NATIONAL MARROW DONOR PROGRAM®

Outcomes

IN UNRELATED HEMATOPOIETIC CELL TRANSPLANTATION:
Applying New Data for Referral and Decision-Making

KEY FINDINGS

1

Survival is improving.

Unrelated transplant outcomes have improved due to a number of factors including changes in clinical practice and a better understanding of human leukocyte antigen typing and matching.

2

Timing matters.

Research shows that patients transplanted earlier in their disease stage have better outcomes than patients with advanced disease.

3

Patient selection is expanding.

As outcomes improve and donor and cord blood registries grow, more patients become candidates for transplant — resulting in significant growth in the number of patients treated with unrelated transplant.

Improving Survival for Unrelated Transplantation

More than 10,000 allogeneic hematopoietic cell transplants (HCT) performed worldwide each year use unrelated donors or cord blood units, accounting for approximately half of all allogeneic transplants.

Recently published studies have found unrelated transplant survival outcomes comparable to related transplant results in several patient populations.[1–4] In some instances, unrelated transplant outcomes have even exceeded those obtained in related transplant.[5]

This summary provides clinicians with an overview of unrelated transplantation today and how the latest research results affect current clinical decision-making.

Improved Survival with Unrelated Transplantation

REPORT YEAR	PERIOD	ONE-YEAR SURVIVAL
2008	2002–2006	54.0%
2007	2001–2005	51.5%
2006	2000–2004	48.8%
2003	1996–2001	42.2%

Figure 1. One-year survival of unrelated transplant recipients at U.S. transplant centers has improved over recent years.[6]

Why Outcomes are Improving

Several factors have led to better outcomes including: refined clinical practice, enhanced patient-donor matching, and better understanding of optimal timing.

Refined Clinical Practice

- Preparative regimens tailored to the patient's disease and condition, such as reduced-intensity conditioning, have expanded patient eligibility for transplantation.[7–8]
- Notable improvements in the ability to manage possible complications of HCT have led to a reduction in treatment-related mortality.[9–11]

Enhanced Patient-Donor Matching

- DNA-based tissue typing has increased the accuracy and specificity of HLA typing which allows more precise matching between patients and donors.
- Knowledge of matching criteria, including which HLA loci are most significant to outcomes, has improved survival.[13–14]

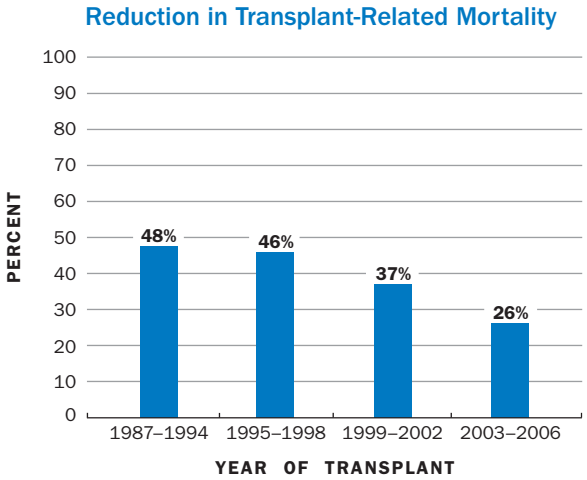

Figure 2. One-year transplant-related mortality for NMDP transplants for malignant diseases has steadily declined over time.[12]

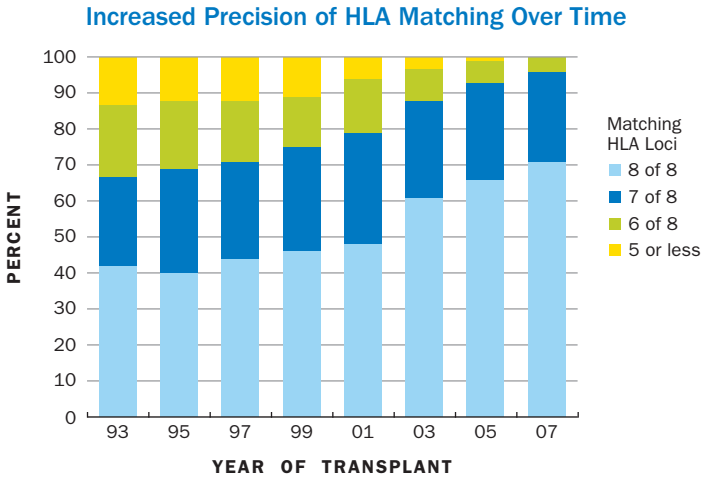

Figure 3. The accuracy of matching patient and donors as HLA-A, -B, -C, and -DRB1 has increased over time.[15]

Better Understanding of Optimal Timing

- While having an optimally matched donor or cord blood unit is important, a 2007 study indicates that patients transplanted earlier in their disease have better outcomes than patients with advanced disease, regardless of the degree of the match.[16]
- Because disease stage at the time of transplant is the only factor under direct control of a physician, an ***early referral is perhaps the single most important step that can affect survival***.

