TRAINING UPDATE

Lab Location:	SGMC and WOMC	**Date Implemented:**	9/25/20
Department:	Blood Bank	**Due Date:**	10/15/20

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:
HLA-Matched Platelet Products
Description of change(s):
HLA typing and HLA-matched products are ordered in Blood Hub. We no longer send a paper requisition.

Non-Technical SOP

Title	**HLA-Matched Platelet Products**
Prepared by	Stephanie Codina Date: 05.22.2014
Owner	Stephanie Codina Date: 05.22.2014

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:	

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1. PURPOSE

HLA-matched platelet products are used to treat patients that have become refractory to platelet transfusions due to the presence of HLA or platelet specific antibodies. This procedure outlines the process for obtaining HLA-matched platelet products for transfusion.

2. SCOPE

Platelets bear a variety of antigens, including HLA and platelet-specific antigens. Patients who have been transfused may develop antibodies towards platelet antigens. When platelets are transfused to a patient with an antibody directed towards an antigen expressed on the platelets, the survival time of the transfused platelets may be markedly shortened. Platelet survival is improved when the transfused platelets match the HLA type of the recipient **or** lack the HLA antigens that correspond to the recipients HLA antibodies. HLA-matched platelets require additional time for preparation and orders should be coordinated with the blood supplier.

3. RESPONSIBILITY

All Blood Bank staff must understand and adhere to this procedure when providing HLA-matched platelets for transfusion.

4. DEFINITIONS

Platelet Transfusion Refractoriness - When the recipient experiences a "less-than-expected" increase in platelets following a platelet transfusion. Platelets can be destroyed by immune mechanisms (HLA and platelet-specific antibodies) or non-immune mechanisms (splenomegaly, sepsis, fever, intravascular devices, and DIC). A 1-hour post-transfusion platelet count should be used to differentiate between immune-mediated and non-immune-mediated destruction. Immune refractory states will demonstrate poor recovery in the early post-infusion interval.

Corrected Count Increment (CCI) - A calculation used to determine the recipient's response to platelet transfusion. A 1-hour CCI >7500 indicates an adequate response to platelet transfusion, while a CCI <5000 on two separate occasions indicates platelet refractoriness. CCI values that are adequate 1 hour post transfusion and continue to decrease are more suggestive of non-immune causes (splenomegaly, fever, infection, DIC, amphotericin B use, bleeding, etc.). Neither crossmatched nor HLA-matched platelets are needed for non-immune platelet destruction.

$$CCI = \frac{\text{Body Surface Area } (m^2) \times (\text{Post Transfusion Platelet Count} - \text{Pre Transfusion Platelet Count}) \times 10^{11}}{\text{Number of Platelets Transfused}}$$

HLA-Matched Platelets – Both the donor and recipient are tested for HLA antigens. The antigens are matched for HLA-A and-B locus as best as possible. If the patient has HLA antibodies, donor platelets that lack the corresponding antigen are also selected. HLA-matched platelets provide more successful transfusion response in up to 75% of patients with immune-mediated refractoriness.

5. PROCEDURE

Step	Action
1	All initial requests for HLA-matched platelets should be approved by the Blood Bank Medical Director or clinical pathologist on-call. A. Approval or rejection should be documented in the Blood Bank Communication Log. Include the date, time, and pathologist's name. B. An HLA antibody screen should be ordered the first time HLA-matched platelets are ordered. a. If positive, HLA antibody identification should be performed. b. If negative, other causes of immune-mediated platelet destruction should be considered (such as platelet antibodies). Contact the blood supplier for guidance. C. Once HLA-matched platelet products are approved, all subsequent platelet transfusions will meet the HLA-matched transfusion criteria. D. HLA-matched platelet products are not normally stored in inventory and must be coordinated with the blood supplier.
2	Notify the ordering provider that there may be a time delay. It may take up to 5 days to obtain HLA-matched platelets.

Step	Action
3	Document the need for special platelet transfusion by placing a comment in the patient's blood bank administrative data file. Enter ";HLA" for the comment "Irradiated and HLA matched platelets required."
4	Obtain a properly-labeled sample for testing.
5	Place an HLA Testing Service Request Order online in Connect and submit the appropriate specimen for testing. A. For HLA typing, order test HLA 072, HLA-A and B Typing For Platelet Transfusion (requires 7-10 mL red clot tube) B. For HLA antibody screen, order test HLA 025, HLA Antibody Screen Class I for Transfusion (requires 7-10 mL EDTA whole blood) C. Order both tests for refractoriness.
6	Place a BBREF order prior to sending the sample to the reference lab for testing.
7	Enter the patient's HLA type and antibodies into the blood bank historical data file.
8	Order HLA-matched platelets as indicated per procedure.
9	The blood supplier will send the platelets when available. The platelets will be shipped with a "Specially Selected" tie tag. The details of the order (ie HLA type of the platelets will only be available in Connect.
10	Enter the platelet into inventory per procedure.
11	Irradiate the platelet product. **All HLA-matched platelet products MUST be irradiated prior to transfusion. Irradiate upon arrival if ARC did not irradiate prior to shipment.**
12	Convert the platelets to an HLA-matched platelet product. A. Access Sunquest function "Blood Component Preparation." B. At the "Value" prompt, enter the function that corresponds to the platelet product that his HLA-matched. This is generally H + the E code of the platelet product. Refer to Appendix A for additional information. C. Press the tab key to default the current date and time. D. Click the "continue" button. E. A second "Blood Component Prep" screen will appear. a. At the "Unit #" prompt, scan the unit number DIN of the platelet unit. b. At the "Component" prompt, scan the product code from the platelet unit. This will autofill both the product code and division fields. F. Click the "Save" button. G. A "Preview Output / New Units" screen will appear. Review the information to ensure accuracy, then click on the "finish" button to generate new product/expiration date labels for the HLA-matched product. H. Perform a blood label check of the HLA-matched platelet product in Sunquest per procedure.
13	Allocate the HLA-matched platelet product to the designated recipient.

Step	Action
14	For units that were not issued, attach the printed patient information and store in the platelet rotator (20-24°C) until issue or expiration.
15	Notify a supervisor if HLA-matched platelets are issued to a patient who does not require HLA-matched platelets so billing may be adjusted.

6. RELATED DOCUMENTS

SOP: Entering Special Transfusion Attributes into the LIS
SOP: ARC Hospital Order Management Solution System
SOP: Reference Workup for Antibody Identification
SOP: Entering Blood Products into Inventory

7. REFERENCES

1. Cohn, CS, Delaney, M, Johnson, ST, and Katz, LM. Technical Manual of the AABB, current ed. AABB Publishing, Bethesda, Maryland.

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
0	5/6/18	Header: Added WAH	LBarrett	NCacciabeve
1	9/19/20	Header: Changed WAH to WOMC Updated ARC process/specimen. Deleted Appendix B.	SCodina	NCacciabeve

9. ADDENDA AND APPENDICES

Appendix A: HLA-Matched Platelet Component Preparation Functions

Appendix A
HLA-Matched Platelet Component Preparation Functions

Original Product Code	Component Prep Function	Final Product Code (Irradiated)
E3077	HE3077	C3046
E3087	HE3087	C3056
E3088	HE3088	C3057
E3089	HE3089	C3058
E4643	HE4643	C4647
E4644	HE4644	C4648