



Patient & Family Guide  
2019

# Perioperative Blood Management (PBM) Service

Aussi disponible en français : *Service de  
gestion du sang périopératoire* (FF85-2082)



[www.nshealth.ca](http://www.nshealth.ca)

# Perioperative Blood Management (PBM) Service

## What is Perioperative Blood Management?

Perioperative Blood Management (PBM) helps patients before, during, and after planned surgery to:

- › lower or prevent the need for a blood transfusion
- › manage anemia (a low level of red blood cells, hemoglobin, or blood)
- › minimize blood loss
- › improve patient outcomes

## What are the benefits of PBM?

When PBM is used to lower or avoid the need for a blood transfusion, patients have:

- › fewer complications
- › faster recoveries
- › shorter stays in hospital
- › less risk of infections

## Why is PBM good for the blood supply?

PBM helps save donated blood for people who really need it.

## **What should I do if I have anemia?**

If you have anemia, talk with your health care provider about:

- Testing to find the type and cause of your anemia
- Checking the iron levels in your blood
- Checking vitamin levels
- Increasing your blood count with:
  - › iron therapy
  - › vitamin B12
  - › folic acid
  - › vitamin C
  - › erythropoietin (hormone that helps your body make more red blood cells)

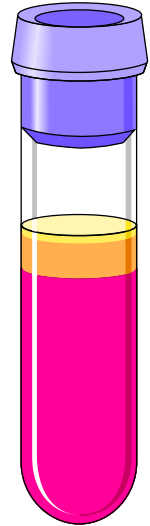
Your health care provider will help you develop a treatment plan to improve your blood count.

## **What is blood made of?**

Blood has white blood cells, platelets, and red blood cells floating in a liquid called plasma.

- › water: 50%
- › red blood cells: 43%
- › plasma: 5%
- › white blood cells and platelets: 1%

- White blood cells fight infection.
- Platelets help with clotting to stop bleeding.
- Red blood cells bring oxygen to your organs and tissues. The oxygen is carried and released by hemoglobin, a protein in the red blood cells. A low level of hemoglobin is called anemia. Anemia needs to be treated to keep you healthy. If anemia is severe (very bad), or goes on for a long time, it can cause more problems.
- Plasma has many factors (parts), including those needed for clotting.



## **Know your blood count**

Normal hemoglobin levels are:

- Women: 120 g/l (grams per litre) or higher
- Men: 130 g/l or higher

## **What is a blood transfusion?**

A blood transfusion is when you receive a blood component or product through an intravenous (IV) tube in your arm. You may need a blood transfusion after abnormal blood loss (such as blood loss from surgery). A blood component or product is made when donor blood is separated into different parts. When you receive a blood component, you are receiving only what you need.

- Blood components include:
  - › red blood cells
  - › platelets
  - › plasma
  - › cryoprecipitate
- Blood products include:
  - › albumin
  - › clotting factors

## **Where does the blood for a transfusion come from?**

- Blood is collected from healthy volunteer donors by Canadian Blood Services. Blood donors are asked questions about their health and only people who pass the survey are allowed to donate. Each time blood is donated, it is tested for syphilis, hepatitis B, hepatitis C, HIV, and other viruses.

- Blood is NOT used for transfusion if there is any concern that it may pass on a virus or disease. In an emergency, your doctor will decide whether to transfuse blood and what component or product to use.

## **Informed consent**

- If your doctor prescribes a blood transfusion for you, they will explain:
  - › what the component/product is
  - › the benefits and risks of the transfusion (this will depend on what component or product you receive and on your illness or condition)
  - › any other options available
- They will give you an opportunity to ask questions, and then they will ask you to sign a consent form for the treatment. This discussion will be documented in your chart.

## **Frequently asked questions about blood transfusions:**

### **Why are transfusions needed?**

- To increase red blood cells, which increases the oxygen in your blood.
- To replace clotting factor or platelets in your blood to help stop bleeding.

- To replace blood lost due to trauma or injury.
- To replace blood lost by a treatment or procedure that caused your blood cells to be lower for a time.

### **What are the risks of a blood transfusion?**

- For each blood component or product received, the risk of some viral infections is estimated to be:
  - › 1 in 21 million for HIV
  - › 1 in 7.5 million for hepatitis B (liver infection)
  - › 1 in 13 million for hepatitis C (liver infection)
  - › Less than 1 in 1 million for West Nile virus
- The risk of some non-viral infections is estimated to be:
  - › 1 in 100 for minor allergic reactions
  - › 1 in 300 for febrile (having a higher temperature) reactions
  - › 1 in 7,000 for delayed hemolysis (red blood cells are destroyed)
  - › 1 in 250,000 for bacteria getting into the red blood cells

- Receiving blood components or products in Canada is very safe. Serious complications are rare, but may be life-threatening. Reactions may be mild or severe and could come from:
  - › allergies
  - › human error
  - › transfusion-related acute lung injury (immune reaction affecting the lungs)
  - › less able to fight infections for a time
  - › fluid overload
- Blood can never be completely risk-free. However, the risks of getting sick due to a transfusion are very small. Please talk with your doctor about whether the risks of having a blood transfusion are higher than the possible result of **not** having a transfusion. In an emergency, your doctor will decide whether to transfuse blood and what type of component or product to use.

