

Donating stem cells to your relative

A Guide



At Anthony Nolan we take great care to provide up-to-date and accurate facts about stem cell transplants. We hope the information here will help you to look after yourself.

Each transplant centre will do things differently, so this booklet is just a general guide. It isn't intended to replace advice from your medical team.

Please speak to your medical team for more details about your own situation, as they will be able to give you personalised, specific advice.

Ordering more copies

If you'd like to order more copies of this guide, or to request it in an alternative format, please get in touch with us at patientinfo@anthohnolan.org

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If you have any questions or comments about this resource, or would like information on the evidence used to produce it, please email patientinfo@anthohnolan.org

The information contained in this booklet is correct at the time of going to print (August 2026). We plan to review this publication within three years. For updates or the latest information, visit anthohnolan.org

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Creator



Patient Information Forum

What's in this booklet?

We've produced this booklet for anyone who has the opportunity to donate their stem cells to a relative who needs a stem cell transplant. It will explain why a donation is needed and what happens at each step of the process.

To help you decide if donating is the right choice for you, this booklet has been written with guidance and advice from specialist healthcare professionals and remarkable past donors who have been where you are now.

If you need to ask us any questions, or you would like some more advice, please get in touch with the Anthony Nolan Patient Services team at patientinfo@anthonymolan.org or on **0303 303 0303**.



DIANA WHO RECEIVED A STEM CELL TRANSPLANT FROM HER BROTHER
TO TREAT ALL (ACUTE LYMPHOBLASTIC LEUKAEMIA)

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Key facts

Why does my relative need a transplant?

Your relative needs a stem cell transplant, most likely to treat either a blood cancer or a blood disorder. These conditions often stop blood cells from doing their jobs properly, making your relative unwell. Stem cell transplant can also treat other disorders.

How is a matching donor found?

Stem cell matching is based on your human leukocyte antigen (HLA) tissue type. Our HLA is made up of five genes we inherit from our parents. The better the match, the better the chance of a successful transplant.

Why are brothers and sisters tested first?

If you're a sibling, you will be tested first because you have the best chance of being a full match. 25% of people who need a transplant will have a matching donor in their families.

What is a haplo?

Haploidentical (haplo) transplants use stem cells from a family member whose tissue type is a half-match. Parents are always a half-match for their children, and vice versa.

How do people donate their stem cells?

Most people donate via peripheral blood stem cell (PBSC) collection. You receive injections to increase the number of stem cells in your blood. They are then collected in a similar process to giving blood, which takes a few hours.

Will stem cells be taken from my bone marrow?

Around 10% of people donate through their bone marrow. Stem cells are collected from your pelvic (hip) bone while you're under general anaesthetic.

How will I feel after donating?

Depending on how you donate, you may experience some mild side effects afterwards. These should clear up in a few days with plenty of rest.

What will happen if I'm not a donor match?

If a matching, related donor can't be found, we'll search the Anthony Nolan stem cell register and other registers from around the world to look for an unrelated matched donor.

Why does my relative need a stem cell transplant?

You're probably reading this booklet because a family member of yours needs a stem cell transplant.

This is most likely because they have either a blood cancer or a blood disorder. Stem cell transplant can be used to treat other immune system or metabolic disorders too.

As their relative, you have a good chance of being able to donate your stem cells to them. You may have already been asked by the medical team if you want to donate.

This can be a very difficult and emotional time for everyone involved. Deciding whether to be your relative's donor can put a lot of pressure on your shoulders, alongside the continuing worry of whether they're going to get better.

It's important you have all the facts to understand both why your relative needs a transplant and how the donation process works. The following information should answer any questions you have and help with your decision on whether or not to be a donor.

