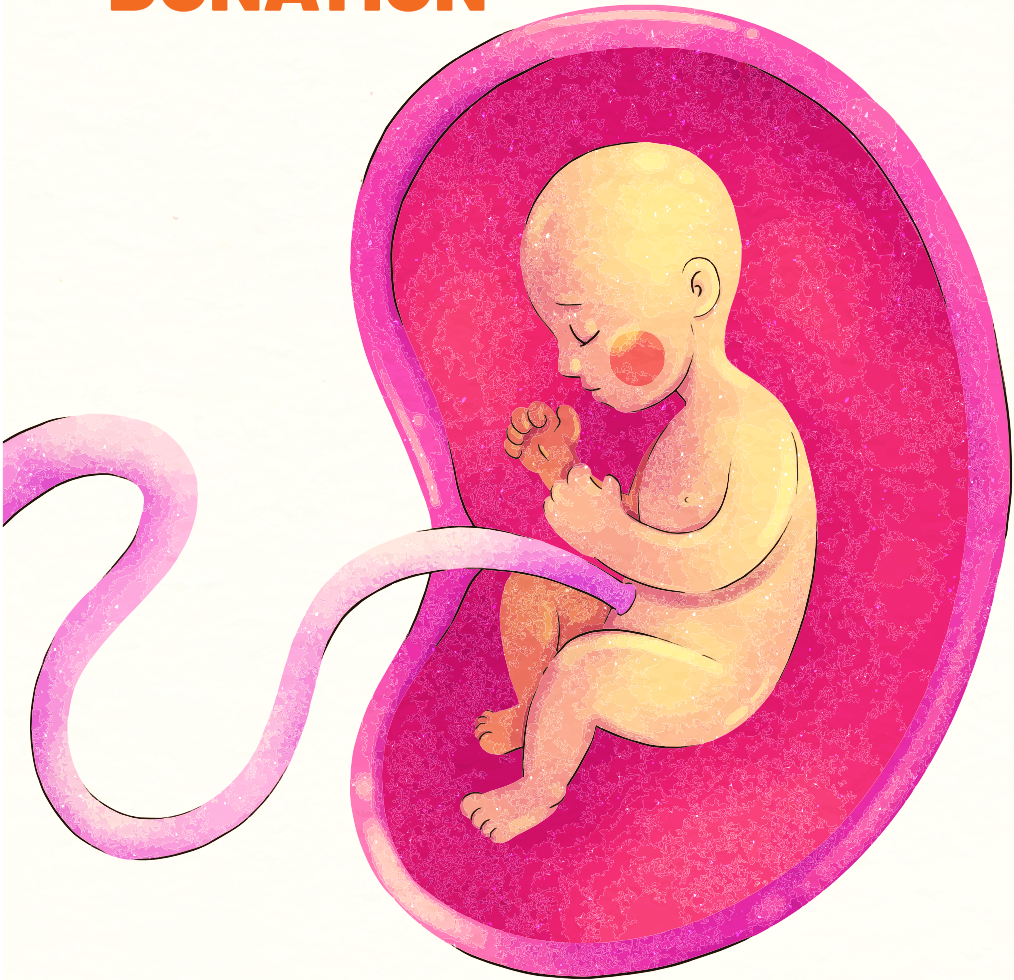


GUIDE TO UMBILICAL CORD BLOOD DONATION



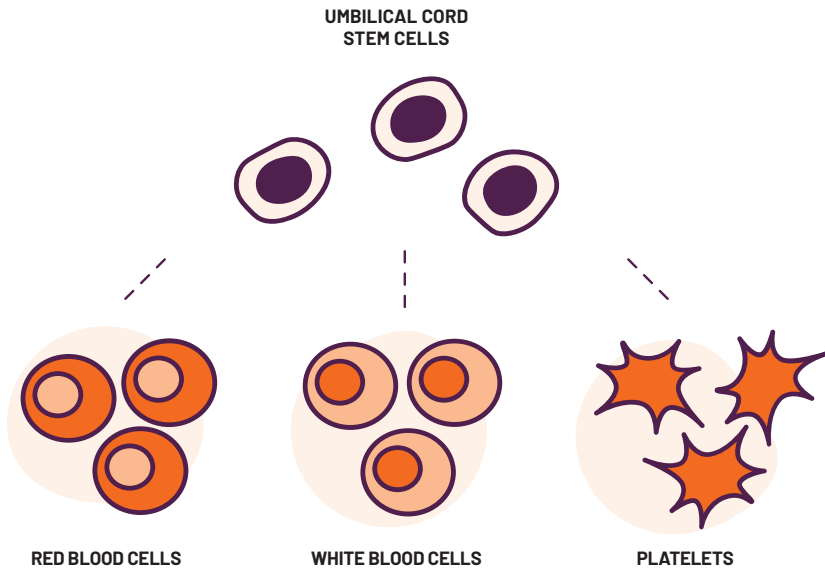
JOSEP CARRERAS
Leukaemia Foundation

REDMO
Bone Marrow
Donors Registry



UMBILICAL CORD BLOOD DONATION

Umbilical cord blood is an alternative source of haematopoietic progenitors. These progenitors, also called stem cells, have the potential to produce all blood cell types and, therefore, to cure patients with blood diseases through haematopoietic transplantation.



Today we know that umbilical cord blood can provide enough stem cells for haematopoietic transplantation in children, adolescents and low-weight adults. In addition, unlike bone marrow stem cells, umbilical cord stem cells support a lower degree of compatibility between donor and recipient.

This has significantly increased the number of patients who could benefit from a transplant. Finally, one of the benefits of umbilical cord blood units is that they can be located and accessed easily and almost immediately, as they are stored frozen in umbilical cord blood banks.



Thus, umbilical cord blood represents an alternative source of haematopoietic progenitors that has been widely used in adults and children, although it has been somewhat neglected for a decade due to the rise in other transplant types, such as haploidentical transplantation, in which the donor is a half-match for the recipient. However, it remains an attractive source that could have other uses in cell therapy in the future.

