Since its founding in 1972, our program has performed **more than 8,200* transplants** for adult patients – making us one of the largest and most experienced transplant centers anywhere in the world.

We performed **more than 490 transplants** in 2015.

In addition, our program:

- **Consistently exceeds** expected outcomes established by the Center for International Blood and Marrow Transplant Research (CIBMTR)
- Currently follows nearly **4,000 patients** over the long term

*Includes transplants since 1982. While our transplant center has been operational since 1972, data capture using current standards began in November 1982.*
### Transplants (Allogeneic) performed by conditioning intensity

<table>
<thead>
<tr>
<th>Conditioning Regimen Intensity</th>
<th>Transplants Performed Through 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myeloablative</td>
<td>2,175</td>
</tr>
<tr>
<td>Non-myeloablative</td>
<td>1,917</td>
</tr>
<tr>
<td>Total Allogeneic transplants performed, 1982 through 2015</td>
<td>4,092</td>
</tr>
<tr>
<td>Primary Disease</td>
<td>Total Performed 1982 Through 2015</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>AML</td>
<td>1,472</td>
</tr>
<tr>
<td>CLL, SLL, PLL</td>
<td>433</td>
</tr>
<tr>
<td>CML</td>
<td>418</td>
</tr>
<tr>
<td>Hodgkin Disease</td>
<td>537</td>
</tr>
<tr>
<td>Multiple Myeloma/Plasma Cell Disorder</td>
<td>1,818</td>
</tr>
<tr>
<td>Other Malignancy</td>
<td>38</td>
</tr>
<tr>
<td>Aplastic Anemia, Sickle Cell and Other Disorders of Hematopoiesis</td>
<td>108</td>
</tr>
<tr>
<td>Immunodeficiency</td>
<td>6</td>
</tr>
<tr>
<td>ALL</td>
<td>418</td>
</tr>
<tr>
<td>Other Acute Leukemia</td>
<td>15</td>
</tr>
<tr>
<td>MDS</td>
<td>506</td>
</tr>
<tr>
<td>MPD and Mixed MDS/MPD</td>
<td>124</td>
</tr>
<tr>
<td>NHL</td>
<td>2,304</td>
</tr>
<tr>
<td>Other Disease</td>
<td>4</td>
</tr>
<tr>
<td>All Diseases</td>
<td>8,201</td>
</tr>
</tbody>
</table>
As a direct result of major advances in transplantation protocols – propelled significantly by insights gleaned from the work of our researchers – the number of older adults our program is treating with transplant continues to grow.

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>55-59</td>
<td>4</td>
<td>20</td>
<td>53</td>
<td>144</td>
<td>246</td>
<td>348</td>
<td>490</td>
<td>1,305</td>
</tr>
<tr>
<td>60-64</td>
<td>5</td>
<td>8</td>
<td>76</td>
<td>173</td>
<td>339</td>
<td>505</td>
<td>1,106</td>
<td></td>
</tr>
<tr>
<td>65-70</td>
<td>1</td>
<td>3</td>
<td>21</td>
<td>81</td>
<td>222</td>
<td>444</td>
<td>772</td>
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<tr>
<td>70+</td>
<td></td>
<td></td>
<td>10</td>
<td>55</td>
<td>188</td>
<td></td>
<td>253</td>
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<tr>
<td></td>
<td>4</td>
<td>26</td>
<td>64</td>
<td>241</td>
<td>510</td>
<td>964</td>
<td>1,627</td>
<td>3,436</td>
</tr>
</tbody>
</table>
ADULT STEM CELL TRANSPLANTATION PROGRAM
BREADTH AND DEPTH OF SPECIALIZATION

MORE THAN 35 CREDENTIALED TRANSPLANT PHYSICIANS ON STAFF

- All are faculty members of Harvard Medical School
- Includes past and present leaders within organizations such as the American Society for Blood and Marrow Transplantation (ASBMT), Blood and Marrow Trials Clinical Trial Network (BMT-CTN), Center for International Blood and Marrow Transplant Research (CIBMTR), and Alliance for Clinical Trials in Oncology (formerly CALGB)

EXPERTISE THAT GOES BEYOND TRANSPLANT TO SUBSPECIALTY AND “SUB-SUBSPECIALTY” BY DISEASE

EACH PATIENT IS ASSIGNED THEIR OWN TEAM OF TRANSPLANT SPECIALISTS

- Attending transplant physician
- Transplant nurse practitioner/physician assistant
- RN transplant coordinator
- Non-RN transplant coordinator
- Transplant social worker
- Donor search and collection coordinators
- Donor collection NP/PA
- Financial counselor
- Clinical data specialist
- For patients enrolled in clinical trials: Transplant research nurse and clinical research coordinator
- Patients also have access to specialists in infectious disease, gynecology, dermatology, and other specialty areas as needed

