



Blood transfusion and your baby

Blood transfusion can be critically important for some babies in the neonatal intensive care unit (NICU). Like many treatments in the NICU, it carries some risks. Doctors in the NICU recommend transfusion only when they believe that the benefits to the baby far outweigh the risks.

This sheet was created to answer questions you may have about blood transfusion. Please be sure to ask any questions you have and to discuss your thoughts and concerns with the NICU team.

What is a blood transfusion?

A blood transfusion is a treatment in which red blood cells taken from another person (a donor) are given to a patient. The cells are given through an intravenous (IV) line.

Why might a baby need a blood transfusion?

Red blood cells carry oxygen to all the tissues of the body. If an infant's red blood cell level (also known as hematocrit) is too low, he or she has a condition called anemia.

Anemia occurs in babies either because they have lost blood or because they cannot make as much blood as they need. Red blood cells naturally break down over time and need to be replaced. Premature infants may have difficulty making enough red blood cells to meet their needs. Babies may also lose blood in small amounts over time as it is drawn for necessary laboratory tests. Anemia due to all of these reasons is especially common in babies born before 28 weeks of gestation.

What are the risks of receiving a blood transfusion?

Because of careful screening procedures, the risks associated with blood transfusion are very low. The risks include infection, allergic reaction, and problems with blood volume.

Risk of infection

Viruses such as HIV, hepatitis C, and hepatitis B may be transmitted in blood. To decrease this risk, blood donors are only allowed to donate if they have no risk factors for any of these infections. In addition, all donated blood is carefully screened for these viruses. Donated blood is rejected if it tests positive for HIV or the hepatitis viruses. The risk that blood used in a transfusion will contain one of these viruses is very low. For HIV and Hepatitis C, the risk is 1 in 2 million. For Hepatitis B, it is 1 in 250,000.

Risk of allergic reaction

The risk of allergic reaction to blood is extremely low in infants. An allergic reaction might cause a baby's body to destroy the red blood cells that he or she is being given. (This is called hemolysis.) An allergic reaction could also cause the baby to develop fever or a rash.

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Babies receiving blood are watched very closely for any signs of allergy. The transfusion is stopped if any concerns arise.

Problems with blood volume

Giving red blood cells increases the volume of fluid in the baby's body. Some babies might have trouble handling the extra fluid. These infants can be treated with a medication to help them eliminate the extra fluid in their urine.

What will happen if my baby needs a blood transfusion?

Except in emergencies, blood transfusions are only given to babies after discussion with the baby's parents. If your baby needs a transfusion, a member of your baby's medical team will talk to you about the risks and benefits described in this pamphlet and ask you to sign a consent form for transfusion.

The blood for transfusion comes from the BIDMC blood bank, which receives most of its supply of blood from the American Red Cross. (The BIDMC blood bank does not operate a volunteer donor center.) The blood from the American Red Cross is collected from volunteers who are not paid for their donation.

Donated blood is collected in bags called "units." Adults who need transfusions may receive one or more full units of blood. But when a baby is transfused, he or she receives much less than a whole unit of blood. After a transfusion, the remaining blood from that unit is saved for the baby. If the baby needs another transfusion later, he or she can be given blood from the same unit. So even though babies in the NICU may need several transfusions, they are usually only exposed to one donor's blood.

What is directed donation?

Directed donation is when someone donates blood specifically for use by another person. (This is only possible when the donor's blood type and other factors match those of the person needing the transfusion.) Some parents ask about directed donation for their babies; they think they would feel more comfortable knowing their baby is receiving blood from a relative or friend.

Is directed donation recommended for my baby?

The NICU team at BIDMC **believes that there are no medical benefits and that there may be risks** to directed donation. Therefore, we generally do not recommend that you explore directed donation for your baby.

Here are some of the reasons our team does not recommend this procedure.

No clear advantage

There are **no medical advantages** to directed donation blood. It may *seem* safer to families for their infant to receive blood from someone that they know. However, multiple research studies have shown that blood obtained from directed donation is **no less likely** to transmit infection than volunteer donor blood from the blood bank. In fact,

some studies have shown that blood from directed donation has a higher rate of being positive for some viruses than volunteer donor blood.

Delay

A directed donation must be coordinated by the American Red Cross. The Red Cross needs about 5-7 days to process the donated blood and send it to BIDMC to be given to your baby. Blood previously received from volunteer donors is available to your baby right away.

High potassium

All blood must be irradiated to kill white blood cells that may be present before it can be given to babies. The BIDMC blood bank does this immediately before sending the blood up for transfusion into a baby. When the American Red Cross processes a directed donation for an infant, its internal procedures require that the blood be irradiated before being sent to the hospital. When there is a longer time between irradiation and transfusion, the potassium concentration in the blood rises. If the potassium reaches a very high level, it can cause harm to your baby.

Unusable blood

Even if the person who wants to donate blood is the same blood type as your baby, the donated blood may not be usable. Blood between a donor and a patient must “match” in a variety of ways – not just by blood type. The donor’s blood may have proteins or other substances that do not match those of your baby. Also, blood given by directed donation is screened for infection, just like volunteer donor blood. If the directed donor blood is positive for hepatitis or HIV, it cannot be given to your baby. (Some people have these viruses and do not know they have them.)

Cost

Because directed donation blood has not been shown to be safer than volunteer blood bank blood, insurance companies will not pay for a directed donation. The American Red Cross charges donors about \$200 per unit donated for the testing and processing of the blood.

Effects on future treatments

In the extremely unlikely event that your baby should ever need a bone marrow transplant later in life (to treat cancer or a blood disorder), he or she would not be able to get a transplant from a person who had given him or her a directed blood donation.

How does one make a directed donation?

If, after considering the above information, you still wish for your baby to receive directed donor blood, directed donations can be made through the American Red Cross. An appointment can be made at one of their locations in Dedham, Peabody, Worcester, or Springfield by calling 800-552-0026. Staff at the center will provide additional, important information about directed donation and will tell you what you need to do to proceed.

Please note, mothers may not donate blood to their babies for at least six weeks following the delivery, and must have permission from their obstetrician saying that it is safe for them to donate.

If my baby is not getting directed donation, what can I tell my friends and family who really want to donate blood?

The American Red Cross welcomes new donors who may be prompted to donate blood in honor of a sick relative or friend. Blood donated in honor of your baby would help increase the supply of blood available to all patients in need. More information is available at www.givelife.org, or by calling 1-800-448-3543.

We hope this information has been helpful. We understand how difficult it can be to make decisions regarding your baby's care. Please do not hesitate to ask any questions or raise any concerns you have about blood transfusion or any other aspect of your baby's care.