

Who needs a transplant? Indications for HCT

Daniel Weisdorf MD
University of Minnesota

Bad marrow---Aplasia

Bad immunity--Immune

Deficiency

Scorched earth



Fertile Soil



Repopulation

Anti-cancer effects of BMT

Kill the cancer cells

Save the patient

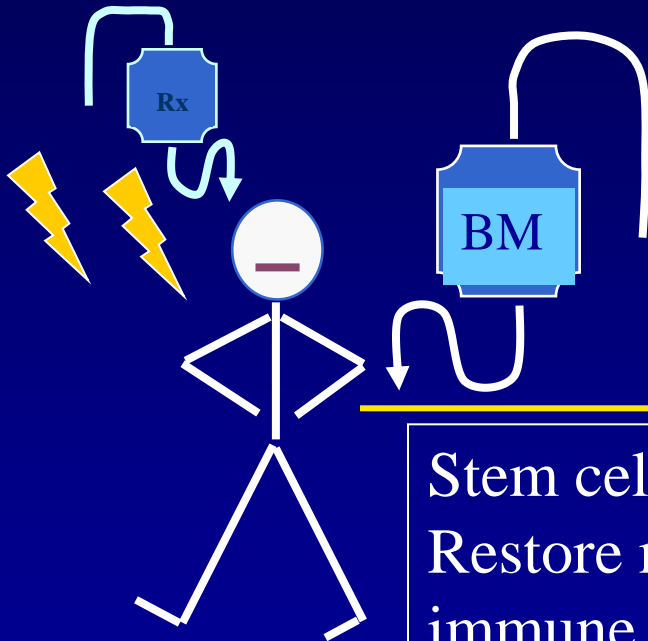
Restore immunocompetence

Prevent Infection

Prevent cancer recurrence {GVL}

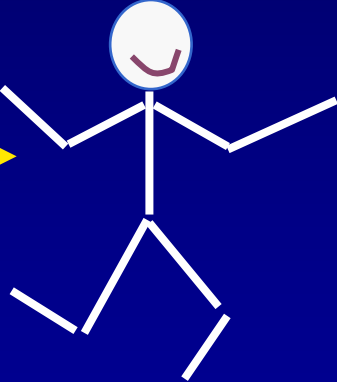
Blood and Marrow Transplantation

Radiation/Chemotherapy
to kill the cancer



Support until recovery

Stem cells to
Restore marrow &
immune defense

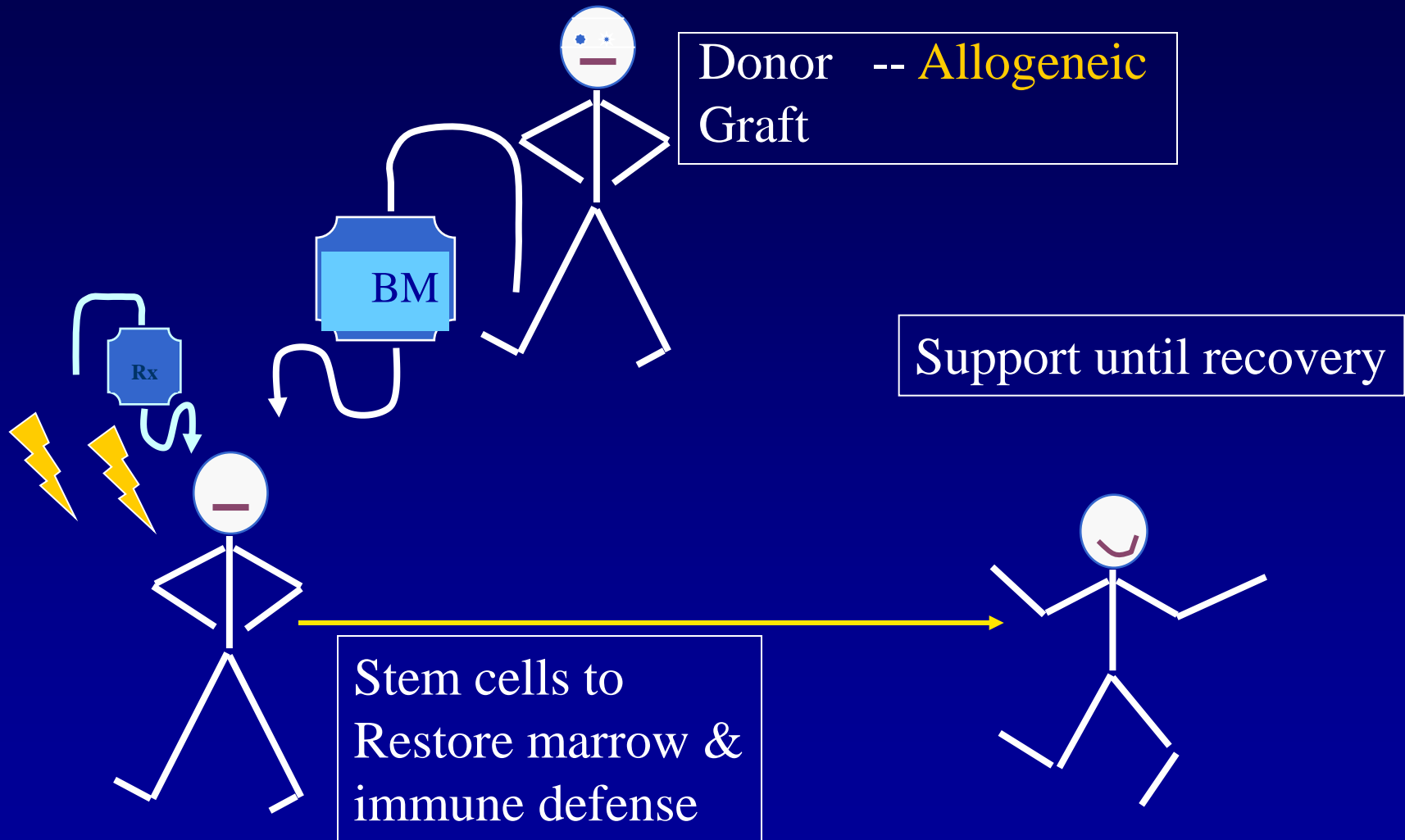


Organ injury
Low blood counts

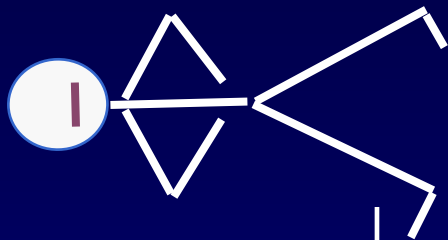


Replace blood/marrow
Fight infections
Attack residual cancer

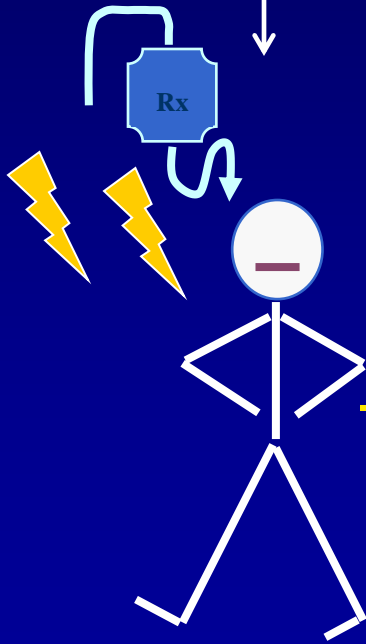
Blood and Marrow Transplantation



Blood and Marrow Transplantation

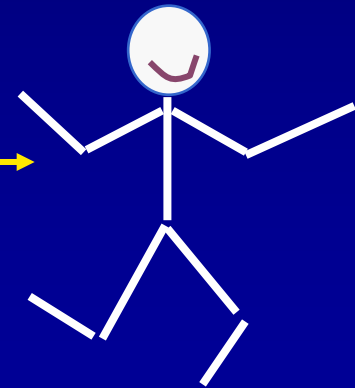


Patient as donor -- **Autologous**
Collect & freeze cells



Support until recovery

Stem cells to
Restore marrow &
immune defense



BMT applications

Replacement therapy for missing or defective blood or marrow function

Aplastic Anemia

missing marrow