CREDENTIALED TRANSPLANT PHYSICIANS
MULTIDISCIPLINARY TRANSPLANT TEAM
SPECIALIZED TRANSPLANT EXPERTISE
We treat patients who have been diagnosed with the following conditions, including older adults and those with advanced disease:

### Blood cancers
- Acute lymphoblastic leukemia (ALL)
- Acute myeloid leukemia (AML)
- Chronic lymphocytic leukemia (CLL)
- Chronic myelogenous leukemia (CML)
- Hodgkin lymphoma
- Multiple myeloma
- Non-Hodgkin lymphoma
- Waldenström’s Macroglobulinemia
- T-cell lymphoma
- Mantle cell lymphoma
- Follicular lymphoma
- And others
- Testicular cancer

### Myeloproliferative disorders and myelodysplastic syndrome
- Myelofibrosis
- Polycythemia
- Thrombocythemia
- Myelodysplastic syndrome (MDS)
- Chronic myelomonocytic leukemia (CMML)
- And others

### Bone marrow failure syndromes and rare and congenital blood disorders
- Aplastic anemia
- Diamond-Blackfan anemia
- Dyskeratosis congenita
- MonoMAC Syndrome
- Paroxysmal nocturnal hemoglobinuria (PNH)
- Shwachman-Diamond syndrome
- Sickle cell anemia
- Thalassemia
- Hemaphagocytic lymphohistiocytosis (HLH)
- And others

### Other malignant disorders
- Myelodysplastic syndrome
- Acute lymphoblastic leukemia
- Acute myeloid leukemia
- Chronic lymphocytic leukemia
- Chronic myelogenous leukemia
- Hodgkin lymphoma
- Multiple myeloma
- Non-Hodgkin lymphoma
- Waldenström’s Macroglobulinemia
- T-cell lymphoma
- Mantle cell lymphoma
- Follicular lymphoma
- And others
- Testicular cancer
### Commitment to identifying the best therapy for the individual patient
- Robust screening
- Proceeding with transplantation option is based on strong clinical and scientific evidence, along with patient and family quality of life and outcomes goals
- Ongoing multidisciplinary case review
- Dedicated specialty consult services – including infectious disease, nephrology, and metabolic disorders – for transplant patients

### Cost-conscious approach to care
- Medication management
- Discharging patients as early as deemed advisable
- One of the nation’s most experienced unrelated donor search teams
  - Routinely reviews strategies for finding the best donor for each patient, in the shortest time frame, at the lowest possible cost
- Expert clinical operations research team investigating – and actively publishing on – cost reduction and outcomes improvement projects

### Team of Quality Assurance, Quality Control, and Quality Improvement experts dedicated to transplant and cellular therapies
- Robust quality systems are routinely subjected to external regulatory and accreditation agency reviews and audits
- Scheduled internal audits examine manufacturing and treatment procedures in support of continuous process improvement
- Data collection and reporting activities result in peer-institution comparisons for measuring treatment outcome and effectiveness
- Process and document controls ensure regular review and cross-reference to applicable standards and regulations
- Continuing education requirements and periodic competency evaluations ensure staff proficiency in their areas of expertise

### Close collaboration with community providers and practices on financial, care continuation, and quality issues
- Enhanced patient support through “Shared Care” initiatives
- Education of regional referring provider practices on caring for patients post-transplant
- Focus on post-transplant monitoring closer to patient’s home in collaboration with Dana-Farber’s transplant clinical team
- Dedicated to identifying factors that improve patient quality of life and clinical outcomes, including efforts to reduce patients’ travel burden
- Dedicated support for referrers and payers
Research program

- Supported by funding from NIH program project and research project grants, LLS, and other sources
- Publications in national and international journals and presentations at major meetings and conferences
- Thriving enterprise in both basic science and translational research
- Standard patient therapies often include participation in major multicenter clinical trials
- Breakthroughs and innovations including:
  - Development of novel agents for preventing and managing graft-versus-host disease (GVHD)
  - Vaccination with genetically engineered tumor cells to induce anti-tumor activity and prevent post-transplant relapse
  - Use of co-stimulatory blockade to restore graft-versus-leukemia activity
  - Collaboration with infectious disease specialists to develop and provide access to new antibiotics and diagnostic techniques for immune-compromised conditions
- Detection and quantification of minimal residual disease as a method of assessing post-transplantation disease status
- Rapid Heme Panel, a high-tech genetic test that provides critical information that aids in diagnosis and treatment planning for myeloid and lymphoid malignancies

