

# creating a LIFE saving a LIFE

BY JOHANNAH HANEY

You're in the delivery room. You just gave birth to a beautiful child. Although your newborn may be tiny and helpless, at this precise moment he has the power to potentially save another life.

Just after a baby is born, parents have the opportunity to harvest and store the blood that remains in their baby's umbilical cord for possible use in future transplantation. Choosing to store this cord blood could save the life of a child, a family member, a stranger, or even the parents themselves.

## WHY UMBILICAL CORD BLOOD?

Umbilical cord blood is rich in stem cells, which are immature cells that can be coaxed into developing into a variety of different cell types. They are able to form into the cells that make up blood and parts of the immune system: red blood cells, which carry oxygen throughout the body; white blood cells, which fight infections; and platelets, which are necessary for clotting.

Doctors can use umbilical cord blood stem cells as an alternative to bone marrow transplants to treat a variety of cancers and genetic diseases, such as leukemia, multiple myelomas, sickle cell anemia and aplastic anemia. And stem cells from cord blood are a lot easier to collect than stem cells from bone marrow.

Here's how it works: after the umbilical cord is cut and the baby is removed from the birthing area, the blood that remains

inside the cord is collected with a syringe, so the procedure poses no risk to either the mother or baby. The blood is then tested for diseases and frozen in liquid nitrogen for possible future use.

As researchers continue to find more applications for umbilical cord blood transplants, more and more patients are benefiting from this rich source of stem cells. *ePregnancy* talked to three families who have benefited from umbilical cord transplants.

## KAY'S STORY

When Atlanta native Kay Holland was born, umbilical cord blood storage wasn't an option. But thanks to public cord banking, she was able to benefit from the stem cells of a donor when she was diagnosed with myeloid dysplasia.

Kay was born with thrombocytopenia, a genetic disorder in which the bone marrow does not produce enough platelets in the blood. Platelets are the smallest type of blood cell, and are responsible for clotting.

Just before she became a teenager, Kay's platelet and hemoglobin (the part of blood responsible for carrying oxygen) levels started declining. Her doctors at the AFLAC Cancer Center

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and Blood Disorders Service of Children's Healthcare of Atlanta removed her enlarged spleen, and for about a year her blood count looked good.

However, doctors became concerned about the many skin infections she was getting from simple injuries like bug bites and scrapes. Her blood counts were plummeting. "She was basically developing leukemia," Paula says. Kay was diagnosed with myeloid dysplasia on Paula's birthday, January 7, 1999.

Because of Kay's low platelet levels, she would not have survived chemotherapy. "At that point, they decided the only thing they could do was a transplant," says Paula. Initial searches

## music: the best medicine?

When Jesse Farquharson was in the hospital, none of the pain medications worked for him. Lisa says, "The only effective measure we had to bring comfort to him to get through all the pain was the music therapist." The Farquharsons have started a fund in Jesse's name to raise money for the music and dance therapy program at The Hospital for Sick Children in Toronto. For more information, click over to [ePregnancy.com](http://ePregnancy.com), scroll down our home page to the Go Codes section, and enter **7627**.

revealed nearly 400 bone marrow matches, yet doctors decided a cord blood transplant was Kay's best option, because the risk of her body rejecting cord blood was smaller than the risk of rejecting bone marrow. Amy Donath, an oncology nurse who has worked with Massachusetts General Hospital and the Arthur G. James Cancer Institute at Ohio State University, says, "Cord blood cells have a lower number of antibodies, which are often the cause of graft-versus-host disease (GVHD). This can result in a rejection of bone marrow and ultimately the failure of a transplant." Because cord blood has fewer antibodies, the chance of success is increased.

Kay's transplant was scheduled for February, but like any fourteen year old, she didn't want to miss the spring break trip to Hawaii she had planned with her friends. "So I called [the doctors] and said, 'Well, what do you think? Can we go?' And they said go," laughs Paula.

In the ten days before she received the cord blood, Kay received three different types of chemotherapy to prepare for the transplant. Paula says, "At the end, she had zero platelets of her own."

Kay responded remarkably well to her transplant. "She didn't lose weight, she didn't get sick... we were really, really lucky," says Paula. "If you saw her, you'd never know she's been sick." Kay is now in her freshman year at college and doing well.

Both Kay and Paula are extremely grateful to the family who donated the cord blood that saved Kay's life. "What better thing could anybody give?" asks Paula.



## ALLIE'S STORY

When his daughter, Allie, was six months old, Bill Coogle of Woodstock, GA was told she had Krabbe's disease, a rare genetic disorder in which the enzyme galactocerebrosidase (GALC) is deficient. GALC deficiencies affect the brain's ability to send signals to the rest of the body.

