Sutter Health
Sutter Roseville Medical Center

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Owner:	*Nadera Dashty: Supervisor, Lab Analytic*
Policy Area:	*Lab - Transfusion Service*
References:	
Applicability:	*Sutter Roseville Medical Center*

Routine Neonatal Transfusion Protocol

PURPOSE

To provide instruction on required pre-transfusion testing and appropriate selection of blood components for neonatal patients (<4 months of age).

POLICY

- Two adult-sized RBC units meeting neonate selection requirements (see *Product Selection*) will be kept in stock through standing order (every 3-4 days). Units will be marked with the last date they may be used for neonatal transfusion and rotated into adult inventory past that date.
  - Adult units will be issued unless pediatric units are specifically requested by the clinician.
  - Pediatric aliquots must be ordered as such from the blood supplier.
- **PI** for blood type (O negative) and product attributes (irradiated, CMV, and HgbS) is not required.
- Neonate blood filter is to be attached and issued with each blood product. Contact NICU for additional filters, as needed.
- Transfuse order may be accepted with or without product attributes noted on the transfuse order.
- **Exchange Transfusions:**
  - Product with final hematocrit of 45-60% will be manufactured by the blood supplier upon request (see *Product Selection).*
  - Total volume of final product will range from 370-420 mL, containing approximately 220 mL RBCs and 150-175 mL of plasma.
  - Units may not be equilibrated to 1-6ºC prior to transport due to STAT need and abbreviated expiration of 24 hours from manufacture.
  - Exchange transfusions require a blood warmer: add test **PI** and result with ETC **WARM** (Blood Warmer Required).
  - If **intrauterine** exchange transfusion is requested, perform all routine pre-transfusion testing on the *mother's XM accession* and complete AHG crossmatch.
    - Add **BBC**: "Intrauterine exchange transfusion."
    - Add **PI**: "Intrauterine exchange transfusion. Blood warmer required."

TESTING FREQUENCY/ORDERS

If neonate is:	Then pre-transfusion testing is performed:
< 4 months, during current admission	On the first sample, NOT repeated during admission (unless plasma is needed for testing and is no longer available)
< 4 months, discharged and readmitted	On new sample from readmission, NOT repeated during new admission
≥ 4 months, regardless of admission status	Every 3 days

NEONATAL ORDER CODE	ADULT EQUIVALENT	COMMENTS
INWU	XM/TS	• Required for first order of **ANY** blood product • Includes ABORh, antibody screen, and IgG DAT • To be performed according to testing frequency noted above • Can be ordered with or without volume of product requested
TINF	ADDXM	• Routine request for additional infant RBCs • Result UO and HX, then allocate on original INWU accession

SPECIMEN COLLECTION: INWU/ABORHK

- Results from cord blood testing or cord blood specimens cannot be used for INWU or as a specimen used for confirmatory ABORh (ABORHK).
- If able, NICU nurses will collect transfusion specimens (INWU/ABORHK) to limit neonate exposure to various personnel. If needed, NICU nurse may request phlebotomist assistance.
  - 1st nurse is to independently perform patient identification, collection, and labeling of the INWU.
  - 2nd nurse is to independently perform patient identification, collection, and labeling of the ABORHK.
- Specimens for primary transfusion testing (INWU) must be **2.0 mL EDTA, peripheral/line draw (1.5 mL minimum)**.
  - Heel stick or clotted specimens are unacceptable.
- Specimens for ABORHK collected by the NICU nurse will be collected in an **EDTA microtainer, heel stick, approximately 250 µL**.
- Upon receipt of INWU order, Transfusion Services will provide the collection kit, which includes the tube(s) needed for testing and instructions for collection.
  - Microtainer for ABORHK will be omitted from collection kit in the event that there is already an acceptable specimen in the Laboratory (purple top EDTA (1st choice) or blue top sodium-citrate (2nd choice)).
- Specimen collected by the NICU nurse must be adhered to the specimen and include:
  - Date and time of collection
  - RN initials
  - Location of draw (NICU)