Hemoglobin disorders

defective Red cells

Sickle cell anemia; Thalassemia

Immune deficiencies

defective immunity

Metabolic disorders

missing enzymes

BMT applications

Hematologic (Blood or Marrow) Cancers

Leukemia, Lymphoma, Myeloma

Curative where conventional therapy fails

- *Higher dose treatment*
- *Immune anti-cancer effect from donor cells*

The Therapeutic Balance

Cancer

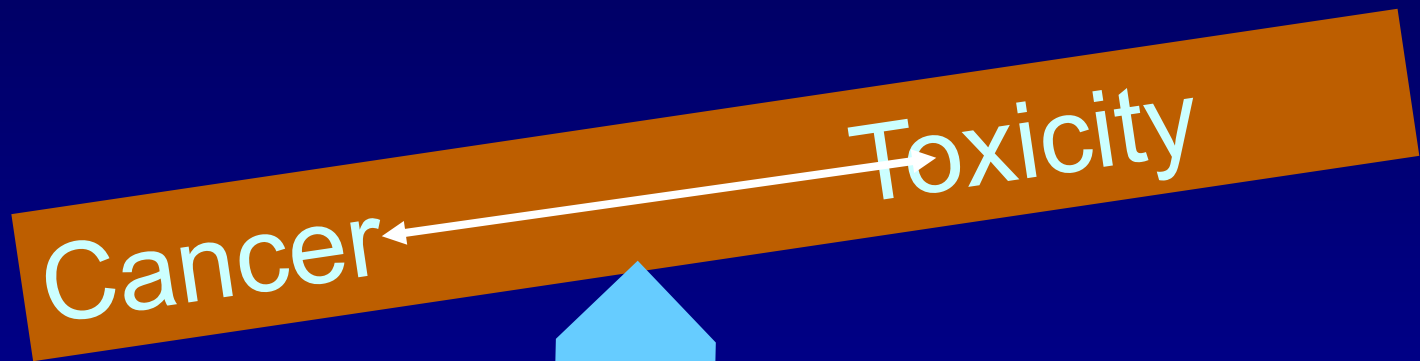


Toxicity



Patient Safety & Cure

The Therapeutic Balance



Patient Safety & Cure

Reduced Intensity Transplants

Limit toxicity
Retain the allogeneic
anti-tumor effects

Establish a donor graft

Emphasize the immune
anti-cancer attack

Clinical implications of less toxic BMT

Less complications

Better early survival

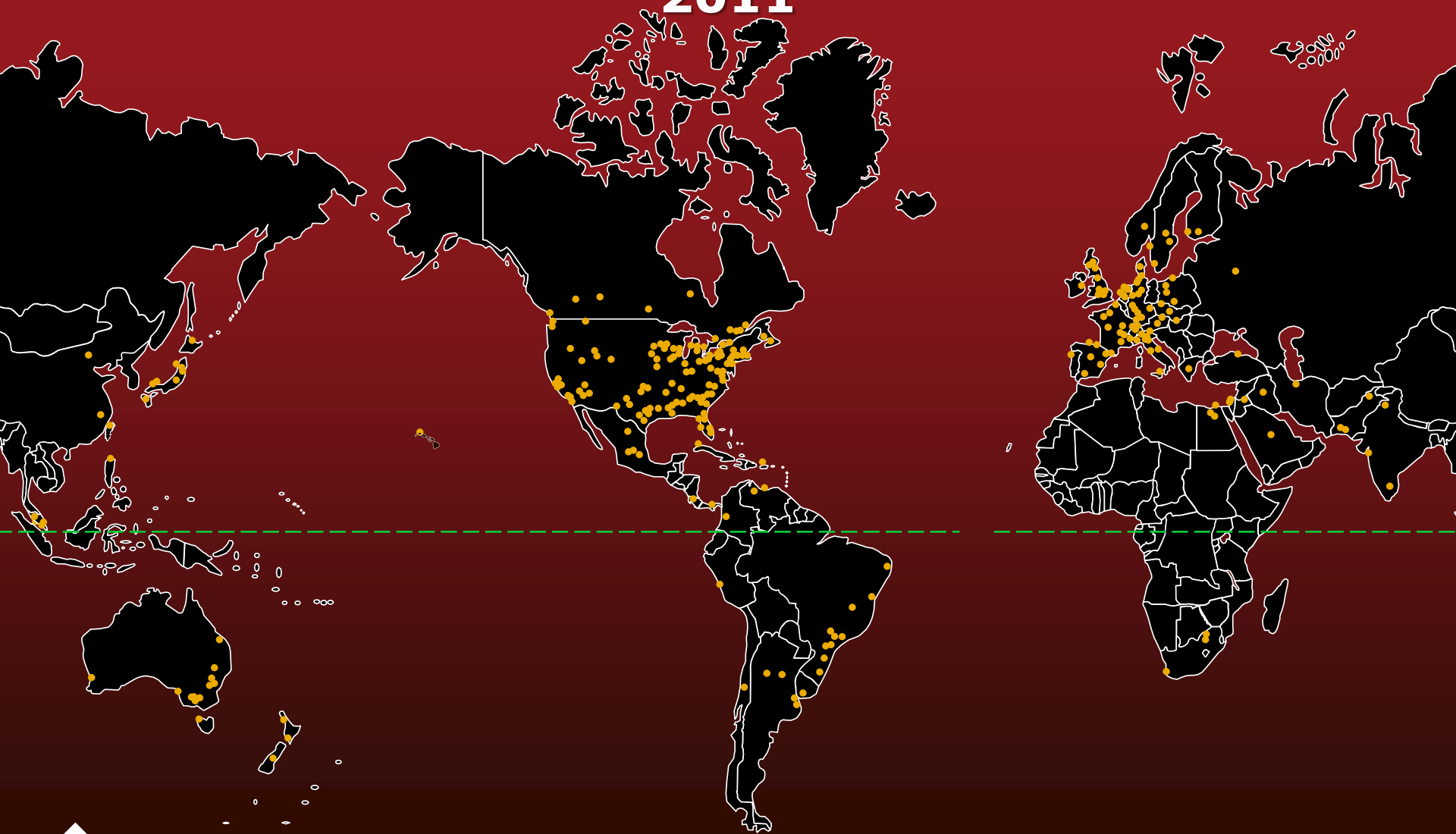
Applicable to older, sicker populations

Up to age 75

Outpatient; less costly

Save medical resources; less \$US or R\$ Useful in newer clinical settings

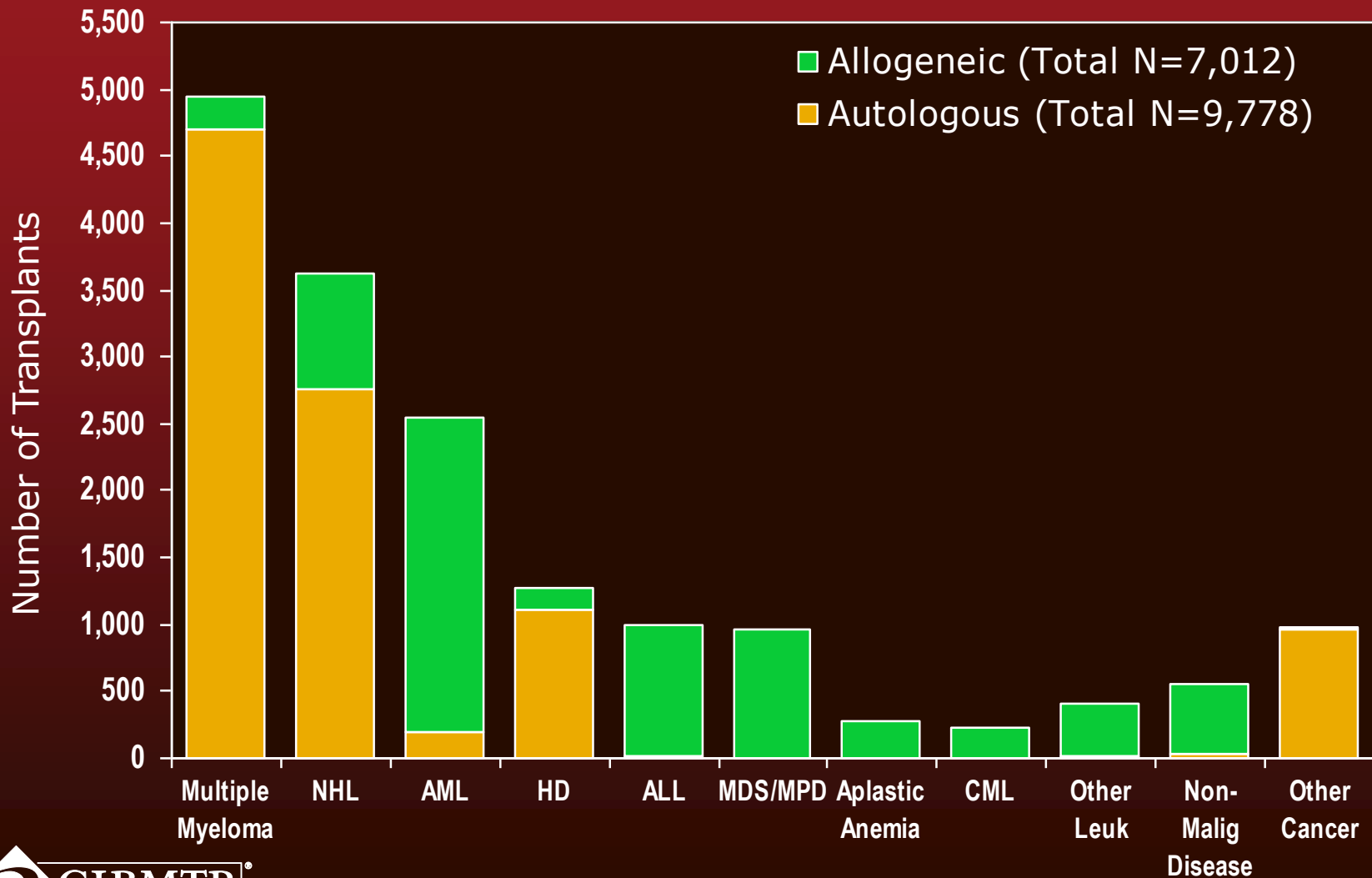
Location of Centers participating in the CIBMTR 2011



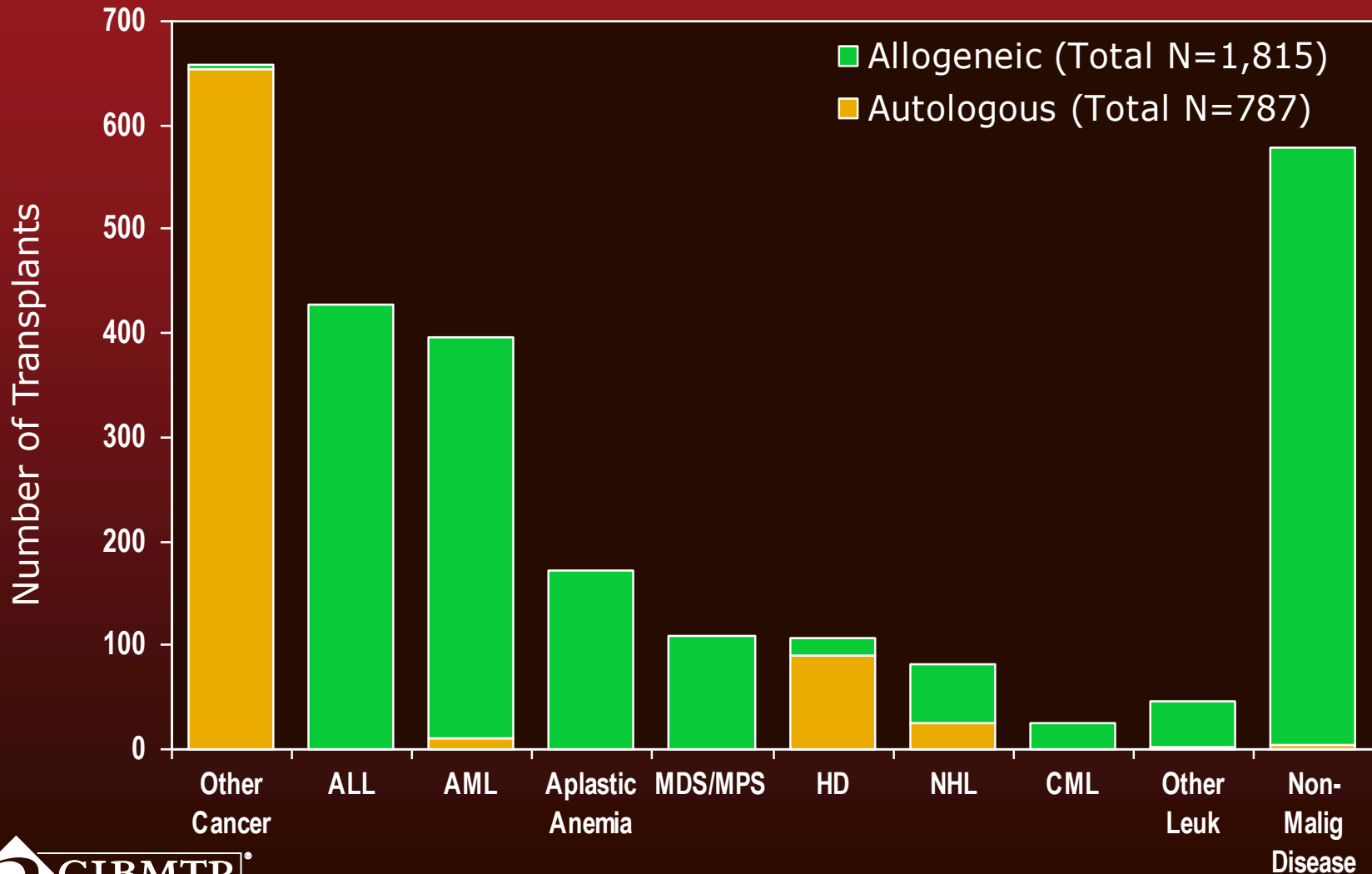
Location of Centers participating in the CIBMTR 2011



