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Every two seconds someone needs blood. The Red Cross hopes to avoid both shortages of blood and excesses in the blood supply by carefully planning blood drives. Very few people donate blood - about five percent of the U.S. population on average, depending on where you live. In Southern California, only three percent of the population donates blood per year.

It is estimated that up to 20 percent of all blood recipients are children, many of whom are cancer patients. Other recipients include patients undergoing surgery, patients with hemophilia or other blood disorders, accident victims and premature babies.

Blood cannot be manufactured. It only comes from dedicated individuals who recognize the daily need for blood, and understand that their generosity can improve the lives of others.

Seventeen month old John Paul Quintero has received 31 blood transfusions during his short life. John suffers from Diamond-Blackfan anemia. There are only 700 cases worldwide.
THE BASICS

WHAT IS BLOOD?

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

*Red blood cells carry oxygen from the lungs to all other tissues in the body. In the tissues they pick up carbon dioxide that is carried back and released into the lungs.*

*White blood cells are one of the body’s defenses against disease. Some cells travel throughout the body and destroy bacteria, some produce antibodies against bacteria and viruses, and others help fight malignant disease.*

*Platelets are blood elements that plug damaged blood vessel walls and join other elements in the blood to initiate the production of clots to stop bleeding.*

*Plasma is a yellowish fluid made up of about 92 percent water and seven percent vital proteins such as albumin, gamma globulin, and anti-hemophilic globulin and other clotting factors. The remainder consists of mineral salts, sugar, fats, hormones, and vitamins.*

Red blood cells, white blood cells, and platelets account for about 45 percent of the volume of blood in the body. The remaining 55 percent is plasma.

WHY SHOULD I GIVE BLOOD?

You’re saving lives. Every two seconds someone needs blood and 33% of all Americans will need blood products at some time in their lives. If enough people give blood regularly there will always be an adequate supply for the sick or injured. If not enough blood is given, there will be shortages, and people who need blood may have to go without it, which could result in needless illness or death.

Giving blood regularly also allows you to monitor your health. Each time you donate, your temperature, pulse and blood pressure are taken and twelve blood tests are done. Irregularities in any test are reported to you.

Many people consider it a right to receive blood when needed, but don’t often consider the responsibility of giving blood. To meet our nation’s need, the Red Cross must collect over 6 million blood donations every year.

Some areas of the country need more blood than they are able to collect, while others can collect more than they need. Most large medical centers transfuse much more blood than what is donated by local residents. Areas with major medical centers and hospitals, like Southern California, which serve patients from all over the country and the world, always need blood.

To help ourselves, our family, our friends, and strangers in need, we must embrace the responsibility of giving blood. To do so, we need more donors. We also need people to donate more frequently, such as three or four times per year. If half the people who donate one time a year were to donate a second time, we would never have blood shortages in Southern California. To find out where you can give blood at a location close to you, call 1-800-GIVE-LIFE.
HOW OFTEN CAN I DONATE BLOOD?
You may donate whole blood once every eight weeks. Regulations are different for those giving blood for themselves (autologous donors) and for those donating blood by automated collection methods (Apheresis). We urge people to donate as often as they are eligible.

CAN I DONATE BLOOD FOR MYSELF?
An autologous donation is when you donate blood for yourself before having surgery. Your own blood is the safest and best match for you. Red Cross encourages autologous donations for elective surgery if it is likely that the surgical procedures will require a blood transfusion. Contact your doctor first to find out if you can donate blood for yourself.

WHERE CAN I DONATE BLOOD?
To find the most convenient location for you to give blood, call 1-800-GIVE-LIFE.

WHO CAN DONATE BLOOD?
Donors must be age 17 years or older, weigh at least 110 pounds, be in good health and not be at risk for HIV/AIDS or hepatitis.

WHAT IS APHERESIS?
Apheresis is the process by which platelets and other blood components are collected from a donor. The word "Apheresis" is derived from the Greek word "Aphaerisis" meaning "to take away." This process is accomplished by using a machine called a cell separator. Traditionally, blood is taken from one arm and platelets suspended in plasma are collected. The remaining components of the blood are returned to the donor in the other arm. Each Apheresis donation procedure takes about one and one-half to two hours. Donors can watch movies or relax during the donation.

