Ontario Regional Blood Coordinating Network

Inspiring and facilitating best transfusion practices in Ontario.

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Donna Berta RN, BScN
Clinical Project Coordinator – Nursing
Ontario Regional Blood Coordinating Network (ORBCoN)

November 26, 2025

Speaker Disclosure

- No commercial product conflicts of interest to declare.

- Transfusion Transmitted Injuries Surveillance System, member Education Committee.
- Canadian Society of Transfusion Medicine, member Standards Committee.

NOTE:

- This presentation provides evidence informed information and is also based on interpretation of TM standards/best practices.
  Refer to your hospital's policies and procedures to guide your day-to-day practice.
- All patient case details are fictitious, fabricated to enhance this learning opportunity.

Transfusion Knowledge Question 1 - Pre

RBC transfusion is indicated in (select all that apply):

a) Patients with uncorrected pre-existing cardiovascular disease and Hb less than 80 g/L.

b) Healthy postpartum patients without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope) and Hb less than 70 g/L.

c) In some patients with acute myocardial infarction and Hb less than 90 g/L.

d) Patients with hemodynamic symptoms (e.g., dyspnea, chest pain, syncope), regardless of Hb.

Transfusion Knowledge Question 2 - Pre

When administering RBC transfusion, at the patient's bedside, the crucial, mandatory element to ensure patient safety is:

a) Patient is wearing a patient identification armband for identification checks.

b) Assess patient for TACO risk factors; implement TACO prevention strategies if indicated.

c) RBC unit is ABO & Rh(D) blood group identical or compatible.

d) If no acute bleeding, initiate transfusion at 50 mL/hr. (adults) for 15 minutes, then reassess patient & vital signs.

Transfusion Knowledge Question 3 - Pre

Platelet transfusion is indicated in (select all that apply):

a) Neuraxial anesthesia (e.g., epidural) and platelet count less than 50-80 x 10^9/L.
b) Head trauma and platelet count less than 100 x 10^9/L.
c) As bleeding prophylaxis in oncology patients undergoing chemotherapy (hypoproliferative thrombocytopenia) and platelet count less than 30 x 10^9/L.
d) Platelet dysfunction e.g., post cardiopulmonary bypass, regardless of platelet count.

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Objectives

By engaging in this learning, participants will be able to:

1. Outline the prevalence of red blood cell (RBC), platelet, and plasma transfusion in Ontario.
2. Understand the basis of the Using Blood Wisely (UBW) campaign.
3. For RBC, platelet and plasma transfusion:
    - Describe current evidence-informed indications and dose.
    - Define key nursing actions to ensure patient safety.

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- Ontario prevalence data: RBC, platelet and plasma transfusion.
- Using Blood Wisely (UBW).
- Evidence informed indications & dose
  Nursing actions to support patient safety
  - RBC transfusion.
  - Platelet transfusion.
  - Plasma transfusion.

NOTE: Focus is adult, routine/non-urgent transfusion.

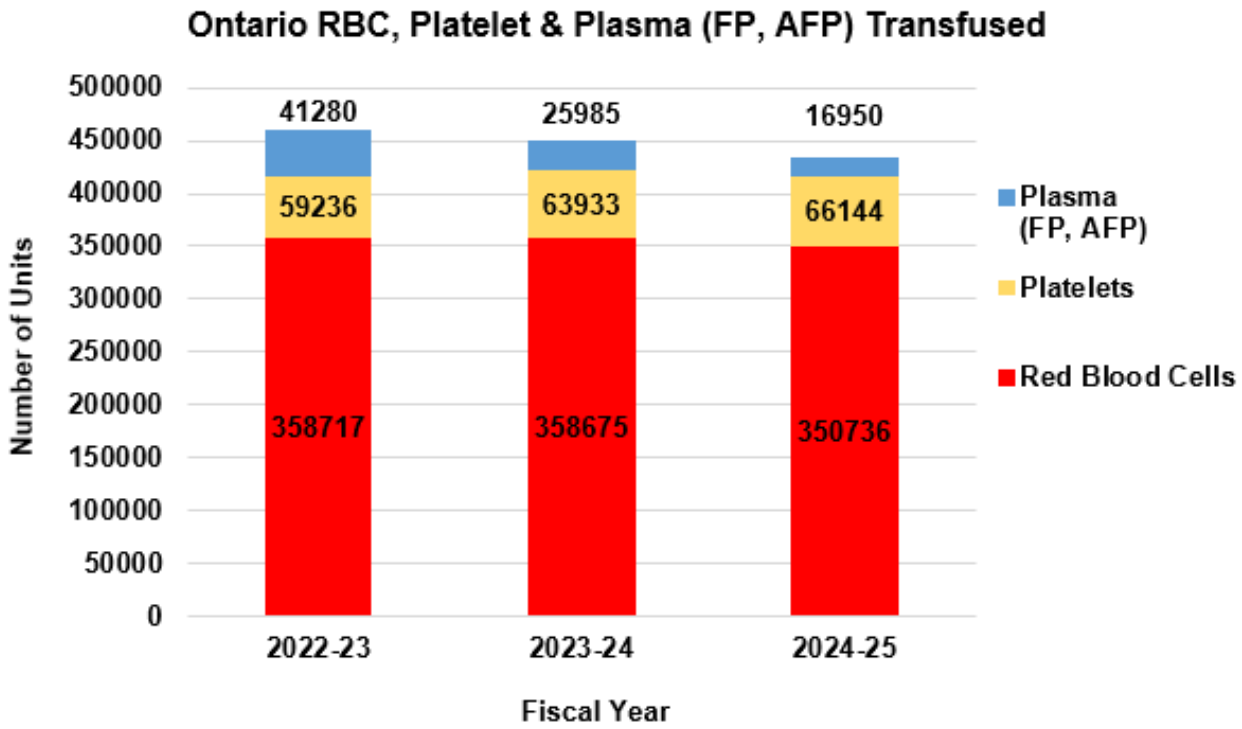
2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- **Ontario prevalence data: RBC, platelet and plasma transfusion.**
- Using Blood Wisely (UBW).
- Evidence informed indications & dose
  Nursing actions to support patient safety
  - RBC transfusion.
  - Platelet transfusion.
  - Plasma transfusion.

NOTE: Focus is adult, routine/non-urgent transfusion.

