



Red Blood Cell and Plasma Transfusion

Adults and Children

A Patients' Guide

This general information on blood transfusion will help you and your doctor make decisions about your medical care. For your convenience, the *italicized* terms are defined in a glossary at the end of this brochure.

What is blood transfusion?

Blood is a complex, essential fluid, comprising plasma and blood cells. It carries oxygen, nutrients and other needed materials to all other body cells. Donated blood is separated into *blood components*, which may be given to a person separately or together. The procedure involved in giving blood to a person through a vein is called blood transfusion.

When is a blood transfusion required?

Over 1 million units of blood are donated in Canada each year. Blood is used to improve quality of life and often to save the lives of patients who need surgery or other medical treatment. The people who receive blood include accident victims and patients with cancer, hemophilia and other serious diseases. Generally, a blood transfusion is given to replace blood components that may be missing or reduced through bleeding or as a result of illness or other medical treatment. Your need for transfusion depends on your medical condition, the volume of blood components missing and the presence of other illnesses. You should discuss the reasons that apply to you with your doctor or other health care worker, so that you will fully understand why you need a transfusion.

What steps are taken to ensure that the blood system in Canada is safe?

Canada's blood supply is among the safest in the world. All donors are carefully screened before every donation. Each person is asked questions about his or her health and risk factors for disease, and only those who meet strict criteria can donate blood. A new disposable needle is used to collect blood from each donor. Every donation is tested for certain infections that could be passed on by transfusion; tests are used to check the blood for the AIDS virus, the virus associated with a rare form of leukemia and viruses associated with liver disease (hepatitis) and syphilis. Any donated blood that does not pass these tests is destroyed. Finally, a carefully identified blood sample is compared with blood from the patient who will receive it, a process called cross matching. If a blood transfusion is required during a medical treatment or surgery, the risks of *not* receiving blood may be greater than the risks of transfusion.

What are the risks of blood transfusion?

Despite the high safety standards, the fact that blood is a biological substance means that there is a real, although extremely small, possibility of disease or

virus transmission. A common concern of patients is the potential risk of contracting AIDS or hepatitis through a transfusion. The donor and blood screening measures used in Canada have reduced the risk of receiving a unit of blood contaminated with the AIDS virus to 1 in a million. The chances of getting other infections through donated blood, such as hepatitis (1 in 60 000) and bacterial contamination (1 in a million), are real but the risk is very low.

More commonly, patients may experience non-infectious complications that usually have mild effects such as fever, chills or hives and require little or no treatment. Non-infectious complications, which include the destruction of red blood cells and allergic reactions, occur when the body's immune system develops antibodies that work against the donated blood.

The risks of becoming ill due to a transfusion are very small; they are similar to the risks of dying from having a baby or flying in an airplane (1 in 30 000 to 1 in 500 000). Discuss the risks of transfusion with your doctor when you are making decisions about your treatment.

What are the alternatives to receiving volunteer-donated blood?

The blood system in Canada collects and distributes *allogeneic* blood that is supplied by screened volunteer donors. The alternatives to allogeneic blood transfusion may be broadly divided into three categories: *autologous* blood transfusion, replacement fluids and drug therapy to reduce blood loss or treat *anemia*.

- Autologous blood transfusion means acting as your own donor. Your blood may be collected before

surgery (*predeposit*) and retransfused during or following surgery. It is not always possible to do this. Blood may also be collected and retransfused during surgery (*hemodilution* or *blood salvage*).

- Replacement fluids (solutions of various salts and nutrients in water) may be used to replace large amounts of lost blood. Artificial blood or blood substitutes are not yet available and are not likely to be available in the near future.

- A number of recently developed drugs can reduce or remove the need for blood transfusion in particular situations. Drug therapy may be an option depending on your illness.

The risk of avoiding blood transfusion through these techniques depends on your situation. If the risk of not having a transfusion is higher than the very low risk associated with transfusion, your doctor will advise a transfusion.

What can I do to make sure that a safe supply of blood is available?

Many lives are saved each year because of the availability of donated blood. It is important for healthy Canadians to donate blood to ensure that an adequate blood supply is available should you, your family, friends or other members of your community need it.

Remember

Discussion with your doctor is very important to ensure that

- you understand why you need a blood transfusion
- you understand the risks of the treatment
- your doctor understands your concerns.

Glossary

Allogeneic — originating from another person

Anemia — depletion of red blood cells

Autologous — originating from yourself

Blood components — the components referred to here are red blood cells and plasma; many others exist

Blood salvage — the recovery and filtration of blood lost during surgery or at other times

Hemodilution — a method to minimize the loss of red blood cells (through bleeding) by decreasing their concentration in the blood

Predeposit (of blood) — storage of your own blood (*autologous*) for later transfusion back to you