Document Number: TM08-07.001 Revision Number: 1.00
Document Type: Policy Effective Date: 3/22/2024 2:37:32 PM
Location: 3. APL Folder Structure\Transfusion and Transplantation-TTM\Transfusion Medicine-TM\08 Selection\07 Platelets

TM08-07.001 Platelet Selection Policy

APPLICABILITY

Compliance with this document is required by all Alberta Precision Laboratories Ltd. (APL) employees, medical staff, students, and other persons acting on behalf of APL (including contracted service providers as necessary).

PURPOSE

This policy provides direction on determining the appropriateness of an order for platelets for the purpose of screening, preparing, and selecting the most appropriate unit to fill the order in alignment with the AHS *Transfusion of Blood Components and Blood Products policy PS-59 (ahsnet.ca)*.

BACKGROUND

Platelets are a vital and limited resource. Inappropriate transfusion practices put a strain on Canada's blood supply and expose patients to potential harm. Identifying potentially inappropriate transfusions and referring the ordering physician to a Transfusion Medicine (TM) physician are important and effective ways that APL personnel can support appropriate transfusion practices.

DEFINITIONS

Bleeding	A patient who is losing blood volume internally or externally.
IgA deficient product	A blood product collected from an IgA deficient donor or processed to remove IgA.
Pathogen reduced product	Blood products that have been prepared using specialized technologies which inactivate or remove viruses, bacteria, and parasites.
Patient with childbearing potential	A patient who is capable of becoming pregnant or will be capable of becoming pregnant in the future. For the purpose of transfusion, a patient is considered to be a patient with childbearing potential if: • Patient is reported or presumed to be female, gender X or U, aged 45 years or younger, unless known to be incapable of pregnancy. • Patient is known or suspected to be capable of current or future pregnancy.
Platelets, Low Anti-A/B	Platelets that have a low titre of anti-A/B antibodies. All donors in a platelet pool must test low titre in order for the unit to be labeled as "Low Anti-A/B". The testing is performed on the donors and not the final component.

Platelets, PAS-E non pathogen reduced	An apheresis platelet suspended in crystalloid nutrient media also known as platelet additive solution E (PAS-E). It is designed to replace a portion of plasma within platelet units. These products are non-pathogen inactivated and therefore require bacterial testing.
Platelets, psoralen treated	Platelets that have been pathogen reduced using Cerus INTERCEPT® Pathogen Inactivation Technology that uses a psoralen compound (amotosalen) and ultraviolet (UV) light to cause irreversible damage to genetic material present in pathogens. These products considered equivalent to irradiated units and do not require irradiation under any circumstances.
Transfusion Medicine (TM) Physician	A physician or pathologist with responsibility for Transfusion Medicine in their sector or zone.

RESPONSIBILITY

TM personnel responsibilities include, but are not limited to:

- Timely review of platelet orders, based on urgency of order and site schedule of activities.
- Identifying orders that appear to be inappropriate.
- Referring the ordering prescriber to the TM physician when a platelet order appears to be inappropriate.
- Contacting the TM physician when the appropriate product selection for a patient is unclear.
- Updating patient's history / registry file when special requirements are identified for a patient.

TM physicians are responsible for:

- Consulting with the ordering prescriber when a platelet order appears to be inappropriate.
- Providing guidance to TM personnel on appropriate platelet selection.

POLICY

Deviations from this policy require documented approval from the TM physician.

A pretransfusion sample is recommended whenever possible. See *Section 2*.

Included in this policy is:

1. Platelet Transfusion Indications and Appropriateness

1.1. Clinical Indications

- The order for platelets shall include the clinical indication.
- Platelet transfusion may be indicated to treat or prevent bleeding in patients with thrombocytopenia or dysfunctional platelets, including:
  - Patients with clinically significant bleeding, or prior to an invasive procedure with a high risk of bleeding and at least one (1) of the following conditions:
    - Low platelet counts secondary to decreased production or dilutional thrombocytopenia.
    - Low platelet counts secondary to platelet consumption / destruction (e.g., DIC).
    - Low, normal, or high platelet counts with acquired or congenital platelet dysfunction.
  - Prophylactic platelet transfusions for very low platelet counts (less than $10x10^9$/L) secondary to decreased production.

1.2. Appropriateness (Screening)

- Platelets should not be transfused in patients with endogenous and exogeneous platelet destruction, such as thrombotic thrombocytopenic purpura (TTP), immune thrombocytopenic purpura (ITP), or heparin induced thrombocytopenia (HIT) except in the setting of life-threatening hemorrhage.
- If platelet transfusion is recommended, then one (1) unit of platelets should be transfused, and the patient's platelet (PLT) count rechecked prior to issuing a second unit of platelets.
- Refer to TM08-07.003 Platelet Screening Criteria.

2. Testing Requirements for Platelets

- Platelets should be ABO compatible with the recipient's red blood cells and isohemagglutinins, when possible, but they do not require serological crossmatching.
- Group specific platelets require one (1) blood ABORH in the Lab Information System (LIS); this includes uploaded historical groups.
- Cord blood ABO or RH typing is not considered a valid testing result for selection of platelets.
- A Transfusion Service Identification Number (TSIN) is not required for the transfusion of platelets, however, if the patient is wearing a TSIN from a current type and screen, then the TSIN must be confirmed at the time of issue by TM personnel and prior to transfusion by the health care professional who is completing the platelet administration.