Ontario Prevalence Data: RBC, Platelet, Plasma (FP) Transfusion

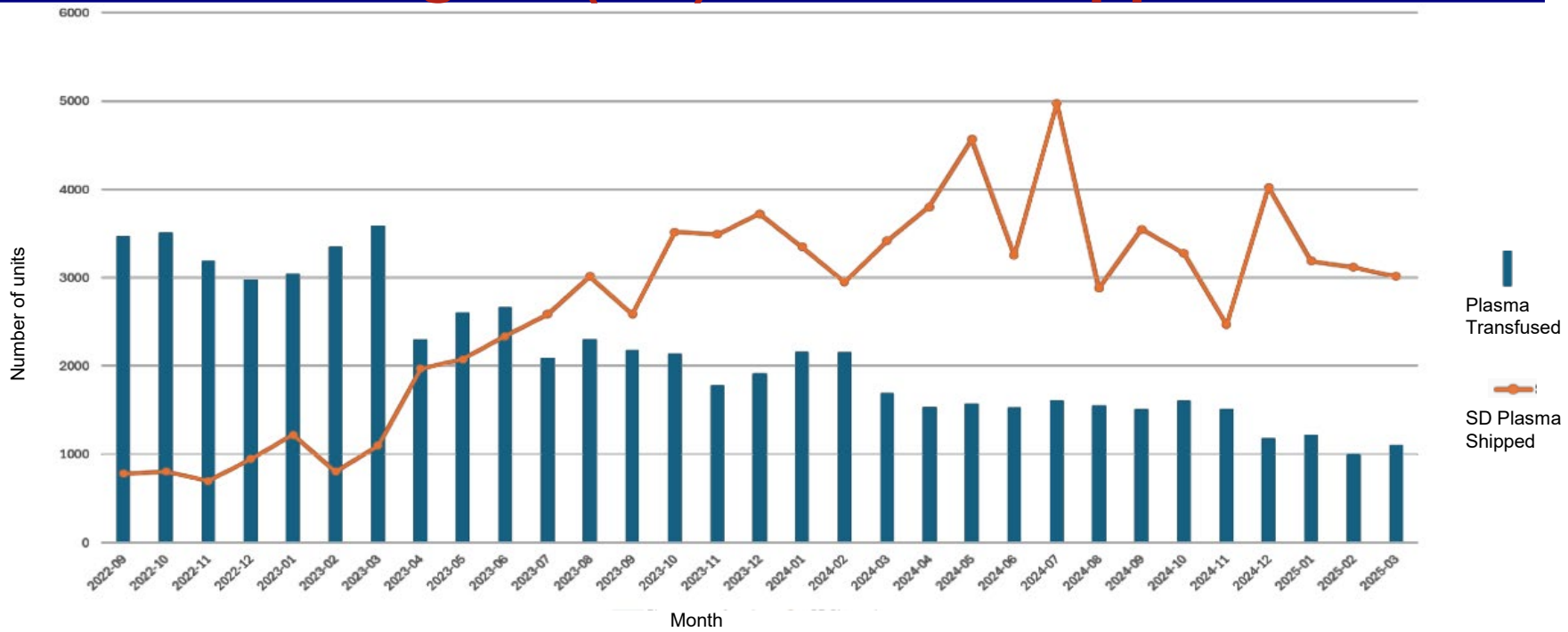


Canadian Blood Services (CBS) and Ontario Regional Blood Coordinating (ORBCoN) hospital site visit data. Ontario data per CBS Portal (number of units transfused, entered by each Ontario hospital's Transfusion Medicine Laboratory [TML]). Fiscal year (FY) data, April 1 to March 31 (extracted June 2025).

FY 2024-25: 433,830 units; RBC units transfused, average 960/day.

Transfusion is a frequent patient care action!

Ontario Prevalence Data: Plasma
Plasma Transfused &
Solvent Detergent (SD) Plasma Shipped



Canadian Blood Services (CBS) and Ontario Regional Blood Coordinating (ORBCoN) hospital site visit data. Ontario data per CBS Portal, Plasma number of units transfused (entered by each Ontario hospital's TML); SD plasma number of units shipped to hospitals. Monthly data September 2022 to March 2025 (extracted June 2025).

By September 2023, CBS transitioned to SD plasma, pathogen-reduced plasma (target 80% of plasma utilization), as a further layer of safety for Canada's blood supply (in addition to donor screening and testing).

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- Ontario prevalence data: RBC, platelet and plasma transfusion.
- **Using Blood Wisely (UBW).**
- Evidence informed indications & dose
  Nursing actions to support patient safety
  - RBC transfusion.
  - Platelet transfusion.
  - Plasma transfusion.

NOTE: Focus is adult, routine/non-urgent transfusion.

Using Blood Wisely (UBW)
Question 1

Using Blood Wisely is (select all that apply):

a) One section of Accreditation Canada's hospital assessment program; TML must meet the requirements.

b) A transfusion medicine textbook published in 2020.

c) A Canadian program to decrease inappropriate red blood cell transfusion practices.

d) An eLearning module about ABO & Rh(D) blood group antigens.

Using Blood Wisely (UBW) Campaign (1)

- Canadian program to decrease inappropriate red blood cell transfusion practices; launched September 2020.
- An initiative of Choosing Wisely Canada, Canadian Blood Services, and Héma-Québec (roots in ORBCoN's Ontario Transfusion Quality Improvement Plan [OTQIP]).
- Clinician Lead, Dr. Yulia Lin.

- Appropriate RBC Transfusion Benchmarks
  (inpatients, not acutely bleeding)
  - Minimum of 65% of red blood cell transfusion episodes are single unit.
  - Minimum of 80% of inpatient red blood cell transfusions have a pre-transfusion Hb of 80 g/L or less.

Using Blood Wisely (UBW) Campaign (2)

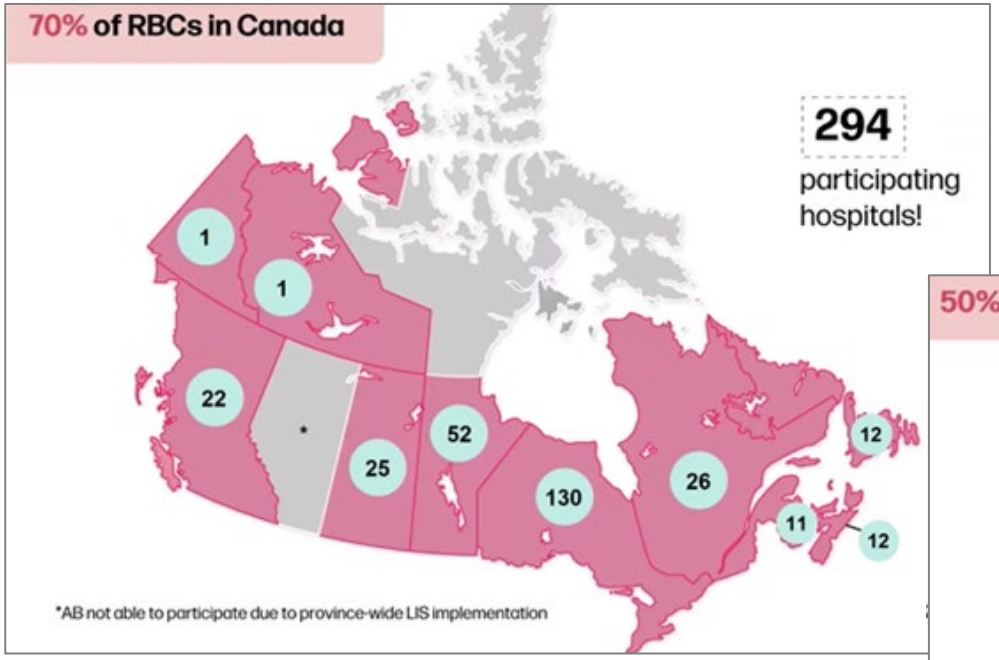
- Spot Audit
  - Collect and submit retrospective data about transfusion practice initially, then regularly (monthly/quarterly).
  - Challenging process; engage Laboratory Information System (LIS), consecutive transfusion episodes, clinical Hb results.
- Planning Survey
- Intervention Toolbox (updated 2025)
  - Transfusion guidelines/recommendations
  - Education moules (prescribers, nurses, technologists)
  - Order set template
  - Order screening by technologists
  - Alternatives to blood
  - Patient Information

