

<b>DATE:</b>	13 May 2024
<b>TO:</b>	Physician and Nursing Staff, All Zones
<b>FROM:</b>	Alberta Public Laboratories Transfusion and Transplantation Medicine Program
<b>RE:</b>	<b>Screening of Blood Component Orders in all Zones</b>

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### Key Message

- South Zone and Central Zone Laboratories will implement the provincial screening criteria for Red Blood Cell, Plasma and Platelet orders for adult stable, non-bleeding Inpatients and Emergency Department patients as well as for all booked adult outpatients (includes chronic transfusion recipients with scheduled transfusions). South Zone will go live effective May 28<sup>th</sup>, 2024, and Central Zone on June 18<sup>th</sup>, 2024.
- Bleeding or unstable patients will not have orders for blood components screened if the relevant clinical history is provided.
- Pediatric patients (<18 years) will not have orders for blood components routinely screened.

### Background

- Red blood cells, Plasma and Platelets are a vital and limited resource. Inappropriate transfusion practices expose patients to potential harm and put a strain on Canada's limited blood supply .
- Numerous studies have demonstrated increased adverse events with liberal transfusion practices and safety of restrictive practices for blood component transfusion across a variety of patient ages and clinical settings.
- Provincial screening aligns with Choosing Wisely Canada recommendations [CSTM - CSTM Choosing Wisely List \(transfusion.ca\)](https://www.choosingwisely.com/choosing-wisely-list/transfusion-ca).

<b>1</b>	Don't transfuse blood if other non-transfusion therapies or observation would be just as effective. <span style="float: right;">▼</span>
<b>2</b>	Don't transfuse more than one red cell unit at a time when transfusion is required in stable, non-bleeding patients. <span style="float: right;">▼</span>
<b>3</b>	Don't transfuse plasma to correct a mildly elevated (<1.8) international normalized ratio (INR) or activated partial thromboplastin time (aPTT) before a procedure. <span style="float: right;">▼</span>
<b>4</b>	Don't routinely transfuse platelets for patients with chemotherapy-induced thrombocytopenia if the platelet count is greater than 10 X 10 <sup>9</sup> /L in the absence of bleeding. <span style="float: right;">▼</span>
<b>5</b>	Don't routinely use plasma or prothrombin complex concentrates for non-emergent reversal of vitamin K antagonists. <span style="float: right;">▼</span>

### How this will impact you

- All orders that fall outside the screening criteria in pages 2-3 will require approval from a TM Physician before the Transfusion Service can issue the blood component. **It is the clinical team's responsibility to consult the Transfusion Medicine physician on service to discuss requests outside of the following criteria.**

### Action Required

- Refer to the following resources for more information:
  - [RBC Selection Policy \(albertahealthservices.ca\)](https://www.albertahealthservices.ca/rbc-selection-policy)
  - [RBC Screening Info FAQ \(albertahealthservices.ca\)](https://www.albertahealthservices.ca/rbc-screening-info-faq)
  - [Don't Misuse My Blood - Clinical Decision Support Tools \(albertahealthservices.ca\)](https://www.albertahealthservices.ca/dont-misuse-my-blood-clinical-decision-support-tools)
  - [Red Blood Cells \(albertahealthservices.ca\)](https://www.albertahealthservices.ca/red-blood-cells)
  - [Platelet \(albertahealthservices.ca\)](https://www.albertahealthservices.ca/platelet)



## 1. Red Blood Cell (RBC) Screening:

- For stable, non-bleeding patients decisions to transfuse red cells should be based on symptoms and not solely on hemoglobin (HGB) concentration. Single unit transfusions are recommended with additional units only be prescribed after re-assessment of the patient and their hematologic response.
- APL Transfusion Medicine (TM) laboratories screens orders for Red Blood Cells (RBC) for adult patients based on the criteria below and those listed in Tables 1a and 1b:
  - A clinical indication must be documented for all RBC orders.
  - A pre-transfusion HGB must be collected within 24 hours (96 hours for outpatients).
  - A post-transfusion HGB must be collected 30 minutes post-transfusion.
  - Either a CBC or blood gas measurement of HGB is acceptable.

### 1a. Stable, non-bleeding Adult Inpatient or Emergency Department Patient Transfusion Recommendations:

- Ensure a HGB has been performed **within the last 24 hours**.