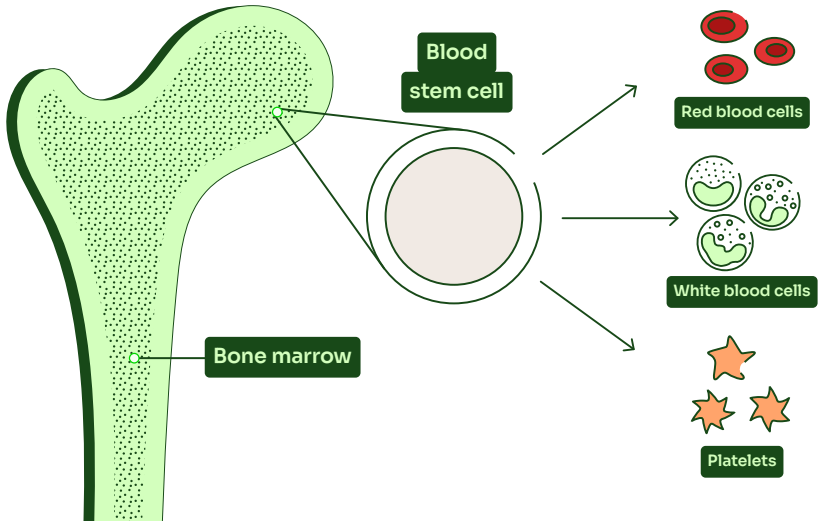
Why are stem cells important?

Stem cells are immature cells in your body. All other cells, tissue, organs and bones develop from stem cells.

Blood stem cells are cells which are found in the bone marrow. Your bone marrow is spongy tissue found in the middle of some bones, like your hip, thigh and breastbone.

Blood stem cells can become three main types of blood cell:

- **Red blood cells**, which carry oxygen around the body
- **White blood cells**, which help to fight infections
- **Platelets**, which help to form blood clots and stop bleeding



Blood stem cells are like templates with instructions for creating new blood cells. They create the millions of blood cells needed in your body every day by copying (or 'dividing') themselves over and over again. Blood stem cells are also responsible for growing your immune system.

If one copies itself incorrectly, this can lead to millions of 'wrong' templates and instructions. If this happens, your new blood cells may not work properly, and you could develop a blood cancer or a blood disorder. Or your immune system may not develop or function properly, and you could develop an autoimmune condition like multiple sclerosis.

How do transplants work?

There are two main types of stem cell transplant:

- **Allogeneic** (or allograft) transplants use stem cells collected from someone else – either a relative, like you, or an unrelated donor from the stem cell register.
- **Autologous** (or autograft) transplants use the patient's own stem cells. They are collected and then put back in the body after chemotherapy.

If your relative needs an **allogeneic** transplant, their medical team will search for a donor. This may have already happened, and they may have identified you as a potential donor.

When a matching donor is found, your relative will start treatment to prepare their body for the transplant.

Shortly before you donate the cells, they will have chemotherapy and possibly radiotherapy. You may hear this referred to as 'conditioning therapy'. This removes the abnormal cells which are causing their condition. The donor's stem cells will also be collected during this time.

The day after conditioning therapy finishes, the donated cells are infused into your relative's bloodstream. This is a similar process to having a blood transfusion. Younger patients may need a rest day, so they will receive your donated cells one or two days after conditioning therapy finishes.

The transplanted stem cells then travel to the bone marrow and start producing new blood cells. Over time, this forms the basis of a **brand-new immune system** that can recognise and remove any remaining abnormal cells. It will also protect against harmful bacteria and viruses that cause infections.

For more information on stem cell transplants, please visit our website: anthonymolan.org/understanding

How do you test for a match?

You and your relative will be tested for a match based upon your human leukocyte antigen (HLA) tissue type. Your HLA is what makes you 'you' – it's a key part of your individual genetic make-up.

HLA types are similar to blood groups but much more diverse. To be a suitable donor, you need to have a tissue type that matches your relative's – but matching your blood groups isn't necessary.