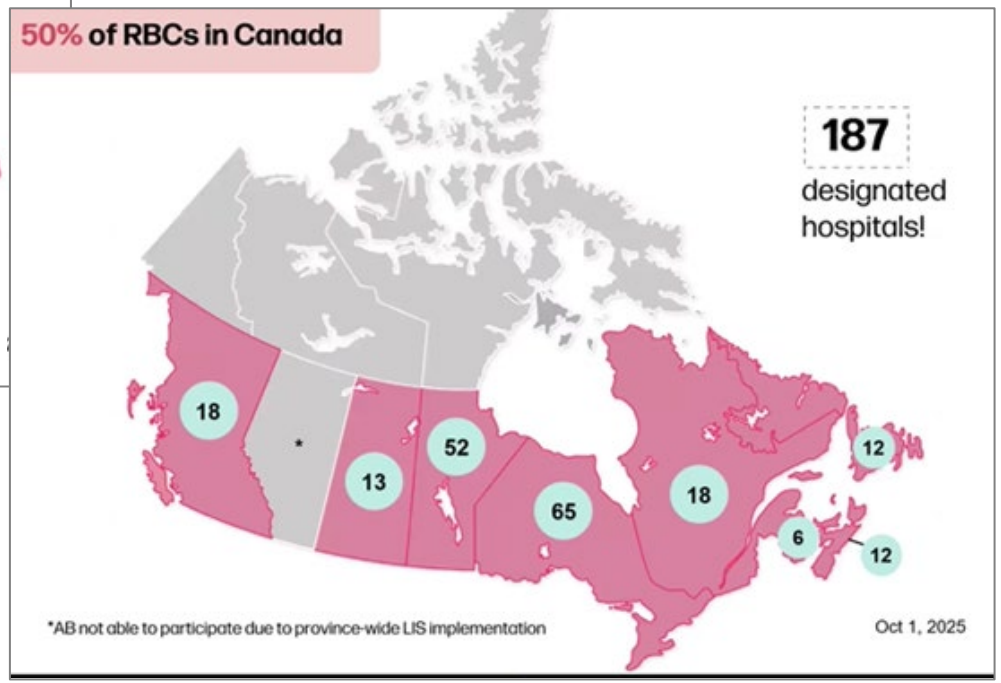
Using Blood Wisely (UBW) Campaign (3)

- Teamwork/Quality Improvement Initiative
  - Clinical care providers, TML staff, Hospital leadership.
  - Changing culture.
- Designation
  - Meet the benchmarks & maintain them for at least 4 months/quarters.
  - Designated a Using Blood Wisely Hospital.

- UBW Outcomes
  - Celebrating UBW's 5 year anniversary.
  - 2023 analysis of hospitals that met compared to had not met the benchmarks: 17,000 fewer RBC unit transfusions, prevented 170 transfusion reactions, $ 22.8 million cost saving.

Using Blood Wisely (UBW) Campaign (4)





2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- Ontario prevalence data: RBC, platelet and plasma transfusion.
- Using Blood Wisely (UBW).
- **Evidence informed indications & dose Nursing actions to support patient safety**
  - **RBC transfusion.**
  - Platelet transfusion.
  - Plasma transfusion.

NOTE: Focus is adult, routine/non-urgent transfusion.

Evidence informed indications & dose
Question 2

Hospital transfusion guidelines/recommendations.
Select the statement most applicable to your practice:

a) I refer to my hospital's transfusion guidelines/ recommendations when caring for patients and transfusion has been ordered.

b) I discuss my hospital's transfusion guidelines/ recommendations with the prescriber, if the order is outside the parameters.

c) My hospital has transfusion guidelines/recommendations but I don't find them useful.

d) I don't know if my hospital has transfusion guidelines/ recommendations.

Evidence informed indications & dose Hospital Transfusion Recommendations

Per Canadian Transfusion Medicine Standards, the Transfusion Committee's purpose includes:

- Provide consultation & support, foster safe transfusion.
- Delineate transfusion policies appropriate for the healthcare facility's clinical scenarios.
- Create criteria to evaluate orders, utilization, & administration.
- Distribute transfusion medicine information & education.

Example: Hospital Transfusion Recommendations

- UBW Guidelines
- Bloody Easy 5.1
- ORBCoN Recommendations for Blood Component Use

Evidence informed indications & dose RBC Transfusion Question 3

Barney, an otherwise healthy 64 year old, had complex knee replacement surgery yesterday. He was assessed by physio & mobilizes using a walker. Home supports are in place. Barney states he feels ready for discharge. Vital signs are stable. AM blood work: Hb 79 g/L.

Before discharge, Barney's prescriber is likely to order:

a) RBC transfusion, 2 units, transfuse each unit over 2 hours.
b) RBC transfusion, 1 unit, transfuse over 2 hours.
c) Follow up with Family Doctor, repeat CBC 1-week post-op.
d) No transfusion associated orders.

Evidence informed indications & dose RBC Transfusion Question 4

The first part of Barney's story, pre-op …

Barney, an otherwise healthy 64-year-old, requires complex knee replacement surgery. He accepted a cancellation appointment; surgery is scheduled in 5 days. Preadmission blood work: Hb 130 g/L, MCV 76 fl. and ferritin 19 ng/mL.

Considerations for Barney's care:

a) Postpone surgery to investigate iron deficiency.

b) Start Feramax 150 mg PO daily pre-op & post-op for 3 months.

c) Administer IV iron tomorrow, 4 days pre-op.

d) Proceed as planned, Barney consents to blood transfusion if necessary.

Evidence informed indications & dose

RBC Transfusion draft ORBCoN recommendations 1

Red Blood Cells – Adult Inpatients

General Recommendations:

- These recommendations apply to adult inpatients and may not apply to transfusion-dependent outpatients. For patients with hemoglobinopathies (e.g., sickle cell disease) or cyanotic heart disease, consult hematology prior to transfusing.
- The underlying cause of anemia must always be considered in the transfusion decision-making process. Alternative therapies (e.g., iron) may be more appropriate than transfusion
  Alternatives Resources:
  ONTraC Algorithm: Preoperative Hemoglobin Optimization & Anemia Management
  ONTraC Resources
  Using Blood Wisely: Alternatives to Blood Module
- Do not transfuse based on Hb alone.
- Dose: transfuse 1 unit for all non-urgent red blood cell (RBC) transfusions; recheck patient symptoms (dyspnea, chest pain, syncope) and hemoglobin (Hb) before considering additional units.

Hb threshold	Recommendation and clinical setting
Hb less than 50-60 g/L	• The following patients typically do not require transfusion until Hb is less than 50-60 g/L: ○ Patients with sickle cell disease and uncomplicated vaso-occlusive crisis. Consult hematology. ○ Healthy patients with chronic nutritional anemia (iron, B12, folate deficiency) without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope). ○ Healthy postpartum patients without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope).
Hb less than 70 g/L	• Transfusion is likely appropriate. • Younger adults with no ischemic cardiovascular disease and transient reversible anemia may tolerate lower Hb. • Depending on the etiology of anemia, alternative therapies (e.g., iron) may be more appropriate than transfusion in hemodynamically stable, non-bleeding patients.
Hb less than 80 g/L	• Consider transfusion in patients with uncorrected pre-existing cardiovascular disease.
Hb less than 90 g/L	• Consider transfusion only in patients with clear signs and symptoms of impaired tissue oxygenation.
Hb less than 90 g/L	• Transfusion may be appropriate in patients with acute myocardial infarction; benefit is uncertain in all patients.*
Hb greater than 90 g/L	• Transfusion is likely *inappropriate* • If transfusion is ordered, clearly document the indication in the patient's chart and discuss reason(s) with the patient.

Evidence informed indications & dose RBC Transfusion Question 5

Fred a 74-year-old, was admitted 5 days ago with a GI bleed. His health issues include medically managed hypertension, dyslipidemia & atrial fibrillation (was taking apixaban). Fred's GI bleeding has been treated. Unfortunately 3 days ago he had an acute MI. He is relatively stable; today an angiogram, possible stent is scheduled. AM blood work: Hb 82 g/L.

Fred's prescriber is likely to order:

a) RBC transfusion, 2 units, transfuse each unit over 2 hours.

b) RBC transfusion, 1 unit, transfuse over 3 hours.

c) Repeat CBC post angiogram.

d) No transfusion associated orders.

