

LIFELINES

UMBILICAL CORD BLOOD



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Donation is free, safe and easy — and can save lives.

When a baby is born, his or her umbilical cord is filled with a small amount of blood. This blood contains high numbers of special cells called stem cells. If you choose, this blood can be stored. It will then be used in the future to treat children or their family members with deadly diseases including leukemia and lymphoma. Often, this blood can be used to treat children when a donor cannot be found for a bone marrow transplant.

Put simply, the blood from your child's umbilical cord could save a human life. Until recently, this blood with the potential to save lives was simply discarded as medical waste.

What are umbilical cord blood stem cells?

Each adult human body is made up of about 100 trillion cells. There are 100 different types of cells. Most types of cells perform a certain function. Nerve cells, for example, are very long and carry signals to and from your brain quickly.

Most cells can also make copies of themselves, but only of the same type. In this respect, stem cells are special. Unlike other cells, they don't have one specific job. They are like a "blank" cell. They don't die and can split to form several different types of cells. It is for this reason that umbilical cord blood is collected. The blood is rich in a special type of stem cell (called hematopoietic stem cells). They can produce red blood cells, white blood cells and blood clotting cells. These stem cells can be saved and transplanted into other people to treat deadly diseases.

And this is just a start. One day scientists hope to use stem cells to cure or treat heart disease, diabetes, spinal cord injuries, Parkinson's, Alzheimer's, burn victims and even HIV and AIDS. This makes it even more important to begin collecting and preserving stem cells.

Is it ethical to use umbilical cord blood stem cells?

The collection and storage of umbilical cord blood stem cells is completely ethical. Recently, there has been a lot of public debate on the collection of other types of stem cells. These cells come from aborted fetuses or human embryos grown in a lab called embryonic stem cells. This debate does not include stem cells taken from umbilical cord blood which are adult or non-embryonic stem cells.

What are the umbilical cord blood stem cells used for?

Stem cells from umbilical cord blood can be used to treat a wide variety of blood, bone, genetic, and immune system diseases in children, including:

- Lymphoma
- Leukemia
- Adrenoleukodystrophy (a degenerative brain disease)
- Krabbe's disease (genetic brain disease)
- Sickle-cell anemia
- Osteopetrosis

Many are considered life-saving procedures. Some of these diseases, such as Krabbe's disease, were deadly before the development of stem cell transplants. On rare occasions these procedures can be used to treat adults. The small amount of stem cells collected from each cord allows for transplants mostly in children. Research continues to increase the use of stem cells in adults and to treat many other diseases.



What are the options for umbilical cord blood collection?

If you choose to collect your child's umbilical cord blood, there are a number of options available. There is absolutely no health risk associated with collection, and the process does not interfere with childbirth in any way. Usually, collection takes less than ten minutes. You will be asked to provide some health information, similar to what would be required when donating regular blood.

Donation for general public use

Most healthy women, 18 years of age or older, who undergo a complication-free pregnancy can donate their child's umbilical cord blood.

Exceptions to donation of umbilical cord blood include:

- Parents who have a family history of blood, immune system or genetic disorders.
- Women who were prescribed certain medications during pregnancy.
- Parents who have tested positive for sexually transmitted infections.

It is your decision whether to donate your child's umbilical cord blood. Remember, by donating your child's umbilical cord blood you could save another child's life. The umbilical cord blood that is not donated is merely thrown out as medical waste. The donated cord blood is processed and stored in a public (not-for-profit) cord blood bank. The aim of a public cord blood bank is to make umbilical cord blood stem cells a public resource and provide a supply for medical treatments. There is no fee to donate your child's cord blood.



Directed donation for high-risk families

The cord blood may be stored at a public or with some private cord blood banks for specific use by the child or family member when:

- An immediate family member of a newborn has an existing disease.
- The newborn is at high-risk for a disease that may be treated with umbilical cord blood stem cells.

A physician consultation and approval is needed for this type of donation. There is no fee required from you for this service.

Private storage for family banking

You can also choose to store your child's umbilical cord blood in a private cord blood bank. If you or your children ever need access to the cord blood, it will be there for your use only. It is not available to the general public. This service costs money and has a yearly storage fee.

What are the important differences to remember with each option?

- Donated stem cells for general public use may not be available to you or a family member.
- The chance you will use the stem cells in private storage is very low.

For more information

Please consult your health-care provider or visit:

- The Society of Obstetricians and Gynaecologists of Canada at www.sogc.org under SOGC Clinical Practice Guidelines – Maternal Fetal Medicine – Umbilical Cord Blood Banking: Implications for Perinatal Care