Appendix

Glossary of Terms

ALL — *Acute lymphoblastic leukemia*. More common in children than in adults, ALL is a malignant disease involving blast cells (immature white blood cells) that displace normal bone marrow.

Allele — There are two or more alleles at a given locus on a chromosome. Each allele is characterized by a slightly different nucleotide sequence. Alleles can only be identified through molecular (DNA) typing.

Allogeneic — In an allogeneic bone marrow transplant, a patient receives marrow collected from a sibling or other related donor, or from an unrelated donor. The NMDP facilitates unrelated allogeneic donor hematopoietic cell transplants.

AML — *Acute myelogenous leukemia*. AML is a malignant disorder of the white blood cells resulting in the excessive accumulation of myeloid blast cells in the marrow and bloodstream.

Anemia — A condition in which the number of red cells or the amount of hemoglobin in the blood is abnormally low. Anemia is not a disease; it is a symptom of various underlying diseases.

Anesthetic — A substance inducing full or partial anesthesia (loss of sensation). See entries for *General anesthetic*, *Spinal anesthetic* and *Epidural anesthetic*.

Antibodies — Proteins produced by B-lymphocytes (a type of white blood cell) in response to a foreign antigen. Each antibody can bind only to one specific antigen. The purpose of this binding is to help destroy the antigen.

Antigen — A protein found on the outside of most cells in the human body that induces the formation of antibodies.

Antiserum (*pl*. antisera) — Serum that contains antibodies for a specific antigen. Human-derived antisera used in serologic tissue typing identify the HLA tissue type of an individual by reacting to the antigens expressed on his or her blood lymphocytes.

Apheresis	A technique for separating blood into its components. An apheresis machine draws blood from a vein in a donor's arm, filters out the desired blood product [such as peripheral blood stem cells (PBSCs)], and returns the remaining blood to the donor.
Aplastic anemia	Anemia caused by deficient red cell production due to disorders of the bone marrow.
Autologous	In autologous transplantation, marrow or peripheral blood stem cells are collected from a patient, cryopreserved, and then returned to the patient after he/she has undergone myeloablative therapy. In a process called purging, autologous marrow is treated to try to remove cancer cells.
B-cells	Lymphocytes that are thought to develop in the bone marrow. In response to antigens, B-cells produce antibodies. Also known as B-lymphocytes.
BMT	*Bone marrow transplant* or *bone marrow transplantation*.
CLL	*Chronic lymphocytic leukemia*. A generalized and progressive leukemia in which there is abnormal growth of lymphoid tissues. Average age of onset of CLL is 60 years and it is more common in males than in females.
CML	*Chronic myelogenous leukemia*. A malignant disorder involving the excessive overgrowth of granulocytes (a type of white blood cell). Average age of onset of CML is 45 years.
CMV	*Cytomegalovirus*. A common virus that infects bone marrow. Although a healthy person infected with CMV rarely shows symptoms, the virus is harmful to people with suppressed immune systems such as transplant patients who have undergone myeloablative therapy. CMV can cause post-transplant pneumonia.
Conditioning	Treatment with high-dose chemotherapy, and sometimes with high-dose radiation therapy as well, to prepare a patient for hematopoietic cell transplantation. See also *Reduced-intensity conditioning*.
Cord blood	An alternate source of hematopoietic cells that can be used to reconstitute the immune system of a recipient. Cord blood is collected from the placenta and umbilical cord soon after birth and then cryopreserved until needed by a patient.

Cryopreservation Storing tissues or blood products at extremely low temperatures, usually in liquid nitrogen, after first adding a cryopreservative to ensure that the cells survive the freezing/thawing cycle. Almost all cord blood is cryopreserved, as is marrow used in autologous transplants.

CT *Confirmatory typing*. A step in the NMDP search process where an NMDP transplant center HLA tissue types a blood sample from a potential donor to confirm that the donor is histocompatible with the patient.

DNA-based HLA typing Determining a person's HLA type using synthetic probes to detect specific alleles on the major histocompatibility complex of chromosome 6. DNA-based typing is favored by the NMDP because it is very accurate and efficient. Also called molecular tissue typing or allele-level tissue typing.

Donor An individual who has actually donated hematopoietic cells to a patient. In contrast, *volunteer donor*, *potential donor*, or *potential volunteer donor* are used interchangeably and refer to individuals listed on the NMDP Registry.

