



Association for the
Advancement of
Blood & Biotherapies

History of Cord Blood Banking

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Cord Blood and Banking

Cord blood stem cells are collected from the umbilical cord and placenta after a baby is born. Umbilical cord blood and placenta contain large numbers of blood-forming stem cells. The collected cord blood is screened, tested, processed, frozen and stored at a cord blood bank for future use.

The stored cord blood collected from the umbilical cord and placenta after a baby is born is called a “cord blood unit.”

For the past 20 years, unrelated donor cord blood has been used as an Hematopoietic Stem Cell Transplantation (HSCT) source for all conditions transplanted with Bone Marrow or Peripheral Blood Progenitor Cells (PBPC). These include:

- Hematological and Other Malignancies
- Bone Marrow Failure Diseases
- Immune deficiencies
- Inherited Transfusion Dependent Anemias
- Metabolic / Storage Diseases
- Platelet Diseases
- Red Blood Cell Diseases
- Sickle Cell Disorders
- Thalassemia Disorders
- White Blood Cell Diseases

1983- Cord Blood is 'Born'

Concept of cord blood as an alternative source of stem cells for transplant first proposed by Dr. Hal Broxmeyer and colleagues

1985- Stem Cells Discovered in Cord Blood

Transplantable stem cells discovered in human cord blood by Hal Broxmeyer

1988- First Cord Blood Transplant

Autologous transplant to regenerate blood and immune cells performed on 5yr old with the blood disorder Fanconi Anemia; the donor is his newborn sister. Today, he is married, a father *(you can probably guess whether he opted to bank his child's cord blood)*

1992- First Public Cord Blood Bank Opens

Umbilical cord blood bank established by Dr. Pablo Rubinstein at New York Blood Center (NYBC) funded by the National Heart, Lung and Blood Institute (NHLBI) of the National Institutes of Health (NIH); holdings of 60,000 donations

1993- World's First Successful Unrelated Cord Blood Transplant

Performed by Dr. Joanne Kurtzberg at Duke University's Pediatric Blood and Marrow Program. 2yr old Mitch Santa becomes first person to receive successful unrelated cord blood transplant, curing him of acute leukemia. His anonymous donor's cord blood came from <1 yr. old NYBC bank.

1995- First Successful Transplant For Adult Leukemia Performed

1996- FDA launches Investigational New Drug (IND) for cord blood under Cord Blood Transplantation Study (COBLT)

Study sponsored by the NHLBI

1997- First Expanded Cord Blood Transplant

46yr old man with chronic myelogenous leukemia(CML) becomes first adult to receive "expanded" cord blood transplant where the cells were grown in a lab prior to infusion

1998- The National Marrow Donor Program (NMDP) Launches Cord Blood Program

Ten years after first transplant, NMDP launches cord blood program, and first transplant to cure sickle cell anemia performed

2000- Pre-implantation Genetic Testing Is First Used

First transplant performed using pre-implantation genetic testing-process that ensures similarity in genetics to reach a perfect tissue match

2004- U.S. Congress Funds National Cord Blood Program

Cord blood banking enters national dialogue as U.S. Health & Human Services Appropriations Act provides funds to create a National Cord Blood Program; Illinois legislation mandates birthing women be given option to donate their baby's cord blood to a public bank for free; child receives transplant of own cord blood to cure malignant brain tumor, another receives own cord blood in transplant for acute leukemia

2005- A National Inventory of Cord Blood Samples Is Created

U.S. Congress passes national cord blood legislation- The Stem Cell Research and Therapeutic Act of 2005 (H.R. 2520)- to create a national inventory of 150,000 diverse, high-quality cord blood samples.

2007- U.S. Issues An Executive Order

Thanks to a successful sibling transplant, doctors determine cord blood transplants can teach the body to produce missing skin proteins; U.S. President George W. Bush issues Executive Order calling for research into alternative sources of pluripotent stem cells, including cord blood.

2009- 20,000 Cord Blood Transplants Worldwide

Total number of cord blood transplants performed around the world surpasses 20,000

2012- Clinical Trials Show 3 Major Cord Blood Achievements

Cord blood proven to be an effective treatment for cerebral palsy, used in treatments for autistic children, and helps one patient rebuild their immune system in just 2 weeks; researchers also discover a way to expand cord blood stem cells 30-fold. Benefits of cord blood are multiplying.

2013- World Cord Blood Inventory Reaches 3 Million

Twenty-five years after the first cord blood transplant, a clinical trial attempts to use a child's own cord blood to prevent type 1 diabetes; the first cord blood transplant for a child with both leukemia and HIV is also performed. More than 30,000 total transplants have been performed worldwide; the world cord blood inventory in storage reaches 650,000 in public banks and 2.5 million in family banks.

Present Day (progress continues)

Banked unrelated donor cord blood is a routine source of donor cells for patients lacking a matched related or unrelated adult donor. Nearly 800,000 unrelated units are banked in public banks, and more than 5 million samples are stored in private banks.

Multiple clinical trials in progress to explore the efficacy, applications and promise of cord blood.

Resources

[AABB Association for the Advancement of Blood & Biotherapies](#)

[Be The Match \(Be The Match Registry®\)](#)

[Parents Guide to Cord Blood](#)

[Save the Cord Foundation](#)

References

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