Evidence informed indications & dose

RBC Transfusion draft ORBCoN recommendations 1

Red Blood Cells – Adult Inpatients

General Recommendations:

- These recommendations apply to adult inpatients and may not apply to transfusion-dependent outpatients. For patients with hemoglobinopathies (e.g., sickle cell disease) or cyanotic heart disease, consult hematology prior to transfusing.
- The underlying cause of anemia must always be considered in the transfusion decision-making process. Alternative therapies (e.g., iron) may be more appropriate than transfusion
  Alternatives Resources:
  ONTraC Algorithm: Preoperative Hemoglobin Optimization & Anemia Management
  ONTraC Resources
  Using Blood Wisely: Alternatives to Blood Module
- Do not transfuse based on Hb alone.
- Dose: transfuse 1 unit for all non-urgent red blood cell (RBC) transfusions; recheck patient symptoms (dyspnea, chest pain, syncope) and hemoglobin (Hb) before considering additional units.

Hb threshold	Recommendation and clinical setting
Hb less than 50-60 g/L	• The following patients typically do not require transfusion until Hb is less than 50-60 g/L: ○ Patients with sickle cell disease and uncomplicated vaso-occlusive crisis. Consult hematology. ○ Healthy patients with chronic nutritional anemia (iron, B12, folate deficiency) without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope). ○ Healthy postpartum patients without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope).
Hb less than 70 g/L	• Transfusion is likely appropriate. • Younger adults with no ischemic cardiovascular disease and transient reversible anemia may tolerate lower Hb. • Depending on the etiology of anemia, alternative therapies (e.g., iron) may be more appropriate than transfusion in hemodynamically stable, non-bleeding patients.
Hb less than 80 g/L	• Consider transfusion in patients with uncorrected pre-existing cardiovascular disease.
Hb less than 90 g/L	• Consider transfusion only in patients with clear signs and symptoms of impaired tissue oxygenation.
Hb less than 90 g/L	• Transfusion may be appropriate in patients with acute myocardial infarction; benefit is uncertain in all patients.*
Hb greater than 90 g/L	• Transfusion is likely *inappropriate* • If transfusion is ordered, clearly document the indication in the patient's chart and discuss reason(s) with the patient.

Evidence informed indications & dose

RBC Transfusion draft ORBCoN recommendations 2

*Acute MI Patients with Anemia (Hb less than 90 g/L) Assess per Individual Patient Factors

Favour a Restrictive Transfusion Strategy	Favour a Liberal Transfusion Strategy
Type II MI (supply-demand mismatch)	Type I MI (disrupted atherosclerotic plaque)
Risk of fluid overload (poor baseline oxygen status, elderly age, relevant comorbidities)	Ongoing bleeding risk
Future transplant	Upcoming invasive angiography
Future pregnancy	Continued ischemic symptoms
Type II MI factors: ○ Primary diagnosis other than MI ○ Increased comorbidities (e.g., renal failure, bleeding) ○ Increased chronic anemia ○ Increased arrythmia (atrial fibrillation) ○ Lower dynamic increase in troponin level ○ Severe hypertension or hypotension and/or shock ○ Older (not observed in MINT trial) ○ Female sex (not observed in MINT trial	Type I MI factors: ○ Presentation acute MI symptoms ○ Known coronary artery disease ○ ST elevation on electrocardiogram ○ Higher dynamic increase in troponin level ○ Younger

ALL ACUTE IM PATIENTS

- Slowly transfuse 1 unit RBC, then clinical and Hb reassessment
- Consider pre-transfusion diuretic (fluid overload risk)
- Minimize blood draws/tests when possible
- Correct iron deficiency (particularly in patients with heart failure)

Reference: Shih et al. CCS/NAC Joint Statement on Anemia and Acute Coronary Syndromes

- One RBC unit usually raises Hb by approximately 10 g/L in adult patients.
- Transfusion-Associated Circulatory Overload (TACO): identify patients at risk and implement preventative strategies as appropriate.
  TACO Risk factors: age over 70 years, history of heart failure, left ventricular dysfunction, history of myocardial infarction, renal dysfunction, positive fluid balance.
  TACO Preventative strategies: transfuse 1 unit at a time, slow the rate of transfusion to a maximum of 4 hours per unit, administer pre-transfusion diuretic.
- Premedication for allergic transfusion reactions is usually indicated only in patients with recurrent minor reactions or previous anaphylactic reactions.
- In an emergency, if irradiated blood is indicated but is not available, RBCs stored for a minimum of 14 days, but preferably more than 21 days from collection should be transfused.

Nursing actions to support patient safety RBC Transfusion Question 6

When administering RBC transfusion, at the patient's bedside, the crucial, mandatory element to ensure patient safety is:

a) Patient is wearing a patient identification armband for identification checks.

b) Assess patient for TACO risk factors; implement TACO prevention strategies if indicated.

c) RBC unit is ABO & Rh(D) blood group identical or compatible.

d) If no acute bleeding, initiate transfusion at 50 mL/hr. (adults) for 15 minutes, then reassess patient & vital signs.

Nursing actions to support patient safety
RBC Transfusion

TACO Risk Factors
- Advanced age
- History of heart failure
- History of myocardial infarction
- Left ventricular dysfunction
- Renal dysfunction
- Positive fluid balance

If risk, review with prescriber for prevention strategies

Patient ABO/Rh(D) Blood Group	Compatible Blood Group for Transfusion			
	RBC	Platelets	Plasma	Cryoprecipitate
O Positive	O Rh(D) positive or negative	O preferred** Rh(D) positive or negative	O, A, B, AB	Any Group Note: Very infrequently used component. Cryoprecipitate is interchangeable with Fibrinogen Concentrate for fibrinogen replacement.
O Negative	O Rh(D) negative*	O preferred** Rh(D) negative*	O, A, B, AB	
A Positive	A, O Rh(D) positive or negative	A preferred** Rh(D) positive or negative	A, AB	
A Negative	A, O Rh(D) negative*	A preferred** Rh(D) negative*	A, AB	
B Positive	B, O Rh(D) positive or negative	B preferred** Rh(D) positive or negative	B, AB	
B Negative	B, O Rh(D) negative*	B preferred** Rh(D) negative*	B, AB	
AB Positive	AB, A, B, O Rh(D) positive or negative	AB preferred** Rh(D) positive or negative	AB	
AB Negative	AB, A, B, O Rh(D) negative*	AB preferred** Rh(D) negative*	AB	

* In urgent bleeding patient situations or during times of short supply, Rh(D) negative patients may need to receive Rh(D) positive RBC and platelets

** Platelets should be ABO compatible with patient's red blood cells (donor platelets are suspended in plasma). In urgent bleeding patient situations or during times of short supply, TML will follow established policies for ABO group substitution for platelets.

Transfusion Checklist

For references, refer to Bloody Easy Blood Administration Version 3, Summary: Transfusionist's Accountability: Transfusion Checklist (page 80-89).

Unequivocal (unmistakeable) identification of the patient is mandatory.

Patient must be wearing a patient identification armband. Patient identification information must remain attached to the blood for the duration of the transfusion.