3. Platelet Selection

3.1. Unmatched Platelets May Be Selected When:

- The ordering prescriber has assessed the risks versus benefits and determined that the clinical situation is sufficiently urgent to justify transfusion prior to the completion of required ABORH testing. The authorized prescriber is responsible for documenting this risk assessment (attestation) on the patient's chart.
  And
- The required patient ABORH testing is incomplete. See *Section 2. Testing Requirements for Platelets*.

3.2. Group Specific Platelets

- ABO group specific platelets shall be preferentially selected for prophylactic transfusions.
  - If ABO specific platelets choices are not available, then see TM08-07.004 Platelet Selection Chart for alternatives.
- If the clinical indication is bleeding, or the patient is in the Operating Room or Emergency Room, then select the first expiring unit of any ABORH group.

3.3. RhD Specific Platelets

- RhD negative platelets should be selected for RhD negative, RhD unknown, RhD VAR or RhD IND patients with childbearing potential if available on site or ordering RhD negative platelets would not delay the transfusion.
- If RhD Positive Platelets must be issued to an RhD Negative or RhD Unknown patient with childbearing potential:
  - RhIG may be offered to eligible patients per TM08-18.001 RhIG Indications Eligibility and Dose Policy following TM physician review for appropriateness.

4. Considerations for Inventory Management

- It is best practice to select units that are closest to expiry.
- In shortage situations, guidance from the Provincial Emergency Blood Management Committee (PEBMC) supersedes guidance in this policy.
- Sites may set aside designated platelet units (e.g., group HLA/HPA typed platelets) to ensure their availability when a specific patient requires those units.
  - Due to the short shelf life of platelets and variable usage rates, careful management is required to ensure reserving designated platelet units does not lead to increased expiry rates. Units approaching expiry may be issued to any compatible patient in order to avoid discard of the unit after confirming that the patient for whom they were designated will not require them prior to expiry.

Table 1. Inventory Management Considerations

Platelet Unit	Inventory Management Considerations
HLA/HPA typed platelets	Primarily reserved for patients with demonstrated platelet refractoriness due to anti-HLA and/or anti-HPA antibodies.
Pathogen reduced platelets	When mixed inventory is available, should be primarily reserved for patients at risk of TA-GVHD.

5. Special Clinical Indications

- Special platelet units shall be provided for patients with the Special Clinical Indications set out in Table 2 (below), whenever possible.
- Pathogen reduced platelets are considered equivalent to irradiated platelets for TA-GVHD prevention since the treatment process inactivates leukocyte replication as well as viruses, bacteria, and parasites.
- Psoralen treated platelets and PAS-E non pathogen reduced are considered low titer as pertains to the risk of hemolysis from the ABO incompatibility of donor isohemagglutinins and recipient red cell antigens.
- Demonstrated platelet refractoriness means the patient fails to achieve a PLT increment of at least 10 x 10^9/L after at least two (2) transfusions of pooled platelets, with no known medical explanation (e.g., fever, sepsis, ITP).

Table 2. Platelet Selection for Special Clinical Indications

Clinical Indication	Platelet Transfusion Requirements
Intrauterine Transfusion (IUT)	Apheresis platelets non psoralen treated
Neonate	When possible, unit should be split to provide specified dose. See TM08-07.006 Platelet Product Description Chart for units that may be split.
Patients at risk of transfusion associated graft-vs-host disease (TA-GVHD)	Psoralen treated and irradiated are considered equivalent as per TM08-04.006 Irradiated Blood Products Policy.
Patients with platelet refractoriness due to anti-HLA and/or anti-HPA antibodies	HLA and/or HPA selected apheresis platelets - give pooled platelet if matched apheresis platelet is unavailable. Patient specific HLA matched platelets should be given preferentially by expiry date. See TM08-07.005 HLA or HPA Selected Platelets.
Patients with IgA Deficiency, anti-IgA, and history of reactions	IgA Deficient Platelets as per TM08-04.002 IgA Deficient Product Approval Criteria

REFERENCES

Blais-Normandin I, Tordon B, Anani W. Pathogen-reduced buffy coat platelets. Ottawa: Canadian Blood Services; 2022 [accessed 17May2023]. https://profedu.blood.ca/en/transfusion/publications/pathogen-reduced-buffy-coat-platelets

CBS. Circular of Information for the Use of Human Blood Components – Pooled Platelets Psoralen Treated March 2024 [Accessed 22Mar24] https://www.blood.ca/sites/default/files/IM-00050_Rev3.pdf

CBS. Circular of Information for the Use of Human Blood Components –Apheresis Platelets Psoralen treated March 2024 [Accessed 22Mar24] https://www.blood.ca/sites/default/files/IM-00072_Rev1.pdf

CBS. Circular of Information for the Use of Human Blood Components –Apheresis Platelets PAS added March 2024 [Accessed 22Mar24] www.blood.ca/sites/default/files/IM-00074_Rev1.pdf

CSA. Blood and Blood Components. National Standard of Canada. CAN/CSA-Z902:20. Ottawa, ON. 2020.

CPSA. Standards for Diagnostic Laboratory Accreditation: Transfusion Medicine v10 April 2022.

Government of Canada. Health Canada. Health Products and Food Branch. Blood Regulations, CRC, SOR/2013-178 (2015). Current to 202305-03. https://laws-lois.justice.gc.ca/eng/regulations/SOR-2013-178/page-1.html

RELATED DOCUMENTS

TM08-04.006 Irradiated Blood Products Policy
TM08-04.002 IgA Deficient Product Approval Criteria
TM08-07.003 Platelet Screening Criteria
TM08-07.004 Platelet Selection Chart
TM08-07.005 HLA or HPA Selected Platelets
TM08-07.006 Platelet Product Description Chart
TM08-18.001 RhIG Indications Eligibility and Dose Policy