



University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 08-14-2018	Number: PC-0068.03
	Revision Effective Date: 03-27-2021	
TITLE: Selection of Platelet Components		

PURPOSE:

To provide guidance for selecting the appropriate platelet component for transfusion

PRINCIPLE & CLINICAL SIGNIFICANCE:

Multiple platelet component types are stocked by the University of Washington Medical Center Blood Bank (UWMC BB).

Platelet Type	Common Terminology	Description	Benefits/Cons
PAS - Platelet Additive Solution Platelets	PAS Platelet	Collected by apheresis with the plasma replaced by Platelet Additive Solution, an electrolyte solution that replaces most of the plasma	Some hospitals are reporting a significant decrease in allergic transfusion reactions with the use of PAS as compared to plasma as a storage medium The isoagglutinin titers are lower in PAS platelets when compared to apheresis in plasma platelets (less plasma, less antibodies)
Apheresis Platelet in Plasma	Apheresis Platelet	Platelets collected by removing whole blood from the donor, separating the platelets for collection and returned the remaining components to the donor. Performed using a closed system. Takes approximately 2 hours to donate.	Provides an adult dose of platelets while exposing the recipient to only one donor Donation takes more time than a whole blood donation
Pre-Pooled	Pooled Platelet	Obtained from a standard whole blood donation after collection. The whole blood donation is centrifuged, and plasma and platelets pulled off into separate containers. 5 – 6 containers are pooled together into one.	Allows for bacterial testing using a culture method similar to apheresis platelets. Less time to donate An adult dose exposes the recipient to 4 to 6 donors

Platelet Type	Common Terminology	Description	Benefits/Cons
HLA-selected*	HLA-Selected HLA- Matched HLA Platelets	Apheresis platelets stored in either plasma or PAS selected to avoid antigens to HLA antibodies of the intended recipient and/or antigen matched to the recipient's HLA antigens	Provide a therapeutic response in recipients who are platelet refractory due to HLA antibodies Cost more than other component types
Pathogen Reduced Platelet	Psoralen-treated PRT PR	Platelets collected by apheresis procedure using the INTERCEPT Blood System. The platelets are treated using psoralen/UVA light to inactivate infectious agents. This component may be collected in plasma or PAS and is labeled as "psoralen treated"	PRT platelet does NOT require irradiation. Reduces the risk of transfusion-transmitted infectious agents including viruses, bacteria, parasite and protozoa. Eliminates the need for irradiation to prevent transfusion-associated graft-vs-host disease

* refer to SOP *HLA-Selected Platelets: Selecting Ordering Assigning and Releasing*

POLICIES:

- **All platelets** issued for transfusion by the UWMC BB must meet the following requirements:
 - **Leukocyte-reduced** (residual leukocyte count <5x10⁶) and considered **CMV safe**
 - **Irradiated or PRT (Pathogen reduced platelets)** in order to reduce the risk of graft-vs-host disease unless approved by the UWMC BB Medical Director (MD) (refer to SOP *Irradiation of Blood Components*)

NOTE: PRT (Pathogen reduced platelets) do not require irradiation

- **Pre-Transfusion Test Requirements** for issuing ABO specific plasma components:
 - 1 historical or current ABO/Rh performed at UWMC blood bank
- Issue of **more than 2 platelet components in a 24-hour period** to the same patient requires UWMC BB MD approval
- **Pre and Post Bone Marrow Transplant (BMT) patients** have special transfusion requirements to limit the volume of incompatible plasma transfused by volume reducing the platelet prior to issue. It is standard to volume reduce to 100 mL unless otherwise specified on order or by patient SQ history.
- **Rh negative platelets** should be provided for Rh negative patients. Rh positive substitutions are acceptable but required UWMC BB MD or provider approval.
 - Add the comment 'RHPAPP' (Rh Pos approved by Provider) to the Transfusion Record indicating MD approved

- **PAS platelets, Apheresis platelets in plasma, and pre-pooled platelets** may be used interchangeable **UNLESS** otherwise specified by:
 - Recipient’s transfusion plan (see “Comment” section in BAD file)
 - Provider order (see “Special Requirements section on Product Requisition and order in BOP)
 - Neonatal and intrauterine transfusions should not be issued pre-pooled platelets