PRE-TRANSFUSION

✓ **Informed Consent**
- Per policy/procedure, questions addressed
- Exception: emergent, life-threatening bleed

✓ **Transfusion Order**
- Indication supported: labs, signs, symptoms
- Complete, required information included

✓ **Group & Screen Testing**
- Required for compatible blood components
- ABO, Rh(D) blood groups, antibody screen (clinically significant antibodies)
- Label tube of blood at patient's bedside

✓ **Prepare the Patient**
- Educate: symptoms indicative of reaction
- Assess for transfusion history and TACO risk factors; follow up if indicated

✓ **Prepare the Equipment**
- Dedicated, patent IV (peripheral or central)
- Compatible IV fluid (only 0.9 % NaCl [sodium chloride] for blood components)
- Blood components – tubing/filter (170-260 microns); change after 4 units or 4 hours
- Platelets – always NEW/FRESH tubing/filter
- Prime tubing/filter: blood or compatible IV fluid
- IV setup to stop abruptly & maintain TKVO: 0.9% NaCl flush syringes + any fluid IV line or 0.9% NaCl IV line
- Infusion Devices: if Health Canada approved

✓ **Pick Up Blood from TML** (Transfusion Medicine Lab)
- Patient identification (surname, first name, unique identification number) and order

TRANSFUSION

✓ **Checking Blood Components/Blood Products**
- Blood received matches transfusion order
- At bedside, in physical presence of patient
- **1. Patient Identification**: surname, first name, unique identification number **identical** on armband, order, transfusion & chart label/tag
- **2. ABO, Rh(D) Blood Groups (only for Components): identical/compatible** on Group & screen test, CBS (Canadian Blood Services) label, transfusion & chart label/tag
- **3. Unit (Components) / Lot (Products) Number: identical on** CBS label (Components) / manufacturer label (Products), transfusion & chart label/tag
- **4. Visual Inspection & Expiry**
  Components: no clots, usual colour, ports intact, expires 4 hours after issue from TML
  Products: packaging/seal intact, colour as per manufacturer, vials/glass bottles – once entered/spiked, expires after 4 hours

✓ **Patient Assessment and Vital Signs** (for each unit)
- Close monitoring/observation required
- Minimum: within 30 minutes of starting, 15 minutes after starting, upon completion
- Temp, BP, pulse, respiratory rate, oxygen saturation; if TACO risk - chest auscultation

✓ **Infusion Rate** (for each unit)
- 50 mL/hour for first 15 minutes; can be deferred if acute bleeding
- Re-check after 15 minutes, if no indication of reaction then increase to rate as ordered

✓ **Possible Transfusion Reaction**
- If any adverse/unexpected/serious symptoms, **STOP** transfusion; refer to TTISS Reaction Chart

POST-TRANSFUSION

✓ **Completing the Transfusion**
- Comply with expiry time specific for blood component/blood product
  Outside the expiry time, discard remainder
- Component tubing: flush with 0.9 % NaCl
- Products given IV: flush (tubing/IV site) with compatible IV fluid
- Some hospitals require returning the empty blood bag to TML
  Otherwise dispose of blood tubing/bags in biohazardous waste
- Re-assess patient and re-check vital signs:
  - at end of transfusion
  - periodically post-transfusion (reactions may occur 4 hours post-transfusion; for dyspnea reactions up to 24 hours post transfusion)

✓ **Documentation**
- File completed chart label/tag for each component or product transfused on patient's health record (include start and stop times)
- Some hospitals require a completed "transfusion record" form returned to TML
- Record volume transfused, vital signs and patient assessments
- If a transfusion reaction is suspected: report to TML, document signs and symptoms, patient care

ORBCoN
Ontario Regional Blood Coordinating Network

June 2021, version 1.0 Ontario Regional Blood Coordinating Network

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- Ontario prevalence data: RBC, platelet and plasma transfusion.
- Using Blood Wisely (UBW).
- **Evidence informed indications & dose Nursing actions to support patient safety**
  - RBC transfusion.
  - **Platelet transfusion.**
  - Plasma transfusion.

NOTE: Focus is adult, routine/non-urgent transfusion.

Evidence informed indications & dose
Platelet Transfusion: Platelet Inventory (1)

Platelet Inventory (2)
Platelet Additive Solution (PAS-E), Psoralen Treated (INTERCEPT, Pathogen Reduced)

- Same indications & transfusion procedures; difference bag & label appearance.

Benefits:

- Fewer allergic reactions (less plasma)
- Decreased risk bacterial transmission (bacterial sepsis)
- Bacterial testing not required (issued to hospitals earlier in shelf life)
- Lower risk of non-bacterial transfusion-transmitted infections
- Irradiation is unnecessary (white blood cells are inactivated).

Downside:

- Post transfusion platelet count increment is mildly reduced, though data has shown no differences in bleeding outcomes.

PAS-E Platelets

- Multiple transfusions, possible potassium & magnesium overdose (monitor electrolytes & acid-base balance).

Psoralen Treated (INTERCEPT, Pathogen Reduced) Platelets

- Contraindicated: hypersensitivity reactions to amotosalen or other psoralens.
- Contraindicated: neonates treated with phototherapy devices of specific wavelength or bandwidth (these devices are not current standard of care in Canada).
- Limited safety data in intrauterine transfusion & long-term safety in pediatrics.

Platelet Inventory (3)

Platelet Additive Solution (PAS-E), Psoralen Treated (INTERCEPT, Pathogen Reduced)

Characteristic	Pooled Platelets Psoralen Treated	Apheresis Platelets Psoralen Treated	Apheresis Platelets in PAS-E (on request)	Pooled Platelets LR CPD	Apheresis Platelets
				No longer manufactured by CBS	
Mean unit volume (mL)	181	277	269	317	223
Mean plasma volume (mL)	75	116	113	317	223
Suspended in:	About 60% PAS-E & 40% Plasma	About 60% PAS-E & 40% Plasma	About 60% PAS-E & 40% Plasma	Plasma	Plasma
Mean platelet yield ($x10^9$ platelets/unit)	243	252	279	339	333
Number of donors in component	7	1	1	4	1
Routine Bacterial Screening by CBS	Not required	Not required	Yes	Yes	Yes
Viable lymphocytes present? (if patient requires irradiated blood, is irradiation needed?)	No Irradiation not necessary	No Irradiation not necessary	Yes If a patient requirement, irradiation needed	Yes If a patient requirement, irradiation needed	Yes If a patient requirement, irradiation needed

Platelet Inventory (4)

Platelet Additive Solution (PAS-E), Psoralen Treated (INTERCEPT, Pathogen Reduced)

Pooled Platelets Psoralen Treated (PPPT)

Apheresis Platelets Psoralen Treated (APPT)

Apheresis Platelets in PAS-E (on request)

Evidence informed indications & dose Platelet Transfusion Question 7

Betty, a 62-year-old is being treated with chemotherapy for CLL (required RBC & Platelet transfusions). Unfortunately, she had a fall, fracturing her hip. Betty is scheduled for surgery, open reduction internal fixation of the fracture today. AM blood work: Hb 86 g/L, platelet count 12 X 10^9/L.

Betty's prescriber is likely to order:

a) Pre-op, transfuse 2 doses platelets, each dose over 1 hour.

b) Pre-op, transfuse 1 dose platelets over 1 hour.

c) Post-op, if oozing noted on hip dressing/bleeding, then transfuse 1 dose platelets over 2 hours.

d) No transfusion associated orders.

Evidence informed indications & dose

Platelet Transfusion draft ORBCoN recommendations 1

Platelets – Adult Inpatients

Clinical Setting		
Diagnosis/Indication	**Platelet Count x 10^9/L**	**Recommendation and dose**
• Hypoproliferative thrombocytopenia. • Non-immune thrombocytopenia.	Less than 10	1 dose
• Procedures not associated with significant blood loss, including percutaneous procedures (e.g., non-subclavian central line placement, lumbar puncture, paracentesis).	Less than 20	1 dose
• High risk procedures in patients with cirrhosis.	Less than 30	1 dose
• Patients with acute thrombosis and high risk of thrombus progression, where therapeutic anticoagulation cannot be stopped.	Less than 50	Consult a thrombosis specialist. 1 dose
• Procedures with expected blood loss greater than 500 mL. • Major non-neuraxial surgery.	Less than 50	1 dose, immediately before procedure. Check platelet count before starting procedure.
• Neuraxial anesthesia.	Less than 50-80	1 dose
• Neuraxial surgery. • Head trauma. • CNS hemorrhage.	Less than 100	1 dose and check platelet count.
• Platelet dysfunction and significant bleeding e.g., post cardiopulmonary bypass. • *Exception:* Transfusing platelets for spontaneous intracranial hemorrhage in patients not requiring surgical management, on antiplatelet agents, and with platelet count greater than 100 x 10^9/L leads to increased morbidity.	Any	1 dose
• Immune thrombocytopenia (immune thrombocytopenic purpura, heparin-induced thrombocytopenia, post-transfusion purpura, thrombotic thrombocytopenic purpura).	Case specific	Consult hematology before ordering. For life-threatening bleeding only.

