Non-Technical SOP

Title	**Intrauterine Transfusion (IUT)**
Prepared by	Stephanie Codina Date: 4/13/2011
Owner	Stephanie Codina Date: 4/13/2011

Laboratory Approval

Print Name and Title	Signature	Date
Refer to the electronic signature page for approval and approval dates.		

Local Issue Date: Local Effective Date:

12 month (or new) management review and approval:
Signature acknowledges SOP version remains in effect with NO revisions.

Print Name	Signature	Date

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1. PURPOSE

Fetal anemia can become severe and life-threatening in severe cases of hemolytic disease of the fetus or newborn (HDFN). In these situations, intrauterine transfusion (IUT) with red cells that lack the antigen that corresponds to the mother's antibodies is used to sustain the fetus until delivery. This procedure describes the process for preparing blood products for IUT.

2. SCOPE

This procedure applies to any red cell product that is requested for intrauterine transfusion (IUT).

3. RESPONSIBILITY

All blood bank staff members must understand the transfusion requirements and blood product preparation steps necessary to provide blood for an IUT.

4. DEFINITIONS

N/A

5. PROCEDURE

Step	Action
1	The patient care area should notify blood bank at least 2 days in advance of an IUT procedure. Advance notification may not be possible in emergency situations.

Step	Action
2	The blood bank technologist will obtain the following information at the time of initial notification: A. Mother's name B. Mother's medical record number C. Date and time of procedure D. Mother's type and screen specimen (at least 24 hours in advance) E. Desired volume and hematocrit of red cell product
3	Order the appropriate red blood cell unit from the blood supplier. Carefully coordinate delivery of the washed or deglycerolized red cells to arrive in time for, but not too early for, the scheduled procedure. **Washed and deglycerolized red cells expire 24 hours from the time the washing/deglycerolizing procedure is started.** Red cells should meet the following specifications: A. O-negative RBCs B. Washed or deglycerolized C. Negative for antigens that correspond to maternal clinically-significant antibodies. D. CMV-seronegative E. Hemoglobin S-negative (sickle-negative) F. Irradiated (ask the blood supplier to irradiate the washed red cell prior to shipping)

When the red cells arrive,

Step	Action
4	Enter the red cell into inventory per procedure, "Entering Blood Products Into Inventory."
5	Crossmatch the unit to the maternal T&S specimen per procedure, "Crossmatch." A. Both an immediate spin and AHG crossmatch are performed. B. The unit is allocated and crossmatched to the mother's T&S specimen.
6	Obtain a hematocrit on the unit. A. Mix the unit thoroughly by gently rotating back-and-forth. B. Sterile dock a transfer pack to the unit. C. Allow a small sample of the blood to flow into the tubing of the empty bag. D. Apply a metal clip to protect the parent unit and then heat seal the tubing. E. Label a 12 x 75 mm test tube with the unit number. F. Drain the blood from the segment(s) into the clean, labeled test tube. This will be used for hematocrit testing. Deliver the hematocrit specimen to hematology and request that a STAT hematocrit be run in duplicate

Step	Action
7	Average the two hematocrit results and enter the results in the LIS. A. Access Sunquest function "Blood Product Testing." B. Scan or type the unit number in the "Unit #" prompt. C. Scan or type the collecting facility if prompted to do so. D. Select the correct component from the drop-down menu. E. Press the "Tab" button. F. Click on the "Add" button. G. Click on the "Continue" button. H. Click on the first available white box in the "Test" column. I. Type ";UHCT" and press the "Tab" key. J. The message "Confirm adding test: UHCT" will appear. Click on the "Yes" button. K. In the "Result" column, type the semicolon twice ";;" and then type the unit's hematocrit value. L. Click the "Save" button. M. The message "Product test result has been filed for unit ######." N. Click the "OK" button.
8	Store the blood product at refrigerated temperatures (1-6°C) and issue per procedure, "Issuing Blood Components."

6. RELATED DOCUMENTS

SOP: Entering Blood Products Into Inventory
SOP: Crossmatch
SOP: Issuing Blood Components

7. REFERENCES

1. Roback, J.D., Combs, M.R., Grossman, B.J., Hillyer, C.D. 2008. Technical Manual of the AABB, 16th ed. AABB Publishing, Bethesda, Maryland.
2. Standards for Blood Banks and Transfusion Services, 2009. AABB, 26th ed. AABB Publishing, Bethesda, Maryland.

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
		Supersedes SGAH B402.02		
000	9.9.12	Section 5: Updated to request irradiated blood from the blood supplier instead of irradiating at SGAH	SCodina	NCacciabeve

9. ADDENDA AND APPENDICES

Appendix A: Calculating the Volume of Red Cells to be Transfused

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Calculating the Volume of Red Cells to be Transfused

Note: Blood bank does not calculate the volume of red cells to be transfused. However, the formula is provided in the event that a provider asks for guidance.

The volume of blood to be transfused can be calculated:

A. Fetoplacental blood volume = ultrasound estimated fetal weight (g) x 0.14 mL/g

B. Difference in hematocrit = Post-transfusion Hct – Pre-transfusion Hct

C. Hematocrit of unit

$$\textbf{Blood Volume to be transfused} = \frac{A \times B}{C}$$

Example:

- Estimated fetal weigh from ultrasound = 1000g
- Post-transfusion hct = 40%
- Pre-transfusion hct = 15%
- Hct of unit = 75%

1000 g x 0.14 mL/g = 140 mL fetoplacental blood volume

40 – 15 = 25 difference in hematocrit

(140 mL x 25%) ÷ 75% = **35 mL**