

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PBMT-GEN-039
CONTINUOUS PLATELET INFUSION

1 PURPOSE

1.1 To maintain a consistently higher platelet count using a lower volume of platelets, in thrombocytopenic patients at high risk for bleeding, who are unable to maintain a platelet count within recommended ranges with episodic platelet transfusions.

2 INTRODUCTION

2.1 Myeloablative chemotherapy or radiation therapy followed by stem cell transplantation causes marrow aplasia with lack of platelet production for 1-3 months. Patients must be supported with platelet transfusions during their aplasia to prevent life-threatening bleeding. Exposure to multiple platelet transfusions leads to increased consumption and decreased response to individual products. Over time, patients may need increasing doses and frequencies of transfusions. Under normal circumstances, in healthy individuals, the bone marrow releases platelets continuously throughout the day. Bolus dosing of platelets through episodic transfusions can activate the reticuloendothelial (RE) system in the spleen, liver, and lungs; increasing platelet consumption and shortening transfused platelet-circulating half-life. Continuous exposure to platelets via a drip more closely mimics normal physiology and results in RE blockade, decreasing circulating platelet consumption and prolonging the half-life of circulating platelets.

2.2 Indications for Continuous Platelets Infusion include:

2.2.1 Inability to maintain a platelet count > 10,000/uL with up to 2 doses of platelets in a 24 hour time period.

2.2.2 High risk for/or active uncontrolled bleeding, requiring maintenance of a count > 50-100,000/uL (i.e. post-op patients, pulmonary hemorrhage, hemorrhagic cystitis, severe GI bleeding, presence of intracranial lesion). Fluid overload – such patients will benefit from reduction in overall volume of blood products administered.

2.3 Special Precautions:

2.3.1 Platelets must be irradiated and leukocyte reduced before infusion.

2.3.2 Do NOT use micro-aggregate filters.

2.3.3 Does NOT need to be ABO or Rh compatible.

3 SCOPE AND RESPONSIBILITIES

3.1 Interdisciplinary - Requires an order placed by a provider to be entered into the electronic medical record.

3.2 Registered Nurses (RNs) may administer blood products after successful completion of the blood administration test and demonstration of clinical competency with their preceptor.

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3.3 Registered Nurses (RNs) may administer blood products after successful completion of the blood administration test and demonstration of clinical competency with their preceptor.

3.4 RNs caring for pediatric stem cell transplant patients must re-validate their clinical competency to administer a continuous platelet transfusion on an annual basis.

3.5 Other licensed personnel (such as nurse practitioner and physicians) may administer blood products after demonstration and validation of clinical competency.

4 DEFINITIONS/ACRONYMS

4.1	DUH	Duke University Hospital
4.2	EMR	Electronic Medical Record
4.3	IV	Intravenous
4.4	PPE	Personal Protective Equipment
4.5	RE	Reticuloendothelial
4.6	RN	Registered Nurse

5 MATERIALS

5.1 A standard 180 Micron Filter – should be used for each infusion; Note: All tubing must be changed with each new product.

5.2 Dedicated Platelet Infusion Line

5.3 Normal Saline Flush

5.4 Alcohol Prep Pad

5.5 Gloves (non-sterile)

5.6 Additional materials needed for patients less than or equal to (<)10 kg receiving ½ Unit volume-reduced platelets 60 mL syringe, stopcock, Medex tubing 60 inch set

6 EQUIPMENT

6.1 Volumetric Pump or Syringe Pump

7 SAFETY

7.1 Appropriate personal protective equipment (PPE) must be worn when handling blood components.

8 PROCEDURE

8.1 Patient Assessment:

8.1.1 Assess patient for prior transfusion reactions. Notify the provider, if the patient has a history of transfusion reactions.

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8.1.2 Assess the intravenous (IV) site for patency.

8.1.3 Assess vital signs pre-administration, 15 minutes into transfusion, and at completion of transfusion, and record.

8.1.4 Observe the patient continuously for the first 5 minutes of the transfusion and then hourly for signs and symptoms of transfusion reaction, which may include: fever, chills, anaphylaxis, hypotension, tachycardia, dark or red urine, rash, hives, and urticaria.

8.2 Obtaining and Verifying Platelet Product:

8.2.1 Verify order.

8.2.2 Order desired product in the electronic medical record (EMR).

8.2.3 Administer pre-medications, if ordered, when both the patient and the blood product are available for transfusion.

8.2.4 "Release" and "Dispense" product in the EMR for product to be delivered to the unit.

