

# Blood and Blood Donation 101



**Information and answers to commonly-asked questions about blood and the blood donation process**



## **Blood Facts**

Blood is composed of several elements, each of which performs a special function in the body.

Whole blood contains red cells, white cells and platelets suspended in plasma. These components can be separated and transfused to up to three patients.

**Red Blood Cells** – help treat anemia or acute blood loss and carry oxygen from the lungs to the tissues. Red Blood cells last up to 42 days.

**Platelets** – help control bleeding, replace platelets destroyed by disease or cancer therapy. Platelets must be used within 5 days.

**Plasma** – supplies nutrients to cells and are used to replace fluids in shock and burn victims. Frozen plasma may be kept for up to 1 year.

## **Did You Know?**

- The share of the U.S. population eligible to donate: less than 38 percent.
- The number one reason donors say they give blood is because they “want to help others.”
- Every two seconds, someone in the U.S. needs blood.
- More than 38,000 blood donations are needed every day.
- One donation can save or sustain up to 3 lives.
- An average adult has about 10 pints of blood in his body. Roughly 1 pint is given during a donation.
- The average red blood cell transfusion is approximately 3 pints.
- The blood type most often requested by hospitals is Type O.
- More than 1 million new people are diagnosed with cancer each year. Many of them will need blood, sometimes daily, during their treatment.
- Sickle Cell Disease affects more than 80,000 people in the U.S., 98 percent of whom are African-Americans.
- A single car accident victim can require as many as 100 pints of blood.
- Only 4 percent of the U.S. population has Type AB blood. Plasma from AB donors can be transfused to people with any blood type.
- Type O negative blood (red cells) can be transfused to patients of all blood types. It is always in great demand and often in short supply.
- The American Red Cross accepts blood donations only from volunteer donors.

## Blood Types

Although blood is made up of the same basic elements, not all blood is alike. In fact there are 8 common red blood cell types, which are determined by the presence or absence of certain antigens — substances that can trigger an immune response if they are foreign to the body.

Some antigens can trigger a patient's immune system to attack the transfused blood with antibodies. Safe blood transfusions depend on careful blood typing and cross-matching.

There are four main blood types determined by the presence or absence of two antigens – A and B – on the surface of red blood cells:

**Type A has only the A antigen on red cells (and B antibody in the plasma)**

**Type B has only the B antigen on red cells (and A antibody in the plasma)**

**Type AB has both the A and B antigens on red cells (but neither antibody in the plasma)**

**Type O has neither the A nor B antigens on red cells (but both A and B antibody are in the plasma)**

In addition to the A and B antigens, there is a third antigen called the Rh factor, which can be either present (+) or absent (-). In general, Rh-negative blood is given to Rh-negative patients, and Rh-positive blood or Rh-negative blood may be given to Rh-positive patients.

The universal red cell donor has Type O negative blood.

The universal plasma donor has Type AB positive or AB negative blood.

You can't donate blood for just anyone and you can't receive blood from just anyone – there are specific ways in which blood types must be matched for a safe transfusion.

Not all racial and ethnic groups have the same mix of these blood types. Hispanic people, for example, have a relatively high number of O's, while Asian people have a relatively high number of B's.

The mix of different blood types in the U.S. population is:

	<b>Caucasian</b>	<b>African American</b>	<b>Hispanic</b>	<b>Asian</b>
<b>O+</b>	37%	47%	53%	39%
<b>O-</b>	8%	4%	4%	1%
<b>A+</b>	33%	24%	29%	27%
<b>A-</b>	7%	2%	2%	0.5%
<b>B+</b>	9%	18%	9%	25%
<b>B-</b>	2%	1%	1%	0.4%
<b>AB+</b>	3%	4%	2%	7%
<b>AB-</b>	1%	0.3%	0.2%	0.1%

Some patients require a closer blood match than that provided by the ABO and Rh factor typing. For example, sometimes if the donor and recipient are from the same racial or ethnic background, the chance of antibodies forming against antigens other than A, B and the Rh factor may be reduced. That's why an African-American blood donation may be the best fit for the needs of patients with Sickle Cell Disease, 98% of whom are of African-American descent.



