



You are a
MATCH!



BMDP
Bone Marrow Donor
Programme



Sheila & Nureen

Meet Sheila, a 27-year-old accounts executive who stepped up to donate her bone marrow, and Nureen, a flight attendant whose life she had saved through her selfless act of kindness.

Nureen was living life to the fullest when she started getting bruises that would not fade. She went for a check-up and at just 30, was subsequently diagnosed with Acute Myeloid Leukaemia, a type of blood cancer characterised by the overproduction of immature white blood cells. She had less than six months to live if she did not get a bone marrow transplant.

Nureen's brothers were both tested but neither was suitable. Fortunately, a perfect match was found within our local donor register in Sheila, who had signed up to be a donor.

"I was very excited when I received the call from BMDP," Sheila recalled. "It was a no-brainer and of course I said yes." After the Verification Typing confirmed she was a perfect match and following a full health check up, she went ahead with the donation. Throughout the process, Sheila kept in touch with Nureen through letters sent by the BMDP to ensure anonymity.

On the day of meeting up with Sheila, Nureen looked fit and healthy and had just been given

approval to go back to work. Entering the room with a radiant smile, she was immediately overwhelmed with tears as she embraced Sheila and thanked her for saving her life. "Sheila is a part of me, her cells are in my body. She's like my sister," Nureen said.

“Leukaemia is a blood cancer NOT a death sentence”

- Nureen
Bone Marrow Recipient

There was not a single dry eye in the room as the magnitude of this special occasion sunk in. Witnessing this heart-warming moment puts into perspective the important work that we are doing here at the BMDP. For Ashminder from our patient services team who helped coordinate the transplant, she and Nureen discovered they were long lost childhood friends 20 years ago!

Leukaemia is not a lifestyle disease; it can strike anyone at any time. Our aim is to help every patient find a matching donor and give them a second chance to live. You could be the next hero!

You are a
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Congratulations!

Your name coming up is very exciting news and thank you for signing up as a volunteer bone marrow donor and being part of the Singapore **Bone Marrow Donor Programme (BMDP)** register!

You will remember the first step you took when you provided us with a tissue sample – either through a blood sample or a buccal swab – which was then tested to determine your tissue-type and the details were stored in our database along with your contact details.

Now, a doctor searching the BMDP register has chosen **you** as a possible matching donor for a patient. As you know, the odds of finding a match is around **1 in 20,000** so this is very good news. You could be on your way to saving a life!

This booklet is to help you understand the next steps of your journey, should you continue through to make this life-saving donation. Most importantly, you are not alone and will be supported by your **Donor Coordinator** who will keep you fully informed and also introduce you to other donors who can share their experience first-hand.

Before you are finally selected as the best match for the patient, more testing is required and the steps are outlined in this booklet.



STEP 1

Verification Typing

To confirm that you are the best match for the patient



STEP 2

Donor Workup

To ascertain that you are physically fit for donation



STEP 3

Donation

Bone Marrow harvest or Peripheral Blood Stem Cell harvest



STEP 4

Follow Up

Routine medical follow-ups after donation

Who needs a Bone Marrow Transplant?

Bone marrow transplants are used to treat patients whose bone marrow is not producing the correct amount of various blood cells. More than **60 potentially fatal diseases**, including several types of leukaemia, are treated through bone marrow transplantation. With no suitable family donor, the patient is referred to a register like the BMDP.

