TRAINING UPDATE

Lab Location:	SGMC and WAH	**Date Implemented:**	10.3.2017
Department:	Blood Bank	**Due Date:**	10.17.2017

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:

Red Blood Cell Aliquot Preparation

Description of change(s):

1. Updated volumes for use with the syringe due to free air in the syringe.
    a. Aliquots <20 mL, use 30 cc syringe
    b. Aliquots <50 mL, use 60 cc syringe
    c. Aliquots >50 mL, use a transfer pack or 2 syringes

2. NEVER push free air from a syringe back into the parent unit when preparing an aliquot.

3. Prepare an extra segment between the aliquot and parent unit when crossmatch is needed.

Electronic Document Control System

Document No.: SGAH.BB92[4]
Title: Red Blood Cell Aliquot Preparation
Owner: LESLIE BARRETT
Status INWORKS
Effective Date: 01-Nov-2017

Next Review Date:

Non-Technical SOP

Title	**Red Blood Cell Aliquot Preparation**	
Prepared by	Stephanie Codina	Date: 3/27/2011
Owner	Stephanie Codina	Date: 3/27/2011

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:	

Review:		
Print Name	**Signature**	**Date**

TABLE OF CONTENTS

1. PURPOSE

To describe the procedure for making small-volume red blood cell aliquots. This procedure allows small amounts of a red blood cell unit to be transfused over the lifespan of the original blood product. This process limits donor exposures and decreases donor-related risks in the recipient while minimizing overall blood wastage.

2. SCOPE

This procedure applies to small-volume red blood cell transfusions requested for neonates and small children as well as "split" units intended for adults at risk of volume overload. SGMC staff members perform all RBC aliquot procedures for WAH and SGMC.

3. RESPONSIBILITY

All blood bank staff members must be trained and competent in RBC aliquot preparation to ensure the purity, potency, and safety of the aliquotted red blood cell product.

4. DEFINITIONS

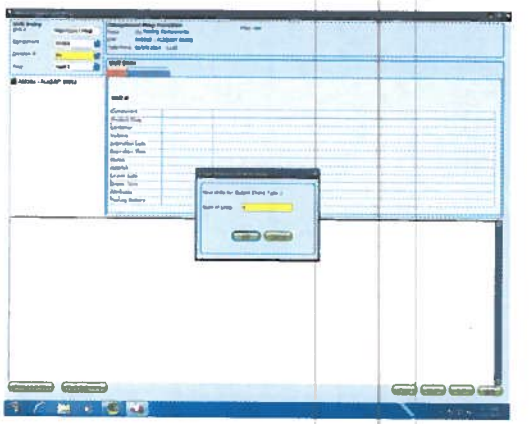
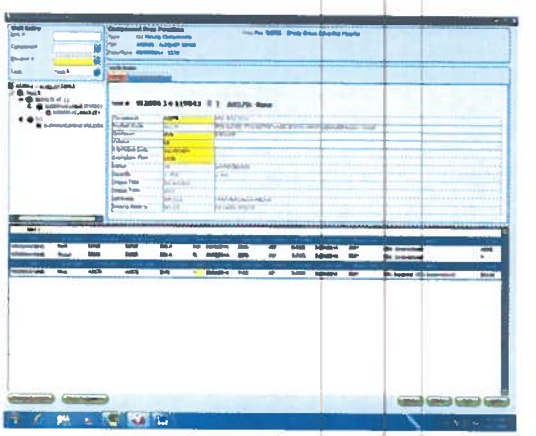
N/A

5. PROCEDURE

Step	Action
1	The patient care area will order red cell aliquots using test "TRCNEO." Review the order, special instructions, and volume. Note: We also accept a TRRC order that has an indication to split a red cell unit for an adult in the comment section.

