greatly reducing the risk of graft-versus-host disease. During 26 days of induction chemotherapy to treat the leukemia at OHSU Hospital, “I lost my very straight hair and was pleasantly surprised when it came back curly, thanks to my donor,” Barbara says. The Vaughns worked hard to stay positive. “We brought movies to the hospital—comedies,” Bob says. They told a very limited number of family and friends whom they knew would encourage them.

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Barbara received the reduced intensity conditioning chemotherapy for her bone marrow transplant as an outpatient at OHSU, with just a one night stay as an inpatient for the transplant itself. The donor cells took over rapidly. “I have a blood draw every six months, and it’s completely donor cells,” Barbara says. After the requisite one year post transplant anonymity period required by the NMDP, donor contact was allowed and, the Vaughns chose to fly Barbara’s donor Steffanie and her mother Sharman to Washington to thank them and introduce them to the OHSU team.

Barbara responded extremely well to treatment. “We’re looking forward to her five-year anniversary,” Bob says. She naps daily and has completed her currently required childhood immunizations. She had no qualms about a recent heart valve replacement and is back to walking one and a half miles—or more—with Bob every day.

“To this day, I tell people if they have to be sick, OHSU is the place to go,” Bob says. “I know there are other good hospitals, but we can speak for OHSU. If you want excellent care, they deliver the best care in the area.”
OHSU Cancer Committee
2011 Annual Report

TABLE OF CONTENTS

A Message from the Chairman ................................................................. 3
Pressing on Against Myelodysplastic Syndrome (MDS) ......................... 4
The History of Blood and Bone Marrow Stem Cell Transplantation at OHSU .... 6
Treating Leukemia and Myelodysplastic Syndrome..................................... 7
New Guidelines for Primary Care Physicians ............................................. 8
Removing Age as a Transplant Barrier ..................................................... 9
A Positive Outcome for Acute Leukemia.................................................. 10
Special Transplant Initiatives for the Best Outcomes ................................... 12
Research and Clinical Trials ................................................................. 13
Ongoing and Future OHSU Transplant Initiatives ...................................... 14
Looking Backward and Forward: A Personal Note from Richard Maziarz, MD .... 16
OHSU Center for Hematologic Malignancies (OHSU CHM) ......................... 17
2010 Analytic Cases – Site and Stage Distribution ....................................... 18
OHSU Cancer Committee and Leadership teams ...................................... 19
Dear Colleagues,

I am very proud to lead the OHSU Cancer Committee, and to share our 2011 Annual Report with you. We focus this year on blood and bone marrow transplant, with a specific look at myelodysplastic syndrome (MDS), and acute myeloid leukemia (AML). OHSU Knight Cancer institute cares for over 70 percent of the BMT patients in the region, and we have experienced our volumes increase dramatically over the past ten years, especially in allogentic transplants.

This year, the Knight Cancer Institute recruited renowned cancer researchers Joe Gray, Ph.D., Paul Spellman, Ph.D., and Lisa Coussens, Ph.D., who bring a wealth of knowledge to our expert team. Their expertise will allow OHSU to offer the absolute state-of-the-art in personalized cancer medicine. We aim to take advantage of revolutionary advances in measurement science to understand how individual cancers function over time and in different anatomic locations and how they respond to specific therapies so that we can take best advantage of the hundreds of new therapeutic compounds that are now being developed.

I would also like to take the opportunity to extend my very personal note of thanks to all of the individuals and families who have supported our programs at the Knight Cancer Institute over the past year. Support for our efforts has come in many forms from donation of time to monetary resources and planned estate gifts. Regardless of the form of the gift, the generosity of our donors remains one of the key factors which continue to drive our success.

The OHSU Knight Cancer Institute is expanding personalized medicine by identifying cancer’s molecular mechanisms and exploiting those weaknesses to develop new therapies. We are changing the way the world understands and fights this disease, and we are dedicated to providing compassionate, comprehensive care to all of our patients. Your support of our goals is a big part of our success, and on behalf of everyone at OHSU, I thank you for your dedication.

Kevin Billingsley, M.D.
Chairman, OHSU Cancer Committee
Hedinger Associate Professor of Surgery and Chief of the Division of Surgical Oncology
OHSU Knight Cancer Institute
Sad cancer movies. The phrase “the big C.” An acquaintance saying, “Cancer always comes back.” When Barbara Vaughn of Vancouver, Wash., was diagnosed with acute leukemia in 2007 at age 70, she avoided such phrases. “We associated the word ‘leukemia,’ with bad outcomes,” explains her husband Bob. Barbara and Bob tell her cancer story together. It’s how Barbara went through treatment, with Bob and her OHSU leukemia and bone marrow team members at her side. Seeking care for what she thought was a bad case of influenza; Barbara had blood work at her primary physician’s office.