Indications for Hematopoietic Stem Cell Transplants in the United States, 2009

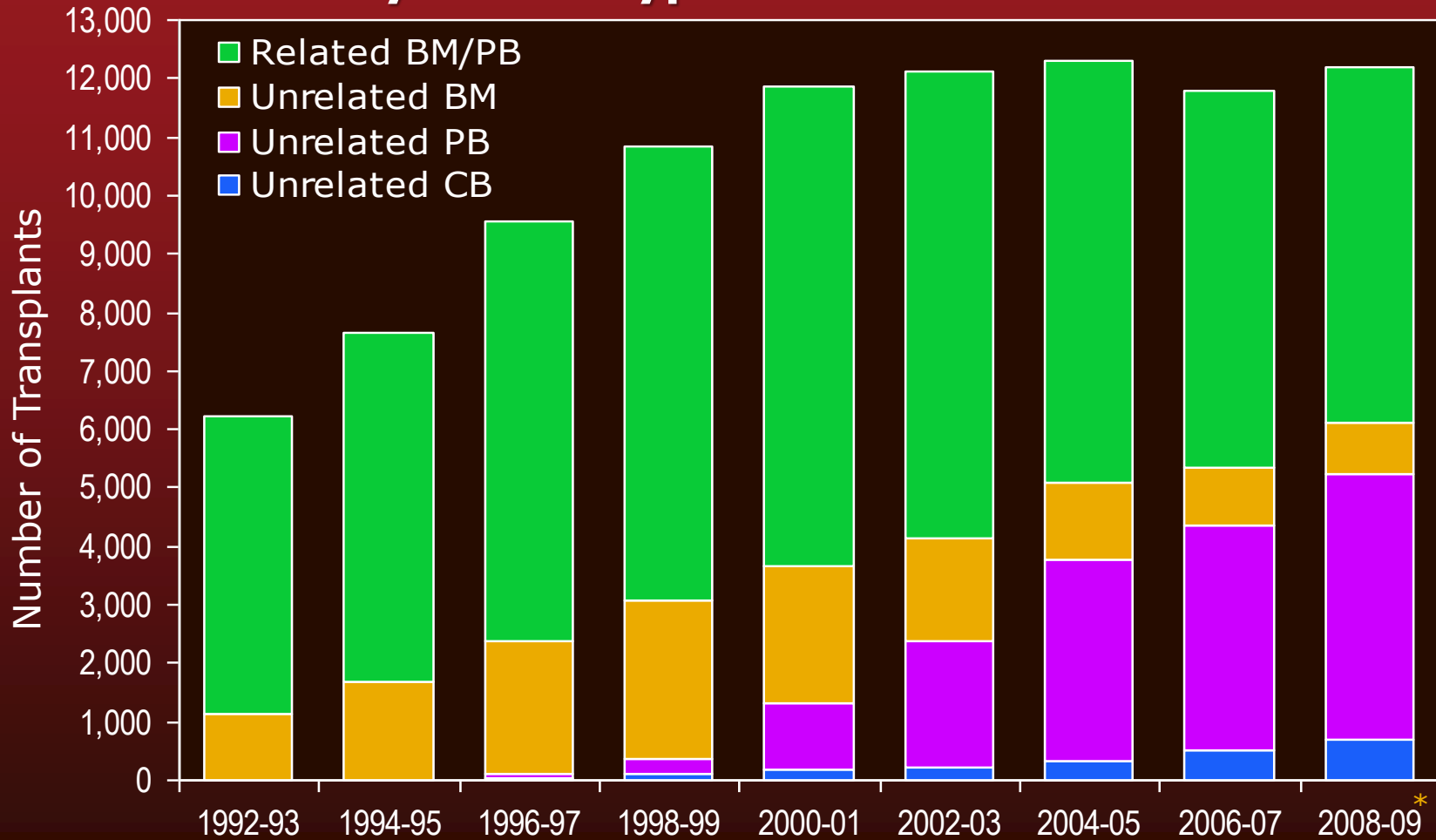


Indications for Hematopoietic Stem Cell Transplants for Age \leq 20yrs in the United States, 2009



Allogeneic Transplants for Age > 20yrs, Registered with the CIBMTR 1992-2009

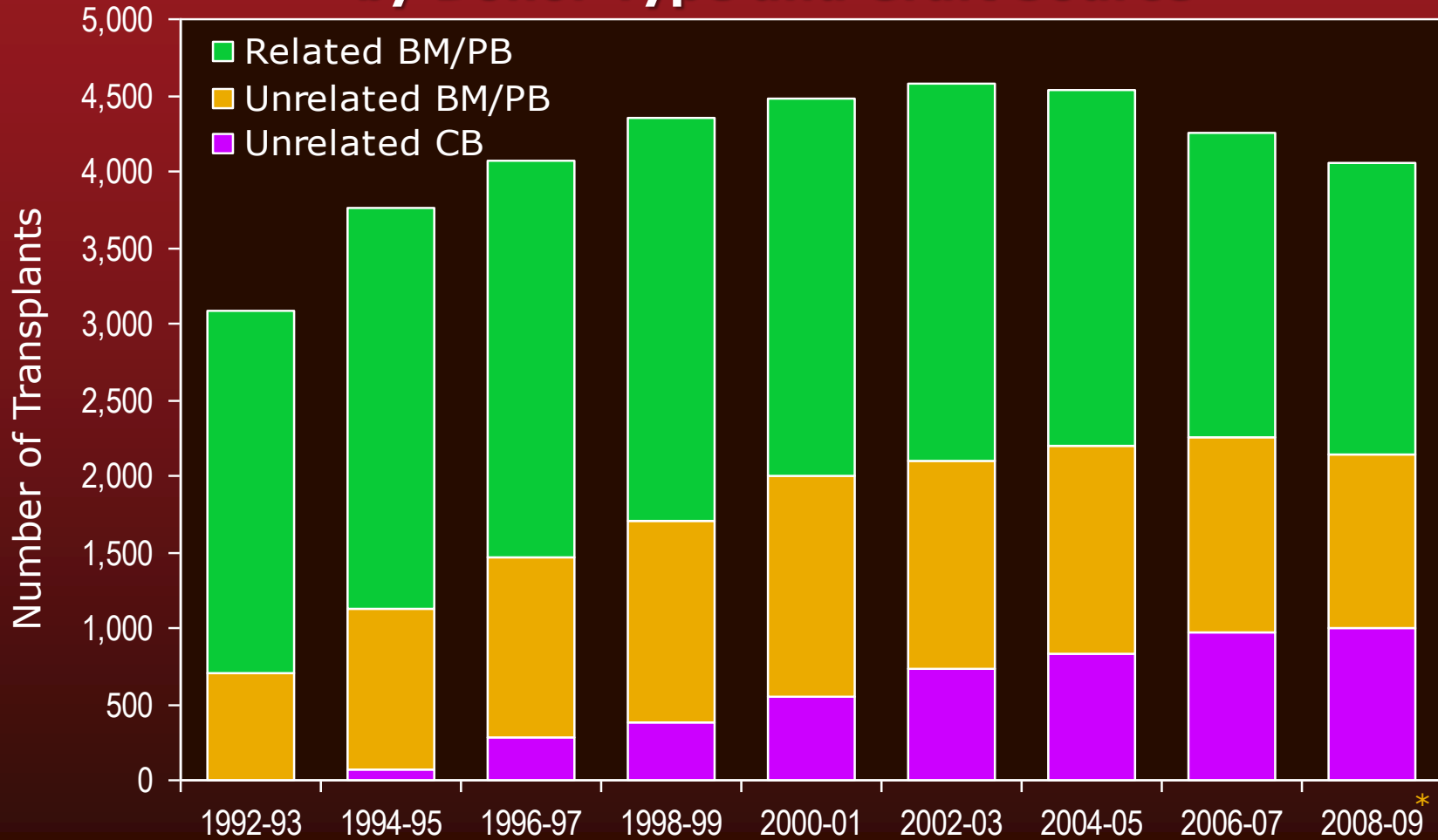
- by Donor Type and Graft Source -



* Data incomplete

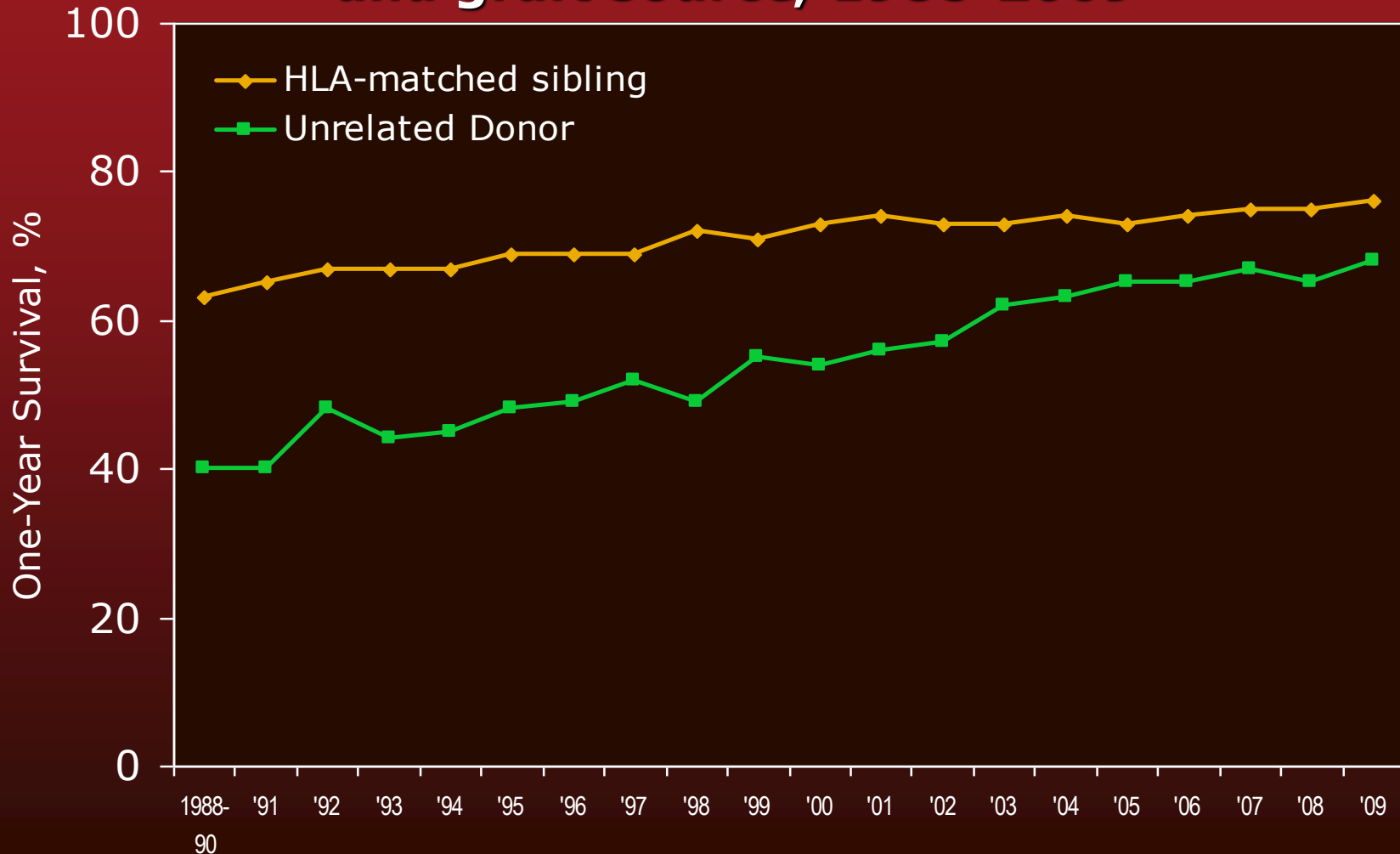
Allogeneic Transplants for Age ≤ 20 yrs, Registered with the CIBMTR 1992-2009