DR typing HLA typing to determine the HLA-DR locus expressed by a volunteer donor or patient. HLA-DR typing is almost exclusively performed by DNA-based HLA typing (see separate entry).

Engraftment The process in which transplanted hematopoietic cells begin to grow in the bone marrow of the host and to produce new white blood cells, red blood cells and platelets.

Epidural anesthetic A regional anesthetic injected into the epidural space surrounding the spinal column that produces a partial loss of sensation.

Event-free survival Also called disease-free survival. A measurement of the outcome of a transplant procedure, expressed as a percentage of recipients surviving without symptoms of their disease after a specified period of time. Often called leukemia-free survival, or LFS, if the underlying disease is a leukemia.

Fanconi anemia A rare inherited form of aplastic anemia caused by abnormalities in the kidney. Without treatment, most Fanconi anemia patients die before reaching puberty.

Filgrastim	A human granulocyte colony-stimulating factor, often called G-CSF or a stem cell growth factor. Filgrastim mobilizes hematopoietic cells from the bone marrow into the circulating blood stream.
Formal search	The point in the NMDP search process where more specific information is requested on individual volunteer donors who have been identified as potential HLA matches with a patient.
General anesthetic	An anesthetic inhaled and/or inserted intravenously that produces total loss of sensation.
Genotype	The basic combination of an individual's genes. In HLA tissue typing, a genotype refers to the genes that determine the HLA tissue type of a patient or volunteer donor.
Graft	Tissue taken from one person (donor) and transferred to another person (recipient). Also, tissue taken from one part of a person's body and transferred to another part of that same person's body.
GVHD	*Graft-versus-host disease*. A complication in hematopoietic cell transplantation whereby the recipient's body triggers the immune defenses of the transplanted hematopoietic cells, which then attack the recipient's body. GVHD, which can range from mild to life-threatening, usually involves the skin or internal body organs.
Hematopoietic	Pertaining to the production and development of blood cells. The leukemias are hematopoietic diseases.
Hematopoietic cells	Cells in the marrow, umbilical cord, and peripheral blood that are capable of developing into all three types of blood cells: white blood cells, red blood cells, and platelets. Cord blood transplants, marrow transplants, and PBSC transplants all provide the hematopoietic cells needed to rejuvenate a transplant recipient's immune system.
Histiocytosis	A rare disease whereby large numbers of histiocytes, normally present in loose connective tissues, are found in the bloodstream. When this occurs, the histiocytes attack the body's vital organs.
Histocompatibility	Refers to the degree of HLA matching between two individuals. Cells from highly histocompatible individuals can survive in each others bodies without being attacked by the immune system.

HLA	*Human leukocyte antigens*. Proteins on the surface of most of the body's cells that allow the immune system to distinguish between the body's cells and foreign cells. In hematopoietic cell transplantation, three HLA markers (HLA-A,B and DR) are matched between donors and recipients to reduce the chance of triggering an immune system response.
HLA typing	The process of determining an individual's HLA tissue type. In hematopoietic cell transplantation, volunteer donors and potential recipients are HLA typed at three locations (A, B, and DR) on the gene that determines an individual's HLA characteristics.
Hodgkin's disease	Also called Hodgkin's lymphoma. A disease, appearing in numerous forms, producing enlargement of lymphoid tissue. Occurring most frequently in young adults, Hodgkin's is often treated by chemotherapy or autologous hematopoietic cell transplantation before an allogeneic transplant is considered.
Leukemia	Any of the chronic or acute malignant diseases characterized by unrestrained growth of leukocytes (white blood cells).
Locus (pl. loci)	The locus is the position of a gene on a chromosome. There are three loci typically used for tissue typing in hematopoietic cell transplantation: A, B, and DR on the major histocompatibility complex on chromosome 6.
Lymphocyte	A type of white blood cell, differentiated into B-lymphocytes and T-lymphocytes (sometimes called B cells and T cells).
Lymphoma	Cancer of the lymphatic system, which includes the bone marrow, spleen, thymus, lymph nodes and the network of vessels that carry fluid and infection-fighting cells. Included in this disease category are Hodgkin's disease and Non-Hodgkin's lymphoma.
Malignant	Characterized by unrestrained growth; cancerous.
MLC	*Mixed lymphocyte culture*. A test using live cells to determine an individual's HLA tissue type. Because MLC tests are less accurate than other HLA tissue typing tests, the NMDP no longer uses MLC.
Multiple myeloma	Cancer of the bone marrow, leading to overproduction of plasma cells. Characterized by the formation of multiple tumor masses in the bone and bone marrow. More common in males than in females.