It is also possible to collect red blood cells and plasma by apheresis methods. Similar to the collection of platelets, the desired blood component is collected, and the remaining components of the blood are returned to the donor.

WHAT ARE PLATELETS USED FOR?
Platelets are tiny, colorless, disc-shaped particles circulating in the blood, and are essential for normal blood clotting. Platelets are critically important to the survival of patients with clotting problems, aplastic anemia, leukemia, cancer, and to patients who will undergo organ transplants or major surgeries like heart "by-pass" grafts.

Platelets only live five days after being collected. Maintaining an adequate supply of this lifesaving, perishable product is an ongoing challenge -- we need your help!

HOW OFTEN CAN I GIVE PLATELETS?
Apheresis donations can be made often - up to 24 times a year. Apheresis Platelet donors have 24 opportunities each year to save a life!
WHAT SHOULD YOU DO BEFORE DONATING?

We want your donation experience to be rewarding.

Please remember the following:
• Maintain a healthy diet and appropriate fluid intake
• Note the name and dosage of any medications you are taking. Usually, medication does not keep you from donating, but the reason for taking the medication might.

HOW DOES THE BLOOD DONATION PROCESS WORK?

Donating is safe and simple. The entire process takes about 45 to 60 minutes. Medical equipment is sterile, used only once, and then disposed. The actual donation process works like this:
• You will complete a donor registration form, which includes your name, address, phone number, social security number, etc.
• You will be asked to show your donor card or other identification.
• You will be asked some questions about your health. All information is confidential.
• You will receive a mini health-exam, including checks for blood pressure, temperature and pulse. In addition, a drop of blood will be obtained from your finger to test for anemia.
• You will proceed to a donor bed where your arm will be cleaned with an antiseptic. If you are allergic to iodine, be sure to tell the phlebotomist.
• During the donation process, you will donate one unit of blood; this takes about six to ten minutes.
• Following your donation, you will receive refreshments in the canteen area.

DONATING BLOOD IS A SIMPLE PROCESS.

YOUR GIFT OF LIFE MAY HELP THREE PEOPLE OR MORE.

DONATED RED BLOOD CELLS DO NOT LAST FOREVER.

THEY HAVE A SHELF LIFE OF UP TO 42 DAYS.

A HEALTHY DONOR MAY DONATE EVERY 56 DAYS.

PLEASE HELP TO MAINTAIN AN ADEQUATE BLOOD SUPPLY BY DONATING REGULARLY.
WHAT SHOULD I DO AFTER DONATING BLOOD?

IT IS RECOMMENDED YOU:

• Increase your fluid intake for the next 24 to 48 hours.
• Avoid strenuous physical exertion, heavy lifting or pulling with the donation arm for about five hours.
• Eat well-balanced balanced meals for the next 24 hours.
• People seldom experience discomfort after donating. However, if you feel lightheaded, lie down until the feeling passes. If some bleeding occurs after removal of the bandage, apply pressure to the site and raise your arm for three to five minutes. If bruising or bleeding appears under the skin, apply a cold pack periodically to the bruised area during the first 24 hours; then apply warm, moist heat intermittently over the next few days or so.
• If you have any questions concerning your donation or you experience any unexpected problems, please call the American Red Cross at 1-800-843-2949, extension 5521.

WILL IT HURT WHEN YOU INSERT THE NEEDLE?

Only for a moment. Pinch the fleshy, soft underside of your arm. That pinch is similar to what you will feel when we put the needle in your arm.

IS IT SAFE TO GIVE BLOOD?

Yes. Sterile procedures and disposable equipment are used. Each donor’s blood is collected through a new, sterile needle which is then discarded. No one has contracted any infectious diseases from donating blood.

HOW LONG WILL IT TAKE?

The time varies with each person. The whole process takes about one hour; the actual donation takes six to eight minutes. Approximately one pint of blood will be collected.

WHAT DOES RED CROSS DO WITH MY BLOOD?

The blood will be delivered to a blood component laboratory at the Red Cross, where it is processed in several components (e.g., red blood cells, platelets, plasma, etc). A single blood donation can help as many as three different patients.

Tina Correa needed blood, platelets and marrow to win her fight against leukemia.
WHY DOES RED CROSS ASK SO MANY PERSONAL QUESTIONS WHEN I GIVE BLOOD?