- by Donor Type and Graft Source -



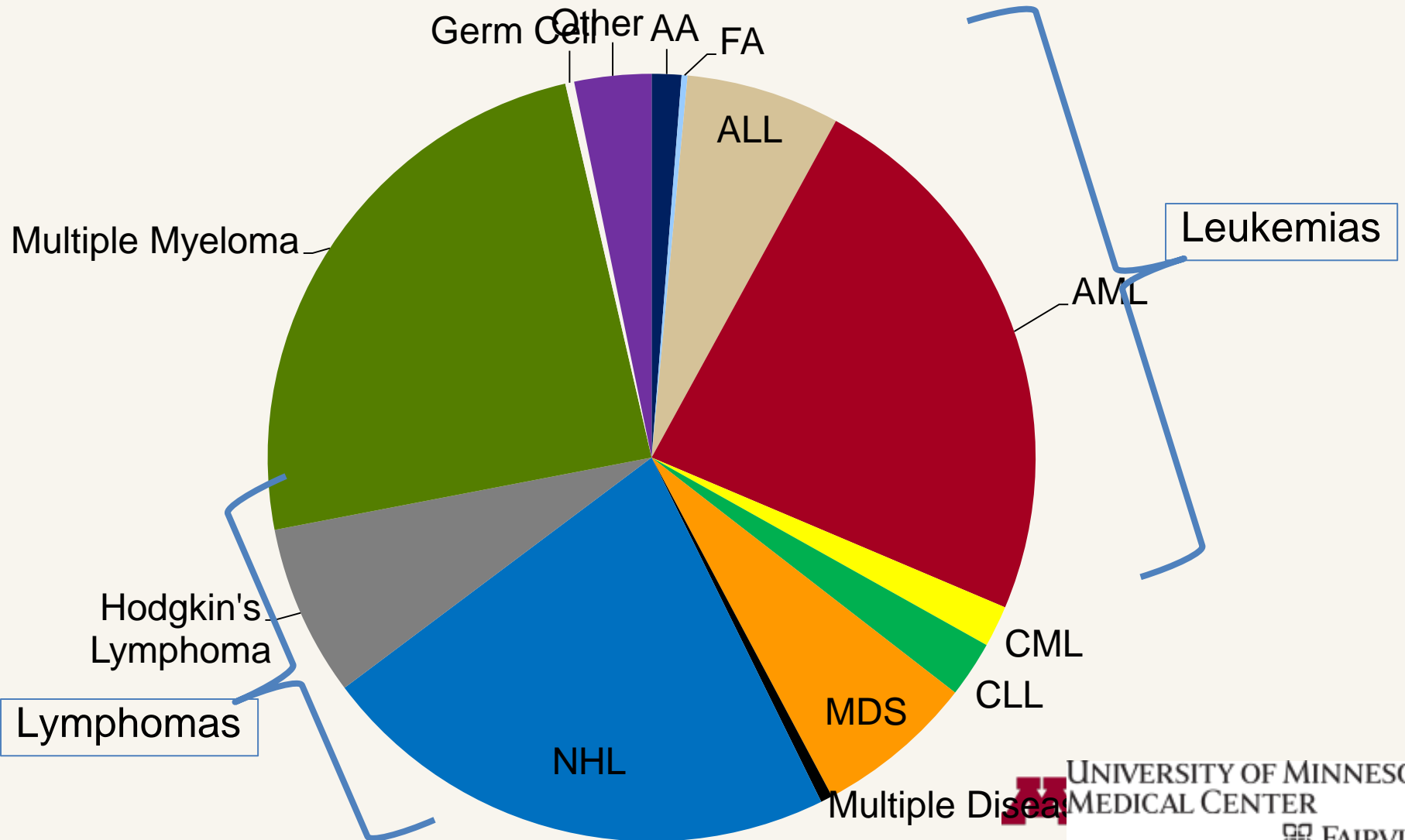
* Data incomplete

One-year survival after myeloablative conditioning for acute leukemias in any remission phase, CML or MDS, age <50 years, by year of transplant and graft source, 1988-2009



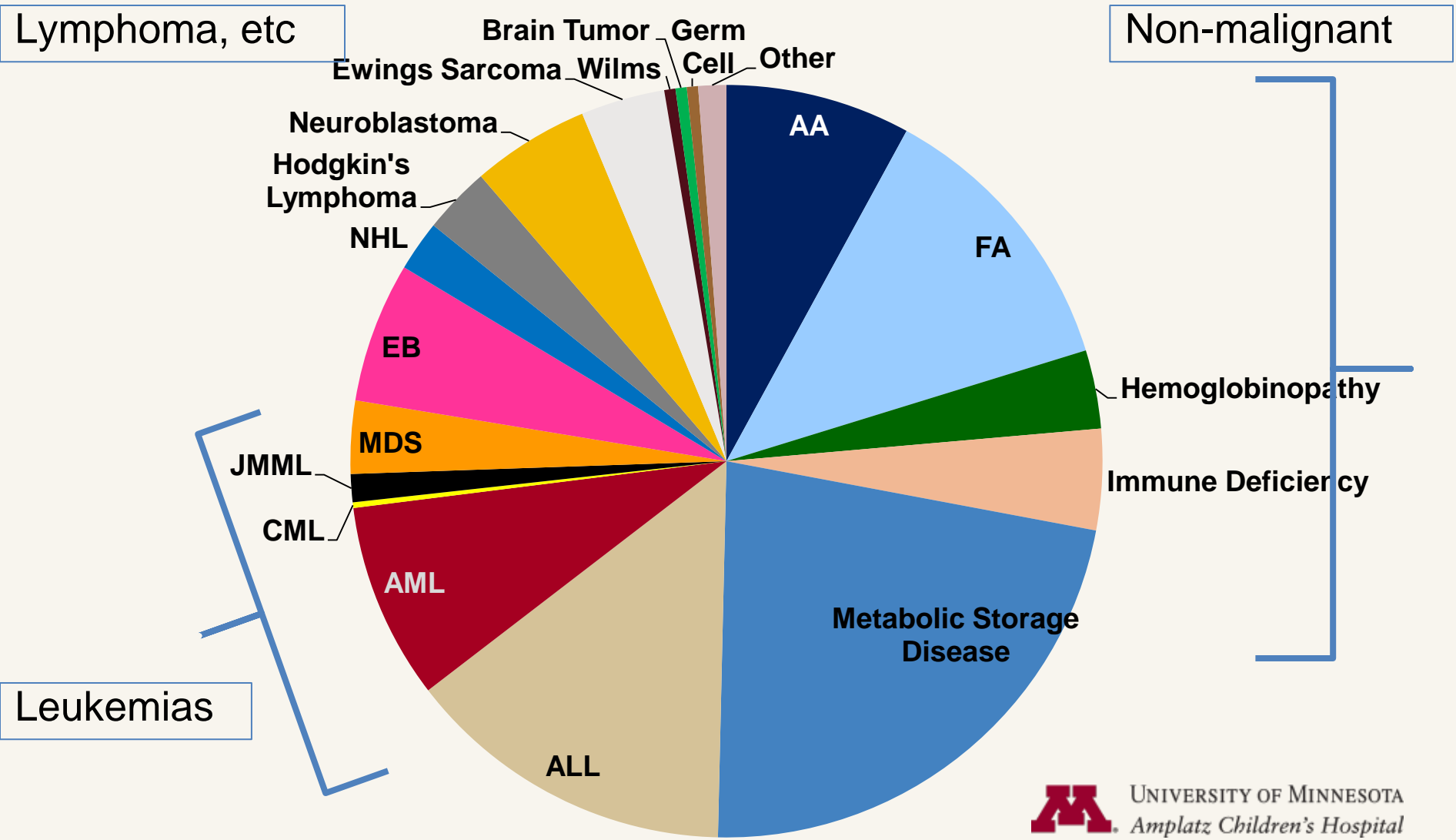
BLOOD AND MARROW TRANSPLANT PROGRAM

Diagnoses -- University of Minnesota,
2008-2012, Adult Service



BLOOD AND MARROW TRANSPLANT PROGRAM

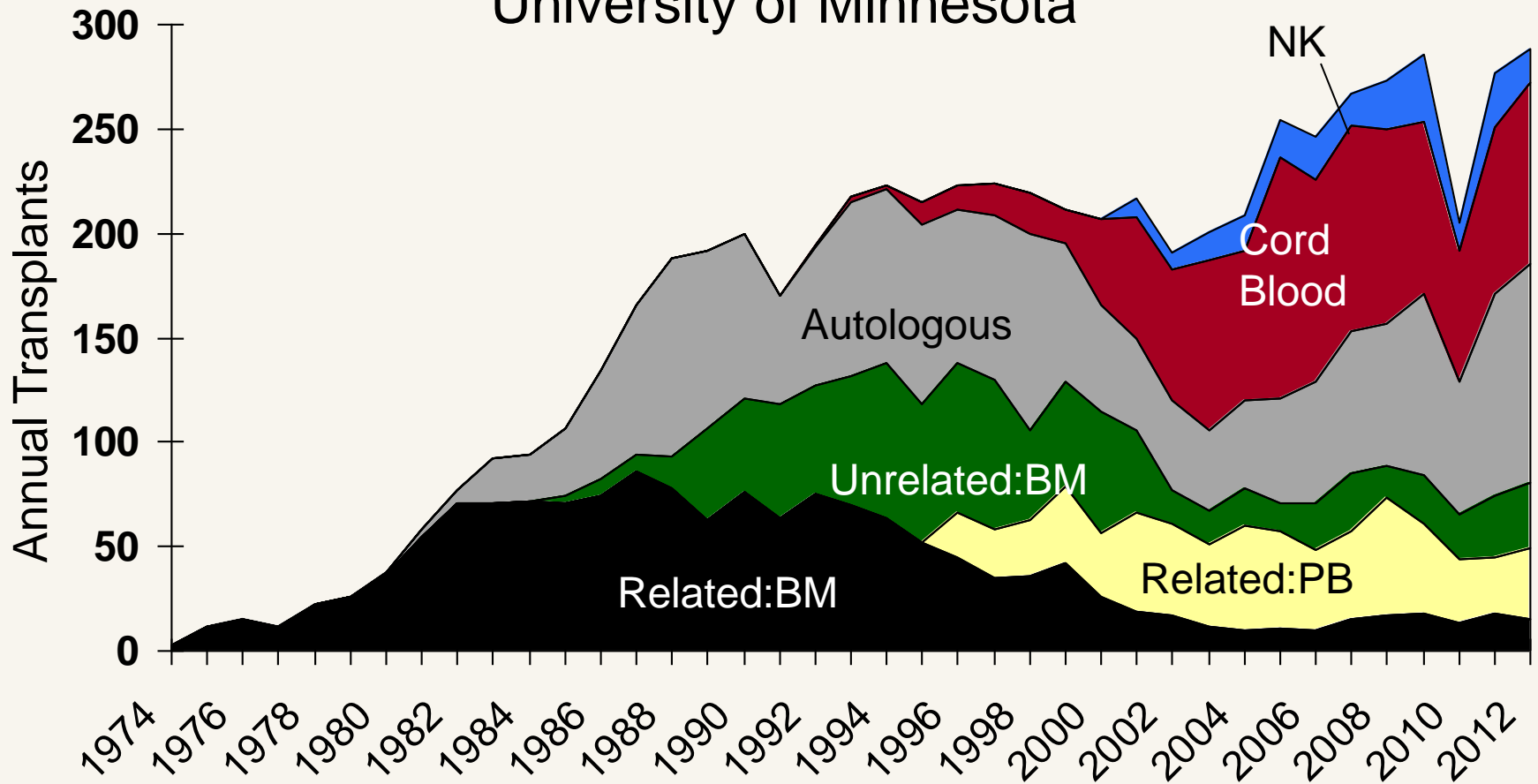
Diagnoses -- University of Minnesota,
2008-2012, Pediatric Service