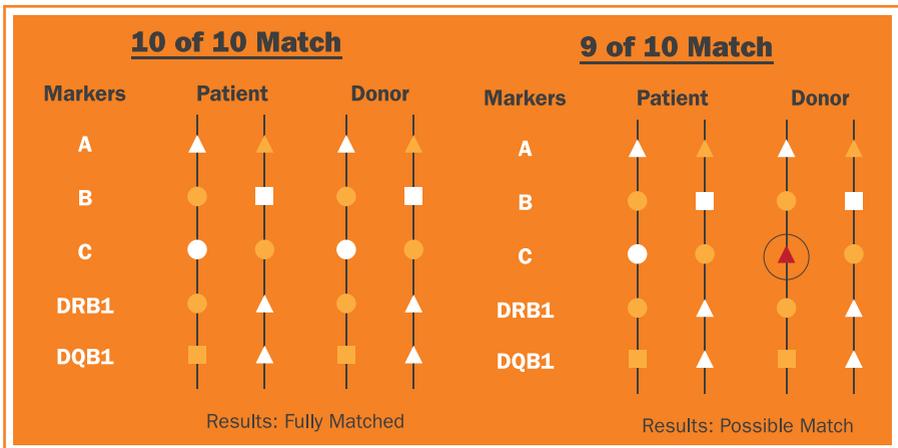
Why is a match so important?

The cells that manage the body's immune system come from the bone marrow therefore a transplant essentially introduces a new immune system to the patient.

If the donor and the patient do not share the same genetic markers, the new white blood cells will attack the host body. These proteins – or markers - are called the **Human Leukocyte Antigens (HLA)** and are found on most of the body's cells.

The HLA proteins are important in matching patients and donors for a blood stem cell transplant.

- You have **two sets** of tissue-type markers, which are compared in the matching process. One set is inherited from your mother, the other from your father.
- When a transplant centre looks at the match level, it is looking at how alike the tissues of the patient and the donor are to each other. The BMDP requires at least a **9 of 10 antigen match** for marrow or peripheral blood stem cell transplants.
- Most transplant centres look at **10 HLA antigens – A, B, C, DRB1 and DQB1** – to select a donor. While a 9 of 10 match between a patient and a donor may be suitable, ideally we are looking for a full 10 of 10 match.





STEP 1

Verification Typing

You have been selected through an initial search of the database as a potential match and contacted by your Donor Coordinator for an information session. This is an opportunity for you to **ask questions** about the donation. You can also get other members of your family involved so that they can fully understand and **support you**.

During the session, you will be asked to update us on your **current health status**. If you give **consent** to move forward for more testing, you will then be asked to provide a blood sample that will be used for the Verification Typing.

Not all donors called for Verification Typing go on to donate but it is important that you are **ready** for more testing if confirmed as a match and are willing to donate if chosen.

It's Your Decision

It is your decision to participate in Verification Typing and **any costs** that you may incur **will be covered** by the BMDP. Your Donor Coordinator is available to answer any questions or concerns and you will also be given an option to meet up with other donors so that once you are confirmed as a match for the patient, you can make an informed decision to move on to the next stage.

What Happens After Verification Typing?

The donor centre staff will let you know the outcome of your Verification Typing and if you are not a match this time, you **may be called** for another patient in the future.

Please stay on the register and remain committed. Your Verification Typing results will be added to your existing tissue-typing.

If you are a confirmed match, **now is the time** to decide whether you are willing to commit to the next stage and ultimately to make the donation. Your Donor Coordinator and one of our panel of doctors will be available to **assist you** during this time and arrangements can be made to discuss the details with any other family members or important people in your life.



STEP 2 Donor Workup

The Donor Workup refers to the various medical procedures that ensure you are fit and healthy to donate.

The BMDP will appoint a qualified doctor to look after you, usually a haematologist, from one of our Collection Centres. Whenever possible, we will try to accommodate any preference you may have for more convenience, otherwise the Collection Centres are allocated on a rotational basis.

The workup process consists of two stages:

Doctor Consultation & Donor Consent

Following your information session with the Donor Coordinator, your appointed doctor will complete a donor health questionnaire and also evaluate you and your family's medical history. At this time, more information will be shared about the donation process, including any potential risks and side effects, and any questions you have will be answered. You are very welcome to invite a family member or friend along to attend this session with you.

