BUILDING On STRENGTH
2013 ANNUAL REPORT

MULTIDISCIPLINARY CLINICAL TEAMS + PATIENT NAVIGATION
+ GENETIC COUNSELING + CLINICAL RESEARCH + CLINICAL
EDUCATION + INTEGRATIVE MEDICINE + PATIENT SUPPORT
AND EDUCATION + INNOVATIVE CLINICAL TRIALS CENTER
+ SURVIVOR CELEBRATIONS + COMMUNITY OUTREACH
Baylor Dallas Leadership: Building on Strength

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Cancer research studies on the campus of Baylor University Medical Center are conducted through Baylor Research Institute, Texas Oncology, and US Oncology. Each reviews, approves, and conducts clinical trials independently. Their clinical trials are listed together, in this publication, for the convenience of patients and physicians.

Physicians are members of the medical staff of one of Baylor Health Care System’s subsidiary, community, or affiliated medical centers and/or practice under a written fee-for-service, fee-for-benefit, salary or a salary plus bonus arrangement with Baylor University Medical Center.

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Over the past several years, our annual reports have concentrated on building. We have built physical facilities including the Baylor Charles A. Sammons Cancer at Dallas which opened in March 2011, and in 2012, the Baylor T. Boone Pickens Cancer Hospital. In addition to our advanced facilities, we continue to build hope through innovative treatment opportunities and outstanding patient support.

In 2013, we continued to build, but not so much with bricks and mortar, but building on our strengths. The Blood and Marrow Transplant Program celebrated 30 years of providing curative treatment opportunities and performed the 5000th transplant since the program’s inception. Clinical trials opportunities increased with the opening in September of the Swim Across America Innovative Clinical Trials Center. With the generous support of the Swim Across America organization, we can now offer more patients the opportunity to participate in clinical trials of advanced investigational therapies including targeted and immunotherapies.

Site-Tumor conferences, a mainstay of our academic approach to multidisciplinary treatment planning, have expanded and new conferences centered around pancreatic and colorectal cancer were added. Scientific publications in peer-reviewed journals continued to rise and have doubled in the past five years.

There has been growth in the cancer genetics program with expansion of the genetics counseling program with additional counselors, more cancers covered and expansion to other Baylor facilities. In addition, our stellar patient navigation program continues to serve more patients every year.

Throughout the following pages you will read of how the Baylor Charles A. Sammons Cancer Center at Dallas is building on these and other strengths to provide more options and hope to those with cancer.

Alan M. Miller, MD, PhD
Chief of Oncology, Baylor Health Care System
Medical Director, Baylor Charles A. Sammons Cancer Center at Dallas

"In 2013, we continued to build, but not so much with bricks and mortar, but building on our strengths."

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**CANCER COMMITTEE MEMBERS**

**Required Members:**
- John T. Preelald, MD, Chair [Surgery]
- Erin Bloom, MD [Radiology]
- B. Scott Green, MD [Radiation Oncology]
- Peter A. Dwyer, MD [Pathology]
- Robert L. Fink [Palliative Care]
- E. Colin Koon, MD, PhD [Cancer Liasion Physician]
- Clayton M. Matthews, MD [Quality Improvement Coordinator]
- Robert G. Merritt, MD [Medical Oncology]
- Amy L. Wilcox, MD [Rehabilitation]
- Johanna Bonnich, RN, CNOR [Performance Improvement/Quality Management]
- Pam Cannada, MHA [Quality Improvement Coordinator]
- Sylvia Coats [Cancer Program Administrator]
- Michelle Murray, PhD [Psychosocial Services Coordinator]
- Janet Reynolds, CTR [CTR] (Cancer Conference Coordinator)
- Cheryl Sampson, CCP [MBA (Clinical Research Coordinator)]
- Kathleen Shway, RN, ACNP
- Sherry Walker, GCG [Genetics]
- Kathy Thomas Welch, LMSW (Social Work)
- Carolyn Matthews, MD [Quality Improvement Coordinator]
- Robert G. Mennel, MD [Medical Oncology]
- Amy L. Wilcox, MD [Rehabilitation]
- Johanna Bonnich, RN, CNOR [Performance Improvement/Quality Management]
- Pam Cannada, MHA [Quality Improvement Coordinator]
- Sylvia Coats [Cancer Program Administrator]
- Michelle Murray, PhD [Psychosocial Services Coordinator]
- Janet Reynolds, CTR [CTR] (Cancer Conference Coordinator)
- Cheryl Sampson, CCP [MBA (Clinical Research Coordinator)]

