Blood Transfusion (Adult): Overview

A blood transfusion may be done when you have lost blood because of an injury or during surgery. It can also be done because of diseases or conditions that affect the blood. Blood is made up of several different parts (blood products). You may get some or all of these blood products during a transfusion. Blood for transfusion is usually donated by another person (donor). Strict measures are taken to make sure that donated blood is safe before it's given to you. This sheet helps you understand how a blood transfusion is done. Your healthcare provider will discuss your condition with you and answer your questions.

The parts of blood

Blood can be broken down into different parts that have special roles in the body. These parts include:

- **Red blood cells,** which carry oxygen throughout the body.
- **Platelets,** which help stop bleeding.
- **Plasma** (the liquid part of blood), which carries red blood cells and platelets throughout the body. Plasma also helps platelets in stopping bleeding.

Where does donated blood come from?

- **Volunteer donors.** These are people who donate their blood to help others in need of blood. Blood donation can take place at several places, including a hospital, blood bank, or during a blood drive.
- **Directed donation.** If you need a blood transfusion during a planned surgery, family and friends can have their blood tested for compatibility and donate blood for you before the surgery. This needs to be done at least 7 days in advance. This is because the blood must be tested for safety, just as blood from volunteer donors is tested. Blood from directed donors has not been shown to be safer than blood from volunteer donors. Talk with your healthcare provider about directed donation.
- **Autologous donation.** This is also called self-donation. For planned surgery, you can donate your own blood starting up to 6 weeks before surgery. Talk with your healthcare provider about self-donation to see if it's a choice for you.

Are blood transfusions safe?

Donated blood is tested and processed to make sure that it's safe:

- The health history of each donor is carefully screened. If a person is considered high-risk for infection or problems, they aren't accepted as a blood donor.
- Donated blood is tested for infections such as hepatitis, syphilis, and HIV (the virus that causes AIDS). If the tested blood is found to be unsafe, it's destroyed.
- Blood is divided into four types: A, B, AB, and O. Blood also has Rh types: positive (+) and negative (-). You can only get blood products that are compatible with (match) your blood type. A sample of your blood is tested for compatibility with donated blood. This is done before blood products are prepared for a transfusion.

How is a blood transfusion done?

A blood transfusion takes place in a blood center, infusion center, hospital room, or operating room. Your healthcare provider will discuss the blood transfusion with you before it's done. You'll need to give permission for the blood transfusion by signing a consent form.

- Your healthcare provider confirms your identity. They also confirm that they have the correct blood products for you.
- An IV (intravenous) line is placed in a vein if you don't already have an IV.
- The blood product comes in a plastic bag that is hung on an IV pole. The blood product flows from the bag into your IV line. The IV line is connected to a pump, which controls the transfusion rate. You may get more than one kind of blood product through the IV.
- Your blood pressure, heart rate, respiratory rate, and temperature are checked throughout the transfusion. This is to make sure you are not having a reaction to the blood product.
- The IV line may be removed once the transfusion is complete.

Risks and possible complications of blood transfusions

Most transfusions are problem free. In some cases, reactions occur. Most are mild. Rarely, serious and life-threatening reactions occur. These can happen within seconds to minutes during the transfusion or a week to a few months after the transfusion. **Call your healthcare provider right away** if you have any of the symptoms in the table below. In some cases, you may be told to go to the nearest emergency room.

Reaction	Timing	Symptoms
Anaphylactic reaction (serious allergic reaction)	• Within **seconds to minutes** during the transfusion • Up to **24 hours** after the transfusion	**Call 911** if you have: • Shortness of breath and labored (working hard) breathing • Wheezing • Flushing (red face) • Hives • Low blood pressure • Fast pulse • Chest tightness • Swelling of your lips, tongue, or throat
Bacterial infection (sepsis)	May happen 30 minutes or more after the transfusion	Fever, shaking chills, fast heartbeat, and low or high blood pressure
Allergic reaction (mild)	• Within **seconds to minutes** during the transfusion • Up to **24 hours** after the transfusion	Hives or red welts on the skin, mild itching, rash, localized swelling, flushing (red face), wheezing, shortness of breath, or stridor (high-pitched noise or sound)
Febrile nonhemolytic reaction	• Within **minutes to hours** during the transfusion • Within a **few hours to 24 hours** after the transfusion	Fever (100.4°F or 38°C or higher), chills, flushing (red face), nausea, headache, minor discomfort, or mild shortness of breath
Acute immune hemolytic reaction	• Within **minutes** during the transfusion	Fever, red or brown urine, back pain, fast heart rate (tachycardia), abdominal pain, low blood pressure, feeling anxious, chills, chest pain, nausea, or fainting spells

	• Up to **24 hours** after the transfusion	
Transfusion-related acute lung injury	• Within **1 to 2 hours** during the transfusion • Up to **6 hours** after the transfusion	Shortness of breath, trouble breathing, low blood pressure, fever, pulmonary edema
Transfusion-associated circulatory overload	• **Near the end** of the transfusion • Within **6 hours** after the transfusion	Shortness of breath, fast heart rate (tachycardia), problems breathing when lying on back, abnormal blood pressure
Post-transfusion purpura	• Within **2 weeks** • Up to **48 days** after the transfusion	Purple spots on skin; nose bleed; bleeding from the urinary tract, abdomen, colon, or rectum; fever; or chills
Delayed transfusion-related acute lung injury	• Within **72 hours (3 days)** after the transfusion	Sudden onset of respiratory distress or trouble breathing
Delayed hemolytic reaction	• Within **3 to 7** days • Up to **weeks** after the transfusion	Low-grade fever, mild jaundice (yellowing of the skin and whites of the eyes), decrease in hematocrit, chills, chest pain, back pain, nausea