The umbilical cord and the blood it contains are usually discarded after childbirth. Umbilical cord blood is collected after delivery and once the umbilical cord has been clamped and cut, a procedure that poses no risk to the child or the mother. This donation is altruistic and anonymous.

Once obtained, the blood is processed and cryopreserved (frozen) in umbilical cord blood banks. These establishments are responsible for training the staff of maternity wards authorised to collect umbilical cord blood, for guaranteeing that it is properly stored for many years and for analysing the compatibility characteristics of the cells so that the cord blood units can be used under optimum conditions and virtually immediately.

Today, there are more than 60,000 umbilical cord blood units stored in Spain and more than 800,000 worldwide.

The information on all cord blood units stored in Spain is recorded in the database of the Bone Marrow Donors Registry (REDMO), which was created by Josep Carreras Foundation in 1991. When a patient needs a transplant and lacks a compatible family donor, the transplant centre asks REDMO to start an international search for compatible donors or cord blood units.

This gives the patient the best possible chance of having suitable progenitors to undergo a transplant when they need it.





FREQUENTLY ASKED QUESTIONS



WHERE CAN I FIND OUT MORE ABOUT DONATING UMBILICAL CORD BLOOD?

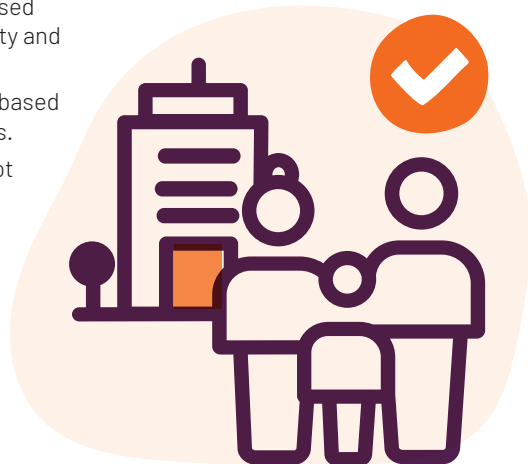
- At your primary healthcare centre.
- During antenatal, maternity and birth preparation classes, where you will learn more about the process in a relaxed setting.
- During obstetric appointments at centres authorised to collect umbilical cord blood.

