**Purpose:**

To describe the selection of PRBC units by Transfusion Services (TSL) at Harborview Medical Center (HMC), including units with special attributes, and alternative ABO/Rh selections when ABO/Rh identical products are unable to be transfused due to inventory management issues.

**Policy:**

HMC TSL maintains 100% leukoreduced inventory

**Procedure**

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| --- | --- | --- |
| **Step** | **Statements** | **Related Documents** |
| 1 | Patients will receive ABO/Rh identical crossmatch compatible Packed Red Blood Cell (RBC) units whenever possible |  |
| 2 | If ABO substitution is necessary, units shall be selected according to the “Alternative ABO Selections for RBCs” Table (table 1). |  |
| 3 | The TS Leads, TS Manager &/or TS Medical Director / Resident / Covering Physician will be involved in RBC selection when the “Alternative ABO Selections for RBCs” Table (table 1) is not applicable |  |
| 4 | Substitution will be utilized to reduce inventory wastage |  |
| 5 | Product selection CANNOT be based on the non HMC patient history. Serologic results for at least 2 ABO/Rh tests performed by TSL at HMC from 2 separate collections, including 1 during the current HMC patient encounter are required to issue non group O units |  |
| 6 | When emergency RBC transfusion is deemed medically necessary on patients with 2 separate collections, ABO compatible units will be issued. Rh substitution will be based on patient age and gender  |  |
| **Emergency Release Uncrossmatched RBC:** |  |
| 7 | * For Emergency Release uncrossmatched red cell (RBC) transfusions, group O RBCs shall be provided for patients who DO NOT have:
	+ An active type and screen (T&S) OR
	+ An ABO/Rh type from their current HMC encounter AND
	+ A total of 2 independent serologic ABO/Rh type results over all HMC encounters
		- Rh negative (-) units shall be provided for females < 50 years old and males < 1 year old
		- Rh positive (+) units shall routinely be provided for:
			* Males ≥ 1 years old
			* Females ≥ 50 years old
 |  |
| **Emergency Release Uncrossmatched RBC continued:** | **Related Documents** |
| 8 | * For Emergency Release uncrossmatched RBC transfusion, ABO/Rh type specific units shall preferentially be provided for patients who have:
	+ An active type and screen (T&S) AND
	+ An ABO/Rh result from a separate collection at HMC
	+ OR
	+ An ABO/Rh type performed during their current HMC encounter AND
	+ A minimum of 2 ABO/Rh type results over all HMC encounters
* When ABO identical units cannot be provided based on inventory, alternative selections shall be made according to the choice order in the “Alternative ABO Selections for RBCs” Table (table 1)
	+ - For Rh- patients, if there is a critical shortage of ABO type specific or compatible Rh- RBC, and only a limited supply of O- RBCs, Rh+ units may be substituted without prior approval
			* Male patients
			* Female patients ≥ 50 years old
			* Transfusion Services Medical Director/Resident/Covering Physician will determine appropriate RhIg administration
	+ For Rh- females < 50 years of age, in extremely rare event that NO Rh- ABO type specific or compatible units (including O-) are available, Rh+ units may substituted with the approval of the Transfusion Services Medical Director /Resident /Covering Physician.
* Transfusion Services Medical Director/Resident/Covering Physician will determine appropriate RhIg administration
	+ Patient with historical antibodies
* Issue antigen negative blood if already typed unit available
* Issue universal if there is potential delay of blood
* Consult Medical Director immediately
 | Table 1Quality Policy: Medical Director Notification Quality Process: Medical Director Notification |
| **Crossmatched RBC:** |  |
| 9 | * + Crossmatched RBCs shall be provided for patients who have:
* An active type and screen + crossmatch **AND**
* An HMC historical ABO/Rh from a separate collection than the Type and Screen/Type and Crossmatch
	+ For patients with an active type and screen, ABO/Rh identical units shall preferentially be provided.
* When ABO/Rh identical units cannot be provided due to inventory, alternative ABO compatible units shall be selected according to the choice order in the “Alternative ABO Selections for RBCs” Table (table 1).
* Rh- patients must receive Rh- RBCs unless part of a massive transfusion protocol where patient has already been switched to Rh+
* If patient has antibody consult with Medical Director immediately
* Rh+ patients shall preferentially receive Rh+ RBCs, but may also receive Rh- units if required for inventory management
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| **Special Product Attributes:** |
| 10 | **Leukoreduced PRBC Units** will be routinely provided for:* Patients who have orders for CMV Negative products. (LR = CMV safe)
* Neonates < 4 months age or intrauterine transfusion.
* Pregnant females
* HIV positive patients
* Chronically transfused patients
* e.g. sickle cell disease, thalassemia
* Patient’s with hematologic malignancies
* e.g. leukemia, lymphoma, Hodgkin’s disease
* Hematopoietic progenitor cell (HPC)/”bone marrow” transplant candidates & recipients
* Organ donors and potential organ donors
* Solid organ transplant candidates & recipients
* e.g. kidney, liver, heart, lung transplants
* Patients with bone marrow failure
	+ e.g. severe aplastic anemia
		- Patient’s with congenital immunodeficiencies
* Patients on cardiac bypass (until 24 hours post op)
* Patients on intra-aortic balloon pumps, LVAD, artificial hearts, awaiting cardiac transplant
* Seattle Cancer Care Alliance (SCCA) patients
 |  |
| 11 | **Irradiated PRBC Units** will be routinely provided for:* + Neonates < 4 months age
* Patient’s with hematologic malignancies
* e.g. leukemia, lymphoma, Hodgkin’s disease
* Patients receiving fludarabine or other high dose chemotherapy
* Hematopoietic progenitor cell (HPC)/”bone marrow”/”stem cell” transplant candidates & recipients
* Patient’s with cellular immunodeficiencies
* e.g. SCID, Di George syndrome
* Recipients of
* Directed donor RBCs