Evidence informed indications & dose

Platelet Transfusion draft ORBCoN recommendations 2

- In general, 1 dose should raise the platelet count by at least 15 x 10^9/L within 60 minutes post transfusion.
- Whenever feasible, transfuse platelets that are ABO and Rh blood group identical to the patient.
  - If Rh blood group identical platelets are not available:

Patient Rh Blood Group	Platelet Rh Blood Group for Transfusion
Rh positive	Rh positive or Rh negative
Rh negative and female age 45 years and under, with childbearing potential	Rh negative If only Rh positive platelets are available and transfused, then Rh Immune globulin (RhIG) is required to prevent formation of anti-D antibody.
Rh negative and female **not** of childbearing potential or male	Rh positive or Rh negative If Rh positive platelets are transfused, RhIG is not recommended [risk of immunization from platelets is low (about 1%) and passive anti-D complicates compatibility testing procedures (potentially delaying transfusion)]

  - If ABO blood group identical platelets are not available, then ABO plasma compatible platelets are a reasonable alternative.

Patient ABO Blood Group	Platelet ABO Blood Group for Transfusion (listed in preferred sequence)
O	O, B, A, AB
A	A, AB, B, O
B	B, AB, A, O
AB	AB, A, B, O

- If post transfusion platelet increment is less than 7.5 x 10^9/L for two transfusions of ABO identical platelets, consult Transfusion Medicine Laboratory regarding investigation for platelet refractoriness. For more information on platelet refractoriness, refer to CBS Clinical Guide to Transfusion Chapter 18 Resource Manual for Medical Directors of Transfusion Medicine sections 6.4 and 6.5 Bloody Easy 5.1 pages 30-31.
- In Canada, effective 2024, platelets are "pathogen reduced", available as Pooled Platelets Psoralen Treated and Apheresis Platelets Psoralen Treated. Pathogen reduced platelets have a decreased risk of bacterial transmission and transfusion-transmitted infections.
- Also, effective 2024 platelets (including pathogen reduced platelets) are suspended in approximately 60% Platelet Additive Solution (PAS-E) and approximately 40% donor plasma. Less plasma lowers the risk of allergic transfusion reactions.
- For patients requiring irradiated blood, irradiation of platelets is not necessary as pathogen reduction/psoralen treatment is considered equivalent.
- 1 dose = 1 pooled platelet psoralen treated, or 1 apheresis platelet psoralen treated.
- Apheresis Platelets PAS-E Added (pathogen reduction technology not used) are also manufactured by Canadian Blood Services (very limited national inventory) for patients with a history of hypersensitivity reactions to amotosalen or other psoralen products. Apheresis Platelets PAS-E Added are also available for intrauterine and neonatal/pediatric transfusion where psoralen treatment long term safety data is limited.

Evidence informed indications & dose
Platelet Refractoriness

- Complex complication of platelet transfusion, paucity of information to support practice.
- CBS Resource: Platelet transfusion, alloimmunization and management of platelet refractoriness (2025/11/14).
- Causes of poor platelet count increment post transfusion:
  - Immune-mediated (20%)
    Antibodies to Human Leukocyte Antigens (HLA) or less likely Human Platelet Antigens (HPA).
  - Non-immune-mediated (80%)
    Underlying: fever, infection (sepsis), medications, splenomegaly, disseminated intravascular coagulation.
- If poor platelet count increment, bleeding patient may benefit clinically from random donor pooled platelet transfusion.

Nursing actions to support patient safety Platelet Transfusion Question 8

Select the correct statement pertaining to administration of platelet transfusion:

a) Transfuse platelets 2 hours prior to a procedure (time is needed for the platelets to be come activated).

b) Monitor the patient's temperature every 15 minutes during platelet transfusion.

c) Use a new blood administration set (which includes a 170 to 260 micron filter) to transfuse platelets.

d) After platelet transfusion, flush the tubing with 5% dextrose in water (D5W).

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Outline:

- Ontario prevalence data: RBC, platelet and plasma transfusion.
- Using Blood Wisely (UBW).
- **Evidence informed indications & dose Nursing actions to support patient safety**
  - RBC transfusion.
  - Platelet transfusion.
  - **Plasma transfusion.**

NOTE: Focus is adult, routine/non-urgent transfusion.

Evidence informed indications & dose Plasma Transfusion: Plasma Inventory (1)

Canadian Blood Services Circular of Information

Current Versions for Download

Note: These documents can be downloaded.

- Red Blood Cells, Leukocytes Reduced (LR)
- Pooled Platelets LR CPD, Apheresis Platelets
- Pooled Platelets Psoralen Treated
- Plasma Components
- Hematopoietic Progenitor Cells (HPC), Cord Blood
- Whole Blood Leukocytes Reduced
- Apheresis Platelets Psoralen Treated
- Apheresis Platelets PAS Added
- Pathogen Reduced Plasma Component(s)

Plasma Components

This component information addresses:

- **Apheresis Frozen Plasma (ACD-A)**
- **Frozen Plasma CPD**
- **Cryosupernatant Plasma CPD**
- **Cryoprecipitate CPD**

Pathogen Reduced Plasma Component(s)

This component information addresses:

- **Apheresis Frozen Plasma Psoralen Treated (ACD-A)**

September 15, 2025
CBS Ottawa site

PRODUCT MONOGRAPH

INCLUDING PATIENT MEDICATION INFORMATION

OCTAPLASMA™

Solvent Detergent (S/D) Treated Human Plasma

Solvent Detergent Plasma
Target 80 % of plasma utilization by September 2023

Evidence informed indications & dose
Plasma Transfusion: Plasma Inventory (2)

Frozen Plasma (FP)	Apheresis Frozen Plasma (AFP)	Solvent Detergent Plasma (SD Plasma)	Apheresis Plasma Psoralen Treated
			
Mean volume: 289 mL	Mean volume: 249 mL	Volume: 200 mL	Mean volume: 203 mL

Evidence informed indications & dose Plasma Transfusion Question 9

Wilma, a frail 55-year-old (weight 50 kg) was admitted 1 week ago for treatment of chronic pneumonia (underlying medically managed Chronic Obstructive Pulmonary Disease, no other medications). A deep abscess of the lung parenchyma has been diagnosed. Plan: radiology will drain the abscess today. AM blood work: Hb 95 g/L, platelet count 75 X 10^9/L, INR 2.0.

The Interventional Radiologist is likely to order:

a) Transfuse 1 unit plasma over 2 hours.

b) Give vitamin K 10 mg IV, then transfuse 1 unit plasma over 2 hours.

c) Transfuse 3 units SD plasma, each unit over 2 hours.

d) Thaw 3 units SD plasma, on hold for abscess drainage.

Evidence informed indications & dose

Plasma Transfusion draft ORBCoN recommendations 1

Plasma – Adult Inpatients

Clinical Setting		
Diagnosis/Indication	**INR**	**Recommendation and dose**
• Liver disease with coagulopathy and low-risk invasive procedure planned (e.g., arterial line, IV line, PICC line, bone marrow procedure, paracentesis, thoracentesis).	Any	Do not transfuse plasma.
• Major bleeding. • Liver disease with coagulopathy and high-risk invasive procedure planned.	Greater than or equal to 1.8	See dosing table below.
• Microvascular bleeding. • Massive hemorrhage protocol.	Greater than or equal to 1.8 or unknown and cannot wait for result.	*Massive hemorrhage protocol:* commence at a minimum ratio of 2:1 (RBC:plasma) for the first 30-60 minutes, then administer based on coagulation test results. See dosing table below.

