

# **Directed/Related Cord Blood Collection by NHS Blood and Transplant**

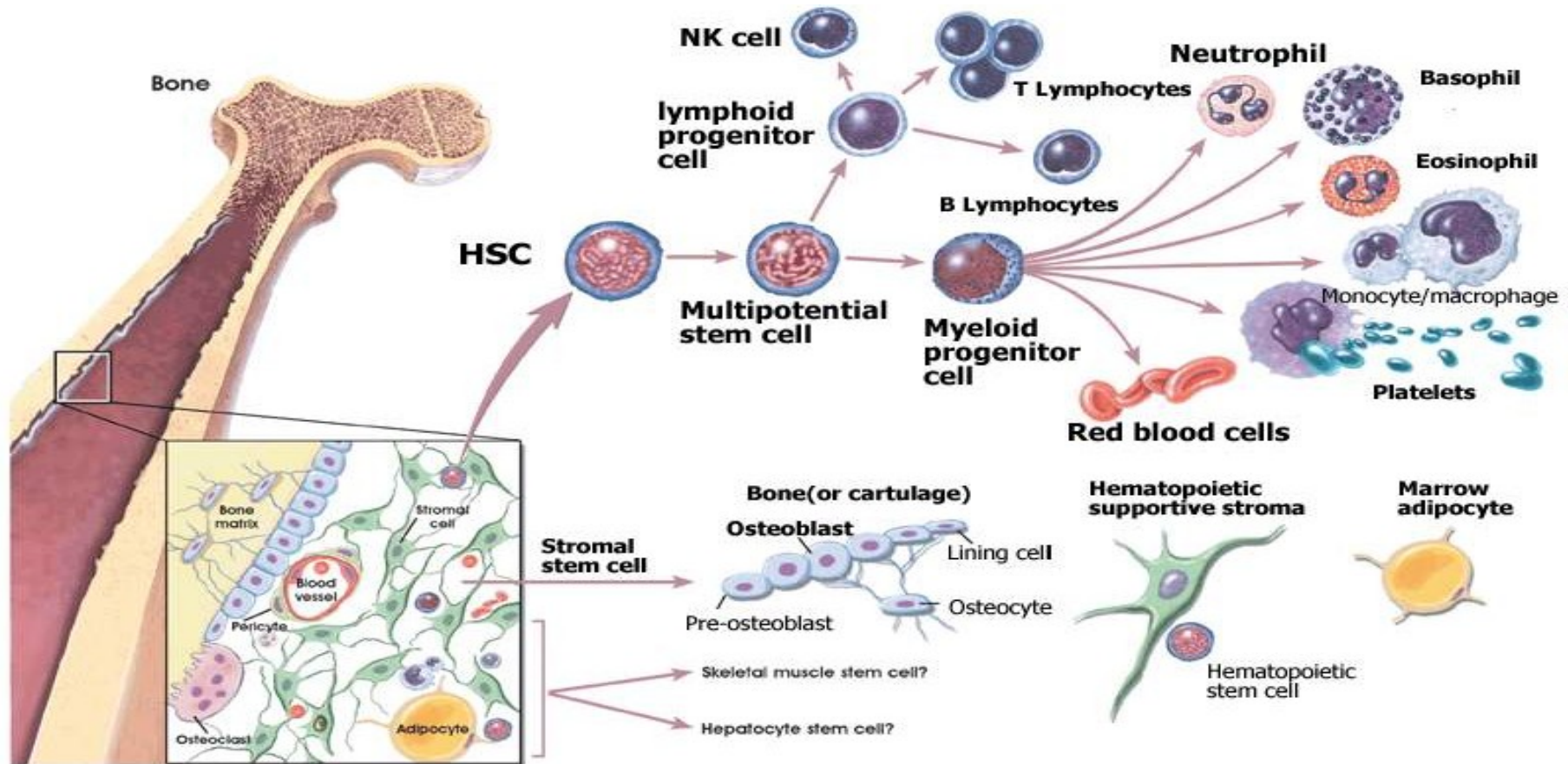
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## Why collect cord blood?

- **Blood left in the placenta & umbilical cord after the baby has been delivered**
- **Considered a waste bi-product**
- **Rich in haematopoietic stem cells with life saving potential for patients with leukaemia and other blood related malignancies.**
- **Alternative to bone marrow for a transplant, mainly used to treat children due to the small size of the donation and therefore cell numbers collected.**
- **Advantage is that matched stem cells from cord blood are immediately available**

# What is a Stem Cell?



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# Types of Cord Blood Banking

- Unrelated cord blood banking
  - Voluntary donations for altruistic use eg NHS CBB
- Directed/related cord blood banking
  - collection for a specific recipient or potential recipient requiring a transplant
- Commercial/Private banking
  - Banking for private autologous use in the future

# Network of NHSBT Laboratories involved with Cellular Therapies



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**Directed Cord Blood:**  
Oxford  
Bristol  
Birmingham  
Leeds

