



Information for matched related donors undergoing peripheral blood stem cell collection

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What are stem cells?

Stem cells are immature parent cells which live in the bone marrow. From these stem cells all of your blood cells, including red cells, white cells, and platelets, grow and develop. Stem cells can be encouraged to leave the bone marrow and enter your blood stream by using a natural growth hormone, granulocyte stimulating factor (GCSF). This is also known as mobilisation.

Why do we need to collect stem cells from you?

If we are collecting stem cells from you it is because you have agreed to be a stem cell donor for a relative. You will have already been tissue typed and found to be a suitable match for your relative for the stem cell harvest.

What happens before the collection?

Before you undergo a stem cell collection (also known as apheresis or harvest) you will be asked to fill out a screening questionnaire. You will then be assessed by a doctor and meet a specialist apheresis nurse. The nurse will explain the stem collection procedure and answer any questions that you may have. They will also organise to take a blood sample from you to test for infections such as HIV, hepatitis and syphilis, which need to be done before your cells can be collected. You will need to consent to these tests as your stem cell collection cannot take place without these tests being done. Also for females of childbearing potential, a pregnancy screen must be performed prior to starting the course of GCSF injections.

How do we get the stem cells ready to be collected?

To collect stem cells from your blood the doctor will prescribe a course of granulocyte stimulating factor (GCSF) injections, a natural growth hormone that encourages the stem cells from the bone marrow into the peripheral blood (this is known as mobilisation).

The GCSF injections will be given daily at approximately the same time for four days. You will be given an appointment for stem cell collection five days from the start of the GCSF injections and asked to bring the 5th days injection with you on the day of collection.

The apheresis nurse will let you know when to commence the GCSF injections, the doses required and the date your stem cell collection will take place. The information is also written at the back of this leaflet.

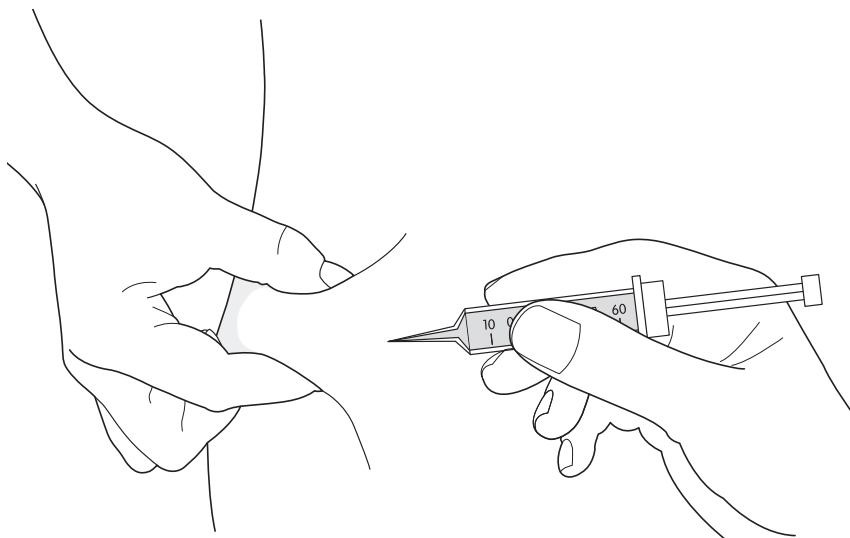
How is GCSF given?

The GCSF injections are pre-filled syringes that should be stored in the fridge. They are injected just under the skin (see step-by-step guide). Most patients prefer to do their own injections, after being taught by the nursing staff. However, it is possible to make alternative arrangements if you do not wish to self inject (e.g. a practice nurse, district nurse or even a reliable relative or friend can be taught). GCSF injections should be given at approximately the same time each day. The most suitable place for the injections is the stomach, although you can also inject in the back of the upper arms and the thighs.