**Other Members:**
- Charla Becker, MD
- Yvonne Cagle, MD
- Karen L. Fink, MD
- James W. Fleshman, MD
- Johanna Jones, RN, FACHE
- Ronald C. Jones, MD
- Karol Kondur, MD
- Z. H. Laties, MD
- Alan M. Miller, MD, PhD
- John C. O'Brien, MD
- John J. Pippins, Jr., MD, FACP
- Charles T. Richardson, MD
- Raphaelle Valera, MD
- Estil A. Vance, III, MD
- David L. Welke, MD

**W. Scott Webster, MD**
Baylor Scott & White, MD [House Staff Representative]

**Other Members:**
- Sarah Seward, MD, FACP
- Leah Zitner, MD (House Staff Representative)

**Invited to Attend:**
- Patrick Allgood, RN, BSN
- Anna Barber
- Jane Dietrich, RN, MBA
- Ann Giddens, ACS
- Kimberlee Hanna, RN, BSN, OCN, CHPN
- John McWhorter, President BUMC
- Nolan Igo, PharmD
- Lynn Randolph, VP Nursing
- Taryn Pemberton, Marketing
- Laura Scialli, RN, CTR
- Julie Smith, Marketing
Baylor Charles A. Sammons Cancer Center at Dallas offers treatment for all forms of cancer, with particular emphasis on lung, pancreas, colon, breast, prostrate, and gynecologic cancers. Physicians on the medical staff of Baylor Sammons Cancer Center at Dallas also have special expertise in treating blood and bone marrow cancers such as leukemia, lymphoma and myeloma.

Baylor offers a full spectrum of oncology services, from education to advanced treatment options and rehabilitation programs. Specialists and staff work diligently to treat patients in an environment filled with compassionate, quality care by using effective methods in prevention, diagnostic, and treatment.

Depending on the type of cancer and the needs of each individual patient, both standard and innovative treatment options are available. Therapies include blood and marrow transplantation, surgery, chemotherapy, immunotherapy, radiation, CyberKnife® and Gamma Knife® radiosurgery, monoclonal antibodies, thermal ablation for liver cancer, and ultrasound-guided transperineal radioactive seed implants. Scientists at Baylor Sammons Cancer Center perform extensive cancer research, and support services like the Cvetko Patient Education Center, Ernie’s Appearance Center, and the Healing Environment Program help Baylor Sammons Cancer Center treat the whole patient.

For nearly four decades, Baylor Charles A. Sammons Cancer Center has provided quality clinical care, advanced technology, and clinical research to patients, along with comprehensive support services and programs for patients and their families. With the opening of the 10-story outpatient treatment facility and integration with Baylor T. Boone Pickens Cancer Hospital in Dallas, it is now the largest outpatient cancer center in North Texas. Annually, more than 90,000 cancer visits occur at Baylor Sammons Cancer Center at Dallas, and more than 800 people participate in research trials.

Baylor Charles A. Sammons Cancer Center Network
Seven facilities across Baylor Health Care System carry the Baylor Charles A. Sammons Cancer Center name as part of the system’s focus to bring patients throughout North Texas quality clinical care and advanced technology. Facilities in McKinney and Carrollton also offer oncology services and are expected to carry the Baylor Charles A. Sammons Cancer Center name in the future.