Myeloablative therapy	A pre-transplant conditioning regimen of radiation therapy and/or chemotherapy that transplant patients undergo to destroy their diseased bone marrow.
Myelodysplastic syndrome	*MDS*. A marrow disorder characterized by blood cells that look abnormal and by reduced levels of red blood cells, white blood cells and platelets. Because myelodysplastic syndrome can lead to CML, it is sometimes called pre-leukemia or smoldering leukemia.
Neutrophil	A type of white blood cell. The number of neutrophils present in the bloodstream is often used as a measure of engraftment.
Non-Hodgkin's lymphoma	*NHL*. Any of the numerous forms of lymphoma not having the characteristics of Hodgkin's disease.
Non-malignant	Non-cancerous.
PBSC	*Peripheral blood stem cells*. Hematopoietic cells present in the circulating (peripheral) bloodstream. To collect sufficient PBSC for a transplant, a growth factor such as filgrastim is used to cause hematopoietic cells to leave the marrow and enter the bloodstream.
Peripheral blood stem cells	See *PBSC*.
Phenotype	The physical makeup of an individual. In HLA tissue typing, a phenotype refers to an individual's HLA tissue type resulting from his or her HLA genotype.
Platelet	A blood component responsible for clotting. Hematopoietic cell transplant recipients often need post-transplant platelet infusions because these blood cells are the slowest to regenerate.
Preliminary search	A free search of the NMDP Registry for potential HLA-matched volunteer donors. A preliminary search can be performed for any physician.
Radiation therapy	Treatment with high-energy rays to kill cancer cells. Also called radiotherapy.
Reduced-intensity conditioning	Pre-transplant chemotherapy and/or radiation therapy that uses lower doses than standard conditioning regimens. Reduced-intensity conditioning regimens focus less on myeloablation and more on immunosuppression in the host to permit engraftment of donor cells.

Refractory	Not responding to treatment.
Relapse	A recurrence of an illness after a remission.
Remission	A disappearance of cancer cells, or a reduction or disappearance of disease symptoms in response to treatment.
Rescue process	The infusion of harvested bone marrow, cord blood hematopoietic cells or peripheral blood stem cells into a patient who has undergone myeloablative therapy.
Search process	The process of comparing a patient's HLA antigens to those of the volunteer donors listed on the NMDP Registry and testing potentially matched donors to identify the best donor for the patient.
SCID	*Severe combined immunodeficiency disease*. Congenital defect of the immune system marked by the complete or near complete absence of B cells and T cells. SCID is treatable by hematopoietic cell transplantation.
Serology	The study of antisera. In hematopoietic cell transplantation, serologic techniques are sometimes used to determine the HLA tissue type of an individual. The NMDP is replacing serologic tissue typing with more accurate DNA-based methods.
Severe aplastic anemia	*SAA*. See *Aplastic anemia*.
Spinal anesthetic	A regional anesthetic injected into the subarachnoid space surrounding the spinal column that produces a partial loss of sensation.
Summary report	A summary of the results of a preliminary search. A summary report shows the number of potential donors matched with the patient and their degree of match with the patient. Summary reports also show matching cord blood units.
Survival	A primary measure of the level of success of a medical procedure. In evaluating bone marrow or other hematopoietic cell transplants, survival is expressed as a percentage of recipients surviving after a specified period of time. See also *Event-free survival*.
Syngeneic	Individuals or cells with complete tissue compatibility. Hematopoietic cell transplantation between identical twins is called syngeneic transplantation.

T-cells	*T-lymphocytes*. T cells provide cellular immunity and are responsible for GVHD. To reduce GVHD, hematopoietic cells from the donor may be fully or partially purged of T-cells before the graft is infused into a patient.
Thalassemia	A disease in which hemoglobin production is abnormal. It often results in severe anemia.
Thrombocytopenia	An abnormally low number of platelets in the blood.
Tissue typing	See *HLA typing*.
Umbilical/ placental blood	See *Cord blood*.

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