• Urgent warfarin reversal and
  ○ Serious bleeding.
  ○ Urgent surgical procedure required within 6 hours.
	Greater than 1.5	Prothrombin Complex Concentrate (PCC) is the emergency reversal agent for warfarin. For PCC information, refer to Bloody Easy 5.1 pages 122-125.
		
		Only give plasma if PCC is not available or is contraindicated (e.g., history of heparin-induced thrombocytopenia).
		Co-administer Vitamin K 10 mg IV.
		
		See dosing table below.

• Congenital coagulation factor deficiency where a factor concentrate is not available and
  ○ Serious bleeding.
  ○ Urgent surgical procedure required.
	Any	Consult hematology.

NOTE:
Plasma is neither indicated nor effective for reversal of heparin, low molecular weight heparin or direct oral anticoagulants (DOACs). For DOAC reversal information, refer to the Thrombosis Canada website, Clinical Guides, DOACs."

- The effectiveness of plasma in reversing an elevated INR is dependent upon the etiology of the coagulopathy and the degree of PT/INR elevation.
- Patients with liver disease have preserved thrombin generation despite elevated INR levels and often do not need correction of an abnormal INR prior to a procedure.

Evidence informed indications & dose

Plasma Transfusion draft ORBCoN recommendations 2

- See Plasma reference #2 for Radiology definitions of low-risk and high-risk invasive procedures.
- Patients with known anti-IgA antibodies should receive plasma from IgA deficient donors.
- Plasma must be ABO-compatible.
- As of 2023, Canadian Blood Services provides Solvent Detergent Plasma (S/DP) and Plasma Components (FP) including frozen plasma and apheresis frozen plasma. S/DP and FP have the same clinical indications.
- Contraindications to S/DP:
  - Patients with IgA deficiency and documented anti-IgA antibodies.
    These patients would also potentially experience allergic reactions to FP. These patients should only receive FP from IgA deficient donors.
    IgA deficiency alone (no anti-IgA antibodies) is not a contraindication as most patients with this relatively common deficiency do not form antibodies and will not have an adverse reaction.
  - Patients with severe deficiency of protein S.
    S/DP contains significantly lower levels of protein S compared to FP. This could lead to an increased risk of blood clots. Patients with severe deficiency of protein S requiring plasma transfusion should receive FP.
- The standard volume for S/DP is 200 mL/unit while the mean volume for FP is 289 mL/unit.
- September 2025, Canadian Blood Services manufacture of Pathogen Reduced Plasma (Apheresis Frozen Plasma Psoralen Treated) was launched in Ottawa and will be gradually expanded across Canada. Implementation of pathogen reduction technology reduces the risk of transfusion-transmitted infections and enhances the safety profile. Clinical indications are the same as for FP.
- Contraindication/Precaution for Apheresis Frozen Plasma Psoralen Treated:
  - Do not use in patients with a history of hypersensitivity reactions to amotosalen or other psoralen products.
  - Caution, limited safety data for use in intrauterine and neonatal/pediatric transfusion.
- Allow time for thawing (30 minutes).
- Transfusion-Associated Circulatory Overload (TACO): identify patients at risk and implement preventative strategies as appropriate.
  TACO Risk factors: age over 70 years, history of heart failure, left ventricular dysfunction, history of myocardial infarction, renal dysfunction, positive fluid balance.
  TACO Preventative strategies: slow the rate of transfusion to a maximum of 4 hours per unit, administer pre-transfusion diuretic.

Evidence informed indications & dose

Plasma Transfusion draft ORBCoN recommendations 3

- Plasma Dose: 10-15 mL/kg. Avoid single unit plasma transfusion; dose would be inadequate.
- A dose of 10-15 mL/kg raises coagulation factor levels by approximately 20% for about 5 hours.
- The weight-based dosing table below is modified from the NAC recommendations table (refer to reference # 4).

Weight based plasma dosing table

Weight (kg)	Dose 12.5 mL/kg[1] (mL)	S/D or Psoralen Treated Plasma[2] (# of units)	FP[3] (# of units)	AFP[4] (# of units)
< 40 kg	Use actual weight (kg) to calculate dose at 12.5 mL/kg, round # of units based on S/D & Psoralen Treated Plasma 200 mL/unit, FP 289 mL/unit, AFP 249 mL/unit.			
40-44.9	570	3	2	2
45-49.9	630	3	2	2
50-54.9	690	3	2	3
55-59.9	750	4	3	3
60-64.9	820	4	3	3
65-69.9	880	4	3	4
70-74.9	940	5	3	4
75-79.9	1000	5	3	4
80-84.9	1070	5	4	4
85-89.9	1130	6	4	5
90-94.9	1190	6	4	5
95-99.9	1250	6	4	5
100 and greater[5]	1250	6	4	5

1. Dose calculated using upper weight for each weight increment, rounded up to nearest 10 mL.
2. Number of S/D (unit volume 200 mL) or Psoralen Treated (Apheresis Frozen Plasma Psoralen Treated, mean unit volume 203 mL) Plasma units rounded to nearest dose volume (mL), using volume 200 mL/unit (i.e., 3 units = 600 mL, 4 units = 800 mL, 5 units = 1000 mL, 6 units = 1200 mL).
3. Number of FP units rounded to nearest dose volume (mL), using mean unit volume 289 mL (i.e., 2 units = 578 mL, 3 units = 867 mL, 4 units = 1156 mL).
4. Number of apheresis frozen plasma units rounded to nearest dose volume (mL), using mean unit volume 249 mL (i.e., 2 units = 498 mL, 3 units = 747 mL, 4 units = 996 mL, 5 units = 1,245 mL).
5. For weight 100 kg and greater, dose is capped using 95-99.9 kg weight increment dose.

Nursing actions to support patient safety Plasma Transfusion Question 10

Select the incorrect statement pertaining to administration of plasma transfusion:

a) Thawed plasma may be stored up to 5 days/120 hours at 1- 6°C in TML approved, monitored refrigerator.

b) Transfusion reactions are unlikely with plasma. Patient monitoring & vital signs checks are not required.

c) Rh(D) blood group compatibility is not relevant for plasma transfusion.

d) FP might have a light green or bright orange colour related to donor factors and is acceptable for transfusion.

Transfusion Knowledge Question 1 - Post

RBC transfusion is indicated in (select all that apply):

a) Patients with uncorrected pre-existing cardiovascular disease and Hb less than 80 g/L.
b) Healthy postpartum patients without hemodynamic symptoms (e.g., dyspnea, chest pain, syncope) and Hb less than 70 g/L.
c) In some patients with acute myocardial infarction and Hb less than 90 g/L.
d) Patients with hemodynamic symptoms (e.g., dyspnea, chest pain, syncope), regardless of Hb.

Transfusion Knowledge Question 2 - Post

When administering RBC transfusion, at the patient's bedside, the crucial, mandatory element to ensure patient safety is:

a) Patient is wearing a patient identification armband for identification checks.

b) Assess patient for TACO risk factors; implement TACO prevention strategies if indicated.

c) RBC unit is ABO & Rh(D) blood group identical or compatible.

d) If no acute bleeding, initiate transfusion at 50 mL/hr. (adults) for 15 minutes, then reassess patient & vital signs.

Transfusion Knowledge Question 3 - Post

Platelet transfusion is indicated in (select all that apply):

a) Neuraxial anesthesia (e.g., epidural) and platelet count less than 50-80 x 10^9/L.
b) Head trauma and platelet count less than 100 x 10^9/L.
c) As bleeding prophylaxis in oncology patients undergoing chemotherapy (hypoproliferative thrombocytopenia) and platelet count less than 30 x 10^9/L.
d) Platelet dysfunction e.g., post cardiopulmonary bypass, regardless of platelet count.