PRODUCT SELECTION

<table>
<tr><th>COMPONENT</th><th>SELECTION</th><th>COMMENTS</th></tr>
<tr><td>Red Blood Cells (routine)</td><td>• O negative
• Leukocyte reduced
• AS-1 or AS-3
• <7 days post-irradiation
• Irradiated
• CMV negative
• Antigen negative, if indicated</td><td>• O negative only
• Consult pathologist if appropriate product unavailable from blood supplier</td></tr>
<tr><td>Platelets</td><td>• Plasma compatible (select in order listed)<table><tr><th>NEONATE ABO:</th><th>SELECTION:</th></tr><tr><td>O</td><td>O, A, B, AB</td></tr><tr><td>A</td><td>A, AB</td></tr><tr><td>B</td><td>B, AB</td></tr><tr><td>AB, INVAL, Unknown</td><td>AB</td></tr></table>• Leukocyte reduced
• Irradiated
• CMV negative</td><td>• Rh type not a consideration except in cases of Rh negative female, in which case Rh negative will be selected
• Consult pathologist if Rh positive must be given to Rh negative female to determine if Rhogam (RhIg) should be administered</td></tr>
<tr><td>Plasma</td><td>AB only</td><td>• Rh type not a consideration</td></tr>
<tr><td>Cryoprecipitate</td><td>ABO compatible</td><td>• Rh type not a consideration</td></tr>
<tr><td>Whole Blood (exchange)</td><td>RBC requirements:
• O negative
• Leukocyte reduced
• CPD or CPDA-1
• < 3 days old (per nursing SOP)
• Irradiated
• CMV negative
• HgbS negative
• Antigen negative, if indicated

Plasma requirement:
• Type AB collected in CPD or CPDA-1</td><td>• O negative only
• Ordered reconstituted from blood supplier
• Good for only 24 hours
• DO NOT order until decision to perform procedure at SRMC has been made</td></tr>
</table>

Granulocyte	• O negative • Irradiated • CMV negative • Antigen negative, if indicated	

CROSSMATCH COMPATIBILITY

NEONATE RESULTS	CROSSMATCH METHOD	RESULTING XM
AS: Negative **DIGG**: Negative	Electronic Crossmatch	Auto-populates grids upon saving
AS: Positive **ABID**: Non-clinically significant antibody, ANAPS, or low incidence antibody (regardless of **DIGG** or **ELU** results)	AHG Crossmatch	Result according to AHG crossmatch procedure performed
AS: Negative **DIGG**: Positive **ELU**: Non-clinically significant antibody, ANAPS, or low incidence antibody		
AS: Positive **ABID**: Clinically significant antibody (regardless of **DIGG** or **ELU** results)	Neonatal No XM Protocol AHG crossmatch not required, **MUST** provide antigen negative units	**XIS**: NRQ (~) **Interp**: NCMP (shift ~)
AS: Negative **DIGG**: Positive **ELU**: Clinically significant antibody		

PROCEDURE

Step	Action
1.	Perform history check on neonate and mother (if available), then access the INWU accession in *Blood Order Processing* and result the following fields: • **EXX** (Crossmatch Expiration): Date neonate will be 4 months old ◦ Specimen is to be expired upon patient discharge OR exhaustion of neonate plasma, if needed for AHG crossmatches • **UO** (Units Ordered): Number requested or *HIDE* (if none) • **HX** (History Check): *YH* or *NH* • Add/order appropriate confirmation testing based on patient history • Add **PB** and result with free text: "Infant 4 months old on MM/DD/YYYY" • Add **PB** and result with ETCs for required neonatal attributes: **BBIRR**, **BBCMVN**
2.	Perform automated testing on neonate's specimen. Note: Transcribe ABORh results from Echo. Reverse type is not indicated in neonates and will be resulted as *ND*.

3.	Perform antibody ID if antibody screen demonstrates reactivity. • If mother has known specificity and limited neonate plasma is available, PEG selected cells may be used for antibody identification in the neonate's plasma. • All clinically significant antibodies must be ruled out using neonate's current specimen. • Result **ABI** with **dated free text** including mother's name and medical record number (if available): "*MM/DD/YYYY* Maternal anti *X*. Mother's name: *LAST, FIRST* (MRN: ###)." • Add **PI** indicating need for antigen negative units, if applicable based on antibody identification.
4.	Add test **ELU** and perform an elution if: • DAT is positive upon initial workup *OR* • DAT strength has increased since previous peripheral specimen testing
5.	Crossmatch and allocate units as needed once all testing had been completed using *Crossmatch Compatibility* section for guidance.
6.	Select *Save.*

All revision dates:

Attachments

No Attachments