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| --- |
| **Red Cells Orders for Patients < 4 months old** |
| **Purpose** | This process describes how manage UXM (Request for red cells, patient < 4 months old) orders. |
| **Policy Statements** | * All Red Cells for infants < 4 months of age shall be:
	+ Leukocyte Reduced pre-storage (considered to be CMV-Safe). Use of Directed Donor units not collected as leukocyte reduced must be approved by the attending provider.
	+ Irradiated
	+ Hgb S Negative
* Refer to [Appendix\_A](#Appendix_A) for red cell selection criteria.
* Refer to TS 3.1 for pre-transfusion testing requirements for infant < 7 day old and TS 3.2 for pre-transfusion testing requirements for patient 8 days to 4 months old.
* Irradiation of red cell products should occur ≤14 days prior to infusion. Irradiation causes a membrane defect that leads to storage lesion and an elevated potassium level in donor unit.
	+ If the aliquot to be transfused was irradiated >14 days prior to the transfusion, TS Physician approval is needed to transfuse this irradiated unit.
 |
| **Test Codes** | UXM-Transfuse RBC (< 4 months)  |
| **Process** |  |
|  | Activity | Key Considerations | Related Document |
|  | 1 | Review patient order history in function BOP. | * Confirm the patient is less than 4 months old.
* Confirm the infant has had an ABO/Rh and

 antibody screen (Type & Screen or Newborn Workup-Type & Screen/Newborn) performed on the current admission. * 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 slip.* Record the accession number on the order

 slip. | [TS 5.2 Blood Order Processing](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/SpecRR/202247.pdf) |
|  | 2 | Review the request for transfusion.  | * Note the urgency of the red cell order.
* Evaluate the amount of red cells requested to dosing guidelines or surgical blood order guidelines.
* Evaluate the blood product request based upon the indication for transfusion to the patient diagnosis, symptoms, or current lab values.

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| **If** | **Then** |
| Appropriate  | Proceed to step 3 |
| Inappropriate | Consult with the patient care area orrefer the request to the technical specialist or a pathologist as soon as possible. |

 | [TSja 03.0.6 Dosing-TS staff](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Res/JobA/199767.pdf) [Surgical Red Blood Cell Ordering Recommendations](http://www.childrensmn.org/Manuals/Lab/TransfusionSvc/093512.asp)[TS 12.6 Analyzing Transfusion Appropriateness](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Alloc/202494.pdf) |
|   | 3 | Select product(s). | * Refer to [Appendix A](#Appendix_A) for red cell selection

 criteria and compatibility requirements .* Inspection selected red cell product(s).

|  |  |
| --- | --- |
| **If** | **Then** |
| Appropriate unit not available in inventory | * Order from blood Center
 |
| Assign the infant to a new unit as needed | * Document patient information on unit’s white assignment tag.
 |
| Delay in product availability. | Notify patient caregiver. |

 |  |
|  | 5 | Proceed to appropriate blood component preparation procedures. | * Orders for ≤ 60mL, issue in prefiltered

 syringe.* Orders for > 60mL, issue as splits or full

 unit.* Irradiate product pending issue or if irradiated, up to 14 days from irradiation
 | [TS 10.3 Syringing Products with the SCD](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BCP/202340.pdf)[TS 10.5 Splitting Products with the SCD](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BCP/202342.pdf) |
|  | 6 | Allocated product fro issue under a UXM Sunquest order. | * Result test field XM with Crossmatch Not

 Required (key @) or Source Compatible (;SCMP) if the parent unit was crossmatched.* Attach unit tag
* Bill for any additional testing (Hgb S,

 aliquoting, antigen typing) in BPO or BPI as needed. | [TS 12.1 Allocating of Red Cell Products Under a UXM-SQ](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Alloc/202511.pdf) |
|  | 7 | Store product until issue. | * 1-6ºC in the BB refrigerator
* Notify the patient care unit that the product is

 ready as needed. | [TS 7.18 Storage of Blood Products](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/BPOrd/202712.pdf) |
|  |  |
| **Appendices** | [Appendix A](#Appendix_A): Selection of Red Cells for Infants < 4 months |
| **Approval****Workflow** | Transfusion Service/Medical Director |
|  |  |
| **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 | 3/1994 |  |
| 4 | J. Wenzel | 12/1994 |  |
| 5 | J. Wenzel | 1/1996 | Merger |
| 6 | J. Wenzel | 1/1997 |  |
| 7 | J. Wenzel | 1/1998 |  |
| 8 | J. Wenzel | 9/1999 | Std format between campuses |
| 9 | J. Wenzel | 6/28/2002 |  |
| 10 | J. Wenzel | 5/16/2003 | Use of AS1/AS3 <30 mL/Kg |
| 11 | J. Wenzel | 12/01/2008 | Online format. Hgb S for all infants |
| 12 | J. Wenzel | 2/20/2012 | Added reference to TS 3.1 and TS 3.2, under Policy.Added comments under Crossmatching Requirements in Appendix A.  |
|  | 13 | S Cassidy | 08/01/2019 | Added statement that patients with positive antibody screens, units will be crossmatched through AHG unless the antibody is caused by RhIG |
|  | 14 | S Cassidy | XXXXX | Added statement that only use irradiated RBCs that ≤14 days from irradiation or get TS physician approval if unit is >14 days from irradiation |

