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| **Exchange Transfusions, Patients < 1 year** |
| **Purpose** | This process describes the blood product selection and preparation used in exchange transfusion procedures for patient’s less than one year old.Note: Exchange transfusion on patient’s less than one year occur by a push-pull procedure. |
| **Policy Statements** | * Leukocyte reduced red cells shall be ≤ 5 days old for exchange transfusion events.
* Infants ≤ 4 months of age:
1. Select group O, Rh compatible RBCs
2. Red cells shall be negative for hemoglobin S
* Infants >4 months-Select ABO/Rh compatible RBCs
* Follow all special instructions in the patient’s BAD file for the selection/preparation of the units.
* **EXCHANGE TRANSFUSIONS FOLLOWING INTRAUTERINE TRANSFUSIONS**. Intrauterine transfusions involve the transfusion of Group O red cells and Group AB plasma products. Continue to use Group O, Rh compatible red cells and Group AB plasma products, including platelets, for transfusions after delivery.
* **ABOi heart transplant patients need adsol removed units for heart transplant surgery**
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| **Definition** | RBC (additive solution)-red blood cells with additive solution of AS-1, AS-3, or AS-5.SDP-Single Donor Platelets (apheresis platelet, pheresed platelet) |
| **Related Documents** | Children's of Minnesota - Exchange Transfusion, Assisting With  |
| **Process** |  |
|  | Activity | Key Considerations | Related Document |
|  | 1 | Review patient order history in function BOP. | * Confirm patient age.
* Confirm the infant has had an ABO/Rh and

 antibody screen performed on current admission. (Type and Screen or Newborn Workup-Type & Screen/Newborn)* Contact the patient caregiver and request

 appropriate pre-transfusion testing if needed.* Record the patient’s ABO/Rh, antibodies,

 attributes, problems, and pertinent comments on the patient’s UXM order.* Record the accession number on the order.
 | [TS 5.2 Blood Order Processing](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/SpecRR/202247.pdf) |
|  | 2 | Review inventory and select red cell units

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| **Component** | Additive solution Red Cell Units (CPDA-1 in an emergency) |
| **Unit Age** | ≤ 5 days old. Notify provider and pathology if > 5 days old. |
| **ABO/Rh** | Patient < 4 months  | Group O, Rh compatible |
| Patient >4 months | ABO/Rh compatible |
| **Crossmatch****Requirement** | Patient <4 months  | No clinically significant abs. | No XM required. |
| Clinically significant maternal abs in infant plasma, including anti-D due to RhIg (e.g. RhoGam) | Provide antigen negative units that are compatible by AHG crossmatch |
| Unresolved POS antibody screen | AHG crossmatch |
| Patient >4 months | No clinically significant antibodies | Electronic crossmatch |
| Clinically significant antibody(s) | Antigen negative and AHG XM compatible. |
| Unresolved POS antibody screen | AHG crossmatch  |

* Order products STAT from blood center as needed.
* Notify provider of anticipated delays
* Contact transfusion medicine specialist if needing assistance in the selection.
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| Final volume of additive removed RBCs should equal the provider’s requested volume plus an additional 75-100 mL for tubing and blood warmer volume | 3 | Prepare the required number of RBC units. |

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| **If** | **Then** |
| Less than 4 months old | * Remove segments from RBCs for Hgb S testing.
* Spin RBCs units and remove additive solution.
* Follow additional provider orders and BAD file instructions.
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| Greater than 4 months old | * Follow provider orders and BAD file instructions.
* ABOi heart transplant patients need adsol removed for surgery
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 | [TS 10.20 Removing additive solution](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BCP/202357.pdf) |
|  | 4 | Thaw and allocate FFP and cryoprecipitate per orders. |  | [TS 3.13 Plasma Orders](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/OrdProc/202201.pdf)[TS 3.14 Cryoprecipitate Orders](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/OrdProc/202202.pdf) |
|  | 5 | Prepare platelets per order. |  | [TS 3.8 Platelet Orders](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/OrdProc/202196.pdf) |
|  | 6 | Irradiate red cells and platelets if required. | RBCs and platelets for infants less than 4 months of age or per provider order/BAD information. | [TS 10.8 Irradiating Blood Products-Mpls](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BCP/202345.pdf)[TS 10.9 Irradiating Blood Products-STP](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BCP/202346.pdf)  |
|  | 7 | Complete Hgb S testing on RBC segments if required. | For patients < 4 months old or per provider order. | [TS 7.16 Hgb S testing on Red Cell Products](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BPOrd/202476.pdf) |
|  | 8 | Allocate and tag RBCs and platelets.  | Follow Emergency Release Process if issue of units requested prior to completion of required pre-transfusion testing  | [TS 13.3 Allocating and Issuing of Blood Products for Emergency Release](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/EmRel/202813.pdf) |
|  | 9 | Store products. | Notify patient caregiver when red cells and thawed plasma are ready. |  |
|  | 10 | Issue products. | Cooler or pneumatic tube as requested | [TS 12.5 Issue of Products](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Alloc/202493.pdf) |
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| **Approval****Workflow** | Transfusion Service/Medical Director |
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| **Historical Record** | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1 | C Berglund | 9/1985 | Initial Version |
| 2 | J Wenzel | 9/1991 |  |
| 3 | J Wenzel | 9/1994 |  |
| 4 | J Wenzel | 12/1994 |  |
| 5 | J Wenzel | 10/1995 |  |
| 6 | J Wenzel | 9/1997 |  |
| 7 | J Wenzel | 9/1999 | Merger, new to Mpls |
| 8 | J Wenzel | 5/22/2001 |  |
| 9 | J Wenzel | 6/25/2002 |  |
| 10 | J Wenzel | 5/16/2003 | Hgb S negative-infants < 4 months |
| 11 | J Wenzel | 4/20/2010 | Online format replaces TS 11.6v10 |
| 12 | J Wenzel | 4/10/2012 | CMS format |
|  | 13 | S. Cassidy | 10/09/2019 | Changed the requirement on crossmatching through AHG on all patients with antibodies |
|  | 14 | S. Cassidy | 06/13/2022 | Added statements for ABOi heart transplant |