Your HLA is made up of six genes*. Each one of these genes has two versions (called alleles) that you inherit from your mother and father, making 12 in total. If 11 match, it's an 11/12 match. If all 12 match, you're a 12/12 match. When it comes to finding a match, the higher the better, but the transplant can still be successful if the match isn't 12/12.

HLA types can be worked out from a blood or swab sample. Someone in the medical team will take some blood from your arm using a needle or swab the inside of your mouth. The blood or swab sample will then be sent to the lab for testing, which can take up to eight weeks.

The better the match, the better the chance of your stem cells being accepted by your relative's body. This is known as **engraftment**. The better the engraftment, the less likely that problems will develop after transplant.

*You may hear the term 10/10 being used as well. This is when five HLA genes are included in the matching process, rather than six. However, the principle is the same – when it comes to finding a match, the higher the better.

As a related stem cell donor, there are two types of transplant you could potentially be selected for:

Sibling

If your brother or sister needs a transplant, in most cases you will be tested first because you have the best chance of being a full match. This is because you have the same parents, and our tissue type is a combination of our parents' tissue types. There's a 25% chance of fully matching your sibling. If you have other brothers and sisters, they will be tested at this point too.

Haploidentical

When a matching sibling or unrelated donor can't be found, a haploidentical transplant may be an option.

Haploidentical transplants use stem cells from a family member whose tissue type is a half-match. Parents are always a half-match for their children, and vice versa. Siblings have a 50% chance of being a half-match for each other. This means there's a greater choice of potential donors – most people have at least one haploidentical match in their family.

In the past, these half-matched transplants wouldn't have been possible because of low success rates and post-transplant complications like graft vs host disease (GvHD). However, improvements in the transplant process and new treatments have helped to make haploidentical transplants a possible alternative.

Unfortunately, haploidentical transplants are not a suitable treatment for all blood cancers and disorders. Your relative's medical team will be able to give you more information about the best possible option for them.

Other options

Usually your wider family and friends will not be tested as it's very unlikely they will be a match. If they want to help other people in need of a stem cell transplant, they may be interested in joining the Anthony Nolan register at anthonymolan.org/join

If a matching related donor isn't available, your relative's medical team will contact Anthony Nolan. We will search all the possible donors in the UK, and registers across the world, to find the best match.

If necessary, we will also check for cord stem cell matches in our **cord bank**. Find out more about cord blood transplants at anthonymolan.org/cordtransplant

“Speaking to other people, I recognise how lucky I am. If it wasn't for George, I would have desperately needed a stranger's help. It could have been a completely different story.”



**WILL RECEIVED STEM CELLS FROM HIS BROTHER TO TREAT
ALL (ACUTE LYMPHOBLASTIC LEUKAEMIA)**



“As soon as I was told I would be my son’s only donor, it was a no-brainer for me. I wanted to do everything I could to help him. It was so easy and straightforward being the donor – he had all the toughest work ahead of him. I would do it again in a heartbeat.”

DAN (LEFT) WHO DONATED STEM CELLS TO HIS SON
REUBEN (SECOND FROM RIGHT)

What happens next?

You'll have a chat with your relative's medical team before you decide to go ahead with testing.

They'll discuss with you:

- how they will test to see if you're a match
- what donating will involve
- the potential impact donating could have on you.

Remember: The potential impact of donating includes your mental wellbeing as well as your physical health. You may feel pressure to donate, either from yourself or others. You might also feel guilty if your relative develops complications during recovery. You should receive all the support you need to cope with these feelings.

If the blood or swab test shows you're a suitable match and you're happy to proceed, the medical team will arrange a 'donor assessment' and medical screen for you. This is to make sure you're fit and healthy enough to donate. Your medical confidentiality will always be carefully protected.

Please ask as many questions as you want during this appointment. This meeting is for you and it's really important you fully understand what's involved so you can make an informed decision about donating. It's also vital you feel as confident and comfortable about your decision as possible.

What would stop me being able to donate?