We all need a safe blood supply. Most people choose to donate because they want to share their healthy blood with someone who needs it. Some potential donors, however, may have been exposed to diseases that can be spread through blood. Specifically, some people can be at high risk for exposure to HIV (the virus which causes AIDS) or hepatitis without realizing it. Red Cross asks risk behavior questions prior to donation to help prevent the spread of communicable diseases.

WOULDN’T MOST PEOPLE LIE ABOUT THEIR PAST BEHAVIOR?

The risk behavior questions make donors think carefully about their behaviors prior to donating blood. The safety of any donation begins with the donor providing accurate information.

WILL YOU TEST MY BLOOD?

Yes. Every blood donation is tested to ensure a safe blood supply.

WHAT TESTS ARE ADMINISTERED TO ENSURE MY BLOOD IS SAFE TO DISTRIBUTE TO PATIENTS?

EACH UNIT OF BLOOD IS TESTED FOR THE FOLLOWING:

• ABO and Rh blood groups.
• Unexpected antibodies that are a result of prior transfusion, pregnancy or other factors.
• Hepatitis B surface antigen, indicating a current infection (hepatitis) or carrier state for hepatitis B virus.
• Antibody to hepatitis B core antigen, indicator of a present or past infection with the hepatitis B virus.
• Antibody to hepatitis C virus, indicating a current or past hepatitis C virus (most common cause of A/non-B hepatitis).
• Alanine Aminotransferase (ALT) - a liver enzyme that, when increased, may indicate other forms of liver disease.
• Antibody to HTLV-I/II, indicator of infection with a virus that may cause adult T-cell leukemia or neurologic disease.
• Antibody to HIV-1/2 indicator of infection with a human immunodeficiency (HIV).
• HIV-1 Antigen - a second test to detect HIV-1 infection. This test adds a second layer of safety to the blood supply by narrowing the "window period" between time of infection and detectability.
• Nucleic Acid Test (NAT) for hepatitis C and HIV.
• Screening test for syphilis.

You will be notified about results of the required tests listed above only if a problem is detected. Donor notification consists of your test results and counseling materials about the meaning of your test results.

An additional test is performed on some units needed for newborns and special patients. However, it is not required for most transfusions:

• Antibody to Cytomegalovirus (CMV), which indicates the presence of the antibody to a very common virus.

WHAT IS NAT?

The nucleic acid test (NAT) system can simultaneously detect the presence of HIV and HCV in blood using a semi-automated system and is expected to further ensure the safety of whole blood and blood components, including fresh frozen plasma, red cells and platelets, by permitting earlier detection of HIV and HCV infections in donors.
The NAT system is capable of detecting a few more infectious donations than current tests because it detects viral genes rather than antibodies or antigens (proteins from the virus). Detection of viral genes permits detection earlier in the infection since the appearance of antibodies requires time for the donor to develop an immune response, and detection of antigens requires time for a higher level of virus to appear in the bloodstream.

This new technology detects very small amounts of genetic material by copying the genes numerous times, resulting in amplification of the target gene. The approved test system can detect ribonucleic acid (RNA) from HIV-1 and HCV when tested in pools of 16 samples obtained from multiple donors. In a less automated format, it can also be used to test individual samples from whole blood collections. If a test pool is positive for either virus, the individual donations suspected of containing a virus can be identified and not transfused. The donor can be deferred from donating blood and notified.

Donors of blood and plasma are tested for antibodies to HCV, antibodies to HIV and for the presence of HIV-1 antigen. However, there is still a "window period" during which a donor can be infected, but have negative results on these screening tests. With the use of NAT for HCV, the window period is reduced by approximately 57 days (from an average of 82 days to 25 days). For HIV-1, the average window period with antibody testing is 22 days. This window period is reduced approximately to 16 days with antigen testing and to 12 days with NAT.

**How does the American Red Cross protect the blood supply from HIV?**

**The Red Cross does several things to protect the blood supply from HIV:**

- The Red Cross educates donors about who should give blood by having every potential donor read the publication, "What You Must Know Before Giving Blood."
- Trained staff interview potential donors and review their medical history.
- Donors have the opportunity both before and after the donation to stop the donation process, and anonymously instruct the Red Cross not to use their blood for transfusion to patients.
- The Red Cross tests each donor's blood donation every time he or she donates. Highly sensitive tests performed on samples from each blood donation are effective in detecting HIV exposure.
- All blood that tests positive for any infectious disease is destroyed.

