

# Blood Counts

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Did you know?

## Our laboratory standards coordinator has achieved AABB assessor status

Jennifer LeFrense, Laboratory Standards Coordinator, has become Nova Scotia's first approved AABB assessor for Transfusion Activities. Heather Mingo, Nurse Practitioner with the Perioperative Blood Conservation Program, is an AABB assessor for Perioperative Activities.

AABB, formally known as The American Association of Blood Banks, develops standards that promote patient safety and quality. AABB standards combine internationally accepted quality management system essentials with technical requirements for each of the following disciplines:

- transfusion, blood bank, and donor services activities, including the collecting, processing, testing, distributing, and administering of blood and blood components
- hematopoietic progenitor cell activities
- cord blood activities
- perioperative activities
- relationship testing activities
- immunohematology reference laboratories

The AABB Accreditation Program promotes the highest standard of care for patients and donors. The program specifically assesses quality systems and operational areas for compliance with the standards.

The AABB Accreditation Program provides volunteer professional training in auditing techniques; quality program and operations; and the competitive, legal, and ethical issues associated with assessments. With this training, assessors can evaluate a facility's quality and operational systems to determine whether the service they provide is appropriate and in control. AABB currently has accredited facilities in 34 countries around the world.

Since becoming a qualified assessor, Jennifer LeFrense has visited many sites across the province to apply what she has learned. The whole province benefits from the global networking that is a part of the accreditation program and the assessor training.

# Transfusion reactions: Two case studies

**1.** A 62-year-old man with a history of hypertension and peripheral vascular disease is admitted with a new diagnosis of anemia with an unknown cause. He has a six-month history of fatigue and decreased mobility. His hemoglobin has decreased from 92 last month to 78 today; his symptoms are worsening; and the physician orders a unit of red cells to be administered. The infusion begins and the patient begins to scratch his arms and abdomen. You assess him and see hives on less than one quarter of his body, with no other symptoms.

**What adverse reaction is occurring?**

- a. Acute hemolytic reaction
- b. Febrile non-hemolytic reaction
- c. Minor allergic reaction
- d. Transfusion-associated dyspnea

**2.** An 82-year-old man is admitted with a gastrointestinal bleed. You complete all relevant pre-transfusion checks and begin the transfusion. Pre-transfusion vitals are temperature 36.5, pulse 95, blood pressure 114/65. After five minutes, the patient begins to complain that he is cold and that his lips are numb. His temperature goes to 37.0, pulse 130, and blood pressure 158/78. You stop the infusion and call the nurse practitioner. The lab does a clerical check and reports a discrepancy.

**This leads you to believe that the patient is showing signs of which adverse reaction?**

- a. Anaphylactic reaction
- b. Acute hemolytic reaction
- c. Febrile non-hemolytic reaction
- d. Transfusion-related dyspnea

*(See back page for answers.)*



## Kudos Corner: Dr. Irene Sadek

Kudos to Dr. Irene Sadek, Director, Blood Transfusion Service, Central Zone, for promoting the safe and appropriate management of blood components/products in order to deliver the best evidence-based care to patients. Dr. Sadek leads the Canadian Society for Transfusion Medicine (CSTM) initiative on Choosing Wisely Canada – Transfusion Medicine.

## Getting to Know You:

# Dr. Sudeep Shivakumar, Clinical Advisor, Provincial Blood Coordinating Program



*Dr. Sudeep Shivakumar*

We are happy to announce that Dr. Sudeep Shivakumar has accepted the role of Clinical Advisor to the Nova Scotia Provincial Blood Coordinating Program. Dr. Shivakumar will provide leadership and advice on emerging medical and clinical issues. He will also collaborate with the Program Advisory Council to help develop the program's goals and objectives.

Dr. Shivakumar is a hematologist and director of the Thrombosis and Anticoagulation Program at the QEII Health Sciences Centre; an associate professor of medicine and director of postgraduate education in the Division

of Hematology at Dalhousie University; and chair of the Thrombosis Canada Fellowship Committee. His clinical interests are deep vein thrombosis and pulmonary embolism. He has an additional fellowship in Thrombosis from the University of Ottawa after completing his residency training in Hematology at Dalhousie.

His research interests include venous thromboembolism, malignancy-associated thrombosis and medical education.