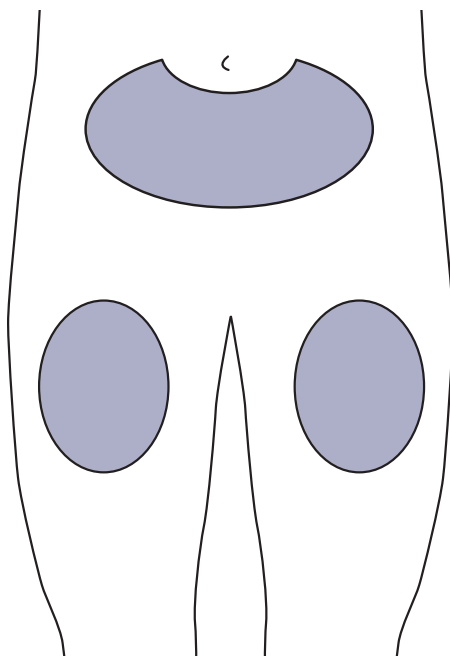
Step-by-step guide to give GCSF

1. Wash and dry your hands carefully
2. Remove the correct number of pre-filled injections from their packaging. You may need more than one injection each day to make up your dose. Your apheresis nurse will advise you what dose you need and it will also be written in the back of this booklet
3. Choose your injection site. Alternate your injection sites regularly to reduce discomfort and allow tissue recovery

4. With thumb and forefinger, grasp a 'pad' of flesh (this is subcutaneous or fatty tissue) and insert the needle at an angle of 90 degrees
5. Depress the plunger fully and withdraw the needle from the skin



6. Dispose of the whole syringe into a yellow sharps disposal container immediately (do not try to resheath or cover the needle)
7. Wash and dry your hands again
8. Bring any unused syringes and the yellow sharps container back to the apheresis unit on your stem cell collection day



You should not miss doses or stop the injections unless you are told to do so. This could affect the success of your stem cell collection.

Are there any side effects of GCSF?

The GCSF may cause some pulsating bone pain (as your bone marrow is being stimulated to produce stem cells) and make you feel a little like you have the flu. Taking simple painkillers such as paracetamol will help with this (ensure you do not exceed recommended daily dose). A warm bath may also help relieve the discomfort.

However, if you feel very unwell or have stomach, chest or shoulder tip pain, please contact the hospital who prescribed your GCSF for further advice or go to your nearest accident and emergency department if outside of normal working hours.

In rare circumstances, splenic rupture may occur as a result of GCSF injections, therefore if you have any of the following, please go to your nearest accident and emergency department immediately:

- Upper left side abdominal pain
- A feeling of fullness
- Any type of abdominal discomfort

When will my stem cells be collected?

We will ask you to come to the Apheresis Bay, in the Centre for Clinical Haematology on your day of collection at 09:00. Your collection date is written at the back of this booklet and corresponds with your relative's treatment. It is extremely important that you attend on the correct day, and be aware that some donors are required to donate cells for up to three days in a row to ensure enough cells are collected.

How will my stem cells be collected?

We will place a needle in your arm and blood will be drawn out and into a machine called a cell separator. Here it will be spun and the stem cells separated out and collected in a bag. We will only need to collect only a few hundred ml in total (less than a normal blood donation). The remaining blood will be returned to you through a needle in your other arm. The whole process usually takes approximately four to six hours. Please note that if we do not collect enough stem cells on the

first day of collection we may ask you to come back in the following days for a second or third collection.

What complications might I expect while on the machine?

Most people have no problems during the collection and only very rarely do we need to stop the procedure. It is not painful but can be a little uncomfortable. It can also be quite tedious as you are unable to move around.

You may experience some tingling. This often occurs around the mouth initially and is caused by a low calcium level in your blood. This is caused by citric acid that is mixed with your blood while it is in the machine to prevent it from clotting. It is important to inform the nurses if you experience this and it is easily sorted by giving you some calcium tablets to chew. Occasionally if the tingling does not improve following the calcium tablets then calcium will be given intravenously (directly into your vein).

Very occasionally patients experience low blood pressure while on the machine. This is more likely if you have been taking tablets for high blood pressure and we will usually ask you not to take these on the morning of the procedure.