It might not be medically safe for you to donate your stem cells, which can be upsetting when you want to help. However, the doctors will make their decision based on what's best for you and your relative.

You may not be able to donate if you:

- weigh less than 50kg or have a body mass index (BMI) of over 40
- have severe lung disease such as emphysema or lung fibrosis or, in some cases, asthma
- have uncontrolled high blood pressure or other heart complications
- have an autoimmune condition
- have epilepsy or other neurological conditions
- already have, or are at risk of contracting hepatitis C, HIV, malaria or other infections
- have anaemia, sickle cell disease or thalassaemia
- are pregnant or have recently given birth.

There are also some conditions and medical complications that would prevent you from ever being able to donate. These include a medical history of cancer, stroke, heart attack and major heart surgery. Your relative's medical team will discuss all these with you and they'll be happy to answer any questions you may have.

"I wanted to be a match so badly, as I wanted to fix things for my brother. I feel for those siblings who aren't a match, because for me it was something I wanted so much."

LIZ WHO DONATED STEM CELLS TO HER BROTHER MATT

How do I donate my stem cells?

If you're fit and able to donate your stem cells, the next step will be to set dates for your donation and your relative's transplant.

As time goes on, it's possible that the dates will need to change. For example, your relative's condition may change close to the transplant and the doctors could decide to delay it. This will all be handled by the medical team, but you may need to keep your plans flexible.

There are two ways you can donate your stem cells:

- **90% of people donate via their bloodstream** in a process called peripheral blood stem cell (PBSC) collection. You'll receive a course of injections for a few days before, and then go into hospital for the day where stem cells are collected from your bloodstream over 4-5 hours and filtered out using a special machine.
- **10% of people donate through their bone marrow.** The cells are collected from your pelvic (hip) bone while you're under a general anaesthetic, so you won't feel a thing. You'll stay in hospital for about two nights.

Your relative's medical team will decide which type of donation will be best. This will depend on your relative's condition. They will talk you through each type of donation in more detail at your donor assessment appointment.

Note: you may also have heard of stem cells being donated from umbilical cord blood. If someone having a baby agrees to donate their cord blood, a medical team can collect the stem cells from the newborn baby's umbilical cord. For further information on cord blood donation, see anthonymolan.org/cordtransplant

Donating via PBSC



1. Have some tests

You will have some tests done, such as blood tests and a chest X-ray, at a specialised hospital to ensure you are fit enough to donate. The hospital will let you know the results and confirm details for your donation.



2. Daily injections

You'll have injections once a day for four or five days leading up to your donation day. They contain granulocyte colony stimulating factor (G-CSF). This is a naturally-occurring hormone which makes your blood create more and more stem cells so you have lots ready to donate. After receiving these injections, you might experience some flu-like symptoms.



3. Donation day

You'll go to the hospital for your donation. You'll be connected to a machine which takes blood from one arm, collects your stem cells, and returns your blood to the other arm. The process takes four to five hours. Most of the time, enough stem cells are collected in one day. But sometimes you might need to have another session the next day.



4. Get some rest

After your donation you'll probably feel tired, you may have trouble sleeping and might experience flu-like symptoms. These pass after a few days. Get plenty of rest and you'll soon feel back to normal. Less than 1% of donors experience more serious side effects.



5. The difference it makes

Your stem cells will be transplanted into your relative, where they find their way into their bone marrow and start to make new healthy blood cells. They will form a new immune system that will remove any remaining abnormal cells.

What is 'PBSC'?

Peripheral blood stem cells (PBSC) are blood stem cells that can be collected straight from the blood stream. This method is used 90% of the time when donating for a patient.

Find out more about donating via PBSC at
anthonyolan.org/donation-journey/donating-pbsc

Donating via bone marrow



1. Have some tests

You will have some tests done, such as blood tests and a chest X-ray, at a specialised hospital to ensure you are fit enough to donate. The hospital will let you know the results and confirm details for your donation.