BLOOD AND MARROW TRANSPLANT PROGRAM

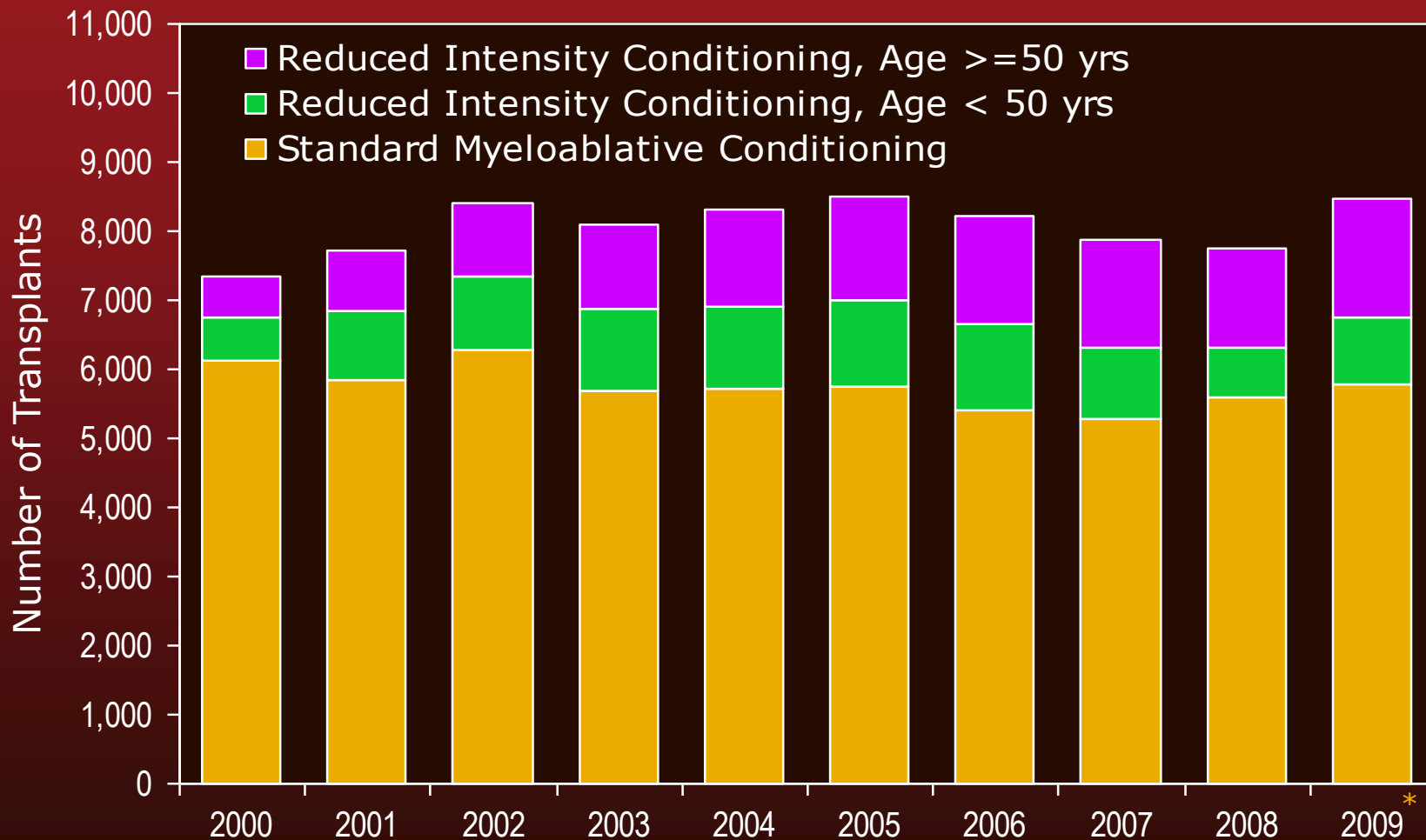
Blood and Marrow Transplants by Donor Type, 1974-2012

University of Minnesota



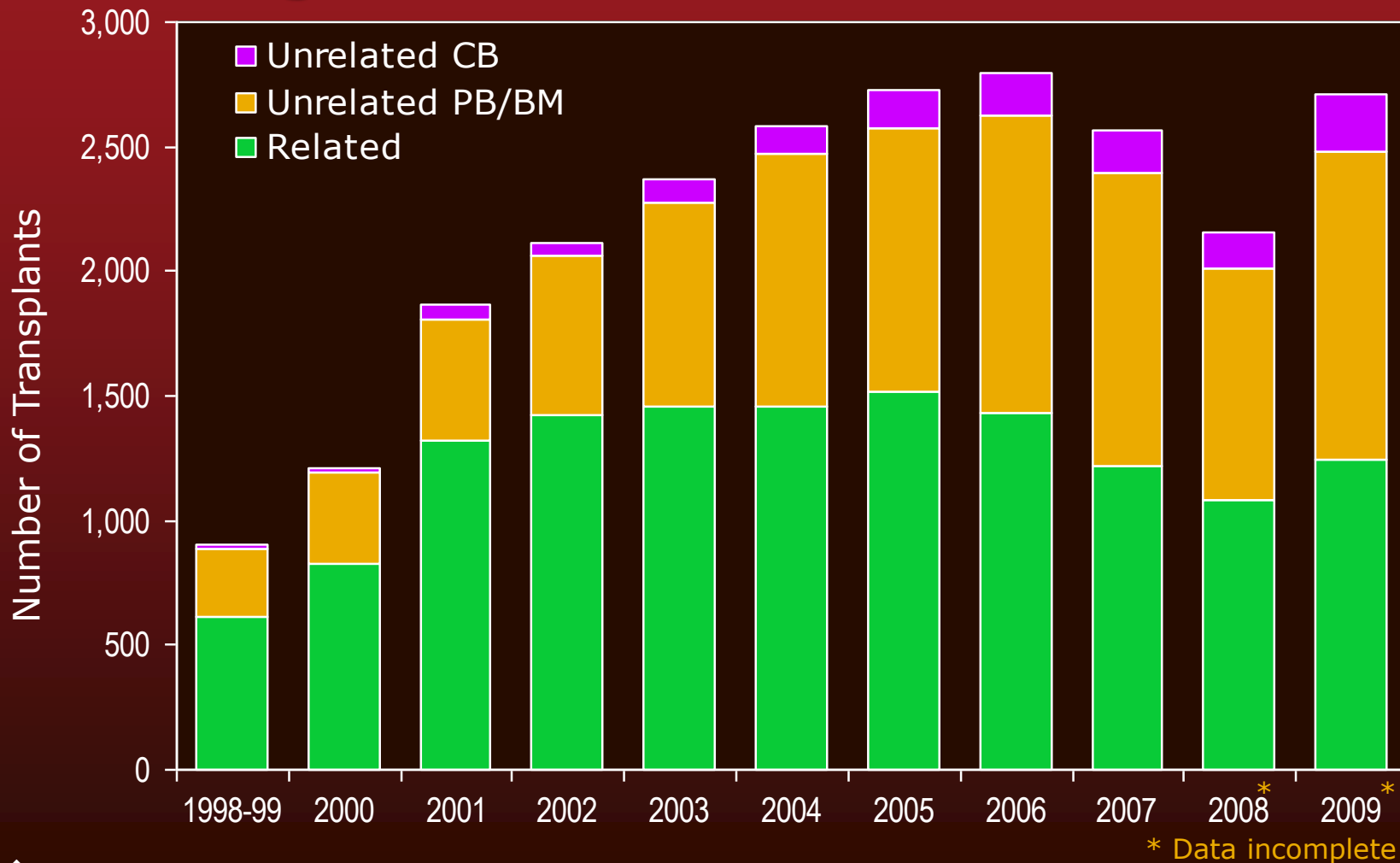
Allogeneic Transplants, Registered with the CIBMTR, 2000-2009

