

Frequently Asked Questions

BLOOD COLLECTION AND DONATION

Why collect blood?

It is estimated that in the U.S., every three seconds a patient needs blood for procedures ranging from emergencies to elective surgeries to cancer treatments. Sometimes the blood can be pre-donated by the patient. However, most of the blood used during transfusions comes from volunteer blood donors.

What is the status of the blood supply in the United States?

The blood supply in the U.S. is consistently low. Because blood is perishable, blood collectors must consistently maintain an adequate supply of blood. However, the demand for blood increases each year faster than the rate at which people are donating blood. Currently, more than 4,000 gallons of red blood cells (the most used blood component) are used in the U.S. every day. As fewer than five percent of the eligible donors in the U.S. give blood, the supply of red blood cells barely serves the growing demand. In addition, new Food and Drug Administration regulations, today's busier lifestyles and an aging population are further decreasing the number of eligible donors. Simultaneously, the number of elective surgeries and treatments continue to increase.

Who can donate?

All blood donors must be at least 17 years of age; weigh more than 110 lbs.; and be in good health. There are many other guidelines for eligibility to donate and interested donors should contact their local blood center for more information.

Why is it critical to maintain an adequate National blood supply?

Treatment delays for patients—with a limited blood supply, the least critical surgeries are at risk of being canceled, since blood must be allocated to acute needs first.

Economic strain on blood collectors—to help ensure an adequate blood supply, blood collectors that cannot meet the demand in their region are compelled to import blood from other regions that have a surplus. The funds used to purchase blood are often dollars reallocated from donor recruitment funds, decreasing the amount of time, effort and money to recruit new donors and broaden the donor pool.

Who collects blood and where does it go?

The principle organizations that collect blood include:

- Nationwide blood collectors, such as the American Red Cross and United Blood Services
- Community blood collectors, which support the needs of patients in their community's hospitals
- To a much lesser extent, blood collectors within hospitals, which support their own patients' needs

Typically, blood collected in a geographic region is used within that region. However, some blood collectors, which have a surplus of blood, export their blood to regions suffering shortages.

What are the components of blood and how are they used?

There are four components in blood: red blood cells, white blood cells, platelets and plasma. Red blood cells supply oxygen to various parts of the body. White blood cells fight against disease or infections. Plasma carries nutrients, clotting factors and enzymes. Platelets help clot

the blood to prevent excessive bleeding. Today, doctors transfuse individual blood components based upon the patient's needs. Major categories of patient needs include cancer therapy, organ transplants, accident victims and people undergoing elective surgical procedures. Whereas cancer patients, for example, may primarily need platelets, the vast majority of patients need red blood cells.

AUTOMATION (ALSO KNOWN AS APHERESIS)

What is an automated blood donation?

An automated donation is the donation of one component of blood through a blood-separating machine versus the donation of a "pint" of whole blood. During an automated procedure, blood is drawn from the donor's arm and passed through a single-use disposable collection kit to a blood-separating machine, which takes either red blood cells, plasma or platelets from the blood, and returns the rest of the donor's blood and saline to the donor.

Unlike traditional whole blood collection, for which operators must manually separate blood components, automation allows for the collection of one or two complete units of blood components to be immediately available for transfusion to a patient. Whole blood is collected and "spun" within the disposable centrifuge bowl until the blood components are separated by weight. The denser blood products, such as red blood cells, are pushed to the outside of the centrifuge bowl and lighter products, such as plasma, remain near the middle. These blood components are then collected into different bags and are ready for transfusion.

What are the benefits of automation and can it play a role in maintaining and adequate national blood supply?

Automation can be used for double red blood cell or double platelet collection, which enables blood collectors to collect two units of red blood cells or platelets from each qualified donor. By doubling the amount collected, blood banks can improve the availability of transfusable blood to the community during a time when the donor population is shrinking. For those blood facilities in large, metropolitan areas where the need for blood is consistently high, automation can help minimize the need for costly blood imports.

Automation also benefits blood recipients on several levels. It may help decrease the risk of a recipient having an adverse reaction to a blood transfusion as recipients receive enough of a blood component from a single donor as opposed to a transfusion dose consisting of a combination of that component from several donors. Also, receiving a transfusion dose from a single donor through automation is safer for the recipient as the blood components are not "combined" or processed to produce a sufficient transfusion dose. In fact, using automation to collect one or two units of platelets is significant as one unit of platelets is equivalent to the number of platelets derived from six to 10 whole blood donors.

What is Haemonetics' technology?

Haemonetics manufactures a medical device called the MCS®+ mobile collection system.

Approved in 1997 by the FDA, the MCS+ system is differentiated into two separate devices that use automation to collect a variety of blood component combinations: a double unit of red cells; a unit of red cells and a unit of plasma; a unit of platelets; two units of platelets; or, a unit of platelets and a unit of plasma. The MCS+ double red blood cell collection system is capable of collecting two units of red blood cells from one donor. A filter is now available with both MCS+ systems to remove the white blood cells from the blood as part of the collection procedure, as white blood cells may be harmful when transfused to recipients.

