

Blood and Marrow Transplant Program

Frequently Asked Questions

What is bone marrow?

Bone marrow is the soft, sponge-like material located in the middle of all of our bones.

Bone marrow contains:

- Stem cells, the “grandfather” cells for all of our blood cells
- Red cells which carry oxygen
- White cells which fight infection
- Platelets which help clot the blood

Stem cells may be collected from bone marrow, the bloodstream and an umbilical cord of a newborn infant after delivery.

Who are candidates for a blood and marrow transplant?

Patients with a variety of cancer and noncancerous diseases may be treated with bone marrow transplant. These may include:

- Acute myelogenous leukemia
- Acute lymphoblastic leukemia
- Aplastic anemia
- Autoimmune disease (lupus)
- Chronic lymphocytic leukemia
- Chronic myelogenous leukemia
- Hodgkin's disease
- Lymphoma
- Myelodysplastic syndrome
- Multiple myeloma
- Ovarian cancer
- Testicular cancer

If you're referred to the Blood and Marrow Transplantation program, your evaluation includes your type of disease, stage, overall health, donor availability and transplant risks.

What are the different types of transplants?

Autologous transplant (from one's own blood or bone marrow) includes the following steps:

- Bone marrow and peripheral blood stem cell transplants are taken.
- Cells are collected, either from the marrow or bloodstream, and stored for transplant.
- You are then treated with very high doses of chemotherapy before the cells are returned to your body to rescue the bone marrow from damage.
- A transplant is performed to kill as many cancer cells as possible and to prevent them from growing back.

Allogeneic transplant means you receive stem cells from another person. The donor may be:

- A brother or sister (sibling transplant)
- Mother
- Father
- Son or daughter
- Or someone unrelated but who matches your human leukocyte antigen type (HLA) either completely or closely

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Just like bone marrow and blood, **cord blood** also contains stem cells. At birth, blood is taken from the infant's umbilical cord and stored, once it is identified through a cord blood registry, and used later if needed in transplant. The UMass Memorial cord blood donation is available through Cryobanks International, Inc.

How is a donor found?

You and the donor need not have the same blood type to be a transplant match for allogeneic transplants. Our physicians will search for a donor that matches your individual HLA type should a family member with the same HLA type not be available.

It takes approximately three weeks after the blood is received from both you and potential donors to determine if there is a match.

How is bone marrow harvested (taken from the body)?

During the bone marrow harvest, a needle is inserted into the cavity of the rear hip bone, called the iliac crest. The marrow is drawn out by several needle sticks into a syringe.

The physician repeats this procedure until one to two pints of bone marrow is collected. The body restores the cells in just a few weeks. The donor usually stays in the hospital overnight. The harvest area may be sore for a couple of days.

How are peripheral blood stem cells harvested?

To collect additional related blood stem cells, the donor receives growth factors, which are drugs that encourage the white blood cells to grow in large numbers. This procedure is called mobilization.

Mobilization encourages stem cells to move out of the bone marrow and into the bloodstream where they can be collected by a process called apheresis. Apheresis usually occurs after four to five days of growth factor treatment.

Blood is then drawn and is processed in a machine to remove the stem cells. The red blood cells are then immediately returned to you, the patient.

To learn more about our Blood and Marrow Transplantation program, call our HOPE Line at 866-597-HOPE.