- by Conditioning Regimen Intensity & Age -



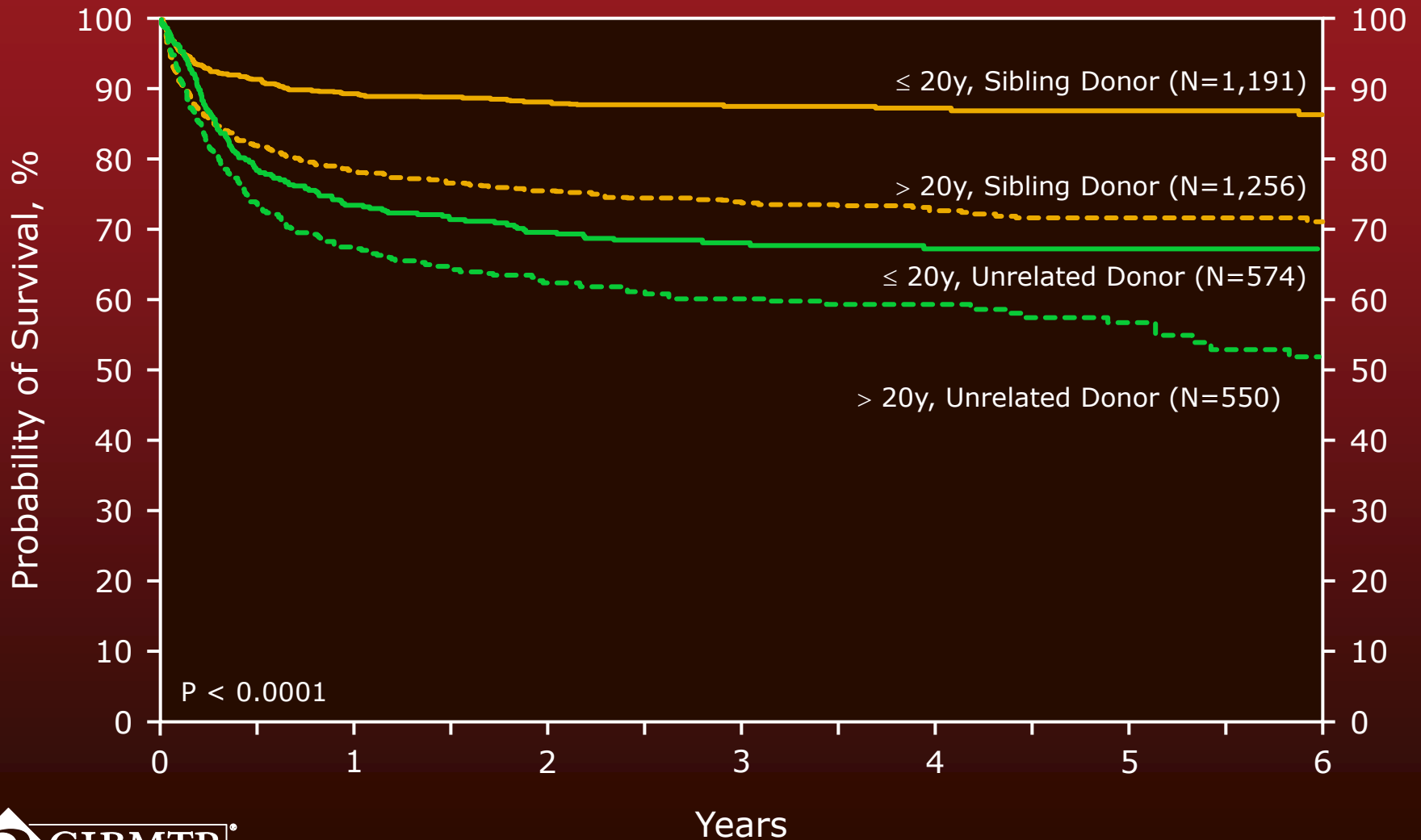
* Data incomplete

Allogeneic Transplants after Reduced-intensity Conditioning, by Donor Type, Registered with CIBMTR 1998-2009



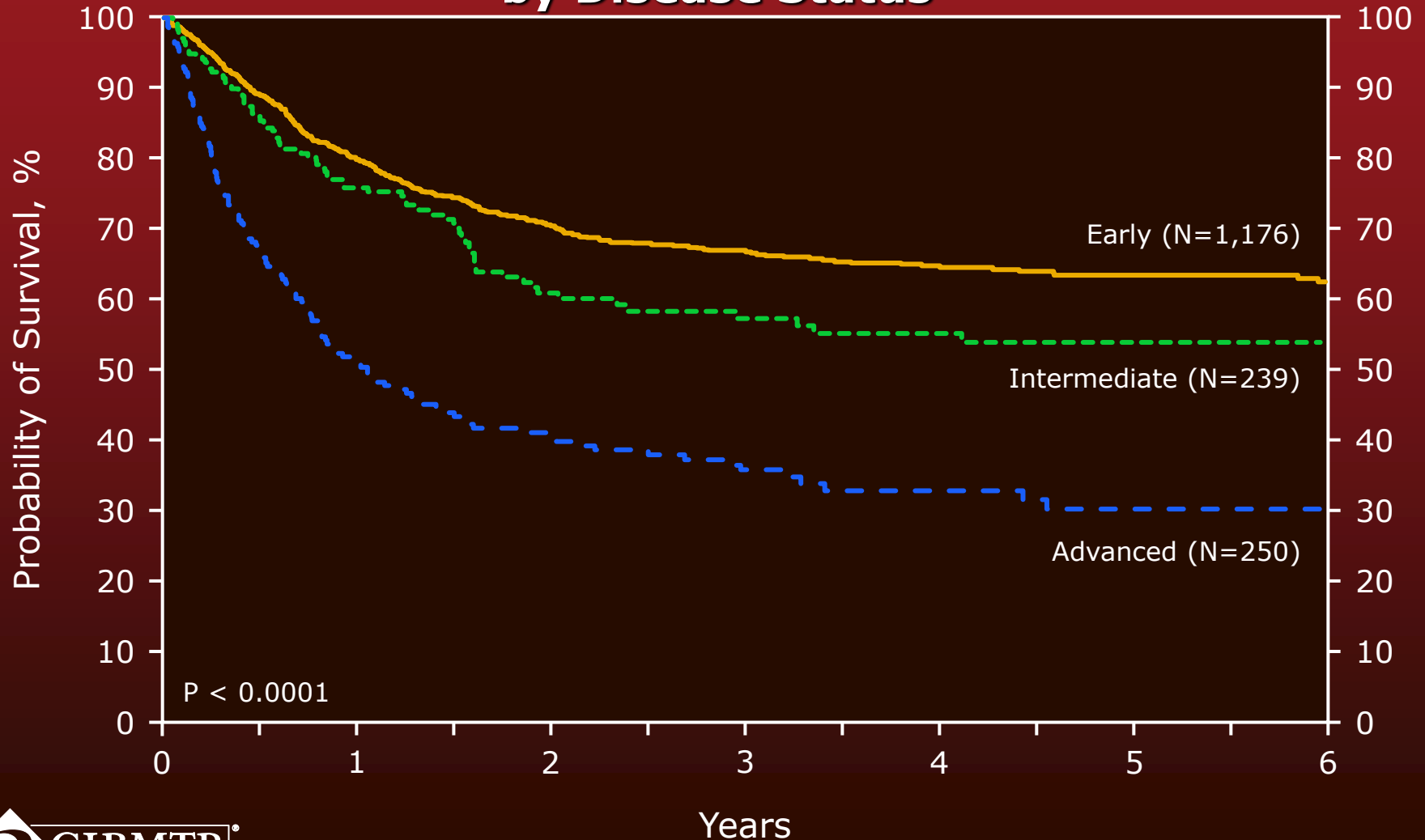
Probability of Survival after Allogeneic Transplants for SAA, 2000-2009

- By Donor Type and Age -



Probability of Survival after HLA-identical Sibling Donor Transplants for AML, Age <20yrs, 2000-2009

