



BLOOD AND MARROW TRANSPLANT PROGRAM





“We offer a team approach to patient care that centers around our patients and their caregivers; we focus on providing comprehensive, holistic care for the best possible outcomes.”

Navneet Majhail, MD, Director
Cleveland Clinic Blood and Marrow
Transplant Program



BLOOD AND MARROW TRANSPLANT PROGRAM

The mission of Cleveland Clinic's Blood and Marrow Transplant (BMT) Program is to provide high-quality specialized patient care in a setting of education and research. The entire BMT staff embraces the values of initiative, innovation, collaboration, confidentiality, empathy and integrity. We put our patients first. Our goals are to provide safe and effective new technologies to all patients; to continually monitor our methods to ensure clinical excellence at all times; to assess all patient concerns including clinical, psychological and financial ones; and to perform constant audits on all aspects of care that influence patient outcomes and satisfaction.

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EXCEPTIONAL QUALITY OF CARE AND SUPPORT

Cleveland Clinic is dedicated to providing exceptional care and support to individuals with cancer. More than 250 cancer specialists, nurses and technicians work together to plan and implement treatment designed to meet the individual needs of each patient. The best in high-quality treatment, access to the latest technology and research, and our all-encompassing “Patients First” philosophy make us a leading cancer center.



Accreditations and Associations:

- **American Association of Blood Banks**
- **American Society for Histocompatibility and Immunogenetics**
- **Blood and Marrow Transplant Clinical Trials Network**
- **Center for International Blood and Marrow Transplant Research**
- **Chronic Graft Versus Host Disease Consortium**
- **Foundation for the Accreditation of Cellular Therapy**
- **The Joint Commission**
- **National Marrow Donor Program - Be The Match®**
- **Ohio Hematopoietic Stem Cell Transplant Consortium**
- **Radiation Injury Treatment Network**
- **Southwest Oncology Group**

National insurance payers and networks designate Cleveland Clinic's Blood and Marrow Transplant Program as among an elite class of providers known as centers of excellence. This designation is based on clinical quality, outcomes and patient volume.

Cleveland Clinic is a National Marrow Donor Program (NMDP) Collection Center, meaning that our BMT Program is contracted by the NMDP to collect marrow for other transplant centers around the world.

Program Outcomes:

Our patient outcomes are consistently as good as or better than national benchmarks. For patients transplanted in 2013-2014, 100-day survival after autologous transplant was 95 percent for lymphoma patients and 100 percent for myeloma patients. Similarly, 100-day survival ranged from 88 to 100 percent for patients receiving allogeneic transplantation for acute and chronic leukemias.

Cleveland Clinic's Blood and Marrow Transplant Program consistently scores higher than 90 percent in patient satisfaction on the Hospital Consumer Assessment of Healthcare Providers and Systems survey, a national survey to determine patients' perspectives on hospital care.



In August 2014 Cleveland Clinic's Blood and Marrow Transplant Program performed its 4,000th adult transplant.

▶ *"The simple things in life are what mean the most to me. I know how sick I was before, and I just appreciate everything. Just doing my normal things, every day ... it's a blessing."*

Susan Wells, Cleveland Clinic bone marrow transplant recipient in October 1994

▶ *"I was dying. And I thought, 'This is my chance.' There was nothing I wanted more than to live, and at no point did I give up on that. Fighting cancer is as much a mental as a medical battle. You need to go into it with a positive attitude, ready to fight back."*

Julie Sturgiss, Cleveland Clinic bone marrow transplant recipient in August and November 2002

▶ *"I'm so glad I made the decision to have a bone marrow transplant. The end result is, I have my health back."*

Jennifer Perry, Cleveland Clinic bone marrow transplant recipient in January 2008



EXPERIENCE MATTERS

Although blood and marrow transplantation can produce long-term remission and even cure, it is not a procedure to be taken lightly. The transplantation process can render patients extremely vulnerable to life-threatening complications. Careful evaluation of the disease, the patient and the benefits versus risks of the procedure provides valuable insights to enable the best treatment choice. Cleveland Clinic's BMT Program has been active since 1977 and is regarded as one of the nation's leading transplant programs. Research shows that this level of experience contributes to better patient outcomes.