**Can I get AIDS from donating blood?**

No. We use a needle only once and then dispose of it. Sterile procedures and disposable equipment are used in all Red Cross donor centers. You can't get any bacterial or viral disease – including HIV – from donating blood.

**Can I get AIDS from receiving blood?**

The blood supply is well protected from the AIDS virus. The risk of being infected with HIV from a blood transfusion is very low. The risk of infection exists during what is called the "window period." This is the time between the actual infection with HIV and when the test can detect the presence of the virus or antibodies to the virus in a person's blood. An estimate of the length of this period is now 12 days.
Since the Red Cross began testing blood for the HIV-antibody in early 1985, the risk of HIV-contaminated blood entering the blood supply has dropped dramatically. According to latest medical research, the chance of receiving an HIV-infected transfusion is estimated to be about 1 in 2,000,000 or less.

**IS IT TRUE THAT I CAN GET A FREE AIDS TEST WHEN I DONATE BLOOD?**

The Red Cross tests blood products, not donors. Our community needs healthy donors. You can contact your local health department for AIDS testing. Testing through your local health department is free and may be done anonymously.

**IF MY BLOOD TESTS HIV-POSITIVE, WILL I BE INFORMED ABOUT IT?**

Yes. Donors with blood that is confirmed positive for any infectious disease are notified and have the opportunity to meet with a specially-trained, professional Red Cross donor counselor.

**HOW WILL THE RED CROSS CONTACT ME IF I HAVE A DISEASE?**

The Red Cross regards blood test results as private and confidential information. The Red Cross may call to arrange a counseling appointment but does not give out information regarding positive blood test results to anyone but the donor.

**WHAT HAPPENS IF I DONATE BLOOD AND REALIZE AFTERWARDS THAT I SHOULDN’T HAVE BECAUSE I MAY BEEN EXPOSED TO HIV OR ANOTHER DISEASE?**

If you give blood but decide later that your blood may not be safe to transfuse, call 1-800-499-2034 as soon as possible.

**HOW IS THE RED CROSS PROTECTING THE BLOOD SUPPLY FROM THE POSSIBLE THREAT OF MAD COW DISEASE?**

To further safeguard the blood supply from the theoretical risk of the human form of mad cow disease (vCJD), the American Red Cross has deferred these individuals from donating blood:

- Anyone who has spent a cumulative total of three months in the United Kingdom since 1980.
- Anyone who has spent a cumulative total of six months in any European country or combination of countries (including the United Kingdom) since 1980.
- Anyone who has received a blood transfusion in the United Kingdom since 1980.

Though vCJD has never been proven to be transmitted in humans through a blood transfusion, the American Red Cross believes it is better to be cautious.

**WHY DOES THE RED CROSS CHECK MY HEMOGLOBIN AND HEMATOCRIT LEVEL?**

Before giving blood, it’s important to determine whether it is safe for that person to donate. We do this by asking a series of health questions, taking his/her temperature and pulse, measuring the donor’s blood pressure, and checking the donor for anemia.

Before donating blood, a hemoglobin screen is performed; if it indicates a low hemoglobin level then a hematocrit is performed. Hemoglobin, the iron-containing pigment that gives red blood cells their red color, is a protein that enables red cells to transport oxygen and carbon dioxide. The hematocrit is a measure of the volume that red blood cells take up in the blood.

The hemoglobin is checked before each donation to ensure that the donor is not anemic. Blood donors must have a minimum of 12.5 g/dl and a hematocrit of 38 percent to be accepted for donation.
Most men have a hemoglobin of 12.5 g/dl or greater and a hematocrit above 38 percent, but many women naturally have a lower hemoglobin/hematocrit level. An abnormally low hemoglobin/hematocrit, which indicates anemia, can develop when a person either does not make enough red blood cells, loses blood from the body, or is iron deficient.

The most common cause of mild anemia is a low level of iron, which is needed to make red blood cells. Frequent blood donation and monthly blood loss in pre-menopausal women can contribute to a low iron level.

Most hemoglobin/hematocrit readings that are lower than the required level do not indicate the donor has serious health issues. Some donors naturally have lower levels, which causes them no harm. However, it does prevent them from being eligible blood donors. Other donors are slightly anemic, and increasing their iron intake may boost their hemoglobin/hematocrit level.