Step	Action
2	Obtain the supplies necessary to aliquot a red cell: A. An aliquot container a. For aliquots <20 mL, use the set with the 30cc syringe. b. For aliquots <50mL, use the set with the 60cc syringe. c. For aliquots >50mL, use a transfer pack **or** two syringes. B. Sterile welding device C. Heat sealer D. Scale E. Hemostats
3	Perform daily QC of the scale if needed.
4	Select a red blood cell that meets the recipient's transfusion specifications. A. Red cells are <u>not</u> routinely crossmatched for infants <4 months of age. B. When the mother of an infant has clinically-significant antibodies (including passive anti-D): a. Antigen-negative units are required. Refer to procedure, "Antigen Typing." b. Both IS and AHG crossmatch are performed. Refer to procedure, "Crossmatch." C. Perform both an IS and AHG crossmatch if mom's history is unknown **and** the baby's antibody screen is positive. D. Refer to procedure, "Neonatal Type and Screen and Crossmatch" for additional instruction. For neonatal transfusions, the following transfusion requirements should be met: A. Group O red cells, Rh-negative are preferred, but Rh-positive may be used for Rh-positive recipients B. CPDA-1 or AS-3 anticoagulant C. Leukocyte reduced D. CMV-seronegative E. Hemoglobin S negative F. Irradiated *after* aliquot to reduce potassium leakage G. Negative for antigens present in the baby's or mom's plasma
5	Tighten all connections. The hub connection nearest the syringe has disconnected on rare occasions. **Use aseptic technique for this procedure!**

Step	Action
6	Document the following on the "Product Modification Log" A. Tech identification B. Date of modification C. Unit number D. E code of original and new units (or A code if applicable) E. Lot number of bag or syringe and expiration date of syringe F. Wafer lot number
7	Gently mix the primary bag to resuspend the red cells.
8	Connect the filter-syringe set or transfer bag (whichever is used) to the primary red cell per procedure, "Sterile Tubing Welder."
9	If a transfer bag is used, tare the scale using an empty 150 mL transfer bag.
10	Slowly draw the required amount of blood into the syringe or allow the required amount of blood to flow into the transfer bag via gravity. Include an extra 10 mL of red cells to compensate for the volume that will be lost in the tubing. DO NOT push free air from the syringe back onto the parent unit.
11	Clamp the line when an appropriate amount of blood has been transferred. Seal the line using a tube sealer at least twice. **Do not separate the aliquot from the parent unit at this time.** A. Always ensure the hemostat is clamped between the parent unit and the location in which the tubing will be sealed. B. This will protect the sterility of the unit should the heat seal fail. C. Prepare at least one segment from the line if the product requires crossmatch.
12	Access Sunquest function, Blood Component Preparation. Note: DO NOT branch to blood component preparation (BCP) from blood order processing (BOP).
13	At the "Value" prompt, type the aliquot function that corresponds to the red cells to be aliquotted then press the "Tab" key. The aliquot function is A + the E code of the red cell product. Refer to appendix A for additional information.
14	Press the tab key to default the current date and time as the aliquot time. Enter the date and time on which the aliquot was prepared if prepared at an earlier time (such as during computer downtime).
15	Click the "continue" button.

Step	Action
16	A second "Blood Component Prep" screen will appear. A. At the "Unit #" prompt, scan the unit number DIN of the parent red cell to be aliquoted. B. At the "Component" prompt, scan the product code of the parent unit to be aliquoted. This will autofill both the product code and division fields.
17	A pop-up screen will appear asking the user to indicate the number of units that will be prepared (ie the number of aliquots being prepared at one time). A. Enter 1 in the field. B. Click the "OK" button. 
18	On the next screen, click on the yellow circle containing the N (for new product)." Enter the volume of the red cell aliquot being prepared, then press the "Tab" key. 

