

# Tucson Citizen

Health

## **Saving child's cord blood: medicine or marketing?**

Scientists study if infusion of own stem cells fixes damage

[GABRIELLE FIMBRES](#)

Published: 01.09.2009

Last spring, Chloe Levine dragged her tiny right foot as she struggled to walk.

The toddler's right hand remained clenched in a fist. She did not speak, and her eyes were glazed over.

Cerebral palsy caused by a stroke in utero prevented Chloe from developing like other children.

But after an experimental infusion of her own stem cells - collected from her umbilical cord at birth, frozen and stored in Tucson - Chloe, 2 1/2, is running, kicking a soccer ball and coloring.

"It's my prayer that some day we can erase the diagnosis," said Chloe's mom, Jenny Levine, a former Pinetop resident who lives in Denver. "Even if that doesn't happen, she's come a heck of a long way."

Chloe, who is part of a trial at Duke University, is one of 33 patients who last year were infused with their own stem cells that had been taken from their umbilical cords and stored in Tucson at Cord Blood Registry. It is the largest private cord blood bank, storing a quarter of a million units from around the world.

The number of transplants of a person's own stem cells through CBR tripled in 2008, as more transplants are conducted in trials in regenerative medicine. Scientists are studying whether an infusion of a person's own cells collected at birth can repair damaged tissues.

"We really look at what we do as providing hope for longer, healthier lives," said Tom Moore, CBR's founder and CEO.

**"When we are talking about regenerative medicine, we are talking about cures."**

Parents spend \$2,000 initially for cells to be collected and stored, and about \$125 a year for maintenance.

Use of the cells is not politically controversial, as in the case of embryonic stem cells.

But marketing strategies of businesses that store the cells are. The American Academy of Pediatrics, which many concerned parents turn to regarding the health of their child, recommends privately banking cells only if an ill older sibling might benefit.

Storing cord blood as "biological insurance" should be discouraged because there is no scientific data to support that transplanting a person's stem cells works, it says.

"Private cord blood banks target parents at an emotionally vulnerable time when the reality is most conditions that might be helped by cord blood stem cells already exist in the infant's cord blood," according to the academy's Web site.

The academy strongly recommends donating cord blood to a public bank. Donations, which cannot later be retrieved by the family, can help others battling illness.

No public bank exists in Arizona. But Tucsonans can donate through Cryobanks International in Altamonte Springs, Fla. (See box.)

Additionally, some in the scientific community question whether patients like Chloe were likely to improve without the transplant.

Cord Blood Registry officials call the academy's statement "outdated" at a time when the science of cord blood stem cells is changing and expanding rapidly.

They also say they are educating parents, not encouraging them to bank based on fear.

Cord blood stem cells are being used experimentally to treat brain injuries like Chloe's, Type 1 diabetes, heart disease and other illnesses. CBR officials say the cells potentially hold the cure for more than 70 diseases.

Moore and his staff say they believe one day a person's stem cells might be used to cure everything from hearing loss to knee injuries.

"I think some day, kids will talk about stem cell transplants like getting a flu shot," said Dondi Pulse-Earle, who coordinates transplants at CBR. "It will be, 'Hey, have you used your stem cells yet?' "

Nationally, there are about 30 private banks. CBR started in 1992 after Moore said he discovered the best research was conducted by University of Arizona immunologist David Harris.

Harris, who is also CBR's scientific director, has been researching stem cells since 1989 and started the bank here with his son's cord blood.

The bank is now housed in a 60,000-square-foot state-of-the-art facility at 6550 S. Bay Colony Drive. Tucson was also selected because of few instances of natural disasters that could shut down the airport or the bank.

Harris agrees public banking is needed. One operated in Tucson for a decade, until funding ran out, he said.

The state was expected to start public banking again this year after the Arizona Legislature approved \$5 million over five years to fund the project, Harris said.

But the bank was a victim of the budget crisis and funding was cut, he said. He predicts it will be years before a public bank will be funded.

Public banks are especially needed for minority patients and those of mixed race, who are less likely to have stored cells privately, he said.

Harris said the American Academy of Pediatrics has put parents in a tough spot by only recommending public banking.

"If you're going to tell me to donate, you need to make sure I can donate," he said of the limited public banks available.

While 22 states are approved for public banking, only six collect donated cord blood stem cells from births at specific hospitals, Harris said.

But Dr. William T. Shearer, the professor of pediatrics and immunology at Baylor College of Medicine who helped write the academy's position on private storing, said families can donate to public banks, but they must be proactive, finding a bank in a different state.

Shearer said the academy's position is not outdated.

He called claims of being able to fix future disease and injury using a person's own cells "a little far fetched, frankly."

But he said the uses of donated cells are immediate and greatly needed.