Donors who are temporarily deferred are given an information sheet to help them determine if they are eligible to give blood again in the coming months. The Red Cross encourages all donors who are temporarily deferred to try to give blood again if it is healthy for them to do so.

For more information, refer to the donor information sheet the health historian distributes when the donor is temporarily deferred.

**WHAT CAN I DO TO INCREASE MY HEMOGLOBIN/HEMATOCRIT LEVEL?**

If a donor’s low hematocrit is due to low iron, he/she can replenish the supply by eating more high-iron foods or taking supplements.

- Foods rich in iron include red meat, fish, poultry and liver. Other good sources are iron-fortified cereals, beans, raisins and prunes. Eating foods rich in vitamin C such as citrus fruits, broccoli and tomatoes, helps with the absorption of the iron that you eat. Also, iron is often included in multiple vitamin tablets.
- If a donor has not been feeling well, has a family history of anemia or has remaining questions or concerns after speaking with the health historian, the donor should see a personal physician.
- Also, the Red Cross recommends that men with a hematocrit below 38 percent, post-menopausal women with a hematocrit below 34 percent and pre-menopausal women with a hematocrit below 30 percent should have a medical evaluation. In these people, anemia may be caused by something other than simple iron deficiency. Donors deferred for a low hematocrit will be told what their level was at the time of deferral.

Jasmine Valdivia beat leukemia with the help of blood transfusions.
DO I GET PAID FOR GIVING BLOOD?

DOES THE RED CROSS PAY DONORS?
No. All Red Cross blood donors are volunteers.

DOES THE RED CROSS SELL BLOOD?
No. There is never a fee for the blood itself. The Red Cross charges for expenses incurred in recruiting and educating donors, keeping accurate donor records, collecting blood by trained staff, processing and testing blood in a state of the art laboratory, and storing and distributing blood.

WHY AM I CHARGED FOR BLOOD AT THE HOSPITAL WHEN I HAVE DONATED BLOOD TO THE RED CROSS PREVIOUSLY?
Since 1960, the Red Cross has been reimbursed by hospitals for the costs associated with providing blood to hospital patients. The Red Cross is not charging for the blood itself that you have so generously donated. The Red Cross only recovers the costs associated with providing blood. These costs involve the recruitment and screening of potential donors, the collection of blood by trained staff, the processing and testing of each unit of blood in state-of-the-art laboratories and the labeling, storage and distribution of blood components. In addition, the Red Cross has an extensive record retention system and a large computer system.

Blood is fully covered under most health insurance policies just as pharmacy charges are, so it is rare for a patient to have any out-of-pocket expenses related to blood transfusion. Please be aware however that the hospital will have its own additional charges relating to the administration of blood.

Many years ago, some hospitals imposed an additional “non-replacement fee” on patients if their family, friends or co-workers did not provide blood donations to “replace” the blood that would be used in advance of their need for blood. Blood centers, including the American Red Cross, were asked to keep track of such donations as “credits” for these donors. Apart from the cumbersome nature of administering this system, the Red Cross and other blood centers discontinued participating in this record keeping for two reasons:

• Such a system discriminated financially against patients without family, friends, or co-workers to donate blood on their behalf. The Red Cross provides equal access of blood to all.

• Concern that such a system would unduly influence some individuals to donate blood without being fully honest in answering all the donor suitability questions, since their donations would provide a financial benefit to the patient, who is their family member or friend.

The Red Cross, as a non-profit organization, is recovering costs associated with maintaining a safe and stable blood supply. While Red Cross’ provision of disaster and other essential services relies heavily upon volunteers and almost entirely upon charitable contributions from the American public, the Red Cross blood program is staffed almost entirely by paid employees and is not dependent upon charitable contributions. Contrary to what many people may think, the Red Cross is not government funded.

HOW WILL MY BLOOD BE USED?
Blood is almost never used in its whole form. Most patients requiring transfusions only need one or two of the many components that make up blood. It would be wasteful and sometimes harmful to give patients components they do not need.
Most blood is separated into blood components that can be used to treat three or more patients. Below are some of the products derived from whole blood:

- **Red blood cells** carry oxygen and are needed by surgical patients or to treat those with anemia. Red blood cells can also be washed and filtered to prevent adverse reactions in some sensitive patients. Sometimes rare red cell types are frozen to extend their storage period and help ensure that an adequate supply is always available.