Chris Crawford was a star quarterback in high school and college. When he was diagnosed with myelodysplastic syndrome (MDS), the team at OHSU Knight Cancer Institute and Nike was behind him every step of the way.

Crawford, 44, is the quintessential local hero. All-state quarterback at Sunset High School, he led Portland State University’s football teams to victory in 1987 and 1988. Both years, the Vikings played in NCAA Division II championship games, and Crawford was a finalist for the Harlon Hill Trophy, Division II’s answer to the Heisman Trophy. After graduation, Crawford went to work for Nike, where he is national team sales manager.

In August 2010, Crawford’s annual physical revealed a low platelet count and abnormal cells. He was referred to a hematologist at the OHSU Knight Cancer Institute’s Beaverton clinic. After a month, his platelets were still low at 60,000. “When I had the bone marrow biopsy, I knew it was getting serious,” Crawford says.

Just after Thanksgiving, Crawford was diagnosed with a myelodysplastic syndrome (MDS), one of a group of diseases in which the bone marrow makes insufficient healthy blood cells as well as abnormal cells. Formerly, MDS was called pre-leukemia because of the increased risk of developing that disease. MDS is typically a disease of older people, and given Crawford’s young age, doctors were concerned that he might have been born with an inherited genetic disorder of marrow function, placing him at a much higher risk of developing MDS. These genetic defects are very important to identify, as they not only affect how MDS is treated but also place patients at much higher risk of developing toxicity from the treatments and other cancers during their lifetimes, since the abnormality can be manifest in many other cell types.

Crawford was referred to Gabrielle Meyers, M.D., who specializes in diseases like MDS and leukemia. “In working up Chris, we found he had a form of dyskeratosis congenita, something that would have never been considered in his case without extensive testing,” she says. “That was a very important discovery that will affect how we treat Chris for the rest of his life.”

Bone marrow transplantation is the only curative treatment for MDS. Crawford had the ideal donor, a healthy 23-year-old man who matched his blood type and, more importantly at 12 of 12 human leukocyte antigen (HLA) markers. Between January and March 2011, he received two courses of azacitidine (Vidaza), a drug that promotes normal blood cell production and destroys unhealthy cells.

Getting treatment was a new experience for Crawford. “When I started going in, I was healthy,” he says. “I never took anything more than Tylenol. In the waiting room, I saw patients coming out who were visibly sick, and thought, ‘That’s going to be me.’”

The staff’s calm demeanor helped allay any concerns. “They didn’t make treatment a big thing,” Crawford says. “The OHSU clinic in Beaverton is beautiful, and everyone from Betty in reception to Joanne in infusion services was very welcoming.” Dr. Meyers became Crawford’s hero. “She’s brilliant, but also warm and down to earth,” he says. “We never felt intimidated by her manner. She talked with
me and my family, providing information and answering questions as fully as she could.”

On April 5, Crawford went to OHSU Hospital for chemotherapy followed by the transplant. He had a chest catheter, so staff suggested he buy cheap T-shirts he could throw away after treatment. Instead, he bought Nike Attitude shirts with slogan like “Pick a Fight.” He rode an exercise bike and walked the halls of the Bone Marrow Transplant unit. “My goal was to walk 4 miles a day,” he says.

On April 13, Crawford got his stem cells and finally felt the treatment effects. “Between my immune system going down to zero and the new cells coming in, I felt like I was run over by three semi trucks,” he says.

The whole family got to know Crawford’s care team. “We could name everybody, from Ernie who was working with me on my food to Malinda, the nurse telling me to go walk,” he says. “They all seemed like teammates to me. And when you have a great team, you get great results.”

Today, Crawford is back at work and making the most of life. He lost 35 pounds during treatment, but not his positive attitude. He has shared his story with the media to raise awareness about early detection and the importance of marrow donation. Former PSU teammate Brian Coushay organized a March 14 bone marrow drive in Crawford’s honor, registering 135 people with Bethematch.org. The organization is global—Crawford’s donor lives outside the United States.

“I’m not trying to be a hero,” Crawford says. “With the support of my family, friends, Nike co-workers and the OHSU Knight Cancer team, I feel like I had an unfair advantage.” Among his friends and family, he’s the first to have a serious illness. Sounding like the quarterback he was, he reflects, “It’s something we didn’t have planned, but I don’t mind being first. I will take the hit if I can help someone else.”