Probability of Overall Survival by HLA Matching:

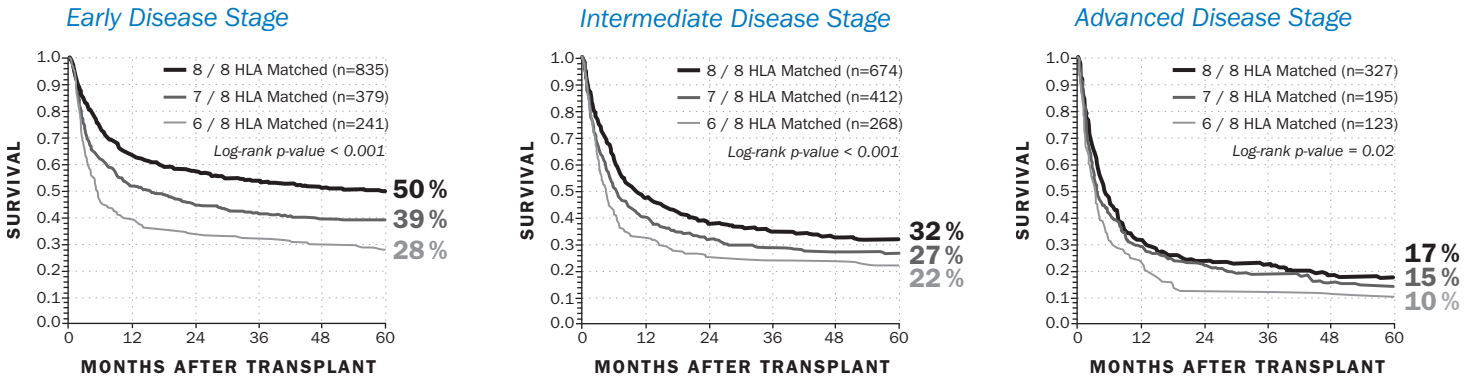

Figure 4. Overall survival of 3,857 U.S. transplant recipients from 1988–2003 with ALL, AML, CML and MDS using NMDP donors.

CIBMTR
CENTER FOR INTERNATIONAL BLOOD & MARROW TRANSPLANT RESEARCH

This research was originally published in Blood. Lee SJ, et al. High-resolution donor-recipient HLA matching contributes to the success of unrelated donor marrow transplantation. Blood. 2007; Vol 110: 4576-4583. (c) the American Society of Hematology.

Trends in Unrelated Transplantation

Several trends have led to the significant growth observed in unrelated transplantation:

1. **Increase in transplant for AML and MDS.** Unrelated transplantation is growing in nearly all diseases for which transplant is indicated; most dramatically in AML and MDS.
2. **Older patients eligible.**[17-19] Transplants for patients age 51–75 now account for 39% of all NMDP-facilitated transplants.
3. **Cord blood expanding access.** Larger registries of cord blood units and adult donors are allowing more patients to find a suitable match, especially minorities.

LEARN MORE: TRENDS

To learn more about trends in allogeneic transplantation, visit **marrow.org/md-trends**

Physicians' Resource Center

Overall Growth in NMDP-Facilitated Transplants

by fiscal year 1987–2009

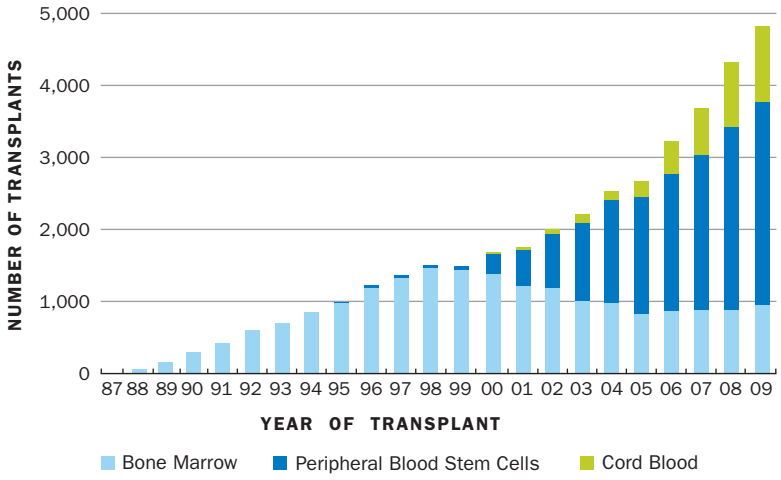

Figure 5. Number of NMDP-facilitated transplants has surpassed 37,000 with a 31% increase between 2007 and 2009.[20]

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CLINICAL ACTION POINTS

1. Requesting a transplant consultation earlier ensures that disease progression doesn't compromise outcomes.

2. Whether a related donor is available or an unrelated donor is needed, timing of transplant consultation should be the same. Earlier consultation ensures plans are in place to move forward if or when transplantation is warranted.

3. Clinicians treating older patients should review current protocols and consider transplant as a treatment option.

LEARN MORE: ONLINE EDUCATION

marrow.org/md-cme

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The National Marrow Donor Program facilitates unrelated marrow, PBSC and cord blood transplants. Our passion for patients drives our commitment to the physicians who serve them. We provide physicians with resources, services and education to support clinical decision-making. To learn more, visit marrow.org/md.

Entrusted to operate the C.W. Bill Young Cell Transplantation Program, including the Be The Match Registry℠.

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