Cleveland Clinic performs bone marrow/peripheral blood stem cell/umbilical cord blood transplants for disorders including:

- **Hodgkin's and non-Hodgkin's lymphoma**
- **Acute and chronic leukemia**
- **Multiple myeloma including amyloidosis**
- **Myelodysplastic and myeloproliferative syndromes (including myelofibrosis)**
- **Aplastic anemia**
- **Sickle cell disease**
- **Other bone marrow failure syndromes**
- **Germ cell tumors**
- **Other solid tumors such as pediatric sarcomas and pediatric central nervous system tumors**
- **Pediatric diseases such as inherited metabolic and genetic diseases**



TEAM APPROACH

The Blood and Marrow Transplant Program utilizes the skills and talents of medical and support personnel to develop a comprehensive, individualized treatment plan to meet the unique needs of each patient.

Physicians Our physicians guide patients through every phase of cancer care, from diagnosis to treatment and follow-up. Each of Cleveland Clinic's treating physicians is board-certified, with years of experience treating blood-related illnesses.

Nurses Cleveland Clinic nurses have achieved the highest national award for excellence in nursing — the prestigious Magnet Award conferred by the American Nurses Association. Patients on our specialized nursing units receive highly skilled medical care and monitoring. Our low patient-to-nurse ratio means that our patients receive more individualized attention.

Transplant Coordinators Each transplant patient has a registered nurse as his or her dedicated transplant coordinator to provide guidance throughout the outpatient care process. This includes pre- and post-transplant help, such as assisting in the search for human leukocyte antigen (HLA)-matched donors.

Physician Assistants and Nurse Practitioners These advanced practice professionals play an important role in the care of our patients. They are medically educated practitioners who are licensed by the Ohio State Medical Board.

Social Workers Social workers take a holistic approach to care, ensuring that the needs of our blood and marrow transplant patients, family members and care partners are met. Social workers provide psychosocial assessment, individual and family counseling and access to support groups. They also assist families with issues involving lodging, transportation and finances.

Clinical Pharmacists Our pharmacists provide quick, accurate prescription services while educating patients on the importance of medication therapy prescribed by the Blood and Marrow Transplant team.

Financial Coordinators A financial coordinator can help patients navigate the billing process for blood and marrow transplantation. These coordinators meet with patients and family members to explain payment and insurance information, helping ease anxiety about financial issues.

Other Staff Additional team members such as case managers, dietitians, physical and occupational therapists, and art and music therapists, may provide care during the transplant and recovery period.



COMMITMENT TO RESEARCH

Cleveland Clinic conducts innovative, groundbreaking research in blood and marrow transplantation. Our program is recognized as a national leader and physicians refer patients to us because of our clinical excellence and advanced treatment protocols. Our goal is to provide research trials for most clinical situations to meet the needs of our patients.

Our record shows our commitment to reduce transplant toxicities and improve patient outcomes. We perform sponsored research protocols, as well as our own authored protocols. We investigate new mobilizing agents for the collection of peripheral stem cells and perform numerous research activities intended to improve the management of acute and chronic graft-versus-host disease and other toxicities associated with transplantation. We also collaborate nationally on clinical trials to advance the science of transplantation.

Visit clevelandclinic.org/CancerClinicalTrials to learn more.



TREATMENT SERVICES

Cleveland Clinic's Blood and Marrow Transplant Program has expertise in all types of procedures, including:

- **Autologous (self-donated) transplants**
- **Allogeneic (donor) transplants using matched sibling donors**
- **Allogeneic transplants using unrelated donors**
- **Allogeneic transplants using haploidentical (half-matched) donors**
- **Allogeneic transplants using umbilical cord blood**
- **Myeloablative conditioning allogeneic transplants**
- **Reduced-intensity conditioning allogeneic transplants**

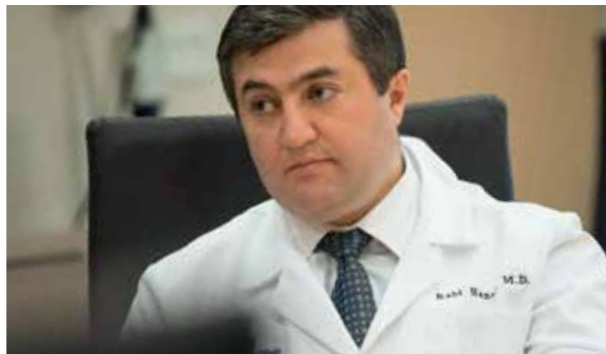
[Understanding the Technical Aspects of Blood and Marrow Transplantation](#)