INSTRUCTIONS:

- [Patient Record Review – Verification of Special Requirements](#)
- [Selecting Rh Type](#)
- [Selecting ABO Group for the Neonatal and Intrauterine Transfusion](#)
- [Selecting ABO Group for BMT Patient](#)
- [Selecting ABO Group for the Adult Patient \(NON-BMT patient\)](#)

Patient Record Review – Verification of Special Requirements

STEP	ACTION														
1	Review the patient’s history in Sunquest (SQ) ensuring complete review of the comment section for special platelet requirements such as: <ul style="list-style-type: none"> • Component type restrictions (i.e. HLA- matched, Apheresis only, PAS only) • Attributes: Irradiated, washed • Volume reduction 														
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Comment</th> <th style="text-align: center;">Definition</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> PAS or RV out of group PLT or RV out of group PLT </td> <td> <ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • ABO incompatible platelets, stored in plasma, should be volume reduced to 100 mL </td> </tr> <tr> <td style="text-align: center;"> PAS or RV PLT A/O or RV PLT A/O </td> <td> <ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group A or O platelets, stored in plasma, should be volume reduced to 100 mL </td> </tr> <tr> <td style="text-align: center;"> PAS or RV PLT B/O or RV PLT B/O </td> <td> <ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group B or O platelets, stored in plasma, should be volume reduced to 100 mL </td> </tr> <tr> <td style="text-align: center;"> PAS or RV PLT A/B/O or RV PLT A/B/O </td> <td> <ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group A, B or O platelets, stored in plasma, should be volume reduced to 100 mL </td> </tr> <tr> <td style="text-align: center;"> PAS or RV All PLT due to TRRX </td> <td> <ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • All ABO group platelets, stored in plasma, should be volume reduced to 100 mL </td> </tr> <tr> <td style="text-align: center;"> RV ALL PLT due to VOLO </td> <td> <ul style="list-style-type: none"> • Volume reduce all platelets regardless of ABO group or component type (PAS or Plasma) </td> </tr> </tbody> </table>	Comment	Definition	PAS or RV out of group PLT or RV out of group PLT	<ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • ABO incompatible platelets, stored in plasma, should be volume reduced to 100 mL 	PAS or RV PLT A/O or RV PLT A/O	<ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group A or O platelets, stored in plasma, should be volume reduced to 100 mL 	PAS or RV PLT B/O or RV PLT B/O	<ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group B or O platelets, stored in plasma, should be volume reduced to 100 mL 	PAS or RV PLT A/B/O or RV PLT A/B/O	<ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • Group A, B or O platelets, stored in plasma, should be volume reduced to 100 mL 	PAS or RV All PLT due to TRRX	<ul style="list-style-type: none"> • Any ABO PAS platelet may be issued at full volume • All ABO group platelets, stored in plasma, should be volume reduced to 100 mL 	RV ALL PLT due to VOLO	<ul style="list-style-type: none"> • Volume reduce all platelets regardless of ABO group or component type (PAS or Plasma)
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STEP	ACTION	
2	Review the product order for the following: <ul style="list-style-type: none"> • Attributes • Special requirements 	
3	Discrepancies between patient history and order requirements	Then
	NO	Go to next step
	YES	<ul style="list-style-type: none"> • Add new attributes or special requirements to the patient record in SQ • Resolve before selecting blood components • Consult with a UWMC BB MD or manager for resolution, if needed
4	If patient	Then
	Requires HLA-selected platelet	<ul style="list-style-type: none"> • Refer to SOP <i>HLA Selected Platelets</i> to select and assign a platelet • Go to next section
	Does not require HLA-selected platelets	Go to next section