- **Platelet** concentrates are blood elements that are an important part of the body’s clotting system. They are used to control bleeding in the course of treatment of leukemia and other forms of cancer.

- **Plasma** is the yellowish liquid portion of blood, which provides a source of clotting proteins that stop bleeding.

- **Cryoprecipitate** is a part of plasma that contains specific clotting factors. It is used to treat specific clotting deficiencies.

- **Fractionation** is the process of breaking down plasma. Some of the more common products are:
  
  - **Albumin**: used in the treatment of certain kidney and liver diseases. Because this product is easy to store and administer, it is used in the treatment of emergency cases like accident or shock victims.
  
  - **Gamma Globulin**: used to modify or prevent certain infectious diseases such as some varieties of hepatitis.
  
  - **Factor VIII**: concentrated clotting factor used to stop bleeding in hemophiliacs.

**How much blood is usually needed for various medical procedures?**

- **Coronary Artery Bypass** ................................................................. 0 to 5 units
- **Fractured Hip/Joint Replacement** ................................................. 0 to 5 units
- **Cardiovascular Surgery** ............................................................. 0 to 25 units
- **Bleeding Ulcer** ............................................................................. 0 to 30 units
- **Brain Surgery** ........................................................................... 0 to 10 units
- **Auto Accidents/Gunshot Wounds** .............................................. up to 50 units
- **Organ Transplant** ................................................................. up to 100 units
- **Bone Marrow Transplant** ........................................................ up to 2 units per day
- **Sickle Cell/Aplastic Anemia** .................................................... up to 4 units per week
- **Cancer** .................................................................................. up to 8 units per week

**Why does it seem like there’s always a blood shortage?**

Medical advances have improved the treatment of serious illness and injury. These advances have increased the need for blood and blood products. Also, “baby boomers,” who make up the majority of blood donors, are aging. As they grow older, fewer are eligible to give blood, yet more of them need blood as their health declines.
**Blood Groups**

**What is a blood group?**

All people belong to one of four inherited blood groups: A, B, AB, and O. The letters A and B refer to the kind of antigens found on an individual’s red blood cells. An antigen is a protein or carbohydrate on the cell that triggers an immune response, such as the formation of antibodies.

**How is my blood group determined?**

You inherit your blood group from your biological parents. This chart shows the potential blood groups you may inherit from your parents.

### Blood Type Inheritance

**If Parents’ Blood Groups Are**

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**What are the four major groups in the ABO system, and what do the group names mean?**

**Group A**
Blood has A antigen on red cells, and anti-B antibody in the plasma.

**Group B**
Blood has B antigen on red cells, and anti-A antibody in the plasma.

**Group AB**
Blood has both A and B antigens on red cells but neither anti-A antibody nor anti-B antibody in the plasma. Since they lack anti-A and anti-B, persons with AB blood are called universal recipients for red blood cell transfusions.

**Group O**
Blood has neither A nor B antigens on red cells, but both anti-A and anti-B antibodies are in the plasma. Since their red blood cells lack A and B antigens, persons with Group O are called universal donors for red blood cell units.
**What is Rh?**

Most people also have an inherited antigen on their red blood cells known as the Rh, or D antigen. When the D antigen is present, a person’s blood is designated Rh positive. When D antigen is missing, the blood type is designated Rh negative. In general, Rh negative blood is given to Rh negative patients and Rh positive blood to Rh positive patients.

**How Can I Tell What Blood Group I Can Receive?**

This chart shows what blood groups you can receive if you need a red blood cell transfusion.

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<th>If Your Group Is</th>
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</table>

**Incidence of Major Blood Groups in the United States:**

The following list shows the percentages of people in the United States with a particular blood group.

