Blood Ordering v6.0: Place Orders

**Approval & Citation**

**Explanation of Evidence Ratings**

**Inclusion Criteria**
- Blood ordered

**Exclusion Criteria**
- Outpatient preadmission for surgery (see next phase)

**Summary of Version Changes**

**Transfusion Reaction**

**Blood Special Requirements**

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**Update Blood Special Requirements and Transfusion Profile**
- Add Blood Special Requirements based on diagnosis via Blood Administration Navigator
- Once charted, blood special requirements will automatically be added to blood orders
- Note all patients receive irradiated RBCs and platelets unless “Do not irradiate RBCs” is specifically requested and Transfusion physician on-call approves issuing non-irradiated components.
- Documentation of Suggested Premedications on Blood Administration Navigator Transfusion Profile displays in inpatient and outpatient Blood Administration order sets

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**Inpatient, ED, and Outpatient Blood Administration order set**
- Use Blood Administration order set
  - Determine dose and rate of transfusion, see Job Aid: Transfuse Blood Products (for SCH Only)
  - Complete Prepare and Transfuse orders
- EHR automatically selects:
  - ABO/RhD and Antibody Screen (Type & Screen)
  - ABO/RhD (confirmatory)
  - Exception: check specimen availability for blood orders via Therapy plans.
- Order premedications, if needed

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**Blood sample(s) required?**

**Yes**
- Draw Sample(s)
  - Refer to the P&P: Blood Component Ordering and Administration (for SCH Only)
  - If 2 ABO/RhD samples required, draw separately.
  - Use Blood Testing for Transfusion (PE1712) for education
- Prepare and Deliver Product (if not already at bedside)
  - Blood Bank receives order to prepare product
  - Complete in Blood Administration Navigator
  - Pre-Transfusion Documentation
  - Ensure Release to location is completed and correct
  - Move to Transfusion Orders and Release the product that is going to be transfused
  - Blood Bank sends product
  - Administering staff utilizes the Job Aid: Transfusion Workflow (for SCH Only)
  - See P&P: Blood Component Ordering and Administration (for SCH Only) for handling instructions
- Transfuse Blood Products (for SCH Only)
  - Order via Blood Administration order set and keep linked Transfuse order as this allows electronic barcode scanning of blood via Epic BPAM.
- Keeping Blood Available
  - Order Type & Screen
  - Just in time ordering of blood is recommended. Consult with Transfusion Service physician on call.

**Possibly at Bedside**
- For Bedside Procedure
  - Order via Blood Administration order set and keep linked Transfuse order as this allows electronic barcode scanning of blood via Epic BPAM.

**No**
- Draw Sample(s)
  - Refer to the P&P: Blood Component Ordering and Administration (for SCH Only)
  - If 2 ABO/RhD samples required, draw separately.
  - Use Blood Testing for Transfusion (PE1712) for education
- Prepare and Deliver Product (if not already at bedside)
  - Blood Bank receives order to prepare product
  - Complete in Blood Administration Navigator
  - Pre-Transfusion Documentation
  - Ensure Release to location is completed and correct
  - Move to Transfusion Orders and Release the product that is going to be transfused
  - Blood Bank sends product
  - Administering staff utilizes the Job Aid: Transfusion Workflow (for SCH Only)
  - See P&P: Blood Component Ordering and Administration (for SCH Only) for handling instructions
- Transfuse Blood Products (for SCH Only)
  - Order via Blood Administration order set and keep linked Transfuse order as this allows electronic barcode scanning of blood via Epic BPAM.
- Keeping Blood Available
  - Order Type & Screen
  - Just in time ordering of blood is recommended. Consult with Transfusion Service physician on call.

