



Blood Components

Red blood cells: These are the cells that carry oxygen to your organs. Without oxygen, your organs will die.

Plasma: This is a clear, pale yellow fluid that doesn't contain red blood cells. It contains water, sugar, fat, proteins, salt and clotting factors. Clotting factors are needed to form a clot and stop bleeding.

Platelets: These are fragments of large non-red blood cells. Platelets act as the initial plug to stop bleeding.

Cryoprecipitate: This is a pale yellow fluid that doesn't contain red blood cells. It's rich in fibrinogen and has some clotting factors.

Granulocytes: These are a type of white blood cell that can be used to treat infections that don't respond to antibiotics. Granulocyte transfusion therapy is controversial.

Blood Components and Alternatives





Informed Choice

Throughout your medical and/or surgical care, your doctor may find it necessary to give you some type of blood component. During surgery, blood loss is relatively common but, in some instances, can become very serious. Your doctor needs to know what products you will or won't accept.

If your treatment plan includes a blood transfusion, you'll sign the *Blood and/or Blood Products Consent or Refusal* form. It's your responsibility to discuss this with your doctor before making a decision. You have the right to refuse a blood transfusion. You must be aware of the risks and consequences of **not** accepting the transfusion, which can include loss of life or permanent disability.

Available alternatives and how well they work will depend on your situation. If you need a transfusion, medications can sometimes be used to help your body to make its own blood. Some medications may also be used to prevent or control bleeding. If the blood loss is too great, or if you're in a life-threatening situation, these alternatives may not work quickly enough to help you.

Blood Alternatives and Conservation

A combination of these strategies may be used to improve red blood cell production and minimize blood loss.

Before having a medical or surgical procedure:

- Have a complete blood count done four weeks in advance to see if treatment is needed to improve your blood count
- Talk to your doctor if you take any herbal medications, vitamin E, non-steroidal anti-inflammatory drugs (ibuprofen, naproxen) or medications that affect clotting (warfarin, dabigatran, aspirin, clopidogrel). These may increase your risk of bleeding.
- Your doctor may prescribe vitamin B12, folic acid and vitamin C. These vitamins are needed to produce red blood cells.
- Your doctor may prescribe iron (oral and/or intravenous), a mineral that's needed to form red blood cells.
- Your doctor may prescribe erythropoietin, a hormone that stimulates red blood cell production in your bone marrow.

During procedures, the following may be used:

- Cell saver: This is the process of collecting your own blood that's lost during surgery, washing and filtering it, and then returning it back into your body.
- Volume expanders: These are intravenous fluids made with water, salts, sugars or starches that help keep the correct amount of fluid in your blood vessels.
- Albumin: This is a clear, pale yellow fluid that doesn't contain red blood cells. It's a protein made by your liver and helps keep fluids in your blood stream.
- Hemostatic drug therapy: These medications help with the clotting functions of your blood.
- Surgical techniques and devices to prevent blood loss as explained by your surgeon
- Products that support your body's ability to clot and reduce bleeding (e.g. tranexamic acid, thrombin and adhesives)



Blood conservation: Your care team will work to:

- Reduce the amount of blood drawn for testing as well as the number of tests ordered
- Control bleeding with use of medications or blood products, e.g. platelets, clotting factors, vitamin K
- Carefully dose and monitor any medications that you're receiving to prevent clotting

It's important that you're involved in and aware of your treatment plan, including follow-up care after you leave the hospital.

Risks of Blood Transfusions

Donor blood is screened and tested; however, there's still a very small risk of complications such as an allergic reaction to the donor blood, or a problem with your heart, lungs or immune system. The most common reactions aren't serious but severe reactions may be life-threatening. The risk of contracting HIV is one in 1.5 million, the risk of contracting hepatitis C is one in 1.1 million units and the risk of contracting hepatitis B is one in 0.8–1.2 million (*AABB Technical Manual*, 19th edition).