Who is eligible to donate using automations?

Donors using automation must meet the same guidelines used for donating a pint of whole blood. For those donors wishing to donate double red cells, male donors must be at least 5'1" in height and 130 lbs. in weight; female donors must be at least 5'5" in height and 150 lbs. in weight. To ensure donors are in optimal condition to donate, they must wait 112 days between double red blood cell donations. If potential donors do not meet the double red blood cell protocol height and weight requirements, they are still eligible to use MCS+ automated technology to donate one unit red blood cells and one unit plasma, or platelets.

Is automation safe for the donor?

Yes, this procedure is safe and sterile for the donor. Each procedure begins with a new disposable kit for the collection and separation of the blood. When the procedure is complete, the kit is discarded into a biohazard bin. Also, a smaller needle is used during this type of donation than in whole blood donation, making it more comfortable for donors. Furthermore, saline given to a donor during the donation can help alleviate common donation side effects, such as nausea or lightheadedness.

Where can Haemonetics' automated blood collection technology be used?

The MCS+ system was designed for use in either fixed or mobile (schools, churches, etc.) environments. This is critical, as an estimated 70 percent of all blood collected in the U.S. occur in a mobile setting. The MCS+ devices are compact, relatively lightweight (56 lbs.), portable and easy to use.

Who is using Haemonetics' MCS+ technology?

Currently, blood collectors around the nation are using automation in collecting blood components of whole blood. Together, these blood collectors collect more than 75 percent of the blood used in the U.S.

How much does the MCS+ system cost?

The complete pricing of the MCS+ systems includes the automated collection system and disposable collection kits. In the U.S., the device is generally placed at blood collectors, at no cost, with an added charge to the cost of each disposable unit the blood collector uses, allowing blood collectors to expense the cost of the device over time.

LEUKOREDUCTION

What is leukoreduction?

Leukoreduction is the process of filtering white blood cells from blood. Transfused white blood cells can sometimes fight against the patient's immune system, causing mild to moderate side effects such as fever and chills. With leukoreduction, white blood cells are filtered from the blood collection potentially reducing the chance of a patient having an adverse reaction to a blood transfusion.

Can automated blood collection do leukoreduction as well?

Haemonetics' blood collection system incorporates a leukoreduction filter during blood component collection.

SURGICAL BLOOD SALVAGE

What is surgical blood salvage?

Developed by Haemonetics, surgical blood salvage, or autotransfusion, involves the collection of a patient's own lost blood during and after surgery, for reinfusion to that patient. Autotransfusion can be used in cardiovascular, orthopedic and trauma surgeries.

What technology is used for surgical blood salvage?

Haemonetics has developed two devices for autotransfusion: the Cell Saver® 5 and OrthoPAT® systems.

Cell Saver 5 System—can salvage shed blood during a wide range of procedures. The Cell Saver 5 System monitors and controls the system's cycling of the blood. A sensor checks the level of shed blood and an on-board computer initiates the cell processing, or cleaning and washing of the blood, making the blood available for transfusion back to the patient.

OrthoPAT System—is the first device to clean, wash and make available for transfusion back to an orthopedic patient his or her own blood. The OrthoPAT system is lightweight and small for easy transport from the operating room, to the post-op area, to the patient floor. Because it can process varying volumes of blood, it is especially suited for the orthopedic area where blood loss is slow, in lower volume, and often post-operative.

What are the benefits of surgical blood salvage?

The most significant benefit of surgical blood salvage is that the need to tap into the blood supply is decreased. During a time when the blood supply is often not adequate to meet demand, blood salvage offers a compelling alternative to prevent cancellations of elective procedures due to low blood supply.

BLOOD FREEZING

Why do we need to freeze blood? What are the benefits?

In the past, the U.S. has experienced chronic blood shortages. Blood is needed for a variety of patients, including cancer patients, accident victims and those undergoing surgeries. Because blood is perishable, unused donations must be discarded after 42 days (the shelf life of blood). With a limited blood supply, U.S. blood banks run the risk of not having enough blood in the event of a crisis.

Blood freezing makes it much easier for blood collectors as well as military organizations to implement and expand frozen blood programs. With blood freezing technology, blood collection systems can now collect excess blood during times of heavy donation, freeze it, and have it available for use when needed. In short, emergency blood reserves can now be practically managed.

What technology is used to freeze blood?

In response to the ongoing need for an emergency blood reserve in the U.S., Haemonetics has developed the ACP™ 215 system which makes it possible to create a strategic frozen blood reserve. The system freezes and thaws blood with automated technology that improves operational logistics and cost effectiveness. While traditional freezing processes required that frozen blood be used within 24 hours of thawing, the ACP 215 system extends the shelf life of the thawed blood to 14 days. Frozen blood can be stored for up to 10 years for future use, further extending the availability of blood.