Outcomes data system

- Historic involvement in development of national reporting metrics and standards and analysis of outcomes data
- Major internal data repository following all transplant patients throughout their lifetimes — and reporting on millions of data points each year
- Long-standing data submission to the Center for International Blood and Marrow Transplant Research (CIBMTR) national outcomes database
- Ongoing metrics and research studies to evaluate cost and outcomes
- Ongoing advancement of patient education and self-assessment options for improving outcomes

Quality, safety, and operations research

- Focus areas including:
  - Drug interactions in hematopoietic stem cell transplantation (HSCT)
  - Reducing unnecessary testing on admission in stem cell transplant patients
- Cost effectiveness of allogeneic HSCT using different conditioning regimens and donor products
- Improving novel predictive parameters in apheresis
- Process improvement projects to increase the resource utilization and efficiency and reduce the cost of apheresis
- Ongoing quality improvement project to lower the rate of bacterial contamination in HPC-marrow products
- Assessing medication adherence through close follow-up post-discharge
On-site Connell and O’Reilly Families Cell Manipulation Core Facility
— New England’s only Class 10,000 Good Manufacturing Practices (GMP) cellular manufacturing facility at an academic medical center

— Manufactures cellular products for clinical use, including:
  • Hematopoietic stem cells
  • Tumor vaccines
  • Chimeric antigen receptor and genetically-engineered T cells
  • Selected T-cell subsets (Tregs) for immunotherapy
  • Gene therapy products

— Supports process development for new cell therapy clinical research protocols

— Provides regulatory support for Investigative New Drug (IND) applications

— Carries out pre-, intra-, and post-manufacturing validation and quality assessments

— Includes CLIA-approved quality control testing lab for product characterization
  • Sterility and endotoxin testing
  • Viability and colony-forming unit assays
  • Complex flow cytometry and ELISA testing

— Manages a major tissue and blood sample bank to facilitate clinical and research endeavors for patients with blood cancers and other related disorders
Comprehensive services and support for patients and families

- **Pre- and post-transplant collaboration** with local physicians and medical centers – enabling follow-up care close to patients’ homes
- **Graft-versus-host disease** prevention and management
- **Specialized programs for transplantation**
  - Imaging
  - Infectious disease
  - Pathology
  - Radiation oncology
  - Photopheresis
- Consultation, confirmation of diagnosis, and review of therapeutic options
- Hematopathologic evaluation and diagnosis
- Toxicity management
- Nutrition services
- Pharmacy services
- Integrated therapies
- Performing thorough sequencing on the DNA of abnormal cells from patients with leukemia and related disorders

- **Comprehensive patient education program**
  - Focus on post-transplant precautions, medication adherence, and urgent care
  - Extensive patient education materials provided in various formats and methods – including award-winning written guides and digital and blended learning applications – to meet different learning styles and diverse audiences
- Dedicated social work resources
- Patient and family resource center
- Emotional and psychosocial support, including private online support community
- Financial counseling
- Housing assistance
- **Adult Survivorship Program** and other specialized services over the long term, with emphasis on living well beyond cancer
- **Dedicated caregiver guide** and support
Clinical and research affiliations

• Member of the Center for International Blood and Marrow Transplant Research (CIBMTR)

• Fully accredited by the National Marrow Donor Program (NMDP)

• Member of the Alliance for Clinical Trials in Oncology (formerly CALGB)

• Charter member of the Blood and Marrow Transplant Clinical Trials Network (BMT-CTN) of the National Institutes of Health

• Both Dana-Farber Cancer Institute and Brigham and Women’s Hospital are founding members of Dana-Farber/Harvard Cancer Center, designated a comprehensive cancer center by the National Cancer Institute
Mailing Address:

Dana-Farber/Brigham and Women’s Cancer Center
Adult Stem Cell Transplantation Program
450 Brookline Avenue, Dana 2
Boston, MA 02215

Patient referrals and consultation/second opinion requests:
877-DFCI-BWH (332-4294) | 617-632-5138 | www.dana-farber.org/referrals

Managed care inquiries: Diane P. Lanahan, MBA, RN, Director of Managed Care Contracting
617-632-5074 | diane_lanahan@dfci.harvard.edu

Financial counseling and support requests:
617-632-3730

Shared Care and Referring MD Support: Alexis Steinberg
617-632-3069 | alexis_steinberg@dfci.harvard.edu