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For questions concerning this pathway, contact: bloodordering@seattlechildrens.org

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Last Updated: April 2021
Next Expected Review: February 2020

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**Blood Special Requirements**

- In operative services, anesthesiologist transfuses product as need during procedure.
- For inpatients with “Prepare only” orders placed using Blood Administration order set, modify existing Transfuse order to indicate rate when ready to transfuse blood product.
- Determine dose and rate of transfusion, see Job Aid: Transfuse Blood Products (for SCH Only)
- Order premedications, if needed
Blood Ordering v6.0: Preadmit for Surgery

**Inclusion Criteria**
- Blood ordered preoperatively in outpatient setting

**Exclusion Criteria**
- Inpatient, OR

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**Review Blood Administration Navigator**

**Have Blood Special Requirements and transfusion profile been entered?**
- Yes
- No

**Determine if Blood Special Requirements or Premedications Needed**
- Add Blood Special Requirements based on diagnosis via Blood Administration Navigator
- Once charted, blood special requirements will automatically be added to blood orders.
- Note all patients receive irradiated RBCs and platelets unless “Do not irradiate RBCs” is specifically requested and Transfusion physician on-call approves issuing non-irradiated components.
- Documentation of Suggested Premedications on Blood Administration Navigator Transfusion Profile displays in inpatient and outpatient Blood Administration order set

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**Confirm Transfusion Profile**
- Update if needed

**Does patient have RBC antibodies?**
- Yes
- No

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**Order**
- Consider ordering additional RBCs for surgery (crossmatch turn-around time is 1-4 hours)

**Order Samples and Products**
- Collect ABO/RhD and Antibody Screen (Type & Screen) within 3 days of surgery
- Order ABO/RhD (confirmatory) if required.
- Order blood:
  - For OR, order Prepare Blood Products for Procedure in OR order panel or Anesthesia Blood Administration order set.
  - For bedside procedure, order Blood Administration order set which will allow RN transfusion using BPAM.

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**Order Samples and Products**
- Obtain Pre Admission Type and screen within 30 days of surgery.
- Order ABO/RhD confirmatory if required (no historical ABO type on file).
- Order blood:
  - For OR, order Prepare Blood Products for procedure in OR panels or Anesthesia Blood Administration order set.
  - For bedside procedure order Blood Administration order set which will allow RN transfusion using BPAM.

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**Patient pregnant or transfused in past 3 months?**
- Yes
- No

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**Return to Home**
For reactions, symptoms, and intervention, go to Transfusion Reaction Decision Tree

Immediate Actions:
- STOP TRANSFUSION IMMEDIATELY (do not discard)
- Keep IV line open
- Stay with and assess patient
- Ask for help if needed
- Repeat patient/component ID check
- Call provider to assess patient
- Document vital signs every 5-10 minutes and actions taken

Report
- Order Transfusion Reaction Workup in EHR and add to Problem List if not previously documented
- Report fatalities, unanticipated reactions, serious complications, or suspected disease transmission possibly related to transfusion of blood or blood components to the Transfusion Service physician on-call as soon as possible
- Transfusion Service physician reviews all reported reactions
- Transfusion service notifies blood supplier and FDA when required.
DO NOT modify blood special requirements unless you are a licensed independent provider (e.g. MD, NP), or have been authorized to do so. Residents should not independently complete this section.

ALL red blood cells (RBCs) and platelets are leukocyte reduced and considered CMV-safe.