Every three weeks, Crawford sees Dr. Meyers. “We celebrate the milestones,” he says. “Thirty days, 60, 100, a year—we take the days as they present themselves. I’m very blessed to be at this point. We keep pressing on.”
Today, hematopoietic stem cell transplantation is an established therapy for patients with advanced bone marrow cancers, including leukemia, lymphoma, multiple myeloma and myelodysplastic syndrome (MDS). Bone marrow and stem cell transplants were pioneered in the 1950s, and the first successful hematopoietic stem cell transplant was performed in the 1960s. Advances in the next 20 years confirmed transplantation as the standard of care for treating bone marrow and blood cancers. In 1980, approximately 200 stem cell transplants were performed in the United States. By 2010, this had increased to approximately 20,000 annually.

For Oregon residents, transplantation began in 1989. The demand has continued to grow over the past 20 years (Graph 1), beginning with the first recipients of autologous transplantation and followed by those who received allogeneic donor grafts from family members, unrelated donors and umbilical cord blood. A major target of OHSU research is continual expansion of stem cell and marrow transplant options. Our goal is to make these procedures available to all patients who need them.

**MILESTONES IN THE OHSU BONE MARROW TRANSPLANT (BMT) PROGRAM**

**1995** - Certification of transplant program by Southwest Oncology Group (SWOG)

**1995** - Opening of 5C inpatient unit, dedicated to BMT patients

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### The History of Blood and Bone Marrow Stem Cell Transplantation at OHSU

**Graph 1**

- **Adult Transplants per Year**
  - Autologous
  - Allogeneic

- **Cumulative Transplants**
  - Related
  - Unrelated

**Transplants per Year**

**Cumulative Transplants**
HSU’s Center for Hematologic Malignancies (CHM) focuses on treating bone marrow cancers. Compared to cancers of solid organs, these cancers are relatively rare. Many can now be cured with intensive chemotherapy, with or without stem cell transplantation. However, treating bone marrow cancers requires a dedicated, multidisciplinary team focused on inpatient and outpatient care, with special attention to long-term survivorship issues.

In particular, the OHSU group has a major focus on caring for adults with acute myeloid leukemia (AML) and the related stem cell disorder myelodysplastic syndrome (MDS). In the past few decades, great progress has been made towards curing younger patients with these disorders. Recently, significant inroads have also been made in treating older patients with AML and MDS. OHSU has a specialty team focused on these diseases and provides a resource for patient care that extends beyond the OHSU Knight Cancer Institute from central Washington State to Idaho and northern California. Patients referred for intensive inpatient induction therapy benefit from the expertise and multidisciplinary support available at OHSU. Once their disease is controlled, patients are discharged back to their homes. OHSU’s CHM physicians maintain a close, collaborative and coordinated treatment program with each patient’s local hematologists and medical oncologists.
Patients with acute leukemia and MDS have a critical need for early disease stratification in the assessment of eligibility and timing for stem cell transplantation. Allogeneic transplantation utilizes not only donor stem cells but also a donor’s healthy immune system as part of the strategy to cure leukemia. Over the past decade, it has been recognized that patients are often referred for transplant much later than desirable for their individualized treatment course. The National Marrow Donor Program (NMDP) has developed guidelines for primary physicians to refer patients to transplant centers earlier, giving all patients improved opportunities for cure. Table 1 outlines key recent recommendations.

### Table 1. Recommended Indications for Transplant Consultation

#### ADULT

**Acute Myelogenous Leukemia (AML)**
- High-risk AML, including:
  - Antecedent hematological disease (e.g., myelodysplasia [MDS])
  - Treatment-related leukemia
  - Induction failure
- CR1 with intermediate or poor risk cytogenetics or molecular markers
- CR2 and beyond

**Acute Lymphoblastic Leukemia (ALL)**
- CR1 up to age 35
- CR2 and beyond

**Myelodysplastic Syndrome (MDS)**
- Intermediate-1 (INT-1), intermediate-2 (INT-2) or high IPSS score, which includes either:
  - > 5% marrow blasts
  - Other than good-risk cytogenetics (not 5q- or normal)
  - > 1 lineage cytopenia

#### PEDIATRIC

**Acute Myelogenous Leukemia (AML)**
- Monosomy 5 or 7
- Age < 2 years at diagnosis
- Induction failure
- CR1 with HLA matched sibling donor
- CR2 and beyond

**High-Risk Acute Lymphoblastic Leukemia (ALL)**
- Induction failure
- Philadelphia chromosome positive
- WBC > 100,000 at diagnosis
- 11q23 rearrangement
- Mature B-cell phenotype (Burkitt’s lymphoma)
- Infant at diagnosis
- CR1 duration < 18 months
- CR3 and beyond

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**New Guidelines For Primary Care Physicians**

The National Marrow Donor Program (NMDP) has developed guidelines for primary physicians to refer patients to transplant centers earlier, giving all patients improved opportunities for cure.
At OHSU, we now focus on eligibility, based on control of primary cancer and assessment of associated medical conditions that might preclude a successful outcome.