- e.g. parent, sibling, child, family friend donated unit* HLA matched RBCs
* Seattle Cancer Care Alliance (SCCA) patients
 |  |
| 12 | **Patient’s with Sickle Cell Disease/Thalassemia/Other Hemoglobinopathy** should receive units that are:* Leukoreduced
* Hemoglobin S negative
* Irradiated - IF status post hematopoietic progenitor cell transplant (HPC-T), or receiving preparative chemotherapy/treatment for HPC-T
* Consider partial antigen matched (C, E, and K negative)
 |  |

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| **Selection of RBC Units for Neonatal Transfusion** |
| 13 | For **Neonates** **< 4 months of age**:* Group O, leukoreduced, irradiated, hemoglobin S negative RBCs that are Rh compatible and < 7 days old will be routinely provided
* For neonates with passively acquired maternal red cell alloantibodies directed against their corresponding RBC antigen:
	+ Issue AHG compatible crossmatched RBCs, refer to SOP for antigen typing requirements
	+ Or units that do not contain the antigen for the corresponding clinically significant antibody
* Units shall be irradiated, unless:
* The neonate requires immediate urgent transfusion, and < 7 day old leukoreduced, freshly irradiated RBC are not immediately available
* If the patient is receiving massive transfusion and the patient’s physician/pediatrician requests non-irradiated RBC (in order to avoid high dose potassium administration).
 | Policy for Provision of Crossmatch Compatible Blood |

**Table 1: Alternative ABO Selections for RBCs**✝

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Recipient ABO** | **1st Choice** | **2nd Choice** | **3rd Choice** | **4th Choice** |
| **O** | O | - | - | - |
| **A**✪ | A | O | - | - |
| **B** | B | O | - | - |
| **AB** | AB | A | B | O |

✝ If neonate or infant < 4 months of age, only group O RBCs will be provided. If there are no RBCs in the TSL inventory, Transfusion Services Medical Director/Physician approval is required for ABO substitution.

✪ If patient is group A2 or A2B subtype with an anti-A1 reactive at 37C, only A2, B, or O RBCs may be issued.

**References:**

Standards for Blood Banks and Transfusion Services, Current Edition. American Association of Blood Banks. AABB Press, Bethesda, MD.

AABB Technical Manual, Current Edition.