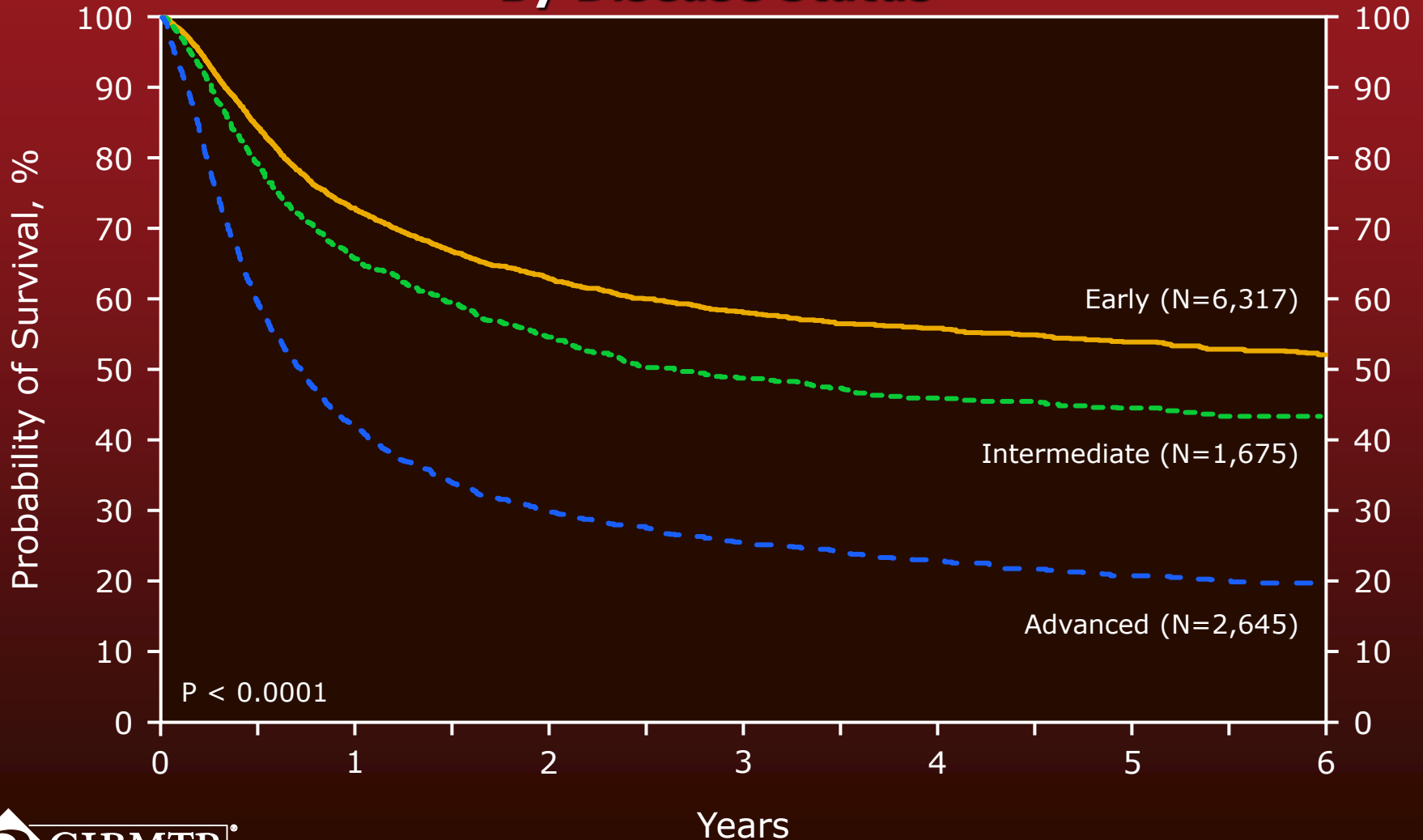
- by Disease Status -



Probability of Survival after HLA-identical Sibling Donor Transplants for AML

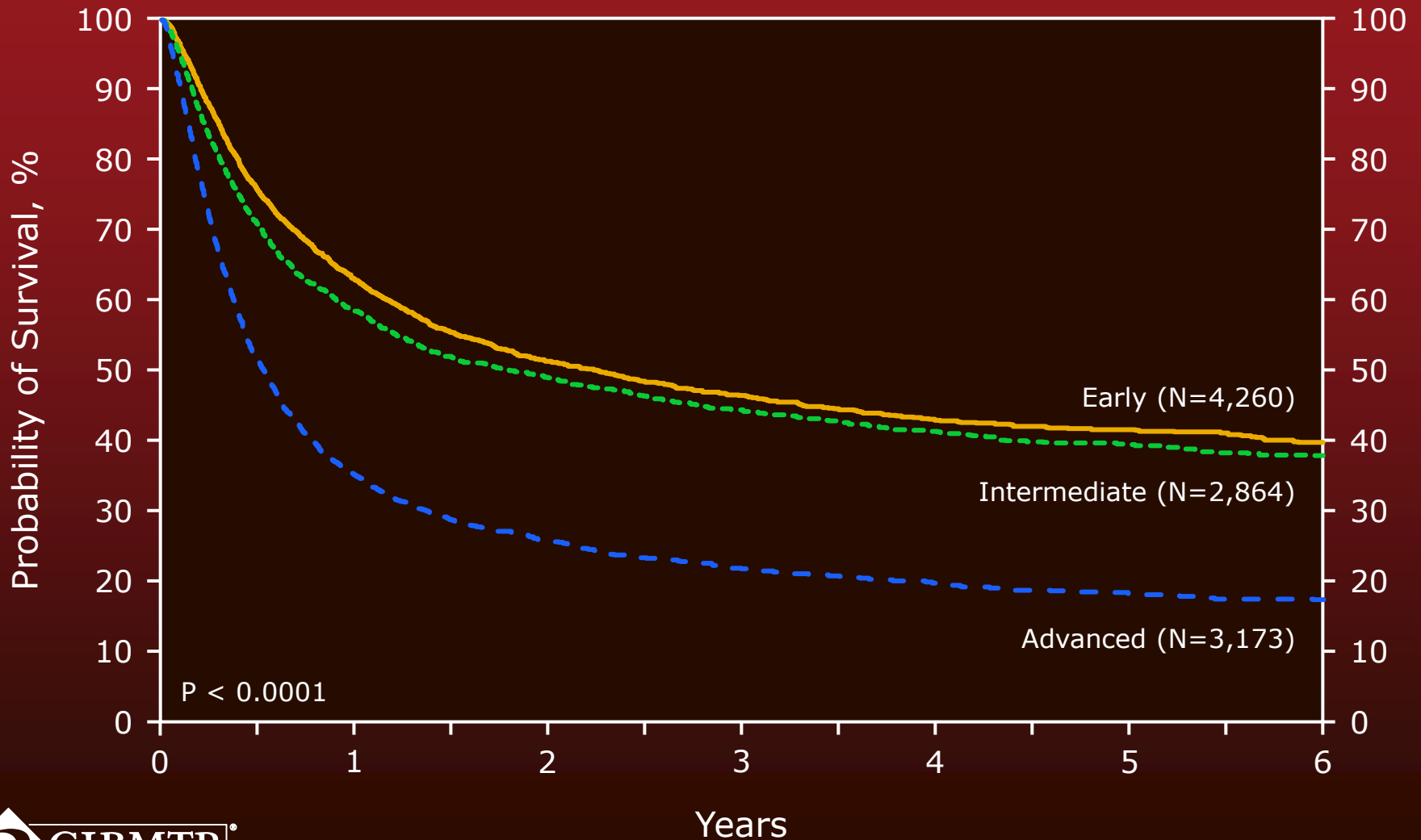
2000-2009

- By Disease Status -



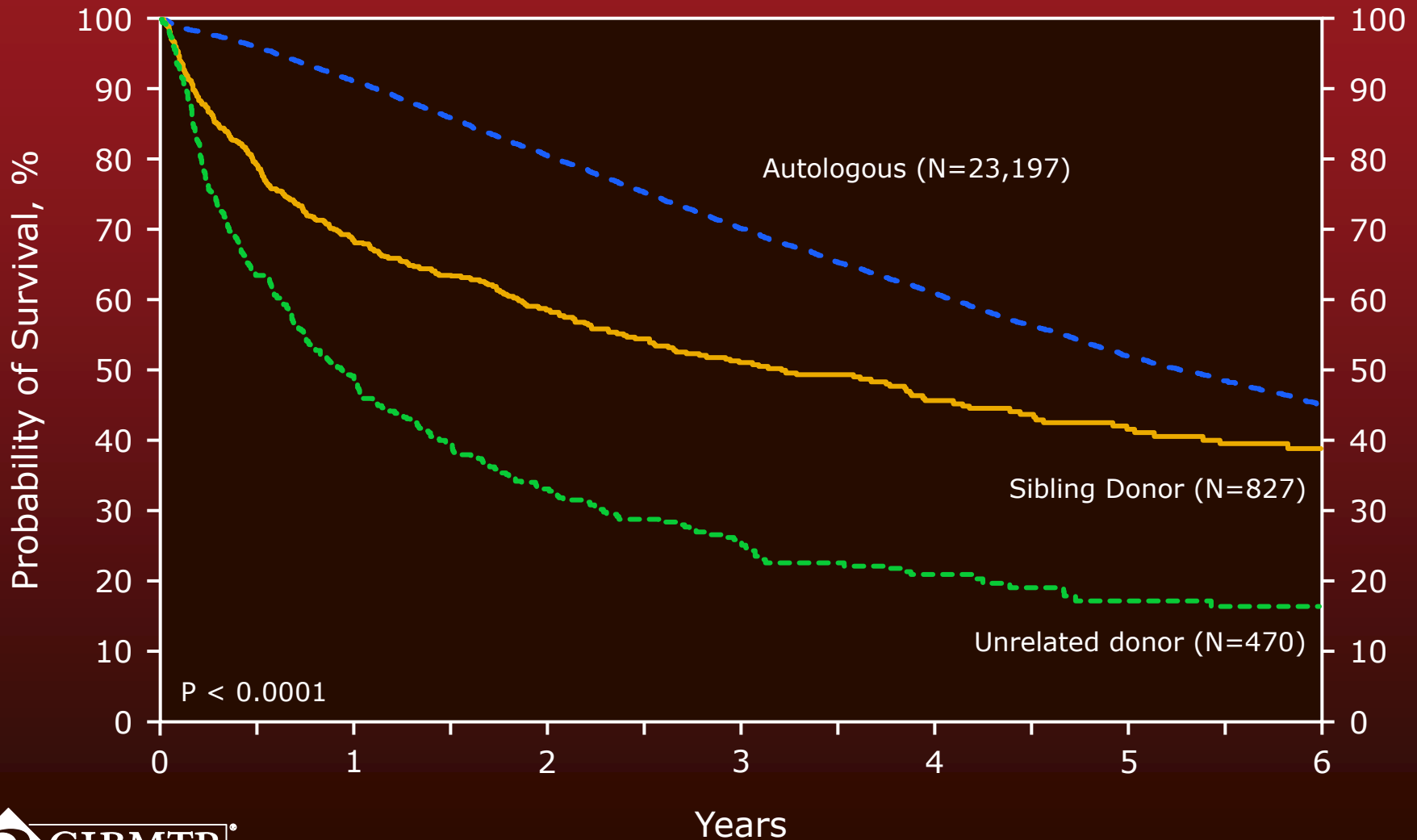
Probability of Survival after Unrelated Donor Transplants for AML, 2000-2009

- By Disease Status -



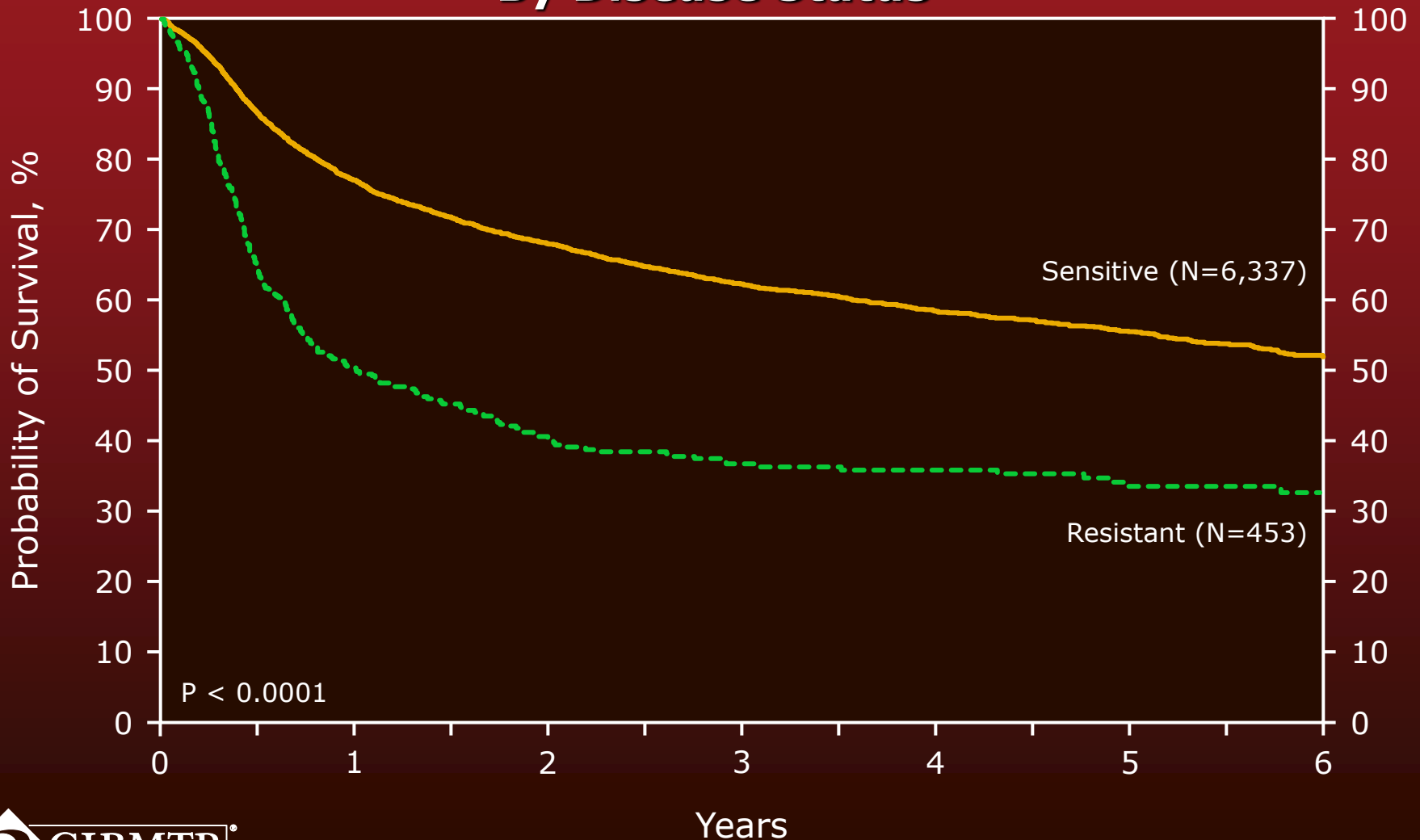
Probability of Survival after Transplants for Multiple Myeloma, 2000-2009