Step	Action
19	Verify the new expiration dates/times. Document the new expiration date and time on the log. A. The expiration date of the parent unit will not change if a closed system is used. B. The expiration date of the parent unit will change to 24 hours from the time of aliquot if an open system is used (ie the sterile connection failed). If an open system is used, the output blood product codes in appendix A do not apply. See a supervisor for guidance. C. The expiration date of the aliquot will always be 24 hours from the time of preparation, regardless of whether an open or closed system is used.
20	Click the "Save" button.
21	A "Preview Output / New Units" screen will appear. Review the information to ensure accuracy, then click on the "finish" button to generate new labels for the parent and aliquotted products. A. The first time an aliquot is prepared, the system will convert the parent unit to division "A0" and the aliquot to division "B0." B. All subsequent divisions will assign a division code to the aliquot using the division labeling convention of "Aa, Ab, Ac, Ad…….Az."
22	Adhere the new labels to BOTH the parent unit and the aliquot. **Ensure you adhere the "AO" label to the parent unit.**
23	After labeling, disconnect the aliquot from the parent unit and discard the filter. Use the extra segment for crossmatching, if indicated.
24	If the original product is an apheresis red cell, calculate the amount of anticoagulant in the aliquot and parent red cell products and document in the appropriate space on the blood product label. Each mL of blood contains approximately 0.14 mL of anticoagulant.
25	Document the following on the "Blood Product Modification Log." A. Division number new product B. Documentation of the weld inspection
26	Perform the blood label check for BOTH units in Sunquest per procedure.
27	Irradiate the aliquot per procedure. Do not perform the blood component preparation functions for irradiation as the aliquot function automatically performs these steps. Note: The output blood product automatically converts to an irradiated product E code. You MUST either irradiate the unit or change the E code if you are splitting a unit for an adult patient.

Step	Action
28	Allocate and/or crossmatch the red cell aliquot per procedure.
29	Return the parent product and the aliquot to the appropriate shelves of the refrigerator. Aliquots should be transfused as soon as possible after preparation.

6. RELATED DOCUMENTS

SOP: Antigen Typing
SOP: Crossmatch
SOP: Neonatal Type and Screen and Crossmatch
Form: Product Modification Log (AG.F01)
SOP: Sterile Tubing Welder
SOP: Scale Quality Control
SOP: Blood Label Check
SOP: Blood Component Irradiation

7. REFERENCES

1. Fung, M K, Grossman, BJ, Hillyer, CD, and Westhoff, CM. 2015. Technical Manual of the AABB, 18h ed. AABB Publishing, Bethesda, Maryland.
2. Standards for Blood Banks and Transfusion Services, 2016. AABB, 30th ed. AABB Publishing, Bethesda, Maryland.

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
		Supersedes SHB.010.000, SGAH.B404.02		
000	5.8.13	Section 5: Added ISBT-128 Information Section 9: Added appendix B	Scodina	Ncacciabeve
001	5.27.14	Section 5: Removed references to codabar-labeled units. Updated LIS instructions to include the Sunquest v6.4 upgrade. Moved appendix for blood component preparation in the LIS to the procedure. Section 9: Re-numbered appendix Footer: version # leading zero's dropped due to new EDCS in use as of 10/7/13.	Scodina	Ncacciabeve
2	6.1.16	Section 5: Changed dead volume for tubing from 5mL to 10mL due to hospital tubing change. Added statement about irradiation of units that are split for adults. Section 7: Updated references	Scodina	Ncacciabeve
3	9.515.17	Section 5: Added instructions to prepare an extra segment when crossmatch is indicated. Updated volume for syringe due to free air. Stated free air from syringe is not pushed into parent unit.	SCodina	NCacciabeve

9. ADDENDA AND APPENDICES

Appendix A: Red Blood Cell Aliquot Blood Component Prep Functions

Appendix A
Red Cell Aliquot Blood Component Prep Functions

Red Blood Cell Aliquot Products

Original Product Code	Component Prep Function	Final Product
E0226	AE0226	A0224
E0382	AE0382	A0379
E0678	AE0678	A0661
E0685	AE0685	A0668
E0686	AE0686	A0669
E4543	AE4543	A4538
E4544	AE4544	A4539
E4545	AE4545	A4540