**What are your questions?**

**Please ask. We are here to help you.**



## **What are the options if I choose not to have a blood transfusion?**

- There are several options to lower or avoid the need for a blood transfusion, but not all options are right for every person.
- The health risks of not having a blood transfusion when needed are much greater than the risks of having a transfusion. Many types of surgery and treatments are possible without transfusions of blood components/products.

## **How does PBM work?**

- If you need elective surgery (your surgery is scheduled in advance), a complete blood count (CBC) needs to be taken well before your surgery date (4 weeks is recommended).
- Your surgeon, the PBM Service, and your family health care provider will work together to make sure that you are as healthy as possible. When getting ready for surgery, the need for a blood transfusion can be lowered or avoided through careful planning. A combination of PBM-related strategies can be used.

- Using blood management strategies does not rule out the possibility of needing a blood transfusion. The healthier you are before surgery, the less likely it is that you will need a blood transfusion.

## **Preoperative period (before surgery)**

- Talk with your health care provider at least 2 weeks before your surgery about any medications you are taking, including over-the-counter medications and herbal preparations, vitamin E, non-steroidal anti-inflammatory drugs (e.g., ibuprofen, naproxen), and medications that affect blood clotting (e.g., warfarin, dabigatran, Aspirin<sup>®</sup>, clopidogrel). These may increase your risk of bleeding during surgery.
- If there is time, certain types of anemia (not enough iron or vitamins, or not enough red blood cells) may be helped with medication, such as:
  - › minerals needed to make red blood cells
  - › iron therapy
  - › vitamin B12
  - › folic acid
  - › vitamin C
  - › erythropoietin (Eprex<sup>®</sup>)  
(to increase red blood cell production)

## **Donating your own blood (autologous donation)**

You may be able to donate your own blood at Canadian Blood Services for future use if your surgery is planned and not urgent. Depending on your condition, this must be arranged by your family health care provider and surgeon well before your surgery.

## **Can I donate blood for a family member or friend?**

- Donating blood for someone you know is called a directed donation (donation for a specific person).
- In Nova Scotia, **eligible parents** may donate blood for **their children**. This must be arranged through your family health care provider and Canadian Blood Services. Usually these donations happen 4-6 weeks before a scheduled surgery.
- Directed donations are only used for the specific patient. They cannot be given to others.
- Directed donations are not available in every situation and are not available in emergency situations.

## **Drugs and products that help your blood clot during surgery (intra-operative period)**

**Antifibrinolytic drugs:** drugs that help blood to clot.

**Fibrin sealant:** a combination of human protein used during surgery to control bleeding when standard surgical techniques are ineffective or impractical.

**Plasma-derived clotting factors or proteins:** There are several blood products made from human plasma that can be used to replace a clotting factor in your blood or reverse the effects of a medication.

## **Procedures performed during surgery**

**Acute Normovolemic Hemodilution (ANH):** some of a patient's blood is removed at the beginning of surgery and replaced with a salt solution. The blood that is removed is kept in the operating room (OR) with the patient. If the patient needs blood during surgery, the doctors can give them their own blood.

**Cell saver (blood salvage):** depending on your condition, blood lost during surgery can be recycled and returned to you. This must be arranged by your doctor before your planned surgery.

**Electrosurgical and ultrasonic harmonic scalpel coagulators:** coagulates (clots) a patient's blood during surgery to reduce blood loss.

**Endoscopic and laparoscopic surgery:** surgery is done through a surgical tube so there is a smaller incision (cut).

**Laser surgical techniques:** uses laser light to remove diseased tissues or treat bleeding blood vessels.

**Hypotensive anesthesia:** medication used to lower blood pressure so blood is less likely to leak.

**Hypothermia:** lowers body temperature to decrease the amount of oxygen used.

**Pediatric sampling:** a smaller than usual amount of blood is withdrawn from the patient for laboratory testing.

**Pulse oximetry:** tracks oxygen levels during surgery.

**Volume expanders:** non-blood fluids given by IV to increase the amount of blood (e.g., Voluven®).

These options may be available to you, but not all options are right for every person.

## **Is there such a thing as artificial blood?**

Yes. There are products called blood substitutes. When someone thinks about artificial blood, they usually imagine something that doesn't contain any blood, but still carries oxygen throughout the body. This type of product does exist, but it is **NOT** licensed for clinical use (not licensed to be given to patients) in Canada.

## **Can I refuse a blood transfusion?**

- A competent person has the right to refuse or stop any treatment. If you do not want a transfusion for any reason, including religious beliefs, you must tell your doctor.
- There are risks associated with refusing a blood transfusion. Please ask your doctor for more information.

## **Resources**

### **Perioperative Blood Management Service**

- › Phone: 902-473-3117
- › [www.cdha.nshealth.ca/perioperative-blood-management](http://www.cdha.nshealth.ca/perioperative-blood-management)

### **Canadian Blood Services**

- › [www.transfusionmedicine.ca](http://www.transfusionmedicine.ca)

# Notes:

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Contact your local public library for books, videos, magazines, and other resources.

For more information, go to <http://library.novascotia.ca>

Connect with a registered nurse in Nova Scotia any time: call 811 or visit <https://811.novascotia.ca>

Learn about other programs and services in your community: call 211 or visit <http://ns.211.ca>

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The information in this pamphlet is to be updated every 3 years or as needed.