## Blood Usage

Your blood donations are used to help a variety of patients in need. Blood usage depends on the type of surgery or illness and whether there are any complications. Below is a list of common patient needs for blood and the average amount of each blood component that is required.



Patient Need	Red Blood Cells	Platelets	Plasma
<b>Accident Victim</b>	4-100 units	1 apheresis platelet for every 5-6 red cells	1 unit for every 1-2 red cells
<b>Premature Baby</b>	1-4 units while in intensive care		
<b>Liver Transplant</b>	10 units	2-3 apheresis units	20 units
<b>Cancer Treatment</b>	4-6 units	1 apheresis platelet periodically throughout treatment	
<b>Sickle Cell Disease</b>	8-12 units to treat severe complications; monthly transfusions may prevent complications		
<b>Open Heart Surgery, Adult</b>	4-6 units	1 apheresis platelet	2-4 units
<b>Leukemia</b>	4-6 units	1 apheresis platelet every other day for 2-4 weeks	
<b>Bone Marrow Transplant</b>	1-2 units a week for 4-6 weeks	1 apheresis platelet every other day for 4-6 weeks	

## Common Blood Donation Questions

### Will it hurt?

It may feel like a slight pinch or sting for just a second. But there is no pain during the donation. And think about how good you'll feel knowing you're helping save lives!

### How long will it take?

The entire donation process from registration to refreshments takes approximately one hour. The actual donation itself only takes approximately seven to ten minutes.

### Is it safe?

Yes. You cannot get HIV or any other diseases from donating. A new sterile needle is used for every donation and then discarded.

### How much blood is taken?

One unit – which is approximately a pint.

### How long will it take to replenish?

Blood volume (your plasma) is replenished within 24 hours. Red cells need about 4 to 6 weeks to be completely replaced. You can donate again in 56 days (or 8 weeks).

### Can I work after I donate?

Donors should drink extra fluid and avoid strenuous exercise. Avoid lifting heavy objects with your donation arm for about four or five hours after you donate.



## Common Blood Donation Questions (cont.)

**I was recently deferred for low hematocrit (red blood cell count).**

**Can I attempt to donate again?**

Yes, if your low hematocrit has been determined by your doctor to be due to low iron levels, you can take prescribed supplements.



**What happens to my blood after I donate?**

Every unit of whole blood goes through up to twelve tests to ensure patient safety. Your blood will be tested for ABO group (blood type) and Rh type (positive or negative). Blood is then tested for HIV, hepatitis B and C, syphilis and other infectious diseases before it can be released to hospitals.

Typically each donated unit of whole blood is then separated into multiple components such as red blood cells, plasma, and platelets. Each component is generally transfused to different individuals depending on their needs.

**Why should I give blood?**

Because you never know when you or someone you know will need it.

## The Blood Donation Process

Blood donation is a simple four-step process: registration, medical history and mini-physical, donation and refreshments.

**When you arrive at a blood drive or donor center, the following will happen.**

- 1. You will be asked for a positive form of identification each time you donate. Please bring your Red Cross blood donor card or other form of positive ID when you come to donate.**
- 2. You will complete a Blood Donor Record that contains information about your personal health history.**
- 3. A trained donor specialist will guide you through a mini-physical examination that includes checking:**
  - Your temperature
  - Your blood pressure and pulse
  - A drop of your blood to be sure you have enough red blood cells to donate safely.
- 4. You will be asked about your past and present history and lifestyle and we will answer any questions you may have. Depending on your answers, you may be deferred from donating, either temporarily or permanently. This interview will be private and confidential.**
- 5. We will cleanse an area of the arm you will be using to donate. All of the supplies, including the needle are sterile and are used only once, just for you.**
- 6. When we start the actual donation, several things occur:**
  - At the beginning you may feel a brief sting from the needle.
  - The donation usually takes about 10 minutes.
  - You will have donated about a pint of blood when finished. Your body will replace the plasma (liquid part) in hours and the red cells in a few weeks.
- 7. When you are finished you will be given a form with:**
  - Post-donation instructions
  - A telephone number to call if you decide after you leave that your blood may not be safe to give to another person.
- 8. Although most people feel fine before and after donating blood, a small number of people may have:**
  - An upset stomach
  - A faint or dizzy feeling
  - A bruise, redness, or pain where the needle was inserted.