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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** | | | | | | |
| **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   |  |  |  |  | | --- | --- | --- | --- | | **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. | | | | | |
| 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. | | |  |  | | --- | --- | | **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. | | Greater than 4 months old | * Follow provider orders and BAD file instructions. * ABOi heart transplant patients need adsol removed for surgery | | | | [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 | |