Once you agree to proceed, you will be asked to sign a donor consent form, which confirms that you understand what will take place during the donation process and the risks involved.



Physical Examination

Next, you will be given a thorough physical examination to make sure you have no pre-existing medical conditions that could pose any special risks to you or the patient. We will also collect blood samples to be tested for infectious diseases. This is very important as some diseases can be transmitted to a patient through donation and the results will help determine your eligibility. The entire process will take about 2 to 3 hours.



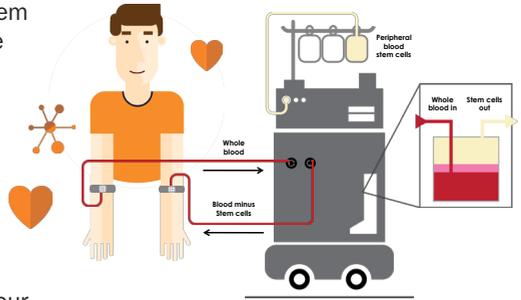
STEP 3 Donation

Once you have cleared the medical, you then proceed to make the actual bone marrow or Peripheral Blood Stem Cell (PBSC) donation.

PBSC Donation

PBSC Donation is the most common method of stem cell collection used almost 90% of the time. The procedure is similar to blood donation except that only the blood stem cells will be collected. It is carried out in an outpatient* setting and usually takes around 5 to 7 hours.

To increase the number of blood stem cells in the bloodstream, you will receive daily injections of a hormone called G-CSF for four days before the collection and a fifth injection on the day of your collection. The injections can be self-administered (you will be taught how to do so upon receiving the injections) or should you prefer, you can visit a General Practitioner to administer the injections. Any costs incurred will be fully reimbursed.



During the collection, your blood is collected through a sterile needle in one arm, passed through a machine that separates out the blood stem cells, and all the remaining blood is returned to you through the other arm.

Side Effects and Recovery: You may experience headaches, bone or muscle aches for the few days before the collection. These are side effects of the G-CSF injections and they usually subside shortly after the collection.

Marrow Donation

Marrow donation is a surgical procedure that takes place in a hospital whilst under General Anaesthetic. Depending on hospital procedures, you may be asked to check in the evening before the donation or on the morning of the donation itself.

Doctors will collect liquid marrow from the back of your pelvic bone. This takes around 1 hour. Usually we ask you to stay in overnight to allow the effects of the anaesthetic to wear off and go home the following day.



Side Effects and Recovery: You may feel some soreness in the lower back for a few days or longer but you will be able to get back to routine work or study in a few days and full physical routine in a few weeks.



STEP 4 Follow Up

After you have donated bone marrow or PBSC, your Donor Coordinator will arrange for a follow up health check. Usually, this will be through a **phone call after 1 week** with **2 full medical reviews** by your doctor **within a year**. This is to ensure that your health has not been affected by the procedure even though most donors are back to work in a few days and resume their normal physical routine shortly after. Your marrow is also completely replaced within **4 to 6 weeks**.

The BMDP and your Donor Coordinator care about your well-being and we are committed to supporting you throughout your journey – after all, few people are able to play such a big part in saving the life of another individual.

Privacy

At the BMDP, we take privacy **very seriously** for both our donors and the patients that we are supporting. We do this in order to **protect both parties** from unwelcome attention or contact. This is especially important in a geographically small country like Singapore.

While you may be keen to share your news with your friends and associates, we do recommend that some details such as **exact dates and location be withheld**. This is to protect your own interests.

Patient and Donor Communications

If you are identified as a match, the patient could be **anywhere** in the world. We will provide you some **basic information** such as their gender, age and the diagnosis. Following your donation, we will give you an update on their progress after 6 months.

However at any time, you may send and even receive messages such as greeting cards but **no information that can identify you** will be shared. The BMDP will facilitate any correspondence. If the patient is overseas, a partner register may be involved.