Please join us in congratulating Dr. Shivakumar on his new relationship with our program.

# Recommendations for transfusion medicine, from Choosing Wisely Canada

*Sue Cairns, NSPBCP Transfusion Practice Coordinator – Utilization*

*Dr. Irene Sadek, Medical Director, Blood Transfusion Services, Central Zone, Nova Scotia Health Authority*

The Choosing Wisely® campaign began in the United States in 2012 to encourage patients and physicians to talk about unnecessary tests and treatments and make better-informed choices about patient care. Choosing Wisely Canada now leads an international effort that has spread to Australia, Europe, Japan, and elsewhere.

Transfusion Medicine is one of many disciplines included in the campaign. The Canadian Society for Transfusion Medicine, as part of Choosing Wisely Canada, promotes conversations about the best possible evidence-based care for patients receiving blood components and/or blood products.

In October 2014, Choosing Wisely Canada—Transfusion Medicine provided the first “Five Things Physicians and Patients Should Question,” and followed up with another five in June 2015.

For the full text in its original form, go to [choosingwiselycanada.org/recommendations/transfusion-medicine](http://choosingwiselycanada.org/recommendations/transfusion-medicine).

Here is a recap:

**1.** *Don't transfuse blood if other non-transfusion therapies or observation would be just as effective.* For example, patients with an iron deficiency without hemodynamic instability should be given iron therapy.

**2.** *Don't transfuse more than one red blood cell unit at a time when transfusion is required in stable, non-bleeding patients.* In a stable, non-bleeding patient, often a single unit

of blood is adequate to relieve patient symptoms or to raise the hemoglobin to an acceptable level. Single-unit red cell transfusions should be the standard for non-bleeding, hospitalized patients.

**3.** *Don't transfuse plasma to correct a mildly elevated (<1.8) international normalized ratio (INR) or activated partial thromboplastin time (aPTT) before a procedure.* A mildly elevated INR is not predictive of an increased risk of bleeding. Furthermore, transfusion of plasma has not been demonstrated to significantly change the INR value when the INR was only minimally elevated (<1.8).

**4.** *Don't routinely transfuse platelets for patients with chemotherapy-induced thrombocytopenia if the platelet count is greater than  $10 \times 10^9/L$  in the absence of bleeding.* Considerations in the decision to transfuse platelets include the cause of the thrombocytopenia, comorbid conditions, symptoms of bleeding, risk factors for bleeding, and the need to perform an invasive procedure.

**5.** *Don't routinely use plasma or Prothrombin Complex Concentrates (PCCs) for non-emergent reversal of vitamin K antagonists.* Patients requiring non-emergent reversal of warfarin can often be treated with vitamin K or by discontinuing the warfarin therapy. PCCs should only be used for patients with serious bleeding or for those who need urgent surgery.

**6.** *Don't use immunoglobulin therapy for recurrent infections unless impaired antibody responses to vaccines are demonstrated.* Isolated decreases in immunoglobulins do not indicate a need for immunoglobulin replacement therapy. Exceptions include genetically defined/suspected disorders.

**7.** *Don't order unnecessary pre-transfusion testing (type and screen) for all pre-operative patients.* Ordering pre-transfusion testing for patients who will likely not require transfusion will lead to unnecessary blood drawn from a patient and unnecessary testing performed.

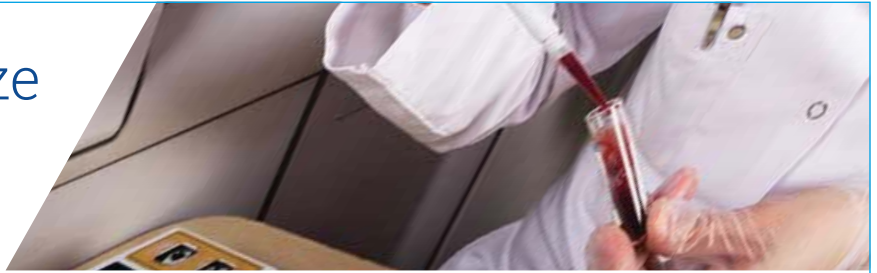
**8.** *Don't routinely order perioperative autologous and directed blood collection.* Perioperative autologous donation or directed donation should be available for selected patients only (for example, patients with rare red blood cell antigen types). The concern is there are risks incurred from directed and autologous donation.