References (1)

Black L, Selby R, Brnjac E, Lin Y, Elbaz C, James P, Moffat K, Sholzberg M. Bloody easy coagulation simplified. 2nd ed. Toronto: Ontario Regional Blood Coordinating Network. 2019 [updated 2019 Feb; cited 2025 Nov 20].47p. Available from: https://transfusionontario.org/wp-content/uploads/2020/06/ORBCON-EN-BE_Coagulation_02259.pdf

Blais-Normandin I, Tordon B, Anani W, Ning S. Pathogen-reduced platelets. In: Khandelwal A, Abe T, editors. Clinical Guide to Transfusion [Internet]. Ottawa: Canadian Blood Services, 2022 [cited 2025 Nov 20]. Chapter 19. Available from: https://professionaleducation.blood.ca/en/transfusion/clinical-guide/pathogen-reduced-platelets

Callum JL, Pinkerton PH, Lin Y, Cope S, Karkouti K, Lieberman L, Pendergrast JM, Robitaille N, Tinmouth AT, Webert KE. Bloody easy 5.1 blood transfusions, blood alternatives and transfusion reactions a guide to transfusion medicine. 5th ed. Toronto: Ontario Regional Blood Coordinating Network; 2022 [revised 2023; cited 2025 Nov 20]. 145p. Available from: https://transfusionontario.org/en/category/bloody-easy-e-tools-publications/bloody-easy-for-healthcare-professionals/

Canadian Blood Services (CBS). Circular of information [Internet]. Ottawa (CA); CBS; 2020 [cited 2025 Nov 20]. Available from: https://www.blood.ca/en/hospital-services/products/component-types/circular-information

Canadian Blood Services (CBS). FAQ: Solvent detergent (S/D) treated plasma (Octaplasma). Ottawa (CA); CBS; 2022 [cited 2025 Nov 20]. Available from: https://professionaleducation.blood.ca/en/transfusion/publications/solvent-detergent-sd-treated-plasma-octaplasma

Canadian Blood Services. Visual Inspection Tool [Internet]. Ottawa: Canadian Blood Services; 2023 [cited 2025 Nov 20]. Available from: https://profedu.blood.ca/en/visual-inspection-tool

Canadian Society for Transfusion Medicine (CA). Standards for hospital transfusion services. Markham ON; 2021 Dec; cited 2025 Nov 20. 110 p. Report No.: Version 5. Available from: http://www.transfusion.ca/Resources/Standards

Carson JL, Brooks MM, Hébert PC, Goodman SG, Bertolet M, Glynn SA, et al. Restrictive or liberal transfusion strategy in myocardial infarction and anemia. N Engl J Med. 2023 Dec 28;389(26):2446-2456.

References (2)

Gabarin N, Yan M. Vein to vein: A summary of the blood system in Canada. In: Khandelwal A, Abe T, editors. Clinical Guide to Transfusion [Internet]. Ottawa: Canadian Blood Services, 2024 [cited 2025 Nov 20]. Chapter 1. Available from: https://professionaleducation.blood.ca

Lafrance C, Malcolmson C, Ning S, Anani W, Yan M. Platelet transfusion, alloimmunization and management of platelet refractoriness In: Khandelwal A, Brooks K., editors. Clinical Guide to Transfusion [Internet]. Ottawa: Canadian Blood Services, 2025 [cited 2025 Nov 20]. Chapter 18. Available from: https://professionaleducation.blood.ca

Levinson W. Choosing Wisely Talks – Using Blood Wisely Five-Year Celebration [web streaming video].[Place unknown]: [Publisher unknown]; 2025 Oct 29 [cited 2025 Nov 20]. Available from: Using Blood Wisely Five-Year Celebration

National Standard of Canada Canadian Standards Association (CA). Blood and blood components. Toronto ON; 2025 Mar; cited 2025 Nov 20. 162 p. Report No.: CAN/CSA-Z902:25. Available from: https://community.csagroup.org/docs/DOC-126295 (Note: must create a user account for access)

Octapharma Our Products in Canada. Octaplasma™ solvent detergent (S/D) treated human plasma product monograph [Internet]. Toronto (CA): Octapharma Canada Inc; 2005 Aug 11 [revised 2022 Oct 31; cited 2025 Nov 20]. Available from: https://www.octapharma.ca/api/download/x/b5e3a19300/octaplasma_pm_en_31_oct_2022.pdf

Ontario Regional Blood Coordinating Network. Bloody easy blood administration. version 3. Toronto: Ontario Regional Blood Coordinating Network; 2020 [cited 2025 Nov 20]. 146p.
Available from: https://transfusionontario.org/en/category/bloody-easy-e-tools-publications/bloody-easy-blood-administration/

Ontario Regional Blood Coordinating Network. Clinical practice recommendations - quality improvement plan toolkit [Internet]. Toronto ON; Ontario Regional Blood Coordinating Network; 2016 Mar [revised 2025 Mar; cited 2025 Nov 20].
Available from: https://transfusionontario.org/en/category/toolkits/quality-improvement-plan/

References (3)

Prokopchuk-Gauk O, Robitaille N, Tinmouth A, Shih A, Musuka C, Devine D, et al. Recommendations for use of Irradiated Blood Components in Canada: A NAC and CCNMT Collaborative Initiative [Internet]. Ottawa: National Advisory Committee on Blood and Blood Products; October 17, 2017 [updated 2023 10 16; cited 2025 Nov 20]. Available from: https://nacblood.ca/en/resource/recommendations-use-irradiated-blood-components-canada

Shih AW, Schnell G, Belley-Côté E, Lett R, Peretz-Larochelle M, Tinmouth A. Canadian Cardiovascular Society and National Advisory Committee on Blood and Blood Products Joint Statement on Blood Utilization and Transfusion for Patients With Acute Coronary Syndromes. Canadian journal of cardiology. 2025;41(10):1875–84.

Tinmouth A. National Advisory Committee on Blood and Blood Products. Guidelines & recommendations NAC recommendations for management of dual inventory of solvent-detergent plasma and frozen plasma [Internet]. Ottawa: National Advisory Committee on Blood and Blood Products; 2023 Oct 13 [cited 2025 Nov 20]. Available from: https://nacblood.ca/en/resource/nac-recommendations-management-dual-inventory-solvent-detergent-plasma-and-frozen-plasma

Tinmouth A, Morrison D, Quinn J, Pavenski K, Webert K, Lett R. National Advisory Committee on Blood and Blood Products. Guidelines & recommendations NAC recommendations for the use of solvent-detergent plasma in Canada [Internet]. Ottawa: National Advisory Committee on Blood and Blood Products; 2023 Mar 10 [updated 2023 Jul 20; cited 2025 Nov 20]. Available from: https://nacblood.ca/en/resource/nac-recommendations-use-solvent-detergent-plasma-canada

Using Blood Wisely. Using blood wisely guidelines [Internet].[Place unknown]: [Publisher unknown]; 2020 Jul [revised 2025 Jan; cited 2025 Nov 20]. Available from: https://usingbloodwisely.ca/wp-content/uploads/2020/07/Guidelines_UBWEN.pdf

Vossoughi S, Paroder M. Administration of Blood Components and Biotherapies. In: Cohn CS, Delany M, editors. AABB Technical Manual. 21st edition. Bethesda MD: AABB Press; 2023. p. [567-588].

Zeller MP, Ning S, Khandelwal A, Howell A, Webert K. (2025). Apheresis frozen plasma psoralen-treated. Canadian Blood Services. https://profedu.blood.ca/en/transfusion

Acknowledgements

The Ontario Regional Blood Coordinating Network (ORBCoN) gratefully acknowledges funding support provided by the Ontario Ministry of Health. The views expressed in this presentation are those of the authors and of ORBCoN and do not necessarily reflect those of the Ontario Ministry of Health or the Government of Ontario.

Many thanks to my ORBCoN and Transfusion Medicine family for their ongoing mentorship and support.

Your participation is appreciated!

2025 Using Blood Wisely Guidelines: Are You Transfusing Wisely?

Email: bertad@mcmaster.ca