

Donation of Umbilical Cord Blood Cells

What are umbilical cord blood cells?

Umbilical cord blood contains a special type of cells, called stem cells. Stem cells live a long time and can develop into many different types of blood cells. Stem cells are found in many parts of the body. The stem cells that are leftover in a baby's umbilical cord and placenta are typically thrown away after a baby is born.

What are stem cells used for?

Stem cells can be used to make new blood cells. Often they are used for treating some medical problems including leukemia (a type of blood cell cancer), some types of anemia and several other medical conditions. These cells are not used for cloning.

How are they collected?

Until recently, the placenta and umbilical cord were routinely thrown away after a delivery. Now, we can collect stem cells from leftover blood in a baby's umbilical cord and placenta after a baby is born and before the placenta is thrown away. There is no pain for the mother or the baby since cells are collected after the umbilical cord has been cut and the baby has been delivered.

How is cord blood stored?

After cord blood is collected it can be frozen for future use. There are two options for storing these frozen cells:

1. A **public** cord blood bank
2. A **private** cord blood bank

How does a public cord blood bank work?

- After delivery, a specially trained person collects blood from the placenta and umbilical cord.
- Once blood is collected, the cells in the blood are tested to be sure that they are usable.
- Since each person has a unique blood type, cord blood cells need to be tested to see what "type" they are. This information is put into a secure computer database.
- Cells are frozen and saved in a central storage facility where they are available to any patient that needs them for treatment. *It is important to remember that if you use a public bank, your baby's cord blood cells are not saved for your baby or your family. They can be used by anyone who needs them.*
- Public cord blood banks are **free**.

The Carolinas Cord Blood Bank is a public cord blood bank. It collects blood at UNC Hospitals, Duke Medical Center, Durham Regional Hospital and Western Wake Hospital.

How does a private cord blood bank work?

- When cells are collected for a private cord blood bank, the doctor who delivers your baby collects them using a kit that the private bank has sent to you before the birth.
- These cells are sent to a private bank where they are frozen and stored.
- These cells are then reserved for your baby or your family.
- Private cord blood banks charge a fee for storing these cells. The cost depends upon the specific bank used, however there is usually an initial fee for freezing the cells and then an additional yearly fee to keep the cells stored.

Many times it is difficult for a parent to know if it is worth paying the fees to have umbilical cord blood stored in a private cord blood bank. There are several things to keep in mind:

1. Many private banks do not have a program in place to check the quality of the cells. Even when specially trained people collect cord blood, almost 1 in 3 units are unusable.
2. Many doctors who treat children with leukemia or other medical problems do not think that these children should receive their own stem cells. There are two reasons for this:
 - a. A child's own stem cells may already have a genetic change that caused their disease.
 - b. In children with leukemia, these cells may not fight off the child's leukemia cells as well as the stem cells from another person (this is called *graft-vs-leukemia effect*).
3. Although stem cells from umbilical cord blood could be used for adult relatives with leukemia or other diseases, very few of these operations have been successful. This is because there are not enough stem cells in one baby's umbilical cord blood to be enough for an adult transplant.