- By Donor Type -



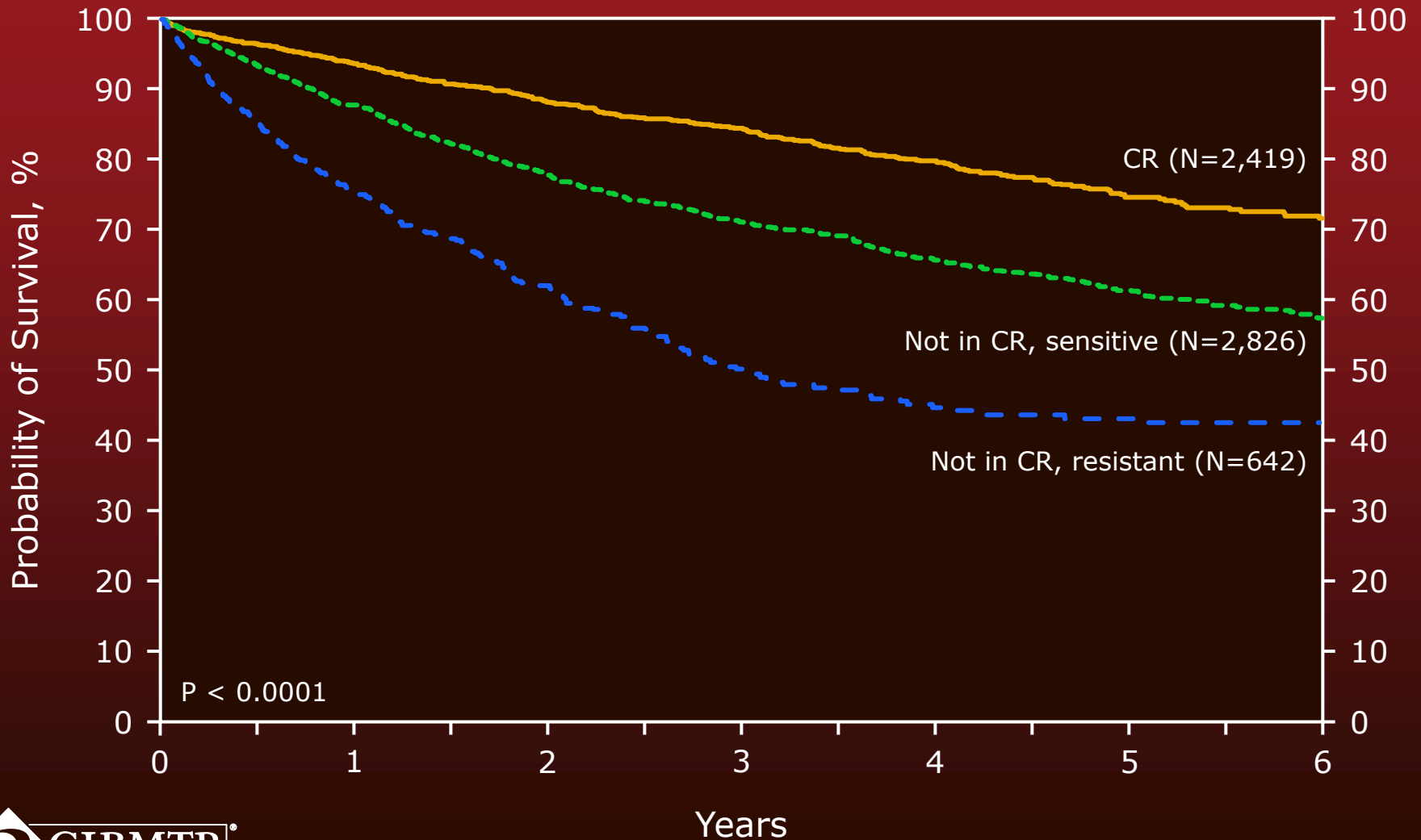
Probability of Survival after Autologous Transplants for Diffuse Large B-Cell Lymphoma, 2000-2009

- By Disease Status -



Probability of Survival after Autologous Transplants for Hodgkin Disease, 2000-2009

- By Disease Status -



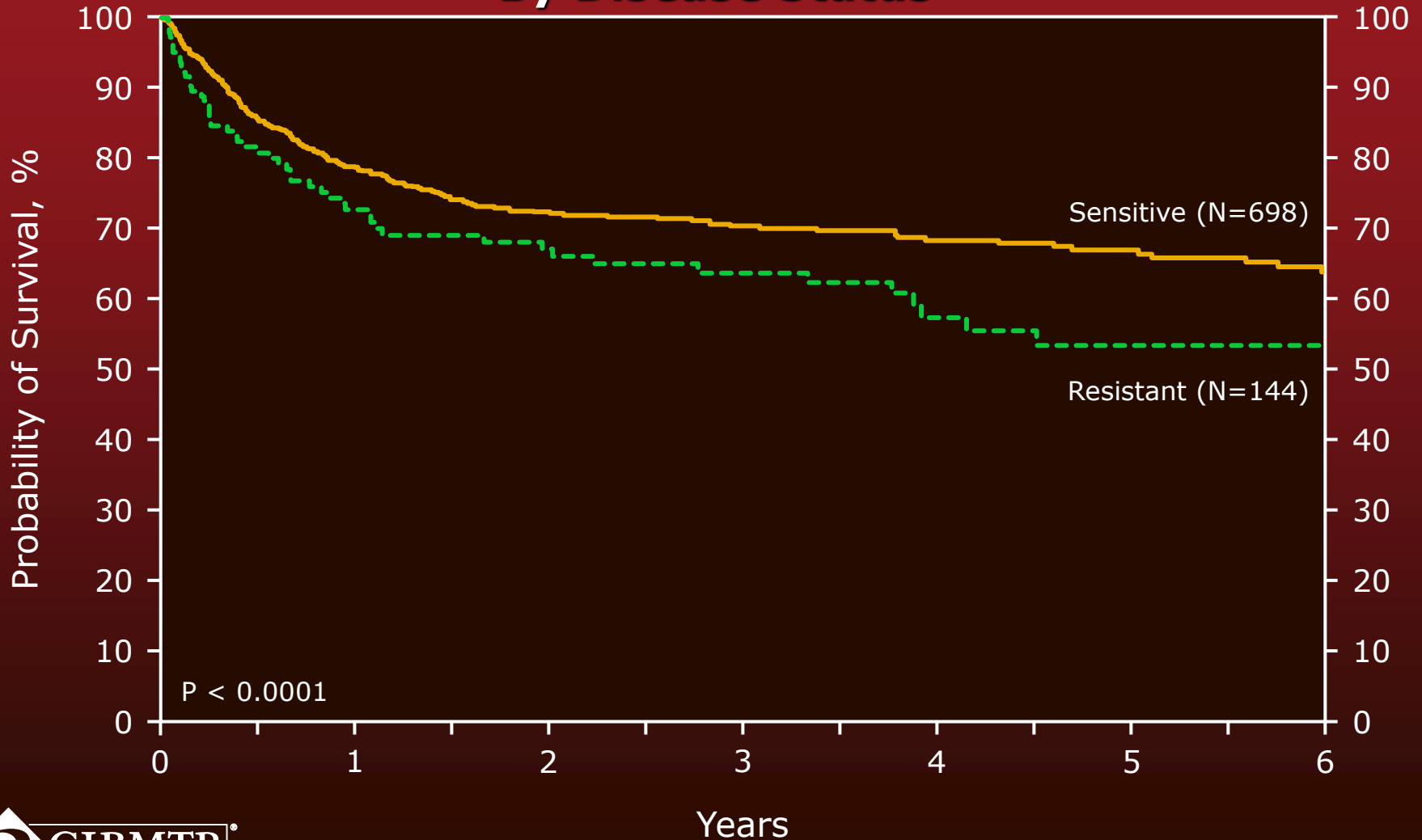
Probability of Survival after Autologous Transplants for Follicular Lymphoma, 2000-2009

- By Disease Status -



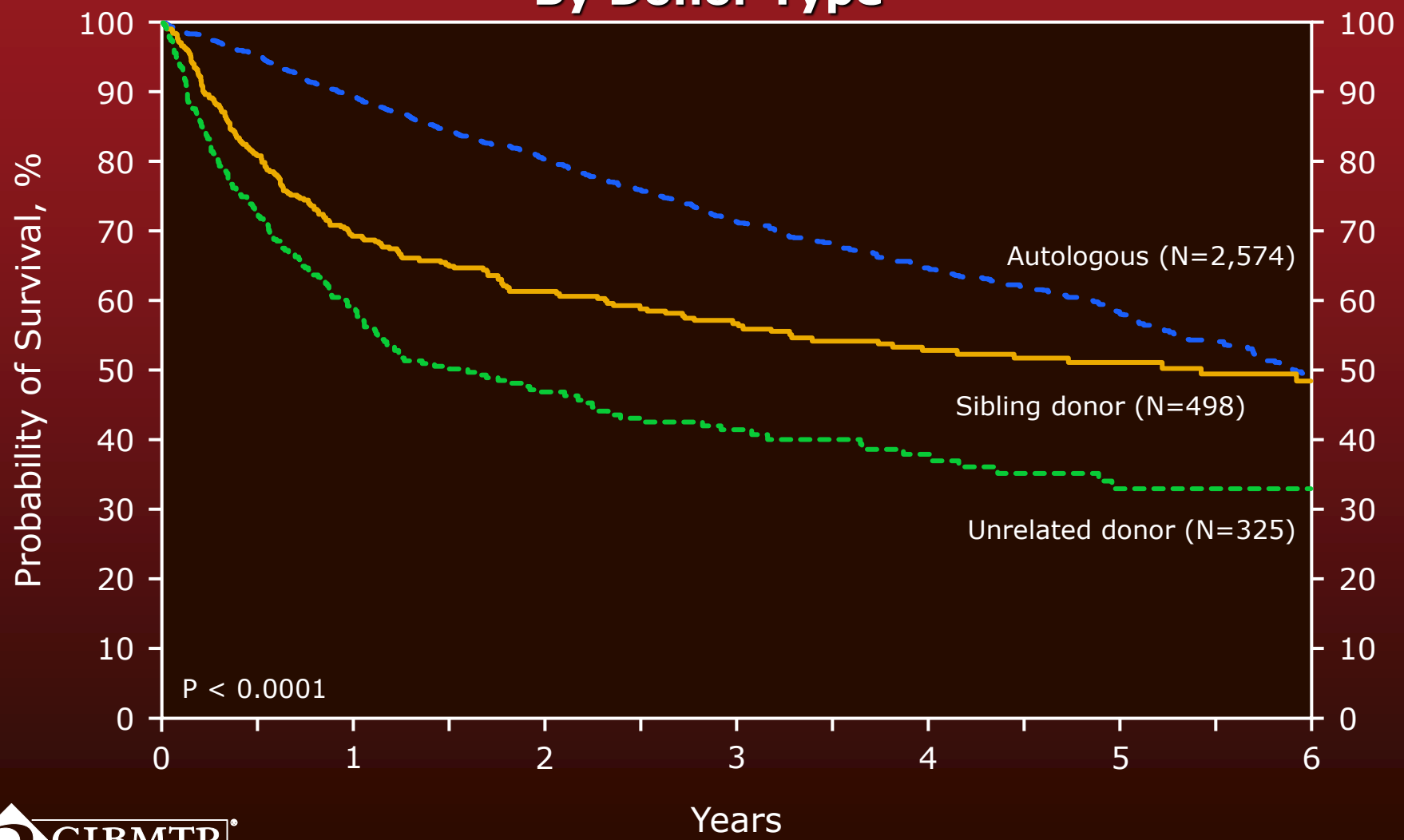
Probability of Survival after HLA-identical Sibling Donor Transplants for Follicular Lymphoma, 2000-2009

- By Disease Status -



Probability of Survival after Transplants for Mantle Cell Lymphoma, 2000-2009

- By Donor Type -



Choosing Applications for HCT

Population needs

Center experience

Donor or graft availability

Resources

Likelihood of Survival