After a year, if both you and the patient are willing and in Singapore, the BMDP will facilitate **a meeting**. It will then be up to you to choose whether or not you wish to further the relationship. We appreciate that every individual is different and while most parties are keen to meet, it is absolutely acceptable not to and to remain anonymous.

DONORS' VOICES

A blood disease can strike anybody. I know this because my nephew passed away from it. He didn't drink, didn't smoke, and lived a healthy lifestyle. I've had 2 people really close to me who have been struck by a blood disease. It could be anybody!

Being a donor, held no risk on my part at all. The only downside was laying there and sleeping for 8 hours. After the whole donation experience, I felt fine and by evening I was back in the gym and playing football the very next day.

Colin Santa Maria
(Personal Trainer)



As a private investor, I spend all day looking at the risk rewards. Donating bone marrow is a no different. I asked myself what are the risks, did my research online and found that there are no long-term risks related to PBSC, the method that I chose and underwent.

We are probably conditioned by Hollywood to think a heroic act is jumping into a river to save a drowning boy or going into a burning house to save a child. But really, it can be as simple as just donating bone marrow.

Wong Yong Kai
(Private Investor)



I was excited on the donation day. Throughout the whole process, the nurses and doctor made sure I was comfortable and my mind was not on the donation procedure as I already knew that it was going to be safe and fuss-free.

At the end of the donation, I was told that my harvest was good and I was advised to take it easy for a few days. However, after I got home, I went for my routine night walk. I felt good, so had no reason for missing my daily exercise.

Lim Lay Hoon
(Customer Service Personnel)



I've heard that donating bone marrow is very painful. Is this true?

Donating bone marrow is not painful as you will be under General Anaesthetic for the short time it takes to collect the cells. Most donors say they feel some discomfort or stiffness the following day, but the procedure has not been described as painful.

Who determines the method of bone marrow donation?

The best source of stem cell donation (Bone Marrow Harvest OR Peripheral Blood Stem Cell Donation) would be determined by the patient's medical condition. Transplant doctors may indicate the preferred source of stem cells based on the needs of the patient. Donors can indicate their preferred method of donation and they will be advised of the transplant doctors' preference eventually.

Are there likely to be any long term effects on my health after making a donation?

All of our donors have returned to their normal routine after donating their bone marrow and none have had any long term side effects. Bone marrow is fully restored within 4 to 6 weeks and there is a possibility that you may be a little more tired than usual during this period but this differs for each donor. Many of them report that they are back to normal within just a few days.

Do I have to pay for any of the tests and other costs?

No, you do not. You will be reimbursed for all expenses relating to the bone marrow donation including any travel expenses or unpaid leave (in line with our reimbursement policies) although most employers are very supportive and will allow additional time to attend medical check-ups.

Can I say "No"?

There are legitimate reasons for saying "no", including illness, the risk involved or even fear. While the BMDP respects the decision of the matched donor, uncommitted donors give false hope to patients waiting to have a transplant. Once a donor gives his or her consent, the patient actually begins pre-transplant treatment. When a donor decides to pull out at any stage after the endorsement, the patient will most likely die without a transplant as his or her own bone marrow would have been wiped out in readiness for the new donor cells to be introduced. The BMDP hopes that you will be committed to your participation as a bone marrow donor and we will do everything to make sure that you are fully informed and supported throughout the procedure

I'm a Muslim. Am I allowed to donate?

Yes you are allowed to be a donor! In Singapore, the Islamic Religious Council has issued a Fatwa under the Administration of Muslim Law Act (Chapter 3, Section 32), giving approval for all Muslims to be bone marrow donors and help save the lives of patients who need a transplant.

What if I'm underweight/very light? Can I still proceed with the donation?

Our policy states that donors should be above 45kg. However, each donor is assessed individually so you may be cleared to donate. All these will be further discussed in the info session with the Donor Coordinator.

More details and FAQs at www.BMDP.org



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