The first patients with acute leukemia were cured with transplantation more than 40 years ago. However, for three decades afterward an age ceiling prevented most patients with acute leukemia and MDS from proceeding to transplantation. This was because with age, the intensive therapy needed to prepare for transplant increases the potential for complications. Registry data indicates that by age 50, mortality that is not related to relapsing disease or treatment approaches 40 percent by one year after transplant. Since most patients who present with acute myeloid leukemia and MDS are over 60, only a minority could be treated with transplantation.

Over the past decade, there has been a dramatic change in this approach to transplantation. Today, it is recognized that much of the therapeutic benefit of a donor stem cell graft is not based on rescue after high-dose chemotherapy or radiation, but is a consequence of the establishment of the donor immune system. This has led to a focus on reduced intensity transplantation. This novel approach to transplantation is best utilized when patients are in remission. Its aim is to maximize the establishment of the donor immune system to eradicate the minimal residual leukemic burden that was otherwise hidden from our abilities to detect these cancer cells.

MDS patients are never curable with any therapy except stem cell transplant from a related or unrelated donor. Similarly, most patients over 60 with high risk or relapsed leukemia could anticipate only a 5 to 10 percent chance of five-year survival. The majority of patients died within one or two years of diagnosis. With reduced intensity transplantation, these outcomes appear to have dramatically changed, and many older patients are cured.

At OHSU, we now routinely offer allogeneic transplants to patients age 75 and under, who have disease control. In fact, with greater recognition of these positive outcomes, as shown in a recent publication in JAMA, we have removed age as a barrier for transplantation. We now focus on eligibility, based on control of primary cancer and assessment of associated medical conditions that might preclude a successful outcome.
ad cancer movies. The phrase “the big C.”

An acquaintance saying, “Cancer always comes back.” When Barbara Vaughn of Vancouver, Wash., was diagnosed with acute leukemia in 2007 at age 70, she avoided such phrases. “We associated the word ‘leukemia,’ with bad outcomes,” explains her husband Bob.

Barbara and Bob tell her cancer story together. It’s how Barbara went through treatment, with Bob and her OHSU leukemia and bone marrow team members at her side. Seeking care for what she thought was a bad case of influenza; Barbara had blood work at her primary physician’s office. Instead of the flu, she was diagnosed with acute leukemia. Her doctor referred her to Richard Maziarz, M.D., a blood cancer and bone marrow transplant specialist at OHSU.

“Dr. Maziarz explained everything,” Barbara says. A few years before, Barbara’s age and the rigors of pre-transplant chemotherapy would have made her ineligible for bone marrow transplant. Now, a modified regimen could yield favorable results, according to Dr. Maziarz.

The Vaughns didn’t want to deal in survival odds because they planned on a 100% cure. Dr. Maziarz accommodated their preferences. “He had to give us odds at times,” says Barbara, “but he couched them in positive language. We were very comfortable with him.”

The OHSU treatment team addressed Barbara’s concerns about side effects. “I heard about one negative side effect,” she says. “My doctor said, “That doesn’t have to happen to you. And it didn’t.”

Barbara had “good stamina before I got sick.” She walked regularly with Bob and

A Positive Outcome for Acute Leukemia

A 70-year-old woman with acute leukemia is back to her active lifestyle after a bone marrow transplant—and plenty of caregiver and OHSU team support.
had outstanding support from Bob, their adult children and her two sisters. Her bone marrow donor, a young medical student from Tennessee, matched 12 of 12 human leukocyte antigen (HLA) markers, greatly reducing the risk of graft-versus-host disease. During 26 days of induction chemotherapy to treat the leukemia at OHSU Hospital, “I lost my very straight hair and was pleasantly surprised when it came back curly, thanks to my donor,” Barbara says. The Vaughns worked hard to stay positive. “We brought movies to the hospital—comedies,” Bob says. They told a very limited number of family and friends whom they knew would encourage them.

The nursing staff put a cot in Barbara’s room, and Bob spent every night with her. “You'd think Barbara was [the nurses’] daughter or their mother, the way they treated her,” Bob says. Staff also treated Bob like a VIP. “The cafeteria staff invited me to try dishes, and I'd wind up with twice as much food as I could eat. From the doctors to the housekeeping staff, everyone extended themselves to make our stay as easy as possible.” When chemo was over, there were tearful goodbyes with the nurses on Barbara’s floor.