2. Donation day

You'll have the operation under general anaesthetic. Lying on your front, two needles are put into the back of your pelvic (hip) bone to take the bone marrow. This might sound a bit scary, but don't worry. People think donating bone marrow is really painful, but donors have said it's no worse than how you'd feel after a heavy workout in the gym.



3. When you wake up

You'll have two plasters over the marks where the needles were inserted. You may need to stay overnight in hospital to recover before going home the next day.



4. Get plenty of rest

You'll probably feel tender and bruised where the needles were inserted, as well as general tiredness, for a few days. Take some paracetamol and get some rest. You might need to take a week off work and avoid tiring activities.



5. The difference it makes

Your stem cells will be transplanted into your relative, where they find their way into their bone marrow and start to make new healthy blood cells. They will form a new immune system that will remove any remaining abnormal cells.

Find out more about donating via bone marrow at anthonyolan.org/donation-journey/donating-bone-marrow

“I worried about finding a donor. I’m the oldest of five but I knew there was no guarantee that any of my siblings would be a match. Luckily, my two youngest siblings were a match and they decided to go with my brother. It was the best thing ever.”



**KAL | WHO RECEIVED STEM CELLS FROM HER BROTHER TO TREAT
MDS (MYELODYSPLASTIC SYNDROME)**

What happens after their transplant?

It will take time before your relative starts to feel anything like 'normal' again after their transplant. Although they may look much better than they did before, they could still have a long period of recovery ahead of them. They may experience different side effects which affect their physical and mental wellbeing, such as fatigue.

Try to offer them support when you can. You may be able to help with general day-to-day chores or can simply be someone to talk to about what they're going through. We have more information at anthonymolan.org/recovery



MOLLY (BOTTOM LEFT) WHO DONATED STEM CELLS
TO HER BROTHER ARCHIE (MIDDLE)

Will I need to donate again?

You may need to donate more blood cells to your relative if they need something called a donor lymphocyte infusion (DLI).

This is when more white blood cells are given to your relative to cause an immune reaction that helps 'boost' the original stem cell transplant.

Although DLIs can treat patients who have relapsed, it doesn't mean the transplant has failed if your family member needs a DLI. DLIs are sometimes planned before transplant to try to prevent relapse happening. Your relative's medical team will be able to talk to you about why they need their DLI.

"I can't put into words how lucky I feel to have been able to donate to my brother. Seeing him get better, and knowing I was able to play a part in his recovery, is the best thing I could have asked for."



HARRIET

WHO DONATED STEM CELLS TO HER BROTHER JAKE

When you gave your first donation, the medical team may have been able to freeze and store some of your blood cells that weren't needed. If this happened, you may not need to donate again for the DLI. If you do donate again, it will be a simpler procedure than before, and you shouldn't need to have more injections. The process is very similar to giving blood.

You don't have to donate again if you don't want to – the choice is yours. The medical team will address any questions or concerns you might have and give you another medical check before you donate for a DLI.

You can read more about DLIs and when they might be needed at anthonymolan.org/DLI

What if I can't donate, or I feel unable to?

It can be hard to find out you're unable to donate for your relative, especially if finding a matching donor is proving tricky.

It can also be hard to choose not to donate if it's not right for you. But it's brave, too. It's far better to be honest with yourself and your relatives straight away, than to begin the process only to pull out at a later stage. And nobody wants you to do something you don't feel able to do. In either case, it's important to protect your emotional wellbeing, and to speak to someone you feel comfortable with if you're struggling with your feelings around the situation or your decision. You can find more information on charities and organisations that can support you and your mental health on [page 29](#).

Other ways you can help

If you're unable to join the register but you'd still like to help, you can support Anthony Nolan in many other ways. You can volunteer on our behalf, take part in a fundraising event (from a bake sale to a marathon), support our campaigns, or simply make a much-needed financial donation to ensure our lifesaving work can continue in the future.