**Unrelated Banking:**  
NHS CBB –  
Moved from London to Bristol  
In 2009

# The NHS CBB

- **NHS Cord Blood Bank started in Feb 1996**
- **Unrelated banking**
  - voluntary donations for patient used world-wide
- **3rd largest Single Public CBB in the world**
- **Nationally & Internationally accredited**
- **20,000 donations banked. Aiming for 50,000 by 2022**
- **Currently 484 units have been issued to over 33 countries.**

## Directed cord blood collection

- **Defined by the EBMT classification of transplant procedures**  
*(BMT 37 2006 439)*
- **Existing sibling suffers from malignant or non-malignant disorder requiring a transplant**
- **The collection is intended for future children of same parents at risk of a specific genetic disease**
- **Requests initiated by hospitals caring for existing/previous sibling and maternal consent obtained.**

# Quality Assurance

- **Human Tissue Authority**
- **JACIE FACT-NETCORD accreditation**
- **Guidelines for Blood Transfusion Services in UK.**
- **NHS Blood & Transplant QA Dept.**



## HTA regulations from 5<sup>th</sup> July 2008

- **Maternity units that collect cord blood need to act under an HTA procurement licence.**
- **Cord Blood must be traceable from collection to use.**
- **Collection staff should have training in collecting cord blood.**
- **Procedures should be in place to help avoid medical attention being drawn away from the mother and baby.**

<http://www.hta.gov.uk/licensingandinspections/sectorspecificinformation/tissueandcellsforpatienttreatment/cordbloodprocurementfaqs.cfm#one>

## **RCM and RCOG Advice for CB collection**

- **Support CB collection for medical & research purposes**
- **Do not support commercial cord blood collection**
- **Support HTA licensing and regulation for collection and storage**
- **Collection must not interfere with health of mother & baby**
- **Collection should take place by a trained collector, after the placenta has been delivered, in an area away from the delivery room**

# Laboratory Aspects of DCB collection

- A referral is made to the NHSBT SCI Dept. by a transplant unit
- Maternal screening for mandatory markers by NHSBT
- Obstetrician's consent is obtained
- SCI laboratory liaises with the Midwifery Department
- A kit is delivered by the NHSBT to the Midwifery Department.
- Collection is made by Midwifery Department or private collectors
- SCI Receive & cryopreserve cells within 24 hours
- Obtain WBC, volume, CD34+ count, tissue typing, RBC group, bacteriology and virology results.
- Prepare reports and request confirmation of storage.
- Costs met by referring hospital

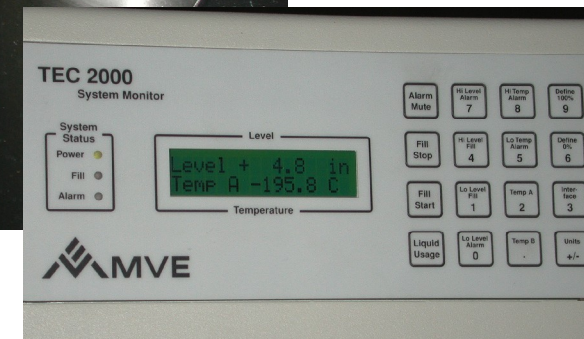
## Cord Blood Collection.

The cord is cleaned with iodine and then blood is drained into a bag with anti-coagulant via a line and needle





# All cells are processed in a GMP clean room where filtered air and specialised clothing limit contamination



## **DCB collections by NHSBT under the HTA**

- **The referring hospital and NHSBT both have a procurement license**
- **NHSBT has a Third Party Agreement with the Midwifery Dept or a private collection company eg Phlebotomy UK Ltd**
- **NHSBT is legally responsible for complying with the HTA**
- **SCI arranges training in consultation with the midwifery department or ensures the collection company staff are trained.**
- **Premises must be suitable for the purpose**

## Collection details

- **Cells not usually excluded from storage or use until the blood has been processed and tissue typing completed**
- **28% were shown to be a match for HLA A, B, Cw, DR and DQ.**
- **Contamination comparable to unrelated cord blood banks**
- **Mean volume and TNC counts comparable to unrelated banks**
- **Failed collection (2.9%) was mainly due to a damaged cord and/or placenta**

# Collections by NHSBT



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	1995-2005 120 months	2005-2008 30 months	2009-2013 48 months	Transplants
<b>Total number</b> (636)	268 (42%)	144 (23%)	224 (35%)	14
<b>Malignancies</b> (e.g. ALL)	126 (51%)	53 (21%)	68 (28%)	1 (7%)
<b>Non-Malignant 1</b> (e.g. b-Thal., SCD, DBA)	68 (35%)	47 (24%)	81 (41%)	8 (57%)
<b>Non-Malignant 2</b> (e.g. SCID)	74 (38%)	44 (23%)	75 (39%)	5 (35%)





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**Thank You**