Selecting Rh Type

STEP	ACTION			
1	<ul style="list-style-type: none"> • Review the following to determine what Rh type to select <ul style="list-style-type: none"> ○ BAD file ○ Historical ABO/Rh performed at UWMC blood bank ○ Comments 			
	Rh Compatibility Table			
		Recipient Clinical Profile	Recipient Rh	Platelet Rh
				Positive
	Adult Recipient	Positive	✓	✓
		Negative	Only with BB MD or provider approval	✓
		No Rh in BAD	Review SQ COMMENTS carefully for acceptable Rh	
	Neonate	Positive	✓	✓
		Negative	NA	✓
	IUT	Maternal Rh	Platelet Rh	
Positive			Negative	
Positive		✓	✓	
Negative	NA	✓		

STEP	ACTION
2	<ul style="list-style-type: none"> Contact the UWMC Medical Director for approval to substitute Rh positive platelets when Rh negative platelets are not available Add a RHPAPP (Rh Pos approved by Provider) comment to the Transfusion Record indicating MD approved - this comment is not required when issuing blood components to the operating room, for a bleeding emergency situation, or as part of a Massive Transfusion Protocol
3	Go to the appropriate section for guidance on selecting the acceptable ABO group <ul style="list-style-type: none"> Selecting ABO Group for the Neonatal and Intrauterine Transfusion Selecting ABO Group for BMT Patient Selecting ABO Group for the Adult Patient (not a BMT Patient)

Selecting ABO Group for the Neonatal or Intrauterine Transfusion

STEP	ACTION																		
1	<table border="1"> <thead> <tr> <th>If transfusion is for</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td>Neonatal</td> <td>Go to step 2</td> </tr> <tr> <td>Intrauterine Transfusion</td> <td>Go to step 3</td> </tr> </tbody> </table>	If transfusion is for	Then	Neonatal	Go to step 2	Intrauterine Transfusion	Go to step 3												
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	Neonatal	Go to step 2																	
Intrauterine Transfusion	Go to step 3																		
2	Select Platelets according to the following table for neonatal transfusion <ul style="list-style-type: none"> Pooled platelets are not acceptable for neonatal transfusion <table border="1"> <thead> <tr> <th colspan="3">NEONATAL Transfusion</th> </tr> <tr> <th>Recipient ABO</th> <th>PAS Platelets</th> <th>Platelets in Plasma</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>O, A, B, AB</td> <td>A, AB</td> </tr> <tr> <td>B</td> <td>O, A, B, AB</td> <td>B, AB</td> </tr> <tr> <td>O</td> <td>O, A, B, AB</td> <td>O, A, B, AB</td> </tr> <tr> <td>AB</td> <td>O, A, B, AB</td> <td>AB</td> </tr> </tbody> </table>	NEONATAL Transfusion			Recipient ABO	PAS Platelets	Platelets in Plasma	A	O, A, B, AB	A, AB	B	O, A, B, AB	B, AB	O	O, A, B, AB	O, A, B, AB	AB	O, A, B, AB	AB
NEONATAL Transfusion																			
Recipient ABO	PAS Platelets	Platelets in Plasma																	
A	O, A, B, AB	A, AB																	
B	O, A, B, AB	B, AB																	
O	O, A, B, AB	O, A, B, AB																	
AB	O, A, B, AB	AB																	
3	Select platelets for intrauterine I transfusion according to the following table <ul style="list-style-type: none"> Rh type negative platelets should be provided if the mother is Rh neg Contact the patient UWMC Medical Director for selection if a group AB platelet is not available <table border="1"> <thead> <tr> <th colspan="2">Intrauterine Transfusion</th> </tr> <tr> <th>Neonate</th> <th>Platelet ABO</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>AB</td> </tr> </tbody> </table>	Intrauterine Transfusion		Neonate	Platelet ABO	All	AB												
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All	AB																		
4	Perform additional component processing required –see SOP <i>Blood Component Processing</i> and process specific SOP																		

