Blood Ordering Pathway v7.0: Table of Contents

Inclusion Criteria
- Blood Ordered.

Exclusion Criteria
- None.

Blood Ordering Care

Place Orders
Pre-Admit for Surgery
Transfusion Reaction

Appendix

Version Changes Approval & Citation Evidence Ratings Bibliography
Update Blood Special Requirements and Transfusion Profile

- Add Blood Special Requirements (for SCH only) 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.

Blood Ordering Pathway v7.0: Place Orders

Stop and Review

Inclusion Criteria
- Blood ordered.

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

Blood Sample(s) Required?

Yes

Draw Sample(s)
- Refer to the P&P: Blood Component Ordering and Administration (for SCH).
- 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) for handling instructions.

Transfusion Needed?

Yes

Possibly at Bedside

Possibly Operating Room

Possibly Bedside

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.
- If outpatient elective procedure, Pre-Admit for Surgery.
- Use Blood Testing for Transfusion (PE1712) for education.

When Blood Product Needed, Order Transfusion
- 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: Transfusion and Dosing (for SCH only).
- Order premedications, if needed.
**Blood Ordering Pathway v7.0: Pre-Admit for Surgery**

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

**Exclusion Criteria**
- Inpatient, OR.

**Review Blood Administration Navigator**

**Have Blood Special Requirements and transfusion profile been entered?**

**Confirm Transfusion Profile**
- Update if needed.

**Does patient have RBC antibodies?**

**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.

**Determine if Blood Special Requirements or Premedications Needed**
- Add Blood Special Requirements (for SCH only) 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.

**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.

- **Is patient pregnant or been transfused in the past 3 months?**

- **Yes**
- **No**

For questions concerning this pathway, contact: bloodordering@seattlechildrens.org
Blood Ordering Pathway v7.0: Transfusion Reaction

Stop and Review

Inclusion Criteria
- Blood transfusion in process or completed.

Exclusion Criteria
- None.

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

For reactions, symptoms, and intervention, go to Job Aid: Transfusion Reaction Decision Tree (for SCH only).

For questions regarding transfusion diagnosis or management, call the Transfusion service for the Transfusion Service physician on call, available 24/7.

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.
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)
Summary of Version Changes

- **Version 1.0 (2/11/2015):** Go live.
- **Version 3.0 (7/29/2015):** Implemented electronic process to request and verify receipt of blood products.
- **Version 4.0 (6/28/2016):** Updated dosing guidance for blood products.
- **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.
- **Version 7.0 (4/29/2022):** Periodic review go live with new formatting style and no changes to recommendations. Removed Blood Special Requirements page.
Approval & Citation

Approved by the CSW Blood Ordering Pathway team for April 29, 2022, go-live

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

Please cite as:
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, Hultcrantz M et al. J Clin Epidemiol. 2017;87:4-13, Klugar et al. J Clin Epidemiol. 2021 Nov 11;S0895-4356(21)00361-9.):

**Certainty of Evidence**
- **High certainty:** The authors have a lot of confidence that the true effect is similar to the estimated effect
- **Moderate certainty:** The authors believe that the true effect is probably close to the estimated effect
- **Low certainty:** The true effect might be markedly different from the estimated effect
- **Very low certainty:** The true effect is probably markedly different from the estimated effect

**Guideline:** Recommendation is from a published guideline that used methodology deemed acceptable by the team

**Expert Opinion:** Based on available evidence that does not meet GRADE criteria (for example, case-control studies)

**Deductions labeled 1=risk bias, 2=indirectness, 3=imprecision, 4=inconsistency, 5=publication bias**
**Bibliography**

**Literature Search Methods**
For this update, we revised the search strategies in line with current Library practices. A literature search was conducted in September 2020 to target synthesized literature on patient blood management, blood specimen collection, blood administration, blood transfusion and blood safety for 2015 to current and limited to English and humans. The search was executed in Ovid Medline, Embase, Cochrane Database of Systematic Review (CDSR), and Turning Research into Practice database (TRIP).

Screening and data extraction were completed using DistillerSR (Evidence Partners, Ottawa, Canada). Two reviewers independently screened abstracts and included guidelines and systematic reviews that addressed blood management, specimen collection, administration, transfusion, and safety. One reviewer screened full text and extracted data and a second reviewer quality checked the results. Differences were resolved by consensus.

**Literature Search Results**
The searches of the 4 databases (see Electronic searches) retrieved 2544 records. Our searches of other resources (known guidelines) identified 1 additional study that appeared to meet the inclusion criteria.

Once duplicates had been removed, we had a total of 2132 records. We excluded 1852 records based on titles and abstracts. We obtained the full text of the remaining 280 records and excluded 230.

We included 50 studies. The flow diagram summarizes the study selection process.

Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535
Included Studies


Demaret, P., Emeriaud, G., Hassan, N. E., Kneyber, M. C. J., Valentine, S. L., Bateman, S. T., ... Sepsis Investigators, N. (2018). Recommendations on RBC Transfusions in Critically Ill Children With Acute Respiratory Failure From the Pediatric Critical Care Transfusion and Anemia Expertise Initiative. Pediatric Critical Care Medicine, 19(9S Suppl 1), S114-S120. doi:https://dx.doi.org/10.1097/PCC.000000000001619


Doctor, A., Cholette, J. M., Remy, K. E., Argent, A., Carson, J. L., Valentine, S. L., ... Sepsis Investigators, N. (2018). Recommendations on RBC Transfusion in General Critically Ill Children Based on Hemoglobin and/or Physiologic Thresholds From the Pediatric Critical Care Transfusion and Anemia Expertise Initiative. Pediatric Critical Care Medicine, 19(9S Suppl 1), S98-S113. doi:https://dx.doi.org/10.1097/PCC.000000000001590


Estcourt, L. J., Malouf, R., Trivella, M., Fergusson, D. A., Hopewell, S., & Murphy, M. F. (2017). Restrictive versus liberal red blood cell transfusion strategies for people with haematological malignancies treated with intensive chemotherapy or radiotherapy, or both, with or without haematopoietic stem cell support. Cochrane Database of Systematic Reviews, 1, CD011305. doi:https://dx.doi.org/10.1002/14651858.CD011305.pub2


Bibliography


Bibliography


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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