Stem Cell Collection Peripheral blood stem cells are collected in a process called apheresis. This is performed in the therapeutic apheresis outpatient unit. The specially trained nurses in this unit perform more than 2,000 apheresis procedures a year. During the procedure, blood from a large vein flows through a central venous catheter to a cell separation machine where it is processed.

Bone Marrow Harvests Cleveland Clinic has performed these procedures since 1976. A bone marrow harvest is done as an outpatient surgical procedure, with the patient under general anesthesia. A small portion of bone marrow — the soft, spongy substance that fills the inner cavities of bones and produces blood — is collected for transplantation, using a needle that passes through the skin and into the marrow cavity of the hip bone.

Autologous Transplantation An autologous transplant involves high-dose chemotherapy followed by infusion of the patient's own previously collected peripheral blood stem cells or bone marrow. The chemotherapy treatments are given to eliminate cancer cells in the body. Infusion of new marrow or peripheral blood stem cells replaces the marrow destroyed by the chemotherapy and/or radiation therapy.

Allogeneic Transplantation An allogeneic transplant involves high-dose chemotherapy and/or radiation therapy, followed by infusion of donor bone marrow or peripheral blood stem cells. The marrow or stem cells come from an appropriately HLA (immune)-matched related or unrelated donor.



Umbilical Cord Blood Transplantation For patients without a related or unrelated donor, publicly banked umbilical cord blood can be used to perform allogeneic transplantation. One or two umbilical cord blood units are used to provide blood stem cells for bone marrow recovery after chemotherapy and/or radiation therapy.

Haploidentical Donor Transplantation This procedure uses HLA half-matched (haplotype) donors such as biological parents, children or half-matched siblings for allogeneic transplantation. The ability to use haploidentical donors is of special relevance to patients who do not have HLA-matched sibling or unrelated donor options.

Reduced Intensity Transplantation These allogeneic transplants use smaller doses of chemotherapy and/or radiation. This treatment option is for patients who may not be able to tolerate a full-intensity or myeloablative allogeneic transplant (for example, older patients or those with multiple medical issues). Reduced intensity transplants are done on an inpatient or outpatient basis depending on the treatment plan.

Outpatient Transplant Program

For medically eligible patients, we offer transplant services where chemotherapy and/or radiation therapy, stem cell infusion and all post-transplant care is provided in an outpatient setting.



PEDIATRIC Blood and Marrow Transplant Program

The Pediatric Blood and Marrow Transplant Program at Cleveland Clinic Children's offers expertise in all types of autologous and allogeneic transplants, including umbilical cord blood and haploidentical donor transplantation. In addition to treatment of childhood cancers and non-malignant diseases, the Pediatric Blood and Marrow Transplant Program specializes in transplants for rare diseases such as histiocytic disorders, immune deficiency diseases, inherited metabolic diseases and severe autoimmune disorders.

To refer a patient to Cleveland Clinic Children's Blood and Marrow Transplant Program, please call 216.444.5517.

To learn more about our pediatric program, go to clevelandclinicchildrens.org/BMTprogram



COMFORTABLE FACILITIES

Our 22-bed hospital unit is designed to meet the unique clinical and emotional needs of blood and marrow transplant patients and their families.

Its features specifically address the concerns of our immune-compromised blood and marrow transplant patients. The BMT unit has a centralized air-handling system that reduces risk of infection. The system continuously filters all air on the floor, removing 99.98 percent of potential pollutants.

A dedicated restroom with a shower for family members also helps protect patients' health, while amenities such as wireless Internet, flat-screen TVs with built-in DVD players, and large picture windows in every room help ease the burden of long hospital stays (averaging three to six weeks) for patients and families.

