**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 plateletst for collection and returned the remaining components to the donor. Performed using a closed system. akes 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 |
| **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 recipients HLA antigens | Provide a therapeutic response in recipients who are platelet refractory due to HLA antibodies  Cost more than other component types |
| **Platelets for research study** | See Appendix 1 for current research studies and associated SOP | | |

\* 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** 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*)
* **Pre-Transfusion Test Requirements** for issuing ABO specific plasma components:
  + 1 historical ABO/Rh performed at UWMC blood bank
* Issue of **more than 2 platelet components in a 24 hour period** to the same patient required UWMC BB MD approval
* **ABO group specific platelets are the component of choice**, but any ABO group may be provided to adult non-bone marrow transplant recipients to assist with inventory management and when group specific components are not available.
  + Except in the case of active hemorrhage, it is preferred to limit the volume of incompatible plasma transfused to <350 mL/day to prevent possible hemolysis.
  + **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**](#RecordReview)

[**Selecting Rh Type**](#Rh)

[**Selecting ABO Group for the Neonatal and Intrauterine Transfusion**](#NEO)

[**Selecting ABO Group for BMT Patient**](#BMT)

**[Selecting ABO Group for the Adult Patient (NON-BMT patient)](#ADULT)**

**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:   * Volume reduction  |  |  | | --- | --- | | **Comment** | **Definition** | | **PAS or RV out of group PLT**  or  **RV out of group PLT** | * 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** | * 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** | * 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** | * 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 All PLT** | * 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** | Volume reduce all platelets regardless of ABO group or component type |  * Component type restrictions (i.e. HLA- matched, Apheresis only, PAS only) * Attributes: Irradiated, washed |
| **2** | Review the product order for the following:   * Attributes * Special requirements |
| **3** | |  |  | | --- | --- | | **Discrepancies between patient history and order requirements** | **Then** | | NO | Go to next step | | YES | * 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 | * Refer to SOP *HLA Selected Platelets* 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 | * Review the following to determine what Rh type to select   + BAD file   + Historical ABO/Rh performed at UWMC blood bank   + Comments  |  |  |  |  | | --- | --- | --- | --- | | **Rh Compatibility Table** | | | | | **Recipient Clinical Profile** | **Recipient Rh** | **Platelet Rh** | | | **Positive** | **Negative** | | 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** | **Positive** | | Positive | ✓ | ✓ | | Negative | NA | ✓ | |
| 2 | * 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   * [Selecting ABO Group for the Neonatal and Intrauterine Transfusion](#NEO) * [Selecting ABO Group for BMT Patient](#BMT) * [Selecting ABO Group for the Adult Patient (not a BMT Patient)](#ADULT) |

**Selecting ABO Group for the Neonatal or Intrauterine Transfusion**

| **STEP** | **ACTION** |
| --- | --- |
| **1** | |  |  | | --- | --- | | **If transfusion is for** | **Then** | | Neonatal | Go to step 2 | | Intrauterine Transfusion | Go to step 3 | |
| **2** | Select Platelets according to the following table for neonatal transfusion   * Pooled platelets are not acceptable for neonatal transfusion  |  |  |  | | --- | --- | --- | | **ABO Compatibility for**  **NEONATAL Transfusion** | | | | **Recipient ABO** | **PAS Platelets** | **Plasma Platelets** | | 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 l transfusion according to the following table   * 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  |  |  | | --- | --- | | **ABO Compatibility for**  **Intrauterine Transfusion** | | | **Neonate** | **Platelet ABO** | | All | AB | |
| **4** | Perform additional component processing required –see SOP *Blood Component Processing* 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:   |  |  |  |  | | --- | --- | --- | --- | | **ABO Compatibility for 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 | | | 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 | AB | O, A, B, AB | AB | | A, B, O | | |
| **4** | Perform any additional component processing required –see SOP *Blood Component Processing* 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)   * Review platelet transfusion in the past 24 hours to determine if the patient transfused has met the limit for transfusion of ABO incompatible plasma |
| **2** | Use this table as guide for selection of ABO group specific platelet   |  |  |  | | --- | --- | --- | | **ABO Compatible for General ADULT Population (not BMT)** | | | | **Recipient ABO** | **PAS** | **Non-PAS** | | A | O, A, B, AB | A, AB, B | | B | O, A, B, AB | B, AB, A | | O | O, A, B, AB | O, A, B, AB | | AB | O, A, B, AB | AB | |
| **3** | Perform any component processing required –see SOP *Blood Component Processing* 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*

|  |  |  |  |
| --- | --- | --- | --- |
| **UWMC SOP Approval:** | | | |
|  |  |  |  |
| **UWMC CLIA Medical Director** |  |  |  |
|  | Mark H. Wener, MD | Date |  |
|  |  |  |  |
| **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 |  |
|  |  |  |  |

**APPENDIX:**

Appendix1: Current Platelet Research Protocols

|  |  |  |
| --- | --- | --- |
| **TITLE** | **SOP** | **PLATELET TYPE** |
| MIPLATE | Miplate Research Protocol PC-0063.01 | Riboflavin-treated |