Sometimes we have difficulties with the flow of blood from the needle in your arm. This may be a problem if your veins are very small. Very rarely we have to put a temporary catheter into a large vein in the groin to get around this. This will only remain in place for the collection procedures. If we think that you may need one of these



lines, the doctor will discuss it with you. If a groin line is required, it will usually mean that you will need to stay in hospital for the line to be cared for and might also require low doses of a blood thinning drug to prevent clots from forming around the line. The line will be removed as soon as possible after we have collected sufficient stem cells.

Do I need to bring anything with me on the day or make any special arrangements?

You will be attached to the machine for most of the day so you may wish to bring something with you to occupy you during the procedure, such as a book or magazine. You can bring your own electronic device as we have free WiFi available. Any such mobile devices are brought in at your own risk and should be used with your own headphones. You are welcome to bring one friend or relative with you to keep you company during the procedure.

You will be able to eat and drink normally during the day. We do provide tea, coffee, biscuits and lunch but feel free to bring in your own items too.

Once collected, the cells are sent to the National Blood Service Laboratory in Birmingham, counted, prepared and returned the same day for your relative's transplant. Any excess will be frozen and stored for future use if required.

You are likely to feel very tired after the procedure and so we advise that you do not drive and arrange for someone to take you home afterwards. If you need hospital transport in an emergency, please let us know.



Free parking (Car Park D only)

If you arrive by car please park in Car Park D and take the ticket as normal. Give your parking ticket to the Apheresis Team and they can give you an exit ticket so you can have free parking.

Directions can be found on the trust website: **www.uhb.nhs.uk**.

What happens after the collection?

After the procedure is completed you are free to go home but you must remain contactable by phone. Your cells will be sent straight to the lab for counting and storage. The lab will phone us later that day to let us know if enough cells have been collected.

If we have not collected enough cells, we will contact you later that day as you may need to have another dose of GCSF that evening and come back to the Apheresis Unit the next day for another collection. We will let you know whether this is necessary or not.

If we are still unable to collect sufficient cells, despite our best efforts you will proceed for a bone marrow harvest under general anaesthetic.

Bone marrow harvest

This will only be performed if absolutely necessary and you may need to be transferred to another hospital for this procedure. Under general anaesthetic, some of your bone marrow will be harvested from the back of the hip bones or, very occasionally, the breast bone. A needle is put into the bone and, using a syringe, bone marrow is withdrawn and transferred into a blood bag. The procedure will take about an hour to complete and approximately 1–1.5 litres of marrow will be removed. Your body can replace this naturally within 3–4 weeks.

After the procedure you will be taken to the recovery room; it may be necessary to give you fluids and/or a blood transfusion. You will need to stay in hospital overnight on the ward and you will be monitored closely. You will be given painkillers as you will be sore around the back and hip area.

All being well, you will be discharged with painkillers the next day. It is best to rest for the next few days whilst your body recovers. The hospital can provide you with a sick note for work if necessary. We also advise you to go to your GP a month later for a full blood count to check everything is back to normal.

What happens next?

Your donated cells will be stored appropriately and given to the patient on the day of their transplant in the same way as a blood transfusion.

Donor aftercare

As part of our donor aftercare pathway an apheresis nurse will call you one week post procedure to assess your recovery.

In addition the Apheresis Team may contact you by phone/email/post at various times in the future to check on your health and recovery. It would be appreciated if you could complete all questionnaires received and return them.

GCSF injection instructions and stem cell collection appointment sheet

Hospital number	Address and post code
Surname
Forename
Date of birth	Referring centre

GCSF instructions and appointment details

The GCSF injections will start on

They are likely to be given for days.

You will receive GCSF once a day at

The dose of each injection will be microgrammes.

Each dose will consist of vials.

Please attend the Apheresis Unit in the Centre for Clinical Haematology on

(Further instructions regarding GCSF injections and attending the unit will be given at this appointment)

If you have any further questions or concerns
please contact the Apheresis team
Monday–Friday 08:00–18:00
Apheresis Unit: 0121 371 7820 or 7821

For emergencies outside of normal working hours please contact
Ward 625: 0121 371 6252 or 6293 or 6291(24hrs)

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

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If you require this information in another format, such as a different language, large print, braille or audio version please ask a member of staff or email **patientexperience@uhb.nhs.uk**.

Haematology

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