Selecting ABO Group for BMT Patient

STEP	ACTION					
1	Review the "COMMENTS" section of the patient's BAD file special platelet requirements					
	If patient is	Then				
	Pre-BMT	Go to next step				
	Post-BMT or Donor ABO/Rh is indicated in recipients BAD file	Go to step 3				
2	Select platelets for pre-BMT patients according to the following table:					
	Pre-Bone Marrow Transplant					
	Recipient ABO	PAS ABO	NON-PAS			
			Full Volume ABO	Reduced Volume ABO		
	A	O, A, B, AB	A, AB	B, O		
B	O, A, B, AB	B, AB	A, O			
O	O, A, B, AB	O, A, B, AB	None			
AB	O, A, B, AB	AB	A, B, O			
3	Select platelets for post-BMT patients according to the following table:					
	Post-Bone Marrow Transplant					
	Recipient ABO	Donor ABO	SQ BAD ABO	PAS	NON-PAS	
					Full Volume	Reduced Volume
	O	O	O	O, A, B, AB	O, A, B, AB	none
		A	NTD	O, A, B, AB	A, AB	B, O
		B	NTD	O, A, B, AB	B, AB	A, O
		AB	NTD	O, A, B, AB	AB	A, B, O
	A	O	NTD	O, A, B, AB	A, AB	B, O
		A	A	O, A, B, AB	A, AB	B, O
		B	NTD	O, A, B, AB	AB	A, B, O
		AB	NTD	O, A, B, AB	AB	A, B, O
	B	O	NTD	O, A, B, AB	B, AB	A, O
A		NTD	O, A, B, AB	AB	A, B, O	
B		B	O, A, B, AB	B, AB	A, O	
AB		NTD	O, A, B, AB	AB	A, B, O	

STEP	ACTION					
AB	O	NTD	O, A, B, AB	AB	A, B, O	
	A	NTD	O, A, B, AB	AB	A, B, O	
	B	NTD	O, A, B, AB	AB	A, B, O	
	AB	NTD	O, A, B, AB	AB	A, B, O	
4	Perform any additional component processing required –see SOP <i>Blood Component Processing</i> and process specific SOP					

Selecting ABO Group for the Adult Patient (NOT a BMT patient)

STEP	ACTION		
1	Select ABO group specific platelets if available and inventory management is not a consideration (platelet is needed for a different patient or to prevent discarding platelets due to expiration)		
2	Use this table as guide for selection of ABO group specific platelet		
	General ADULT Population (not BMT)		
	Recipient ABO	PAS	Non-PAS
	A	O, A, B, AB	A, B, AB, reduced volume O
	B	O, A, B, AB	B, A, AB, reduced volume O
	O	O, A, B, AB	O, A, B, AB
AB	O, A, B, AB	AB, A, B, reduced volume O	
3	Perform any component processing required –see SOP <i>Blood Component Processing</i> and process specific SOP		

CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES

Interpretation
None

Results Reporting in Sunquest
None

CALIBRATION:
None

PROCEDURE NOTES AND LIMITATIONS:
 “BMT” listed in the patient’s SQ “comment” field designates the patient is a bone marrow transplant candidate. The date of transplant and donor type will be listed for SCCA patients when UWMC BB is provided this information from the SCCA TSO office. The recipient should

be considered post-BMT on the day of transplant. Non-SCCA BMT recipient transplant date and donor ABO/Rh may be added if known.

REFERENCES:

RELATED DOCUMENTS:

SOP Irradiation of Blood Components

SOP HLA-Selected Platelets

SOP Blood Component Processing

APPENDIX:

TRAINING

UWMC SOP Approval:	
UWMC CLIA Medical Director	_____ Date _____
	Mark H. Wener, MD
Transfusion Service Manager	_____ Date _____
	Nina Sen
Compliance Analyst	_____ Date _____
	Christine Clark
Transfusion Service Medical Director	_____ Date _____
	Monica B. Pagano, MD
UWMC Biennial Review:	
	_____ Date _____
	_____ Date _____

REVISION:

12-02-18:

To clarify the policy for selection of platelets for the general adult population the following revisions were made:

- Removed the policy statement for restricting plasma by volume
- Updated the table for selecting platelet for the General Adult Population
 - Add reduced volume O to group A, B, AB recipients
- Removed "ABO Compatibility" from table titles.

Change the group AB BMT patient BAD file ABO to NTD

02-25-21:

Added Pathogen Reduced Platelets as a new platelet type. Pathogen reduced platelets do not require irradiation. Updated RV SQ instructions due to transfusion reactions.