

CORD BLOOD: Current uses

Cord Blood: Transplantation

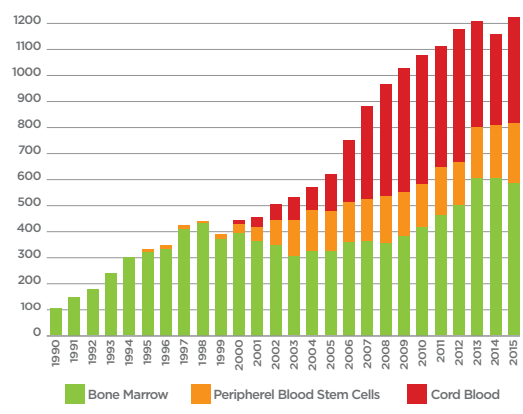
Practical Advantages of Cord Blood:

- Collection is simple and non-invasive
- Painless for both mother and baby
- Available immediately for treatment

Cord Blood vs Bone Marrow:

- Improved outcomes for siblings
- Lower Graft vs Host Disease
- Greater tissue matching potential
- Readily available with lower matching donor dependence

Pediatric Transplants by Cell Source Worldwide¹



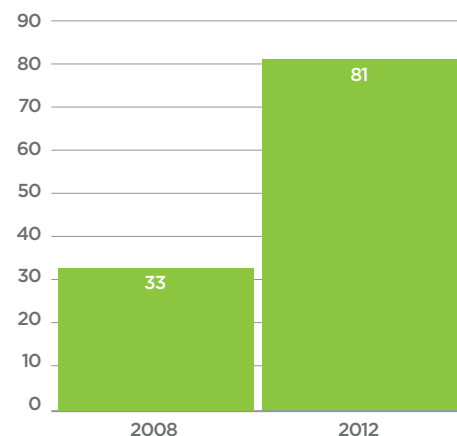
Cord Blood: Approved uses

Since the first use of cord blood as a source of haemopoietic stem cells for transplantation in a child with Fanconi Anemia in 1988², cord blood has been used in Australia and worldwide for the treatment of over 80 medical conditions. The list of conditions includes solid tumours, blood cancers like leukaemia and lymphoma, inherited metabolic disorders and deficiencies of the immune system³. The number of approved therapies continues to expand.

Current diseases treated by cord blood transplants – Family banking⁴

| THERAPEUTIC AREA | EXAMPLES OF CONDITIONS | EXAMPLES OF CELL CARE RELEASES |
|-------------------------------------|--|---|
| CANCERS | Neuroblastoma Medulloblastoma Retinoblastoma | Neuroblastoma Retinoblastoma |
| BLOOD CANCERS | Leukaemias Lymphoma Multiple Myeloma | Myeloid Dysplasia Acute Myeloid Leukaemia Acute Lymphoblastic Leukaemia |
| BLOOD DISORDERS | Anaemias Sickle Cell Disease Thalassemia Red Cell Aplasia | Fanconi Anaemia Alpha Thalassemia Beta Thalassemia |
| INHERITED METABOLIC DISEASES | Krabbe Disease Hurler Syndrome Mucopolysaccharidosis | |

Number of approved conditions treatable with a cord blood transplant⁵



CORD BLOOD & TISSUE: Emerging uses

Although cord blood has been used primarily as a source of haemopoietic stem cells, more recent evidence suggests it may be a therapeutically important source of other cell populations, these include mesenchymal stem cells, endothelial progenitor cells and potent immature immune cells⁶.

There are currently over 60 registered clinical trials underway worldwide investigating the potential of these cells to act as a regenerative treatment for an expanding and diverse list of medical conditions⁷. To date, over 500 cord blood units have been released from private cord blood banks for regenerative medicine applications⁸. This list includes releases from Cell Care for use in Australia's first clinical trial of cord blood infusion as a possible treatment for Cerebral palsy and Type 1 Diabetes.

Regenerative medicine applications using cord blood⁹

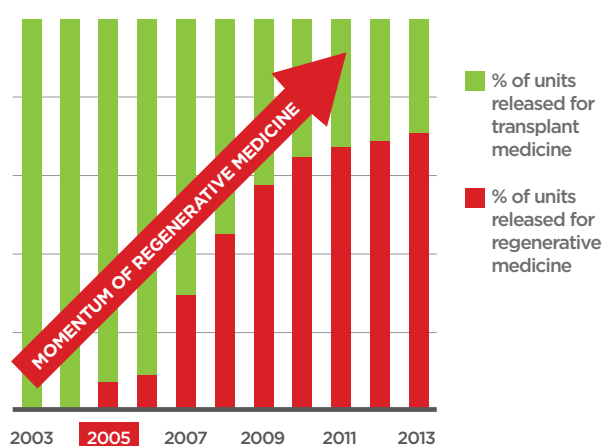
EXAMPLES OF CURRENT REGENERATIVE MEDICINE APPLICATIONS/RESEARCH

- Cerebral palsy
- Type 1 Diabetes
- Brain and spinal cord injury
- Autism
- Acquired Hearing Loss
- Skin Repair
- Bone and Cartilage Repair
- Stroke
- Autoimmune Disorders
- Alzheimer's Disease
- Lung injury
- Peripheral Vascular Disease
- Critical Limb Ischemia
- Bronchopulmonary Dysplasia

EXAMPLES OF CELL CARE GROUP RELEASES

- Cerebral palsy
- Type 1 Diabetes
- Brain injury
- Autism

Increasing use of cord blood for emerging regenerative medicine applications - Private banks⁹



Cell Care Group's ongoing research investments

Cell Care continues to actively invest in research and clinical trials to advance the therapeutic potential of cord blood and tissue stem cells. The table below outlines some examples of Cell Care's ongoing research and clinical trial investments.

| TITLE | BRIEF DESCRIPTION |
|--|--|
| Type 1 Diabetes study | Autologous cord blood reinfusion in children at high risk of developing Type 1 Diabetes |
| Cerebral palsy study (CP) | Study of sibling cord blood infusion to children with Cerebral palsy |
| CB expansion for Neurological Injury | Development of a UCB culture method to maximise expansion and expression of neurotrophic, angiogenic and anti-inflammatory factors |
| Sibling Cord Blood for CP; Collection program | Free collection of sibling cord blood for families with a child who has Cerebral palsy |
| Sibling Cord Blood for Haematological Malignancy; Collection program | Free collection of sibling cord blood for families with a child who has a haematological malignancy |
| Induced Pluripotent Stem Cells (iPSCs) from cord blood and tissue | Generation of induced pluripotent stem cells from cord blood and cord tissue |

1 National Bone Marrow Donor Program/Be the Match FY 2015

2 A. Dahlberg and F. Milano. Cord blood transplantation; rewind to fast forward. Bone Marrow Transplantation (2016) 1-4

3 <https://parentsguidecordblood.org/en/diseases>

4 <https://parentsguidecordblood.org/en/diseases>

5 <http://www.bioinformant.com/cord-blood.html>

6 Roura, S. et al. The role and potential of umbilical cord blood in an era of new therapies: a review Stem Cell Research and Therapy (2015) 6:123,

7 <https://parentsguidecordblood.org/en/trials>, <https://clinicaltrials.gov/>, <http://www.anzctr.org.au/>

8 Ballen, K.K. et al. Umbilical cord blood donation: public or private? Bone Marrow Transplantation (2015) 1-8

9 <https://parentsguidecordblood.org/en/trials>, <https://clinicaltrials.gov>, <http://www.anzctr.org.au>

10 Cord Blood Registry, USA