THIRTY ONE YEARS AND COUNTING:

ENGLAND CORD BLOOD BANK, INC

Advances in Umbilical Cord Stem Cell Treatment

Treatment of many blood disorders has traditionally relied on bone marrow transplants from healthy donors to provide the rich, renewable source of human stem cells needed for successful results. Unfortunately, despite the growing number of volunteer donors that join bone marrow registries annually, an estimated 15,000 people each year cannot find a donor match.

The process of finding a matching donor usually takes significant time, but often the need for treatment is immediate. By continuing to bank your child's cord blood, you've greatly increased the chances of providing a better genetic profile match, and *immediate access* to the cord blood unit if needed for therapy.

Umbilical cord blood (UCB) transplants first made news in 1988, when French doctors used it to treat a rare,

life-threatening blood disorder called Fanconi Anemia. Until then, cord blood had typically been discarded as medical waste. Since 1988, umbilical cord blood banking has become a mainstream option for parents. Today, families have stored nearly 750,000 stored units of umbilical cord blood, and doctors have performed about 35,000 cord blood transplants. We've also learned that cord blood stem cells also offer a better engraftment potential than bone marrow stem cells.¹ Because cord blood offers such promise in the treatment of hematologic blood disorders, researchers continue to look for ways to safely improve transplant outcomes and reduce complications for patients of all ages.

Cord Blood Expansion

A 2nd chance

Families who

did not have the

opportunity to

store the MSCs from their children's

cord tissue now have a second chance to preserve MSCs from their teeth!

Until now, cord blood transplants have typically occurred with younger patients. Adult patients do receive UCB transplants, but slower recovery is common. However, new approaches to cord blood cell expansion

There are stem cells in your child's teeth!

Why consider storing them?

Like cord tissue, teeth have Mesenchymal stem cells (MSCs), which can form many types of tissues.



(the process of multiplying the number of cord blood stem cells in a sample) may significantly increase likelihood of treatment and speed of recovery in adult recipients. Clinical trials designed to expand the volume of available cord blood stem cells have demonstrated that it is possible to use expanded units as a stand-alone transplant and that the technique shortens key cell recovery by nearly 10 days. Over a period of two years, there was no difference in the survival rates between the control group and

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the group that received the expanded units.²

With advancements in cord blood expansion, safe, effective treatments may become available to patients of all ages who would not otherwise benefit from traditional bone marrow transplantation. Additionally, it may allow adult patients to receive cord blood donations from a younger relative, even if the units have been banked for long periods of time.

Long Term Cord Blood Storage

Parents who have banked their child's cord blood for many years may question whether it's worth continuing to store their child's UCB unit. While that is a personal choice for each family, we do know that the need for cord blood treatment sometimes arises later in life. For example, patients may develop hematological disorders well into adulthood. In that circumstance, parents may wonder how long their UCB unit can be stored, and how well it will survive the thawing process.

Once stem cells reach the NECBB laboratory, they are carefully prepared to tolerate cryopreservation storage. To ensure that umbilical cord blood remains in viable condition while in storage, UCB units are stored at temperatures of -196°C. Careful cryopreservation and constant monitoring ensures that the cells survive the freezing process, indefinite storage, and the thawing process, should they ever need to be used.

With the proper preservation and storage techniques, it is possible to store UCB cells for decades in a frozen state and then recover it for use. In practice, UCB cells have been used successfully after having been stored for more than 20 years.³ In theory, it is possible that properly stored stem cells could **outlive us all.**

> In 2011, researchers from the Indiana University School of Medicine and



Johns Hopkins University compared the function of recovered stem cells that had been frozen for nearly 24 years to their condition prior to freezing. The researchers found that they could recover 80%-100% of the stem cells. In addition, cells that had been cryopreserved for as long as 21 years were able to be used in successful treatment.⁴

High-quality preservation strategies and precise storage methods continue to offer the best opportunity for successful use of cord blood units after an indefinite period of cryostorage. UCB banking provides a once-in-a-lifetime opportunity to preserve cells that offer enormous potential in the treatment of over 80 diseases and conditions. Research continues on, evaluating cord blood stem cell treatment of both hematological and non-hematological disorders, including immune disorders and metabolic disorders. Researchers are also investigating cord tissue stem cells in potential stem cell therapies for macular degeneration, type 1 diabetes, neurological disorders, and more.

We urge soon-to-be parents who are looking to bank their newborn's cord blood to consider banks that focus on the quality, safety and validation of their storage processes. These considerations are important, as every properly stored UCB unit holds the potential for life-saving treatments, even if it has been stored for decades.

Saving Cord Blood. Saving Lives.

For references please visit cordbloodbank.com/references