<table>
<thead>
<tr>
<th>Patient Type</th>
<th>Select blood special requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology Severe immunodeficiency</td>
<td>Irradiated or Psoralen treated</td>
</tr>
<tr>
<td>Hematopoietic stem cell transplant (HSCT)</td>
<td>1. Irradiated or Psoralen treated&lt;br&gt;2. SCCA transfusion service office to manage patients on BMT service.&lt;br&gt;3. For patients not managed by SCCA (e.g. immunotherapy patient), complete “HSCT information” section of HSCT_Organ Transplant smart forms under “More menu”.</td>
</tr>
<tr>
<td>Infant less than 4 months</td>
<td>Irradiated or Psoralen treated&lt;br&gt;Sickle Cell (Hgb S) Negative</td>
</tr>
<tr>
<td>Cardiac surgery</td>
<td>If LESS THAN 2 years: Irradiated or Psoralen treated</td>
</tr>
<tr>
<td>Hemoglobinopathy</td>
<td>Rh/K antigen-selected&lt;br&gt;If sickle cell disease: Sickle Cell (Hgb S) Negative</td>
</tr>
<tr>
<td>Hyperkalemic/renal failure AND does not meet any other requirement for irradiated blood products</td>
<td>Do not irradiate RBCs&lt;br&gt;*Previously irradiated RBCs may contain increased extracellular potassium.&lt;br&gt;*Previously irradiated platelets do not pose a clinical risk.</td>
</tr>
<tr>
<td>Volume sensitive/overload</td>
<td>Volume overload (plasma reduce all platelets)</td>
</tr>
<tr>
<td>History of repeated or moderate allergic transfusion reaction</td>
<td>Allergic rxn (plasma reduced or PAS platelets)&lt;br&gt;Note: PAS platelets are platelets collected in platelet additive solution (PAS) and contain 35% plasma/65% PAS.</td>
</tr>
<tr>
<td>History of SEVERE transfusion reaction (e.g. anaphylaxis)</td>
<td>Washed Platelets&lt;br&gt;Supernatant removed RBCs or Washed RBCs&lt;br&gt;*Requires Transfusion Service Physician On-call approval</td>
</tr>
<tr>
<td>Heart Transplant candidate or recipient</td>
<td>1. Irradiated or Psoralen treated&lt;br&gt;2. Supernatant removed RBCs (for ABO-incompatible Heart transplant protocol)&lt;br&gt;3. Complete “Heart or Liver transplant” section of HSCT_Organ Transplant smart forms under “More menu”.</td>
</tr>
<tr>
<td>Liver transplant candidate or recipient</td>
<td>1. Irradiation not required (in most cases unless intestine transplant and/or other indication listed above (e.g. oncology, severe immunodeficiency, HSCT))&lt;br&gt;2. Complete “Heart or Liver transplant” section of HSCT_Organ Transplant smart forms under “More menu”.</td>
</tr>
</tbody>
</table>
Definitions

Serious complications:
- Hemolytic transfusion reaction
- Bacterial contamination
- Transfusion-related acute lung injury
- Transfusion-associated graft versus host disease
- Post-transfusion purpura

Suspected disease transmission (transfusion-transmitted infection) may include:
- Bacterial contamination
- Hepatitis A, B, or C
- Chagas Disease
- HTLV-1 and HTLV-2
- Syphilis
- West Nile Virus
- Human Immunodeficiency Virus (HIV)
Approved by the CSW Blood Ordering team for February 11, 2015, go-live

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Retrieval Website: https://www.seattlechildrens.org/pdf/blood-ordering-pathway.pdf

Example:
Evidence Ratings

This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children’s. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94.):

Quality ratings are *downgraded* if studies:
- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are *upgraded* if it is felt that:
- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Guideline – Recommendation is from a published guideline that used methodology deemed acceptable by the team.

Expert Opinion – Our expert opinion is based on available evidence that does not meet GRADE criteria (for example, case-control studies).

**Quality of Evidence:**

- ★★★★★ High quality
- ★★★★ Moderate quality
- ★★★ Low quality
- ★★ Very low quality

Guideline
Expert Opinion
Summary of Version Changes

- **Version 1 (2/11/2015):** Go live
- **Version 2 (5/27/2015):** Fixed box errors in Preadmit phase
- **Version 3 (7/29/2015):** Implemented electronic process to request and verify receipt of blood products
- **Version 4.1 (3/11/2019):** Removed erroneous “to bibliogarphy” button
- **Version 5.0 (10/3/2020):** Updated algorithm to align with Epic
- **Version 6.0 (4/1/2021):** Updated the Blood Special Requirements page in response to new platelet products being received from the American Red Cross and Bloodworks NW
Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

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