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<tr>
<th></th>
<th>Average</th>
<th>White</th>
<th>Black*</th>
<th>Hispanic</th>
<th>*Asian</th>
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<tbody>
<tr>
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<tr>
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<td>32%</td>
<td>33</td>
<td>24</td>
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<td>27</td>
</tr>
<tr>
<td>B Positive</td>
<td>11%</td>
<td>9</td>
<td>18</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>O Negative</td>
<td>7%</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>A Negative</td>
<td>5%</td>
<td>7</td>
<td>2</td>
<td>4</td>
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<tr>
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<td>3</td>
<td>4</td>
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<td>7</td>
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<tr>
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<td>2</td>
<td>0.4</td>
</tr>
<tr>
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<td>0.3</td>
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*Total does not add to 100% due to rounding
WHY ARE THERE SO MANY APPEALS FOR GROUP O BLOOD?

The O negative donor is called the "universal donor" because his/her red blood cells can be transfused to people of all blood groups. This is why Red Cross is constantly recruiting donors who are O negative.

In an emergency, a person may need blood to survive, and if his/her blood group is not known, O negative blood can be given. In addition, newborns who need blood to survive often need O negative blood. The Red Cross has a critical need for an adequate supply of O negative blood to treat community emergencies.

DO BLOOD GROUPS DIFFER BETWEEN ETHNIC GROUPS?

Yes. For example, about 60 percent of the Hispanic population is group O, the blood group in greatest demand. Only about 45 percent of other ethnic groups is group O. As our Hispanic population continues to increase, so does the need for group O blood. Unless we have more Hispanic donors, it will be extremely difficult, if not impossible, to meet this need.

Seasonal shortages of group O and group B blood is common because they are in great demand. Many African-Americans have group O and B blood. Nearly 20% of all African-Americans have group B blood, compared to 11% of the Caucasian population.

Sickle Cell Disease is a blood disorder found primarily in the African American community. Patients with Sickle Cell Disease are less likely to have complications to blood donated by other African-American people. An African-American blood donation may be the best hope for an individual’s survival.

Martin Quiroga received blood, platelets and a marrow transplant in his battle against leukemia.
Blood & Blood Components

What is the difference between whole blood and blood components?

Blood may be transfused as whole blood or as one of its many components. Up to four components may be derived from one unit of blood. These include red blood cells, plasma, platelets, and cryoprecipitated antihemophilic factor (AHF). Since patients seldom require all of the components of whole blood, it makes sense to transfuse only that portion of blood needed by the patient for a specific condition or disease. This treatment, referred to as "blood component therapy," allows several patients to benefit from one unit of donated whole blood. Improvements in cell preservative solutions over the last 15 years have increased the shelf-life of red blood cells from 21 to 42 days.

What is whole blood?

Whole blood is living tissue circulating through the heart, arteries, veins, and capillaries carrying nourishment, electrolytes, hormones, vitamins, antibodies, heat, and oxygen to the body’s tissues. Whole blood contains red blood cells, white blood cells, and platelets suspended in a watery fluid called plasma.

What are red blood cells?

Red blood cells (RBCs) are perhaps the most recognizable component of whole blood. RBCs contain hemoglobin, a complex iron-containing protein that carries oxygen through the body and gives blood its red color. The percentage of blood volume composed of red blood cells is called the "hematocrit." There are about one billion red blood cells in two to three drops of blood, and for every 600 red blood cells, there are about 40 platelets and one white cell. RBCs may be treated and frozen for extended storage, up to 10 years.

Manufactured in the bone marrow, RBC’s are continuously produced and broken down. They live for about 120 days in the circulatory system. Red blood cells are prepared from whole blood by removing plasma, or the liquid portion of the blood, and they are used to treat anemia while minimizing an increase in blood volume.

Patients who benefit most from transfusions of red blood cells include those with chronic anemia resulting from kidney failure, malignancies, or gastrointestinal bleeding and those with acute blood loss resulting from trauma. Since red blood cells have reduced amounts of plasma, they are well-suited for treating anemia patients, such as patients with congestive heart failure or those who are elderly or debilitated, who would not tolerate the increased volume provided by whole blood.

What are prestorage leuko-reduced red blood cells?

