In an autologous stem cell transplant, the transplant team collects and saves your own healthy stem cells. You get high-dose chemotherapy to treat the disease. You may also get radiation treatments. After the treatments, you get your healthy stem cells back.

Steps in the Transplant Process

Priming, also called mobilization. The first step in the transplant process is priming. This stimulates your bone marrow to create and release stem cells into your bloodstream. The transplant team may use a combination of chemotherapy, Neupogen, or other agents for priming. Your transplant doctor chooses the method that is best for you.

Once you begin priming therapy, the transplant team will do blood tests every day. These tests check when enough stem cells are in the bloodstream to begin collecting them.

Collection. For most patients, the method of collection is peripheral stem cell collection (PBSC). It takes place at the Blood and Marrow Transplant (BMT) clinic or the BMT unit in the cancer hospital.

The transplant team places a central line or a temporary catheter (IV line) into one of your veins to collect blood. Your blood goes into an apheresis machine. The machine takes the stem cells from your blood. The rest of your blood comes back to you through a second IV line into a different vein. The transplant team freezes and saves your stem cells. You will get them back later in the transplant process.

Collection takes about 4 -6 hours each day. The number of collection days varies from person to person.

Sometimes the collection process can make you feel lightheaded and make your lips, hands, or toes feel tingly or numb. Tell your nurse if this happens. The nurse can give you medicine to help.

Some patients need to have bone marrow collection instead of PBSC. Your transplant doctor will tell you if bone marrow collection is best for you.

If you need bone marrow collection, you will stay in the hospital for the procedure. You get medicines so you feel no pain. The transplant doctor uses a large needle to take bone marrow from your hip bone. The stem cells from the fresh bone marrow are processed and then given back to you through your IV line later in the transplant process.

Preparing for the Transplant (Conditioning Regimen). You will probably stay in the hospital until you are well enough after the transplant. This is called inpatient treatment. Some transplants do not require a hospital stay. This is called outpatient treatment.

In the conditioning regimen, both inpatients and outpatients will get high doses of chemotherapy. Depending on your treatment plan, you may also have total body irradiation (TBI). The time for this regimen can vary in length, from 1 day to 2 weeks before you get your stem cells back.

The conditioning regimen destroys the diseased cells and prepares your bone marrow for new stem cells. However, they can also harm healthy cells in your bone marrow. Your transplant team will tell you about possible risks.

Transplant. After the chemotherapy and TBI, the transplant team will return your saved stem cells. The stem cell technician will thaw your frozen stem cells. Your transplant nurse will give them to you through your IV line.

The day your stem cells are returned is called your transplant day. It is numbered Day 0. All days before the transplant have “minus” numbers. All days after it have “plus” numbers. For example, you may have chemotherapy on Day -4 through Day -1. The day after your transplant is Day +1.

Your transplanted stem cells will move from your bloodstream to the bone marrow. They will begin to create new blood cells. The transplant team will test your blood often to keep track of this process.

Your immune system will be very weak. You will get several medicines to prevent infections. Your nurse will check your temperature often because fever is a sign of infection.

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In the days after your transplant, you are likely to have side effects from chemotherapy and radiation: Your transplant team will tell you ways to prevent and ease these side effects.

**Engraftment.** Engraftment means that the transplanted stem cells have started making white blood cells,

- Nausea
- Vomiting
- Fatigue
- Fever
- Rashes
- Mouth sores

red blood cells, and platelets. After your transplant, the transplant team test your blood often to see how many neutrophils, a type of white blood cell, are present. This test is called an absolute neutrophil count (ANC). When your ANC is more than 0.5 for three days in a row, engraftment has happened.

The engraftment date varies from person to person. It depends on the kind of transplant you had. Once you have engrafted, your immune system will begin to get stronger again. Your transplant team will stop some of the medicines that prevent infections.

**Discharge and Recovery.** If you are an inpatient, after engraftment happens and you are well enough, you can leave the hospital. If you live within 40 miles (60-minute drive) of Huntsman Cancer Institute, you can go home. If you live farther away, you need to stay in local lodgings for 2–3 weeks.

If you are an outpatient, you must live within 20 miles (30-minute drive) for the entire transplant process.

You will be in recovery. You will still have a high risk of infections. Some patients have a hard time with infections, nausea, or diarrhea after leaving the hospital.

You will need a caregiver to help you at home 24 hours every day for 2–3 weeks after you leave the hospital. You must come in for follow-up visits at our BMT Ambulatory Treatment Center (ATC) at least once a week. You will get blood draws and other tests to monitor your condition.

The BMT ATC and its home health care agency can give IV medications, blood transfusions, and fluids you may need between visits. Some patients may have to go back to the hospital.

About 3 weeks after you are released from the hospital, you and your caregiver will meet with a BMT staff member. You will review skills and practices for your safety after your weekly clinic visits end. You will also receive a survivorship care plan. It will include these things:

- Details of your transplant therapy
- What to watch for
- Schedule for follow-up visits with your transplant doctor at the clinic

If you have been staying in temporary lodgings, you can return to your home for the rest of your recovery.