All of the centres mentioned above must provide **universal information** to ensure that donors' choices are made freely prior to delivery.

A higher gestational age, between 38 and 40 weeks, accompanied by a weight appropriate for the gestational age (3200 grams) is preferable to ensure that the donation has sufficient cells.

WHAT HAPPENS TO THE CORD BLOOD?

- It will be used for any patient who needs it, based on medical advice and the level of compatibility and suitability of the cells with requirements.
- It will be assigned without any discrimination based on race, nationality, religion or financial status.
- It may be used for research purposes if it is not suitable for therapeutic use.





WHAT DOES A DONOR COMMIT TO?

The maternity ward where the umbilical cord blood is collected will provide you with an informed consent form with the **following statement**, which you should sign:

I understand that umbilical cord blood will be used for a transplant for any patient who needs it. I understand that the information concerning me and my baby will be encoded and treated confidentially to protect our identities.

I consent to a blood test on the day of delivery and, optionally, to another in the subsequent four to six months.

I consent to a clinical examination of my child at birth and another in the subsequent four to six months.

I understand that I will be notified by the doctor of any pathological findings detected in the analysis.

I understand that my consent does not oblige the hospital to collect umbilical cord blood if the circumstances are deemed inappropriate.

I agree that if the blood collected is not suitable for transplantation, it may be used for research purposes.

I understand that the donation is altruistic and that I will receive no financial compensation in return.

I understand that I may withdraw this consent at any moment before the birth of my child.

I have received, read and agree to all information provided.

I have had the opportunity to ask all questions I considered appropriate and all of my queries have been clarified.

Consequently, I consent to the donation of umbilical cord blood.



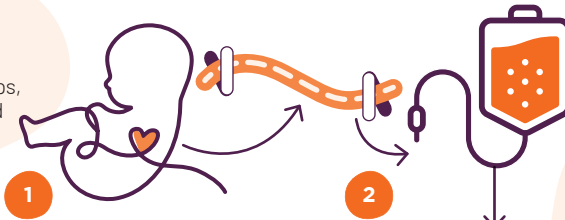


WHAT DOES UMBILICAL CORD BLOOD COLLECTION INVOLVE?

Umbilical cord blood is collected after the child is delivered and after the umbilical cord has been clamped and cut. A needle is then used to draw blood from the umbilical cord before the placenta is expelled. The perfect moment to clamp the cord has been debated, but current recommendations say it should be carried out within 60 seconds to optimise the extraction process.

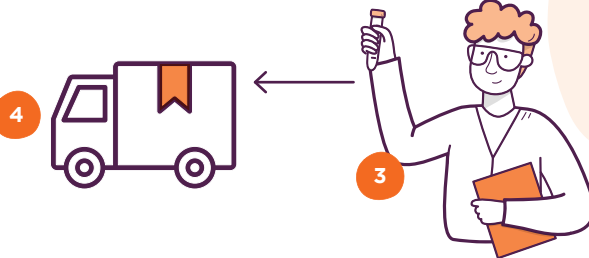
Childbirth

The umbilical cord should be clamped about 5 cm from the navel with two clamps, then the cord should be cut between the two.



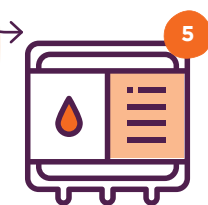
Collection

A needle is inserted into the cord and the blood is collected in a bag. This is then sent to the laboratory.



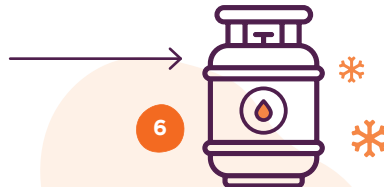
Processing

The sample is tested for viruses and bacteria, and the red blood cells and plasma are discarded.



