ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

Laboratory Bulletin

DATE:	9 January 2023
TO:	Provincial – Acute Care sites, Physicians and Nurse Practitioners.
FROM:	Alberta Precision Laboratories (APL) Transfusion and Transplantation Medicine Program (TTM)
RE:	**Transfusion Medicine Update Regarding Platelet Components**

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Key Messages

- New platelet processing procedures have been put in place by Canadian Blood Services (CBS). This may change the types of platelet components that are being seen in AHS / Covenant facilities for transfusion support. The types of platelet components that are currently available in provinces served by CBS include:
    - Buffy Coat Pooled Platelets
    - Buffy Coat Pooled Platelets – Low Anti-A/B
    - Apheresis Platelets
    - Apheresis Platelets – Low Anti-A/B
    - Pooled Platelets Psoralen Treated (PPPT)
    - Pooled Platelets Psoralen Treated – Low Anti-A/B
- Zones that have not previously screened for platelet appropriateness will now be following the approved indications specified in the Platelet monograph found on Platelets Component Info (albertahealthservices.ca) excerpted in Figure 1. Any requests outside of these indications or approved dosing recommendations will require consultation with a Transfusion Medicine Physician.
    - Platelet dosing in neonates and pediatric patients should be 10-15 mL/kg up to a maximum of 250 mL (minimum volume of a standard adult unit).
    - Further concentration of platelet components will not be routinely performed. Requests require TM physician consultation on a patient specific basis.

Implementation Dates

- **Effective Immediately** – Low titre platelet units may be seen
- **June 2023** – CBS will start Alberta production of PPPT

How this will impact you

- Prescribers do not need to specify a type of platelet in their orders. The most appropriate platelet unit available for your patient will be provided.
- Health Professionals performing the platelet administration and doing the checks for blood group compatibility between patient testing results and blood component labels / tags may require additional checking for notation of Low Anti-A/B or All Groups as well as a tag comment indicating that ABO differences were approved by Transfusion Medicine.
- Lower increments and increased transfusion requirements may be noted.

Action Required

1. Be familiar with Platelets Component Info (albertahealthservices.ca) .
2. Ensure that the indication for transfusion is communicated with any orders for platelets.
    a. Be prepared to consult Transfusion Medicine physician on call for dosing, modifications or indications that do not meet approved criteria to ensure the correct information is placed in the patient transfusion medicine record.

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Background

- There are two broad types of platelet components produced by Canadian Blood Services (CBS)– Pooled Platelets and Apheresis Platelets. Pooled platelets are prepared by, pooling buffy coats from four whole blood donors of the same ABO group, leukoreducing and suspending the pool in the plasma of one of the four donors. Apheresis platelets are units of platelets collected by automated apheresis techniques from a single donor.
- In November of 2022, CBS implemented automated anti-A1 and anti-B isohemagglutinin titre testing on donors of whole blood as well as apheresis platelets. The goal of this testing is to help maximize utilization of available platelet inventory while mitigating the risk of acute hemolytic transfusion reactions during ABO incompatible platelets. APL facilities currently completing platelet titration on site will continue to do so as per current process on platelet pool or apheresis platelets with a final component titre of 1:50. The CBS components will be labeled directly on the black and white label affixed to the unit itself (see Figure 2). Those components tested by APL will have a sticker over label indicating that they are considered “All Groups” which has been tested on the end product. To maximize inventory support, the CBS Low Anti-A/B platelets are preferentially being sent to regional and rural facilities throughout the province outside of the Edmonton and Calgary zones. Adult and pediatric patients requiring platelet transfusion for whom a group specific platelet component is not available on site may be issued a “low anti-A/B” or an “all groups” platelet if time does not permit for importation of a group specific platelet unit. Patients who do not have blood group testing on record and need urgent platelet support may also receive a blood group AB platelet (no anti-A or anti-B), a “low anti-A/B” or an “all groups” platelet without prior notification of the clinical team since the risk of ABO associated acute hemolytic transfusion reactions has been minimized.
- In January of 2022, CBS started production of a pathogen reduced buffy coat platelets using the Intercept Amotosalen (a synthetic psoralen) treatment methodology. These platelets are currently available in some regions of Ontario but are anticipated to start production in Alberta in June of 2023. The psoralen treatment crosslinks nucleic acid of viruses, bacteria, protozoa and leukocytes to inhibit their proliferation providing extra safety from transfusion transmitted infections and removes the need for irradiation to prevent Transfusion Associated Graft versus Host Disease. Some publications suggest that this benefit is accompanied by lower correct count increments and increased transfusion requirements / decreased intervals between transfusion episodes. CBS expects to start production of pathogen reduced apheresis platelets in 2023 with the goal of replacing >95% of platelet units with pathogen reduced components. A small stock of non-treated platelets will be available through a special request approval process for patients requiring intrauterine transfusion or who have a contraindication to psoralen products. The criteria and labeling of isohemagglutinin titres for the psoralen treated platelets will be the same as for the untreated platelets. More information on pathogen reduced platelets is available on the CBS website Pathogen-reduced platelets | Professional Education (blood.ca).

Questions/Concerns

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Approved by

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Figure 1: Approved Indications for Platelet Transfusion

INDICATIONS:

- Prevention or treatment of bleeding due to platelet deficiency or dysfunction.
- The decision to transfuse platelets depends on several factors besides the platelet count. Clinical judgment must be exercised when applying the following guidelines to a specific clinical situation.

	Appropriate Ordering Guidelines				
PLT Count	**Less than or equal to 10×10^9/L***	**Less than or equal to 40×10^9/L**	**Less than or equal to 50×10^9/L**	**Less than or equal to 100×10^9/L**	**N/A**
Clinical Indication	Prophylactic use (to prevent bleeding) when there is a regenerative thrombocytopenia (e.g. chemotherapy, aplasia) *less than or equal to 15×10^9/L is an acceptable trigger for outpatients due to the ability to monitor the platelet count on a daily basis and logistics.	Prophylactic use (to prevent bleeding) in a neonate	Active bleeding, peri-operative, or planned invasive procedure **Not** indicated for idiopathic thrombocytopenic purpura (ITP), unless there is life-threatening bleeding.	▪ Surgery or bleeding into critical area (e.g. spinal cord; brain; retinal hemorrhage) ▪ Extensive microvascular bleeding (e.g. post cardiopulmonary bypass presumed to be secondary to acquired platelet dysfunction) ▪ Neonate with bleeding, perioperative or planned invasive procedure ▪ Extracorporeal Membrane Oxygenation (ECMO)	▪ Life-threatening bleeding or extensive wet purpura in ITP. ▪ Active bleeding, perioperative, or planned invasive procedure and known congenital or acquired platelet dysfunction unresponsive to desmopressin (ddAVP®) (includes acetylsalicylic acid (ASA) within past 3 days and non-steroidals within past 24h, or clopidogrel therapy).

Note: Platelets are not provided during the initial activation of Massive Hemorrhage protocols unless there is documentation of thrombocytopenia or platelet dysfunction.

Figure 2: Sample Label for Low Anti-A/B Platelet Unit