**Appendix A: Selection of Red Cells for Infants < 4 months**

**ABO/Rh:**

|  |  |
| --- | --- |
| **Infant**  | **Unit**  |
| Unknown or unable to determine | O Rh Negative |
| O Rh Positive | O Rh Positive or Negative |
| O Rh Negative | O Rh Negative |
| A Rh Positive | O Rh Positive or NegativeA Rh Positive or Negative if infant plasma tested for the presence of maternal anti-A. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |
| A Rh Negative | O Rh NegativeA Rh Negative if infant plasma tested for the presence of maternal anti-A. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |
| B Rh Positive | O Rh Positive or Negative B Rh Positive or Negative if infant plasma tested for the presence of maternal anti-B. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |
| B Rh Negative | O Rh NegativeB Rh Negative if infant plasma tested for the presence of maternal anti-B. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |
| AB Rh Positive | O Rh Positive or NegativeAB Rh Positive or Negative if infant plasma tested for the presence of maternal anti-A and anti-B. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |
| AB Rh Negative | O Rh NegativeAB Rh Negative if infant plasma tested for the presence of maternal anti-A and anti-B. [TS 4.27 Testing for anti-A or anti-B in newborns](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/4%20Patient%20Specimen%20Analysis/TS%204.27%20Test%20for%20anti-A%20or%20anti-B%20in%20newborns.doc)  |

\*Note: Testing forthe presence of maternal anti-A and anti-B must be repeated on a current specimen if the infant has received a large volume of group O RBCS.

**RBC requirements:**

|  |  |
| --- | --- |
| **Transfusion Dose** | **RBC**  |
| < 30 mL per Kg | CPDA1 or additive units (AS-3 preferred over AS-1) |
| > 30 mL per Kg | Additive removed units TS 10.20 Removing Additive Solution from RBCs.* CPDA1 units are approved in an emergency situations.
 |

**Crossmatching requirements:**

|  |  |
| --- | --- |
| **Infant Antibody History** | **Red Cell Unit** |
| No antibody(s) detected in pre-transfusion testing | Crossmatching not required. Result XM as NRQ-Not Required under a UXM. |
| Clincially significant maternal antibody(s) demonstrated in infant plasma during pre-transfusion testing. (Refer to Positive Antibody Screen in Appendix A in TS 3.1-Newborn Workups for options.) | * Provide antigen negative RBCs that are compatible by AHG crossmatch if the antibody is not caused by RhIG. Allocate RBCs for issue under a UXM with a XM result of SCMP. (Refer to steps under Crossmatching of RBC in Appendix A in TS 3.1-Newborn Workups for full instructions.)

*Perform AHG xming using the most recent pre-transfusion order BN or TYAS and associated specimen. (Specimen on infant’s < 4 months of age may be used for xming purposes beyond 3 days since maternal antibodies are passively acquired and complement dependent antibodies are not a concern. Extend the specimen’s expiration date in BOP as needed.) Request new specimen/order if the former sample is not available. If the antibody screen found to be negative on the subsequent specimen, then antigen negative units or crossmatching is no longer required. Antibody information may be removed from the patient BAD file.* |
| Unresolved positive antibody screen | Provide RBC units that are compatible by AHG crossmatch. Perform AHG xming using the most recent pre-transfusion order BN or TYAS and associated specimen.Allocate RBCs for issue under a UXM with a XM result of SCMP. |

**Red Cell unit age restrictions:**

|  |  |
| --- | --- |
| ECMO TS 3.15 ECMO Orders | Prime or re-prime: ≤ 5 days. Routine transfusion, assign to fresh unit |
| Exchange  | ≤ 3 to 5 days [TS 3.21 Exchange Transfusions, Patients < 1 year](file:///C%3A/DOCUME~1/CE080589/LOCALS~1/Temp/GWViewer/dax/data/Dept/LAB/Laboratory%20Policy%20and%20Procedure%20Manual/Transfusion%20Services/3%20Processing%20Orders/TS%203.21%20Exchange%20Transfusion%2C%20Patient%27s%20less%20than%201%20year%20old.doc) |
| Cardiac TS 3.18 Cardiac Surgery | ≤ 5 days, ≤ 7 days if Directed Donor |
| Greater than 20 mL/Kg transfusion dose | ≤ 7 days |
| Hyperkalemic | ≤ 7 days |
| Routine replacement ≤ 20mL/Kg | Infants <7 days old, assigned to a unit <7 days old. Use to outdate |

**Unit Assignment:**

|  |  |
| --- | --- |
| 1 infant per unit | ECMOIf requested by provider Infants identified by transfusion service staff to have high transfusion need. |
| 2 infants per unit | < 1.0 Kg birthweight |
| 3 infants per unit | All other infants < 4 months old |