Allie's doctors told Bill and her mother, Lisa, that there was no cure, but Bill heard about cord blood transplants in other Krabbe's patients and asked if they could give it a try. "The

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## nelly drumming up donors

Rap superstar Nelly and his sister Jackie Donahue are on a mission to recruit bone marrow and stem cell donors. Jackie is fighting leukemia, and a stem cell transplant offers her hope for a cure. The Jes Us 4 Jackie donor drive will be in Los Angeles, Houston and New Orleans in October and November. For more information, click over to [ePregnancy.com](http://ePregnancy.com), **Go Code 7628**.

## new hope

**Umbilical cord blood transplants can be used to treat a variety of diseases, and researchers are finding new uses for them all the time. Here are just a few:**

Acute lymphocytic leukemia (ALL)  
Acute myelogenous leukemia (AML)  
Chronic myelocytic leukemia (CML)  
Liposarcoma  
Neuroblastoma  
Non-Hodgkin's lymphoma  
Aplastic anemia  
Fanconi's anemia  
Sickle cell anemia  
Gaucher disease  
Hunter syndrome

transplant went perfectly," says Bill. After the transplant, blood tests showed that the level of GALC enzymes was normal. "The cord blood transplant did its job," Bill says.

But in Allie's case, the new GALC enzymes did not have a chance to adequately repair the damage the disease had already done to her brain. She died of lung failure just a day shy of the anniversary of her transplant.

The Coogles are grateful for the time they had with Allie, and credit the cord blood transplant with giving them even more time with her. Bill notes, "Any time you have an illness that gets to the point that it's going to require bone marrow or cord blood, you know that it's just a shot. It's not a guarantee. But it was wonderful to have the ability to have a chance [for] more time with her."

### JESSE'S STORY

When Lisa Farquharson and her husband Gary of Bolton, Ontario had their son in June of 2000, they asked the medical staff to extract the blood left in his umbilical cord after it was cut. The Farquharsons didn't yet know that their son, Jesse, had cancer, nor was there a history of cancer in their family. "We did it as biological insurance. We just felt like it was the right thing to do," says Lisa.

Four months after he was born, Jesse awoke from an afternoon nap with a white, cloudy spot on one eye. Lisa and Gary rushed Jesse to the hospital, and by one o'clock that morning he was diagnosed with retinoblastoma, a form of eye cancer. More bad news was to come.

"Before he was diagnosed, the cancer had already spread to his spinal fluid," says Lisa. Jesse was given a zero percent chance of recovery. Doctors at The Hospital for Sick Children in Toronto began to arrange for palliative care to make Jesse as comfortable as possible until his death. But Lisa and Gary

weren't ready to accept that fate. They asked doctors, "How do you know Jesse's not going to be the first one [to be cured]?" The doctors agreed to try.

Jesse was put on two types of chemotherapy, which he received four days a week for months. He went into remission very quickly. "The doctors were just blown away," Lisa marvels. She asked the doctors whether they could use Jesse's cord blood, which sat just across the street in storage. According to Lisa, Jesse's doctor "grabbed my hand and whipped me down this long hallway, dragged me down to the transplant team and said, 'They saved the child's cord blood!' It was a real big deal," Lisa laughs.

Jesse received his own umbilical cord blood in April of 2001. Nurses simply injected the stem cells into Jesse's IV line in a procedure that lasted about twenty minutes. Because Jesse was able to receive his own cord blood, the risk of graft-versus-host disease was significantly lower than with a bone marrow transplant. The stem cells engrafted in just ten days (in order for a transplant to be successful, the cells must graft themselves into the recipient's bone marrow and begin producing white blood cells), and Jesse was released four weeks later.

Today, Jesse is still in remission and is as rambunctious as any typical three year old (Lisa patiently asked him to stop playing with the chandelier during our interview). Although the cancer left him blind, Lisa says, "His visual impairment has not slowed him down whatsoever." With the help of his cord blood, Jesse's body was able to recover quickly from chemotherapy and start producing white blood cells to protect him from infections and disease. ■

**About the author:** *Johannah Haney is a freelance writer in Boston, MA, and contributing editor to ePregnancy.*

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Expecting Parents Guide to Cord Blood Banking: **Go 7629**

Cord Blood Donor Foundation: **Go 7630**

Viacord: **Go 7984**

Cord Partners: **Go 7631**

Life Bank: **Go 7632**

Cord Blood Registry: **Go 7035**

California Cryobank: **Go 7633**

Alpha Cord: **Go 7634**

SecuraCell, Inc.: **Go 4585**

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