8.2.5 Verify all identification information at bedside by two RNs.

8.2.5.1 Complete the blood product verification co-signature in the EMR under the "Blood Administration" tab.

8.2.6 Verify the following identification information:

8.2.6.1 Patient's name and medical record number on armband matches with the "Transfusion Report Form" and the "Compatibility Label" on the product bag.

8.2.6.2 Product name, identification numbers/letters, donor ABO blood types and Rh factor on the bag label matches the "Transfusion Report Form".

NOTE: Platelets DO NOT have to be ABO compatible.

8.2.6.3 Expiration date and time of the product and on the form. (Dates on the product tag and the form may be separate dates but neither should have expired.)

8.2.6.4 Special orders are met (irradiated, leukoreduced, volume reduced, etc.).

8.2.7 For any discrepancies, return the product to Transfusion Services.

8.3 Administration:

8.3.1 All platelet drips are dosed based on volume restriction of patient. Dose will be weaned, as applicable, by the physician or designee. Guidelines for dosing are listed below.

8.3.1.1 Loading Dose: Bolus infusion of ½-1 unit of platelets as ordered by physician (based on patient weight).

8.3.1.2 Infusion Dose: General guidelines may vary per provider order but is usually given over a 4 hour period. The infusion

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can be given as frequently as every 4 hours but generally given every 6-8 hours.

8.3.2 Administer premedication as ordered.

8.3.3 All platelet products will be leukoreduced and irradiated by transfusion services.

8.3.4 All platelet products must be administered according to Duke University Hospital Process Standard for Blood Products Administration.

8.3.5 Transfuse platelet product within 4 hours of the time dispensed from the Transfusion Service (recorded on Blood Component Request Form).

8.3.5.1 Return the product to the Transfusion Service immediately if the order to transfuse is canceled.

8.3.6 Obtain vital signs per protocol.

8.3.7 Don Gloves.

8.3.8 Spike the platelet bag with appropriate tubing and filter. Prime the tubing; if ½ unit, volume-reduced, attach stopcock and syringe to end of tubing and draw up platelets in syringe and prime Medex tubing 60 inch set.

8.3.9 Clean central line catheter cap with alcohol prep pad.

8.3.10 Clear the infusion line with Normal Saline Flush (3-5 mL). Medications or solutions other than Normal Saline (0.9%) may not be added to blood products or infusion lines.

8.3.11 Connect tubing to patient's infusion access device and administer platelets via infusion pump as ordered by physician. After infusion is complete, flush central line with 3-5 mL normal Saline (0.9%). Reconnect IV tubing or Heparin lock central line as indicated.

8.3.12 Discard tubing and platelet bag in hazardous waste container.

8.4 Documentation:

8.4.1 Record vital signs and blood product volume in the EMR under the "Blood Administration" tab.

8.5 Patient Monitoring:

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

8.5.2 Platelet counts should be monitored q 6-8 hours per the provider's orders.

8.5.3 Educate patient, family, caregivers and document per Hospital policy.

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8.6 Reportable Conditions:

Reportable Condition	Action
Hypotension Anaphylaxis Chills Temperature Elevation >1 degree Celsius Dark or Red Urine Tachycardia Dyspnea	Stop the transfusion, notify the physician, and follow instructions for transfusion reaction on the Transfusion Report Form
Rash and Hives	Slow transfusion to KVO rate, contact physician regarding antihistamine administration and follow instructions on the Transfusion Report Form.

9 RELATED DOCUMENTS/FORMS

9.1 Transfusion Report Form (M3902)

9.2 Duke University Hospital (DUH) Blood Product Administration Policy, Current Edition.

10 REFERENCES

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

10.2 Duke University Hospital (DUH) Blood Product Administration Policy, Current Edition.

10.3 The American Association of Blood Banks Technical manual, Current Edition.

11 REVISION HISTORY

Revision No.	Author	Description of Change(s)
08	MC Owner: Sally McCollum Document SME: Tricia Stanton; Whitney Hawkins	Section 1.1 – removed platelet range criteria from this section since it is included in subsequent sections of the document. Section 2.2 – platelet threshold updated to 10,000 to reflect current practice.

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Signature Manifest

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