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OHSU Doernbecher Provides Pediatric Transplant

The OHSU Doernbecher Pediatric Blood and Marrow Transplantation program is the only transplant center serving children in Oregon. More than 400 autologous and allogeneic (related and unrelated donor) transplants using bone marrow, peripheral blood and cord blood stem cells have been performed since the program was established in 1994. Transplants are done to treat various cancers and non-cancerous diseases.

The Doernbecher team represents dedicated doctors, nurse practitioners and nurses who specialize in caring for children receiving cancer treatment or marrow transplantation for other diseases. This team provides:

• The most advanced treatments and procedures.
• Ample opportunity for participation in clinical trials.
• A large network of nationally recognized experts in every pediatric specialty.
• State-of-the-art facilities dedicated to specialized care for children and adolescents.
• A full staff of support professionals, including pharmacists, nutritionists, social workers, child life specialists, teachers and pastoral care.
• Long-term follow-up clinics.
• Family-centered care.
To maximize the possibility of the best outcomes—and recognizing that CHM members are managing patients over 120,000 square miles in the Pacific Northwest—the OHSU Knight Cancer Institute has undertaken a number of special initiatives. We have recruited nurse transplant specialists to coordinate patients’ care through the entire transplant course. From the start of treatment, they educate patients about the day-to-day treatment experience, the logistics of moving to the Portland area temporarily for the transplant procedure and navigating the complicated pathway through insurance authorization. Our coordinator team and transplant social worker specialists have developed educational tools to help with these efforts. In addition, we have established a weekly patient and caregiver class that provides information for patients and families. This initiative recognizes the critical role that strong caregiver support plays in good outcomes.

The OHSU adult transplantation team has also developed care pathways for transplant patient management to assist our referring hematologists and primary care providers. Based on our strong desire to be a resource for referring providers, we have been developing these pathways since our program’s inception 15 years ago. Most recently, transplantation specialist Susan Slater, F.N.P., has coordinated the publication of OHSU guidelines in Blood and Marrow Transplant Handbook: A Comprehensives Guide to Patient Care that has now been adopted for daily transplant patient care at many centers around the United States.

OHSU’s partnership with The Leukemia & Lymphoma Society (LLS), the world’s largest voluntary health organization dedicated to funding blood cancer research and providing education and services for patients and their families, further enhances OHSU’s ability to provide a full array of services and support to its patients.

Community Outreach
Caring for transplant patients is a team effort, and that team must extend beyond OHSU’s campuses. Since OHSU’s Center for Hematologic Malignancies and the OHSU Knight Cancer Institute serve broad referral bases, we have made significant efforts to provide the best possible care over time and across the greatest physical distances, as follows:

- Team members are available for consultation 24 hours a day.
- The stem cell transplant program has satellite clinics serving our community oncologist partners in Medford and Bend, Ore.
- We have established a longitudinal care clinic within the Kaiser health care network.
- Our regional satellite and Kaiser clinics offer new patient consultation and post-transplant follow-up visits.

Additional outreach clinics are being considered, as we believe that the best care for Oregon, Washington and Idaho residents is in their home communities.
The OHSU adult and pediatric stem cell transplantation programs are nationally recognized for research and contributions to developing new standards of care. Active participation and leadership in many major research and transplant specialty groups and societies is the norm for OHSU faculty. OHSU is a member of the National Institutes of Health-sponsored Blood and Marrow Transplant Clinical Trials Network (BMT CTN). In addition, OHSU faculty are active members of the Southwest Oncology group (SWOG), the American Society of Blood and Marrow Transplantation (ASBMT), Radiation Injury Treatment Network (RITN), Foundation for the Accreditation of Cellular Therapy (FACT) and the International Society for Cell Therapy (ISCT). These groups share a common goal: to improve outcomes and ensure that more patients with blood and marrow cancers are cured and return to everyday activities with excellent quality of life.

Participating in well-designed clinical trials is central to this goal. These trials answer key questions about disease management, supportive care and decreasing the risk of recurrence. OHSU faculty generates clinical trials and also participates in multicenter collaborative studies. For instance, over the past decade, we have learned that allogeneic transplantation can be extended, offered and successfully performed for patients in their 70s by concentrating less on very aggressive chemotherapy or radiation and more on establishing a healthy, functioning donor immune system as rapidly as possible. As discussed above and shown in the story of Barbara Vaughn, such treatment provides a healthy donor immune system that can target the residual leukemia that is hiding within the patient. Reduced intensity transplant was developed for treatment of older patients and those with significant co-morbidities. This approach is leading to excellent outcomes, raising the question of whether reduced intensity transplantation should become the standard approach for recipients of allogeneic stem cell grafts. OHSU faculty member Gabrielle Meyers, M.D., is the local physician leader for a brand-new national randomized clinical trial, BMT CTN 0901, comparing outcomes for patients with acute leukemia in first clinical remission or with MDS who receive either conventional or reduced intensity treatment regimens.