Other features of the hospital floor include:

- Private rooms
- Bed chairs or reclining chairs for family/visitors
- Exercise room and nourishment room
- Telemetry for patient monitoring
- Washer and dryer for family use
- Pharmacy services

Additional amenities:

- Outpatient clinic with group and private treatment rooms equipped with TVs and featuring an extensive video library for use during treatment appointments
- Outpatient pharmacy that provides quick, convenient prescription and information services
- Café offering light breakfasts and lunches for patients and families



ADDRESSING PATIENTS' AND FAMILY MEMBERS' NEEDS

Supporting and caring for patients is Cleveland Clinic's top priority. In addition to clinical and research expertise, we provide numerous programs and services to assist patients and their caregivers with the challenges that cancer poses.

Cancer Answer Line For questions or concerns about cancer, or to schedule a second opinion, Monday through Friday, 8 a.m. to 4:30 p.m., call 216.444.7923 or toll-free 866.223.8100.

Post-Transplant Preparation Group An inpatient education group directed by a social worker and nurse coordinator, along with representatives from the Blood and Marrow Transplant inpatient team and Nutrition Program.

Healing Services Designed to support well-being during a patient's hospital stay by aiding relaxation and natural healing. The Healing Services Team includes contributions from the Office of Patient Experience the Spiritual Care Department and the Touch Therapy Team.

Support Groups Provide an opportunity for patients, families and friends to share their concerns, fears and hopes with others who are experiencing similar life challenges

Music Therapy A certified music therapist combines music and therapeutic techniques to improve the physiological, psychological and emotional well-being of blood and marrow transplant patients during treatment.

Chemocare.com The website, written and reviewed by Cleveland Clinic experts and available in English and Spanish, provides information and videos about:

- Chemotherapy and other anti-cancer drugs
- Managing side effects
- Complementary medicine
- Nutrition
- Care before and after chemotherapy

4th Angel Mentoring Program A cancer diagnosis can be overwhelming. The 4th Angel Mentoring Program offers free, one-on-one phone or email support to patients and caregivers, from trained volunteers who are cancer survivors. For more information, visit 4thangel.org.



ADDRESSING PATIENTS' AND FAMILY MEMBERS' NEEDS (continued)

Fertility Preservation for Cancer Patients Offers options prior to treatment for cancer patients who hope to eventually become parents.

Late Effects Clinic Follows up with cancer survivors years after successful treatment to detect and address side effects as early as possible.

Medical Concierge A complimentary travel and lodging assistance service for patients and families who come from out of state.

Phone: 216.445.5580.

Toll-free: 800.223.2273, ext 5580.

Email: medicalconcierge@ccf.org.

Global Patient Services Complimentary assistance for international patients and families. Call 001.216.444.8184 or visit clevelandclinic.org/gps.

Helen Meyers McLoraine Patient Resource Center Staffed by two clinical nurse specialists and an administrative coordinator, the Patient Resource Center is located in the northeast corner of the Tausig Cancer Institute. The Resource Center is open from 8 a.m. to 4:30 p.m., Monday through Friday.

High Tea Patients and their families can enjoy a pleasant diversion from their treatments and physician appointments at High Tea at 2:30 p.m. every Wednesday in the Bistro at Taussig Cancer Institute.

Reflections Wellness Program Offers a variety of relaxation and aesthetic services for patients.

To learn more about our Patient Services, go to clevelandclinic.org/CancerSupport



APPOINTMENTS | REFERRALS

BLOOD AND MARROW TRANSPLANT PROGRAM

216.445.5600 or
800.223.2273, ext. 55600

TO LEARN MORE about our program, visit
clevelandclinic.org/BMTprogram



Every life deserves world class care.

9500 Euclid Ave., Cleveland, OH 44195

The Taussig Cancer Institute provides world-class cancer care enhanced by innovative basic, genetic and translational research. It offers the most effective techniques to achieve long-term survival and quality of life. The Taussig Cancer Institute's more than 250 specialists care for approximately 30,000 patients a year, with access to a wide range of clinical trials. The Taussig Cancer Institute is one of 27 institutes at Cleveland Clinic, a nonprofit academic medical center ranked among the nation's top hospitals (*U.S. News & World Report*), where more than 3,000 physicians and researchers in 120 specialties collaborate to give every patient the best outcome and experience. clevelandclinic.org

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