**9.** *Don't transfuse O-negative blood except to O-negative patients and in emergencies for female patients of child-bearing potential of unknown blood group.* Males and females without childbearing potential can receive O Rh-positive red cells. O-negative red cells should be restricted to: (1) patients who are O-Rh-negative; (2) patients with unknown blood group requiring emergent transfusion who are female and of child-bearing age. Type-specific red cells should be administered as soon as possible in all emergency situations.

**10.** *Don't transfuse group AB plasma to non-group AB patients unless in emergency situations where the ABO group is unknown.* The universal plasma is AB plasma and is available in only 3% of Canadian blood donors. Type-specific plasma should be issued as soon as possible in emergency situations to preserve the AB plasma inventory for those patients where the blood group is unknown.

Many of these recommendations have been implemented in Nova Scotia, resulting in better patient care. We continue to work toward implementing all the recommendations.

# Guidelines aim to optimize platelet transfusions for adults in Nova Scotia



Tabassum Ata Quraishi, NSPBCP  
Utilization Management Coordinator

Platelet transfusions save lives, but they also involve transfusion-related risks to the patient. Platelet transfusions have declined steadily in Canada since 2010, but not in Nova Scotia. Our province remains the second-highest user of platelets among all Canadian provinces.

In 2014, AABB, formally known as The American Association of Blood Banks, developed evidence-based guidelines on the prophylactic use of platelet transfusion for adult patients (Reference 1). Based on these guidelines, and with the collaboration of the provincial Appropriate Blood Components Working Group (ABC WG) in Nova Scotia, the Nova Scotia Provincial Blood Coordinating Program has developed the following guidelines for prophylactic platelet transfusions for adults in Nova Scotia.

These guidelines provide evidence-based information and consensus-based recommendations. But the guidelines should not replace case-by-case decisions for individual patients.

## Guidelines

The ABC Working Group recommend prophylactic platelet transfusion in the following circumstances:

**1.** For hospitalized adult patients with therapy-induced hypoproliferative thrombocytopenia and a platelet count of  $10 \times 10^9$  /L or less, up to one adult unit of platelets to minimize the risk of spontaneous bleeding.\* Greater doses are not more effective, and lower doses equal to one half of an adult unit are equally effective.

*\*NOTE: Platelet transfusions are often ineffective in immune thrombocytopenic purpura (ITP). Patients with ITP with a platelet count less than  $10 \times 10^9$  /L should be transfused only if there is serious bleeding. In the rare circumstances when platelet transfusion is required to help manage ITP, other therapies such as corticosteroids and/or intravenous immunoglobulin should be used at the same time, to enhance platelet survival (Reference 2).*

**2.** For adult patients having elective central venous catheter placement, if they have the following platelet counts:

- less than  $20 \times 10^9$  /L when the central venous catheter is placed in the internal jugular vein or in the femoral vein
- less than  $50 \times 10^9$  /L when the central venous catheter is placed in the subclavian vein

**3.** For adult patients having elective diagnostic lumbar puncture, if their platelet count is less than  $50 \times 10^9$  /L

**4.** For adult patients having major elective nonneuraxial surgery, if their platelet count is less than  $50 \times 10^9$  /L

**5.** The Nova Scotia clinical experts recommend against routine prophylactic platelet transfusion for patients who are nonthrombocytopenic and are having cardiac surgery with cardiopulmonary bypass (CPB). However, we suggest platelet transfusion for patients having CPB who exhibit perioperative bleeding with thrombocytopenia and/or evidence of platelet dysfunction.

**6.** The ABC Working Group are unable to recommend for or against platelet transfusion for patients receiving antiplatelet therapy who have intracranial hemorrhage (traumatic or spontaneous).

## References

1. Kaufman RM, Djulbegovic B, Gernsheimer T, Kleinman S, Tinmouth AT, Capocelli KE, et al. Platelet transfusion: A clinical practice guideline from the AABB. *Annals of Internal Medicine* (2015);162(3): 205-213. doi:10.7326/M14-1589
2. Lin Y, Foltz LM. Proposed guidelines for platelet transfusion. *BCMJ*, Vol. 47, No. 5 (June 2005): 245-248.

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