Oregon Cord Blood Program Helps Provide Stem Cell Transplants

The Oregon Cord Blood Program of was established in 2008 with a grant from the Friends of Doernbecher. The program’s mission is to facilitate the collection of cord blood for public banking and to educate Oregonians about the importance of cord blood donation. Expectant mothers who deliver babies at participating institutions can opt to have their umbilical cord blood collected at the time of delivery. Units of cord blood that meet high quality standards are stored at the Puget Sound Blood Center in Seattle, Wash., and entered in the National Cord Blood Inventory. The units are collected and stored at no cost to the donor mother. Any transplant center—nationwide or worldwide—can procure blood for patients who need stem cell transplants to treat cancer or other life-threatening blood or immune system diseases. The few units that are not suitable for storage in the cord blood inventory are made available to laboratory researchers in academic institutions studying stem cell biology.

In the past two years, 358 donor mothers have consented to have their cord blood collected, and 293 units have been successfully collected and stored. About 30 percent of the units collected are from mothers whose ethnic backgrounds are underrepresented in the national registry. We have provided 24 cord blood units for research to investigators.

Plans are underway for expanding this program to other hospitals in the State. This will give more mothers in the Oregon area the option of donating their cord blood and potentially saving the life of a patient in need of a blood stem cell transplant. Expanding access to the Oregon Cord Blood Program across Portland supports OHSU and OHSU Doernbecher Children’s Hospital’s missions of service, research and community outreach.
Caring for transplant patients an ongoing process. Patients are often referred early in the course of their diseases to establish a consensus approach to optimal disease control, leading to the transplant event. More importantly, it is increasingly recognized that cancer and transplant survivors might be left with medical sequelae of treatment that require ongoing management. By this time, most patients have returned to their overburdened primary care providers, who are now asked to become day-to-day experts in the management of patients who may have organ damage from all their cancer therapies. Allogeneic transplant patients might also have chronic graft-versus-host disease, a product of the establishment of a donor immune system in an immunosuppressed recipient. While the donor immune system often provides a curative graft-versus-malignancy effect, its unchecked activity can lead to disabling and sometimes fatal outcomes for the recipient. Optimizing the graft-versus-malignancy effect while limiting graft-versus-host disease has been a target of allogeneic transplant research for 25 years.

To assist primary care and other referring providers with these management issues, the OHSU adult transplant team is opening a long-term survivorship program. This new program will provide focused internal medicine care for patients with graft-versus-host disease symptoms and those who wish to pursue wellness months or years after cancer treatment. Management of chronic graft-versus-host disease can be focused on patients who may be at risk for ongoing infections, but also have multiple medical conditions that interfere with quality of life. For example, dry eyes may seem like a minor problem in a patient who is cured of leukemia, but when they are in the information technology field and need to look at computer screens all day, the condition is disabling. We want this clinic to be a helpful resource for referring physicians around the region. The team will also help pediatric cancer patients transition to adult medical management.

The OHSU transplant team shares the OHSU Knight Cancer Institute’s commitment to personalized medicine. Team members are pursuing new therapies focused on underlying malignancies. In the long term, these therapies could either reduce the risk of relapse patients face for several years after transplant or even eliminate the need for transplantation.

In addition to research on novel therapies and improved supportive care, several OHSU faculty are working on health policy issues. These efforts will help not only Oregonians but patients around the nation. James Gajewski, M.D., with colleagues from ASBMT and NMDP, have provided critical data in an application to the U.S. Centers for Medicare & Medicaid Services (CMS) leading to transplantation benefits for Medicare patients with MDS under a certificate of evidence (CED) determination. Previously, patients with myelodysplastic syndrome usually had to wait until their disease progressed to acute leukemia before they were eligible for transplant, which has long been documented as the only curative therapy for MDS.

Brandon Hayes-Lattin, M.D., Senior Medical Advisor to the Lance Armstrong Foundation, inaugural medical co-chair of the LIVESTRONG Young Adult Alliance, and member of the Centers for Disease Control and Prevention Advisory Committee on Breast Cancer in Young Women, has been a leader in defining new standards of primary and supportive care for adolescents and young adults with cancer.

The Adolescent & Young Adult (AYA) Oncology Program at OHSU provides support for the unique emotional, physical and social needs of patients with cancer between the ages of 15 and 39. As the only program in Oregon and one of only a few in the United States, our team of skilled doctors, nurses and researchers are dedicated to developing more effective methods of diagnosis and treatment to assure longer, healthier lives for people diagnosed with cancer in this young stage of life.