This form of RBCs requires special preparation by removing leukocytes (white blood cells) by filtration shortly after donation. This is done prestorage because high numbers of leukocytes remaining in a unit of RBCs during the storage process can fragment and deteriorate releasing cytokines (chemicals that affect the inflammatory response). Leukocytes have been implicated as a cause of blood recipients developing reactions to subsequent blood transfusions.
**WHAT IS PLASMA?**

Plasma is the liquid portion of the blood – a protein-salt solution in which red and white blood cells and platelets are suspended. Plasma, which is 90 percent water, constitutes 55 percent of blood volume. Plasma contains albumin (the chief protein constituent), fibrinogen (responsible, in part, for the clotting of blood) and globulins (including antibodies). Plasma serves a variety of functions, from maintaining a satisfactory blood pressure and volume, to supplying critical proteins for blood clotting and immunity. It also serves as the medium of exchange for vital minerals such as sodium and potassium, and helps to maintain a proper balance in the body, which is critical to cell function. Plasma is obtained by separating the liquid portion of blood from the cells.

Fresh frozen plasma (FFP) is frozen shortly after donation to preserve clotting factors, stored up to one year, and thawed just before use. It is transfused for severe liver disease or multiple clotting factor deficiencies.

**WHAT IS CRYOPRECIPITATE?**

Cryoprecipitate is the portion of plasma rich in clotting factors, including Factor VIII and fibrinogen. "Cryo" is removed from plasma by freezing and then slowly thawing the frozen plasma. It can be used to prevent or control bleeding in those with hemophilia and von Willebrands disease, the most common inherited major coagulation abnormalities. Another use is to mix it with thrombin making a fibrin sealant which can be applied to a wound site to prevent bleeding.

**WHAT ARE PLATELETS?**

Platelets are small blood components that help the clotting process by sticking to the lining of blood vessels. Platelets are made in the bone marrow and survive in the circulatory system for about nine days before being removed from the body by the spleen. The platelet helps prevent massive blood loss and blood vessel leakage resulting from trauma.

Platelets are prepared by using a centrifuge to separate the platelet-rich plasma from the donated unit of whole blood. Platelets may also be obtained from a donor by a process known as apheresis, or plateletpheresis. In this process, blood is drawn from the donor into an apheresis instrument which separates the blood into its components, retains some of the platelets, and returns the remainder of the blood to the donor. This single donor platelet product contains about six times as many platelets as a unit of platelets obtained from whole blood. Platelets are used to treat a condition called thrombocytopenia, in which there is a shortage of platelets, and they are used to treat platelet function abnormalities. Platelets are stored at room temperature with constant agitation for up to five days.

Four-year-old Caleb Nakatani and his three-year-old brother Joshua are grateful to blood donors. Caleb has hemophilia, and their father is a regular blood donor.
**WHAT ARE WHITE BLOOD CELLS?**

White blood cells are responsible for protecting the body from invasion by foreign substances such as bacteria and viruses. The majority of white blood cells are produced in the bone marrow, where they outnumber red blood cells by 2 to 1. However, in the blood stream, there are about 600 red blood cells for every white blood cell. There are several types of white blood cells. Granulocytes and macrophages protect against infection by surrounding and destroying invading bacteria and viruses, and lymphocytes aid in the immune defense system.

Granulocytes are prepared by apheresis or by centrifugation of whole blood. They must be transfused within 24 hours after collection and are used for infections that are unresponsive to antibiotic therapy.

**WHAT ARE PLASMA DERIVATIVES?**

Plasma derivatives are concentrates of specific plasma proteins prepared from pools (many donor units) of plasma. Plasma derivatives are obtained through a process, known as fractionation. The derivatives are heat treated and/or solvent detergent treated to kill certain viruses like those that cause AIDS and Hepatitis B and C. Plasma derivatives include:

- Factor VIII Concentrate
- Factor IX Concentrate
- Anti-Inhibitor Coagulation Complex (AICC)
- Albumin
- Immune Globulins, including Rh Immune Globulin
- Anti-Thrombin III Concentrate
- Alpha 1-Proteinase Inhibitor Concentrate

**HOW CAN I TELL WHAT Plasma I MAY RECEIVE?**

<table>
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<th>If your type is:</th>
<th>You can receive:</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>B</td>
</tr>
<tr>
<td>AB</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>B</td>
<td></td>
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<tr>
<td>O</td>
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</table>

- O
- B
- A
- AB
- A
- B
- O
- B
- A
- AB
Ruth Cuadra has triumphed over myelodysplastic syndrome (MDS), but she needed almost 40 units of blood and platelets, as well as a marrow transplant, in her battle against the disease.

For more information about American Blood Services or to volunteer, or join our Speakers Bureau, please call the Public Affairs Department at 213.739.5654