# Collecting Blood Stem Cells or Lymphocytes from a Donor for Transplant

Stem cells are found in the marrow space of your bones. They can be moved into the blood by using white cell growth factor. After the stem cells are moved into the blood (mobilization), they can be collected by a process called apheresis.

Lymphocytes are a type of white cell in the blood. Lymphocytes can also be collected by apheresis.

**Stem Cells**
Bone marrow is a liquid that contains stem cells. Most people have millions of stem cells. Stem cells are 'parent' cells that produce red blood cells, white blood cells, and platelets. When these cells mature, they leave the bone marrow space and enter the blood. Stem cells mostly stay inside the bone marrow. They can be moved from the bone marrow with a medicine called growth factor. Once the stem cells are in the blood, some of them can be collected and used for a blood stem cell transplant.

**Lymphocytes**
Before collection, you will have blood drawn to be sure there are plenty of lymphocytes in your blood. Your lymphocyte count may decrease for a short time but this will not harm you.

**Growth Factor**
White cell growth factor (filgrastim or G-CSF) helps new white cells grow and develop quickly. This can cause stem cells to be moved into the blood. Growth factor is given as an injection just beneath the skin once or twice per day. Most people give it to themselves after they are taught how to do it.

Healthy donors for a relative or National Marrow Donor Program will receive filgrastim and will inject it for 4-5 days. Prior to the scheduled collection, a tube of blood will be drawn and tested to see if your white blood count is high enough for collection.

Growth factor is not needed for lymphocyte collection.

**Apheresis**
Apheresis means "to separate." An apheresis machine separates stem cells, or lymphocytes, from the other blood parts. The stem cells or lymphocytes are collected into a bag. Two arm veins or a catheter are used. One vein is needed to draw blood into the machine to separate out cells. A second vein is needed to return the rest of the blood back to you from the machine. If veins cannot be used for some reason, a central catheter will be inserted, most often in the neck or groin.

An anti-clotting drug is needed during the collection. This drug may cause tingling in the fingers, toes, and lips. Some people also have body chills. You should tell the nurse or doctor if you are having any of these symptoms. These symptoms go away within 30 minutes after collection.

You will be connected to the apheresis machine for 3 to 4 hours. It may take 1 to 2 days in a row to collect enough stem cells to be used for the stem cell transplant. Lymphocyte donors most often finish collection in one day. Most patients lie in a bed and sometimes sleep or watch TV during the collection process. Apheresis is done on an outpatient basis. A nurse or a

doctor will be present throughout the process. Vital signs will be checked often. Some side effects from apheresis can be: fatigue, weakness or dizziness, sore arms, and nausea. It is best to have someone drive you home.

After each day, the collected bag of stem cells or lymphocytes is removed from the apheresis machine and taken to the Stem Cell Lab. The stem cells or lymphocytes will be counted and either infused into the recipient or frozen until they are needed for transplant.

**Who to Call**
Cancer Clinic Triage
Monday – Friday, 8 am – 5 pm
**608-265-1700 or 1-800-323-8942 and ask for 265- 1700**

After hours and weekends, this number will be answered by the operator. Ask to speak with the BMT doctor on call. Leave your name and phone number with the area code. The doctor will call you back.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.