Several members of the Knight Cancer Institute transplant team have been working closely within the NMDP System Capacity Initiative, which was formed to address barriers to transplantation for patients across the country. As announced on 11/18/11, the NMDP facilitated the 50,000th transplant procedure of which 40,000 have been performed in the last decade. The expectation is that by 2015 there may be 10,000 unrelated donor transplants performed per year. OHSU faculty have participated in committees focused on financial limitations, physician and nurse practitioner or physician assistant workforce shortages and issues of diversity that affect transplant access with the goal to create solutions before these problems magnify.
**Comparison of Observed Survival for Acute Myeloid Leukemia (AML) Between the National Cancer Database and OHSU**

OHSU’s observed survival, from the time of diagnosis of their disease, for adult patients diagnosed with AML from 2003 through 2010 who were able to proceed to stem cell transplant without regard to disease status is 80 percent at 1 year, 55 percent at 2.5 years and 36 percent at 5 years.

The five-year observed survival for AML patients reported to the National Cancer Database by all teaching and research facilities, regardless of treatment type, is 45 percent at 1 year, 30 percent at 2.5 years and 23 percent at 5 years.

**References**

*Blood and Marrow Transplant Handbook: A Comprehensive Guide to Patient Care*

Editors: Richard T Maziarz & Susan Slater

Publisher: Springer

*JAMA.* 2011 Nov 2;306(17):1874-83.


**OHSU Survival Rates Compare Favorably to National Transplant Database**

The three-year survival probability for adult patients with acute myeloid leukemia (AML) receiving unrelated donor transplants at OHSU compares favorably to rates from Center for International Blood and Marrow Transplant Research (CIBMTR) database.

A patient’s disease status at the time of transplant is a major predictor of post-transplant survival. Early disease is defined as patients in their first complete remission. Intermediate disease is defined as patients in a second complete remission, and patients with advanced disease are defined as being beyond their second complete remission or those with primary induction failure.

**Stem Cell Transplant Volume OHSU and DCH 1990-2010**

*OHSU RATES FOR EARLY, INTERMEDIATE AND ADVANCED DISEASE*

*CIBMTR RATES FOR EARLY, INTERMEDIATE AND ADVANCED DISEASE*
In October 1991, 20 years ago, I arrived at Oregon Health & Science University. I had spent the previous 10 years doing research in transplantation immunology and clinical bone marrow transplantation at Brigham and Women’s Hospital of Harvard Medical School. At the time, OHSU had no organized adult bone marrow transplant program, although my predecessors had made the first efforts to create one. Peter Kohler, M.D., president of OHSU from 1988 to 2006, asked me to help generate a certificate of need for the establishment of an allogeneic transplant program. He also asked me to help create a clinical program to meet the needs of Oregon and southwest Washington residents.

I told him yes, but I was hesitant at first to be at the center of this effort because of the demands of maintaining a research laboratory. I agreed to assist in the program’s creation but with an unpredicted rapid growth, after 18 months agreed to accept the position as medical director, adding the responsibilities of recruiting team members to care for transplant patients.

Our team began with four people. Little did any of us know the team would expand to more than 100 professionals, all working together to provide the best outcomes and the most support for our patients from Oregon and neighboring states. We have grown dramatically from those early beginnings to our current level and will approach nearly 180 transplant procedures this year.

Our growth has depended on contributions from every specialty at OHSU. Caring for transplant patients is truly multidisciplinary. Nursing, engineering, housekeeping, radiology, surgery, pulmonary, transplant infectious disease, dermatology, clinical psychology, social work, physical therapy, occupational therapy, nutrition support, critical care, quality assurance, hospital administration and professionals from many other disciplines all contribute to these efforts. In addition, there are the many basic, translational and clinical research scientists who have helped transform transplantation from experimental treatment to the standard of care, from desperate effort to primary treatment.

In the next decade, we will all face many challenges, including shrinking resources and dramatic changes in patient demographics. Inevitably, these events will lead to increased demand for transplantation procedures. The OHSU transplantation team, working side-by-side with the primary care physicians and referring oncologists who provide patients with daily care in their communities, will face these challenges, overcome the obstacles and gain the best outcomes for our neighbors and friends.