Find out more at anthonymolan.org/help-save-a-life

What if my relative's transplant doesn't work?

Be kind to yourself

It can be very difficult to find out your relative's transplant has failed after you have donated. Please try to not feel responsible or guilty. The transplant process is complicated, and so many different factors can affect the journey and outcome. So it's important to take a step back and look after yourself.

"I wasn't prepared for my sister's transplant not working the first time. When you donate to a stranger, you can feel good but walk away. When it's your family member, it's much more personal and harder emotionally. There's more worry. My advice is to prepare yourself mentally and physically."

MARK WHO DONATED STEM CELLS TO HIS SISTER TWICE

Everybody reacts to stressful events in their own way, and we all find different ways to cope. Some people prefer to talk things through with friends and family, while others benefit from talking to a therapist.

It's understandable that you'll be focused on your relative's health, but you need to look after yourself too. We support those we love much better when we're also supporting ourselves.

However you choose to manage the situation, it's crucial to take the time to consider how your mental health is being affected and seek help, if you need it.

Charities and organisations that can support you and your mental health are listed on [page 29](#).



“Danny kindly donated his stem cells – I’m told we are a perfect match, which sounds good to me. Danny produced more than we need, so we have enough for a top-up if necessary. Nice work bro.”

DEAN (LEFT) RECEIVED STEM CELLS FROM HIS BROTHER

DANNY (RIGHT) TO TREAT AML (ACUTE MYELOID LEUKAEMIA)

DONATING STEM CELLS TO YOUR RELATIVE

Anthony Nolan

contact details

Where can I get more information and support?

If you or a loved one is affected by a stem cell or bone marrow transplant, there are many ways we can support you.

Need to talk?

The Patient Services team at Anthony Nolan is here for you. Call us on **0303 303 0303** or email patientinfo@anthohnolan.org

Get connected

Find support from other patients and their families by joining our **Patients and Families Forum** at anthohnolan.org/forum

Find information

Our website has lots of helpful information about what it's like to go through a transplant. Download or order our booklets for free, and find links to other places where you can get support at anthohnolan.org/patientinfo

Other useful contacts

British Association for Counselling and Psychotherapy

bacp.co.uk
01455 883300

Information about counselling and therapists in your area.

Macmillan Cancer Support

macmillan.org.uk
0808 808 00 00

Practical, financial and emotional support for people with cancer, their family and friends.

Maggie's

maggies.org
0300 123 1801

A network of drop-in centres for cancer information and support. Includes an online support group.

Mind

mind.org.uk
0300 123 3393

Mental health charity which offers information, advice and support to anyone going through stressful situations or experiencing a mental health problem.

NHS

nhs.uk
Helpline: 111

Information about treatments, conditions and lifestyle. Support for carers and a directory of health services in England.

NHS Talking Therapies

nhs.uk/nhs-services/mental-health-services

Find an NHS psychological therapies service, such as cognitive behavioural therapy (CBT), counselling, other therapies, and guided self-help.

Samaritans

[samaritans.org](https://www.samaritans.org)

Helpline: 116 123

The Samaritans are available 24 hours a day to listen and provide help for any problem you would like to talk about.

Teenage Cancer Trust

[teenagecancertrust.org](https://www.teenagecancertrust.org)

020 7612 0370

Support to improve the lives of teenagers and young adults with cancer.

Young Lives vs Cancer

[younglivesvscancer.org.uk](https://www.younglivesvscancer.org.uk)

0300 303 5220

Offers a range of services for children affected by cancer and their families, including a helpline for emotional support and practical advice.

"It hasn't been a straightforward four years for my brother, and for a long time I worried my stem cells weren't good enough. He's had a rough time with GvHD. However, he's still here and I am very grateful for that!"

LIZ

WHO DONATED STEM CELLS TO HER BROTHER MATT



For further patient information:

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facebook.com/anthohnolanpatients
patientinfo@anthohnolan.org
0303 303 0303



anthohnolan.org