Hgb (g/L)	Adult Transfusion Recommendation
Hgb less than 60	<ul style="list-style-type: none"> <li>• Transfusion likely appropriate.</li> <li>• Transfuse 1 unit and reassess Hb and clinical symptoms.</li> </ul>
Hgb 60-69	<ul style="list-style-type: none"> <li>• Transfusion likely appropriate.</li> <li>• Transfuse 1 unit and reassess Hb and clinical symptoms.</li> </ul>
Hgb 70 – 80	<ul style="list-style-type: none"> <li>• Likely appropriate in active ischemic cardiovascular disease patients.</li> <li>• Likely appropriate if there are signs and symptoms of impaired tissue oxygenation.</li> <li>• Transfuse 1 unit and reassess Hb and clinical symptoms.</li> </ul>
Hgb greater than 80	<ul style="list-style-type: none"> <li>• Likely inappropriate unless there are signs and symptoms of impaired tissue oxygenation.</li> <li>• Ordering physician to consult TM Physician.</li> <li>• Indication for transfusion must be clearly documented in patient's chart.</li> <li>• Transfuse 1 unit <b>if approved by TM Physician</b>.</li> </ul>
Hgb greater than 90	<ul style="list-style-type: none"> <li>• Transfusion Likely inappropriate.</li> <li>• Ordering physician to consult TM Physician.</li> </ul>

### 1b. Booked Outpatients including chronic transfusion recipients with scheduled transfusion Recommendations:

- Ensure a HGB has been performed within the last 96 hours.
- Chronic transfusion recipients with requirements outside the allowances listed in the table below must have their patient-specific transfusion parameters approved by a TM Physician.

Hgb (g/L)	Appropriate RBC Orders
Hgb less than 70	Up to three (3) RBC units
Hgb 70 - 85	Up to two (2) RBC units
Hgb 86-90	One (1) RBC unit
Hgb greater than 90	Requires TM Physician approval

## 2. Plasma Screening:

- Applies to stable, non-bleeding patients who are not undergoing therapeutic plasma exchange.
- APL Transfusion Medicine (TM) screens orders for plasma for adult patients based on the criteria below and in the following table:
  - A clinical indication is documented for all Plasma orders.
  - An INR has been performed in the **last 24 hours**.



If...	Then...
No INR within 24 hours	Draw INR
INR is less than 1.8	<ul style="list-style-type: none"> <li>Request is outside of recommendations</li> <li>Contact TM Physician for approval</li> </ul>
Indication is for warfarin (coumadin) or DOAC reversal	Plasma is not indicated
Patient-specific request based on diagnosis or long-term treatment plan	Contact TM Physician

### 3. Platelet Screening:

- APL Transfusion Medicine (TM) screens orders for platelets (PLT) for adult patients based on the criteria below and in the following table:
  - A clinical indication is documented for all platelet orders.
  - A pre-transfusion CBC (platelet count) must be performed within 48 hours.
  - A post-transfusion CBC (platelet count) is recommended one-hour post transfusion to assess if additional platelet units are required.

PLT Count	Appropriate Ordering Guidelines				
	Less than or equal to $10 \times 10^9/L^*$	Less than or equal to $40 \times 10^9/L$	Less than or equal to $50 \times 10^9/L$	Less than or equal to $100 \times 10^9/L$	N/A
Clinical Indication	Prophylactic use (to prevent bleeding) when there is a regenerative thrombocytopenia (e.g. chemotherapy, aplasia)  *less than or equal to $15 \times 10^9/L$ 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  <b>Not</b> indicated for idiopathic thrombocytopenic purpura (ITP), unless there is life-threatening bleeding.	<ul style="list-style-type: none"> <li>Surgery or bleeding into critical area (e.g. spinal cord; brain; retinal hemorrhage)</li> <li>Extensive microvascular bleeding (e.g. post cardiopulmonary bypass presumed to be secondary to acquired platelet dysfunction)</li> <li>Neonate with bleeding, perioperative or planned invasive procedure</li> <li>Extracorporeal Membrane Oxygenation (ECMO)</li> </ul>	<ul style="list-style-type: none"> <li>Life-threatening bleeding or extensive wet purpura in ITP.</li> <li>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-steroidal within past 24h, or clopidogrel therapy).</li> </ul>

Effective **May 28, 2024**

#### Questions/Concerns

- APL Transfusion Safety Team - [Transfusion.SafetyTeam@aplabs.ca](mailto:Transfusion.SafetyTeam@aplabs.ca)

#### Approved by

- Dr. Susan Nahirniak, Medical Director, APL Transfusion and Transplantation Medicine Program

*Effective September 1, 2023, APL has become the sole provider of all public lab services in Alberta. As a result, community lab services formally provided by DynaLIFE Medical Labs will become the responsibility of Alberta Precision Labs (APL). This change impacts all zones.*