Richard Maziarz, M.D.
Medical Director, Stem Cell Transplant Program
OHSU Knight Cancer Institute
Physicians with Transplant Focus
Including Special Interests

Richard Maziarz, M.D.
*Medical Director, Stem Cell Transplant Program*
- Blood and marrow transplant
- Acute and chronic leukemia
- Lymphoma
- Multiple myeloma
- Immunotherapy
- Regeneration medicine
- Graft-versus-host Disease

Gabrielle Meyers, M.D.
- Blood and marrow transplant
- Acute leukemia
- Myelodysplastic syndrome
- Aplastic anemia
- Bone marrow failure syndrome

James L. Gajewski, M.D., F.A.C.P.
- Blood and marrow transplant
- Acute leukemia
- Lymphoma
- Multiple myeloma

Andy Chen, M.D., Ph.D.
- Blood and marrow transplant
- Aggressive and highly aggressive lymphoma
- Chronic lymphocytic leukemia
- Multiple myeloma

Brandon Hayes-Lattin, M.D.
- Blood and marrow transplant
- Lymphoma
- Testicular cancer and germ cell tumors
- Immunotherapy

Shernan Holtan, M.D.
- Blood and marrow transplant
- Acute leukemia
- Myelodysplastic syndrome
- Aplastic anemia
- Myelofibrosis
- Graft-versus-host disease

Laura Newell, M.D.
- Blood and marrow transplant
- Umbilical cord blood transplant
- Acute leukemia

Emma Scott, M.D.
- Bone marrow and stem cell transplant
- Multiple myeloma
- Amyloidosis

Physicians Providing Transplant-Related Care
Including Special Interests

Michael Mauro, M.D.
- Chronic myeloid leukemia
- Essential thrombocytosis
- Myeloproliferative diseases
- Mastocytosis

Tibor Kovacsovics, M.D.
- Acute leukemia
- Chronic leukemia, including chronic myelomonocytic leukemia and chronic lymphocytic leukemia
- Myelodysplastic syndrome
- Amyloidosis
- Multiple myeloma

Stephen Spurgeon, M.D.
- Chronic lymphocytic leukemia
- Indolent lymphoma
- Mantle cell lymphoma
- Intermediate and aggressive lymphoma

Stephen Smith, M.D.
- Follicular lymphoma
- Marginal zone lymphoma
- Multiple myeloma
- Waldenström macroglobulinemia

Kim-Hien Dao, D.O., Ph.D.
- Myelodysplastic syndrome
- Myeloproliferative disorder
- Multiple myeloma
- Acute leukemia
- Polycythemia vera

Craig Okada, M.D., Ph.D.
- Hodgkin lymphoma
- Large cell lymphoma
- Aggressive lymphoma

William Fleming, M.D., Ph.D.
- Acute leukemia

Angela Fleischman, M.D., Ph.D.
- Myeloproliferative disorders
- Polycythemia vera
- Myelofibrosis

Doernbecher Children’s Hospital Pediatric Transplant Team

Peter Kurre, M.D.
Eneida Nemecek, M.D., M.S.
Evan Shereck, M.D.
Tara Bernhardt, P.N.P.
Erica Soler, P.N.P.
Allison Franco, R.N., B.S.N., O.C.N.

CHM Nurse Coordinators

Trish Blake, R.N., M.S.N., O.C.N.
Linda Chalmers, R.N., B.S.N.
Greta Hartman, R.N., B.S.N., O.C.N.
Jolene Kemp, R.N., O.C.N.
Anne Kratz, R.N., B.S.N., O.C.N.
Lisa Kruse, R.N., B.S.N., O.C.N.
Bashi Ratterree, R.N., B.S.N.
Florence Seelig, R.N., B.S.N., O.C.N.

CHM Mid-level Provider Team

Bryon Allen, F.N.P.
Carolyn Blasdel, F.N.P.
Diana Brewer, P.A.
Jennifer Burmeister, P.A.
Scott Deaton, P.A.
Manami Furuya, F.N.P.
Carol Jacoby, A.C.N.P.
Ashley Manning, P.A.
Lauren Myers, P.A.
Susan Slater, F.N.P.
Kimberly Tyler, A.C.N.P.
## 2010 Analytic Cases - Site and Stage Distribution

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### Totals

| TOTALS | 1801 | 1565 | 3366 | 171 | 774 | 629 | 474 | 529 | 73  | 716 |

Note: Figures above represent patients first seen at OHSU in 2010 and include analytic cases only (diagnosed here and/or received part or all first course treatment here). Basal and squamous cell carcinoma of the skin and CIS of the cervix are not collected.
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Kevin Billingsley, M.D.
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PROGRAM ACTIVITY COORDINATORS
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Cancer Conference Coordinator
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Cancer Registry Data Quality Coordinator
Ellen Distefano
Quality Specialist
Katie Hennis, M.S.
Community Outreach Coordinator

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Charles Thomas, M.D.
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Provost
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Associate Director of Development
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Dwight E. Weber

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