Storage

It is packed with a protective liquid and cooled to -90°C . It is then stored in liquid nitrogen at -196°C .





UMBILICAL CORD BLOOD COLLECTION CENTERS

Not all public hospitals collect umbilical cord blood. A growing number of maternity wards are authorised to do so, but it is a delicate process, since centres require **specially qualified personnel to carry out the extraction**, must have enough **staff members to ensure that the collection process** does not take priority over the mother or child, and **must ensure that cord blood units are stored in optimal conditions** until they are sent to the corresponding blood cord bank.

Therefore, there are **reference maternity wards** that are authorised to carry out directed voluntary donations of umbilical cord blood and are therefore more actively involved in the programme. There is one in each province and they are responsible for maintaining current cord blood stocks and for the umbilical cord blood bank's healthcare, training, research and validation programmes.

The reference maternity wards or collection units for each autonomous community will be assigned by the umbilical cord blood bank, according to an evaluation of their results in terms of umbilical cord blood donations.

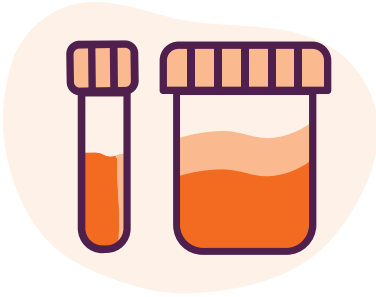


The website of Josep Carreras Leukaemia Foundation (www.fcarreras.org) provides the contact details of all maternity wards authorised to collect umbilical cord blood.





PUBLIC CORD BLOOD BANKS



Spain ranks **fifth in the world** in terms of the number of cryopreserved cord blood units (more than 60,000). This achievement has been possible thanks to **more than 140 maternity wards and 8 public cord blood banks**.

The collection procedure and the subsequent screening, freezing and storage of the cord blood are fully funded by the National Health System.

The only condition laid down by the National Health System is that cord blood units must be available to any patient who needs one.

A few years ago, this system came up against an obstacle that completely altered the basic principles underpinning organ and tissue donation in Spain: **altruism, solidarity, anonymity, autonomy and charity**. This concerned the rise in private cord blood banks for use by families (also called banks for autologous use).

These banks, which are usually located in foreign countries, seek to profit from the understandable fear experienced by future parents.

The argument they use is always the same: “keep your child’s cord blood in case you need it in the future”. This argument is a complete fallacy: the likelihood of a child needing their cord blood to treat a blood disease is less than 1 in 20,000. In the event that they did need it, they would have access to one of the 42 million voluntary bone marrow donors and the more than 800,000 cord blood units available through international registries.

They also argue that this blood should be saved to treat other diseases the child might develop in adult life (heart attacks, diabetes, Parkinson’s disease, etc.). There is no clear evidence that these techniques are valid and, today, the same results can be achieved with progenitors from the patient’s own bone marrow, which are collected when they are needed.



The only exception to this rule are families with children who suffer from diseases that might require haematopoietic stem cell transplantation; in these cases, the cryopreservation of cord blood for hypothetical use by the donor or their relatives is fully justified and permitted.

In light of this situation, the European Commission drafted a document in 2004 that formally advised against this type of donation, although it did not prohibit the existence of these banks or restrict the freedom of individuals to make their own choice. In the same vein, a committee of experts appointed by the Catalan Transplant Organisation (OCATT) prepared an extensive document, available at www.fcarreras.org. Finally, Royal Decree 1301/2006 stipulated that these banks could be established in Spain, as long as they were subject to the same quality controls as public banks and made the cryopreserved units available to REDMO.

Currently, any private cord blood bank based in Spain must release information on the umbilical cord blood it has stored and, in the event that a Spanish or foreign patient needs a unit, it must provide it free of charge.





Thanks
for making us
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PABLE

The information in this guide is based on the
National Umbilical Cord Plan 2020-2025, published by
the National Transplant Organisation and available
to anyone who requests it.



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