Private banks argue that transplants with a person's cells are more effective and safer. But Shearer said effectiveness has not been proved.

"This goes beyond medicine and into marketing," he said.

But Harris argues the use of one's own stem cells has tremendous potential to cure.

At UA, he has conducted research into how stem cells affect cerebral palsy and other traumatic brain injuries, as well as Type 1 diabetes.

Harris found that cord blood stem cell transplants cured mice of diabetes over the span of their life, about two years.

A study of 23 children with Type 1 diabetes at the University of Florida has shown improvements when they are infused with their own stem cells. Some children are making their own insulin, Harris said.

What is not known is whether the disease will reoccur, he said.

While much about regenerative medicine is unknown, Harris said changes in patients make it impossible to dismiss.

"When you see enough patients benefiting, you say, 'Something's going on here.' "

Harris agreed there are probably private companies that market to parents' fears, but he says CBR is not one of them.

His advice to expectant parents: "Make an informed decision early on. You only have one opportunity. Make a decision and don't look back. You don't want to do this out of fear. You want to consider it if you think it could be a viable resource that you can call upon should you need it."

Tucson parents Heather and Gary George had no doubts when it came to storing their children's cord blood.

They have stored stem cells of children Isabelle, 2 1/2, and Jasper, 16 months, and plan to store the cells of their third child, due Jan. 27.

"I'm a nurse, and I know about stem cells and the fantastic opportunities available in the future for therapies," said Heather George, 32. "Knowing what I know, I could not have chosen not to save the cord blood."

They chose to store at CBR because of the few major weather disasters that could shut down the facility. They also like that the blood does not have to travel across the country.

She knows it is unlikely her children will ever need the cells.

"But heaven forbid something happen, how awful that would be if we had not saved them," she said.

For some parents, the peace of mind they get saving cells is worth the investment, said Dr. David Beyda, a medical ethicist, critical care doctor at Phoenix Children's Hospital

and a UA clinical professor of pediatrics.

Beyda is not familiar with CBR, but he spoke in general of ethical concerns regarding private cord blood banking.

"What's it worth to you as a parent? Is it peace of mind? If it is, then do it," Beyda said. "If you think it's a guarantee (of a cure for any future illness), then be cautious."

Ethical concerns are raised, he said, when companies play on the fears of expectant parents through advertising.

Marketing techniques that use the potential for guilt are unethical, Beyda said.

"What happens if your child at age 5 gets leukemia? Do you want your child to die?" is the marketing strategy used by some companies, he said.

Beyda said the number of transplants nationally is very small, and viability as a long-term fix is unknown.

"When you look at scientific information, it's extremely sparse in terms of evidence that it's beneficial," he said.

The American College of Obstetricians and Gynecologists released guidelines last year, recommending that health-care professionals provide balanced information on private and public banking. But its Web site says chances are "remote" that cells from a baby's banked cord blood will be used to treat that child or another family member.

CBR, however, says there is "solid scientific evidence" from animal studies that transplants can induce healing and that the uses are likely to expand.

In addition to the 33 stem cell transplants through CBR last year where patients received their own cells, another seven transplants were used to treat siblings, according to CBR.

Moore, of CBR, said the possible uses are far reaching.

"If you can provide a positive outcome in that child and make them whole again, you can have a significant impact," he said.

---

## **ADDITIONAL INFORMATION**

### **Cord blood collection**

After a baby is born, the umbilical cord is cut and most often tossed in the trash.

But blood remaining in the cord is rich in stem cells, which can possibly be used to treat illness and tissue damage.

When a parent contracts with a company to collect and store the cells for a fee, the blood - usually about a 1/2 cup - is removed from the cord by a physician or midwife. A courier picks up the blood

and takes it to the airport, where it is flown to a private cord blood bank. The only bank in Tucson is Cord Blood Registry.

At CBR, blood is processed through a procedure involving 140 steps. Cells are separated through centrifuge, and about 1 billion stem cells are collected, amounting to the size of an eraser head. Cells are frozen and stored at minus 196 degrees Celsius. They are viable for at least 15 years, with no known expiration date.

### **Public donation**

There are few options for parents wishing to donate a child's umbilical cord blood in Arizona, which has no public bank.

But for those who wish to donate the cells, with the hope of anonymously helping someone in need of a transplant, Cryobanks International accepts donations from mothers delivering at Northwest Medical Center, St. Joseph's Hospital, Tucson Medical Center and University Medical Center.

The Altamonte Springs, Fla., company does not charge for public banking, according to a company representative, but a physician may charge for the collection. Ask your doctor.

Women must enroll for the donation by the end of the 34th week of pregnancy. Once donated, cells cannot be retrieved for personal use. For more information, go to [www.cryo-intl.com](http://www.cryo-intl.com) or call 800-869-8608.