Baylor T. Boone Pickens Cancer Hospital
This is the first dedicated cancer hospital in North Texas and only the second in the state. The 96-bed, 175,000-square-foot facility has been specially designed to provide a place of healing, calming, and spirituality. A skybridge connects the inpatient hospital to the many outpatient services of Baylor Sammons Cancer Center at Dallas. Larger rooms enable patient families and caregivers to have their own space, and families and caregivers have access to two areas in the hospital for showering, washing clothes, working or relaxing.
Celebrating more than 30 years and
5,000 transplants, the Blood and Marrow
Transplant (BMT) Program at Baylor
Charles A. Sammons Cancer Center at
Dallas, is one of the leading blood and
marrow programs in the state of Texas,
and has grown into one of the largest and
most comprehensive in the nation. Led
by Edward Agura, MD, medical direc-
tor, our BMT program continues to move
research forward to improve outcomes
for those affected by blood cancers and
deficiencies for which bone marrow trans-
plantation may provide lifesaving treat-
ment. “If a patient comes to us today for
a bone marrow transplant, there is almost
no reason we cannot find a donor for him
or her,” says Dr. Agura.

At Baylor University Medical Center at
Dallas, the BMT team is performing a
study comparing the use of umbilical
cord blood versus conventional marrow
or peripheral blood stem cell transplants.
The stem cells in cord blood have a rare
capacity to repair bone marrow and boost
immune system recovery. “The patient’s
diseased bone marrow with cancer is
completely eliminated with high doses of
chemotherapy and sometimes radiation,
or a combination of the two,” says Luis
Pineiro, MD, FACP, a hematologist on
the medical staff at Baylor Dallas.
“Healthy stem cells from a donor will
repopulate the bone marrow. In the case
of inherited deficiencies, the ‘deficient’
cells will be replaced by the healthy
transplanted donor cells.”

Healing Power
About 70 percent of individuals requiring a stem cell transplant are not able to find a suitable match in their family. Through
the BMT program’s research efforts, patients have access to
donated cord blood units that have been frozen and stored for
transplantation. “Not long ago, cord blood was discarded,”
says Dr. Pineiro. “It is incredible that today it can be utilized to
perform life-saving procedures.”

Unlike adult hematopoietic — or blood-forming — stem cells,
cord blood stem cells are young, flexible cells that can easily
develop into different blood cell types that perform specialized
tasks. For people with blood cancers such as leukemia, lym-
phoma and myeloma, an infusion of cord blood stem cells can
regenerate bone marrow following cancer therapy. For individu-
als with inherited disorders of red blood cell production, such
as sickle cell anemia or thalassemia, cord blood stem cells can
replace defective cells with a genetically normal counterpart,
thus restoring red-cell function: the delivery of vital oxygen to
the body. In immune deficiency disease, cord blood stem cells
help fend off infections and diseases by replacing defective
white blood cells with their healthy counterparts.
Flexible Fit

For a transplant to be successful, the human leukocyte antigen (HLA) markers in the donor’s stem cells must match those of the recipient. Because cord blood stem cells are better able to adapt themselves to a patient’s body, there is less chance of immunologic side effects such as rejection or graft-versus-host disease.

“When used for transplantation these cells are more tolerant, and therefore less likely to get ‘activated’ when exposed to their new environment in the recipient. The end result is less rejection and less graft-versus-host reaction,” says Dr. Pineiro. “Since we expect to see less immunologic activation, we can then use ‘less than perfect’ matches for transplantation. This has increased the number of patients in which stem cell transplant is feasible.”

Although cord blood contains fewer stem cells than a marrow or blood stem cell transplant, Baylor researchers are able to combine cord blood products from multiple donors, thereby increasing the number of stem cells infused and providing faster recovery of blood counts.
Recognizing the critical importance of phase 1 trials, Baylor Charles A. Sammons Cancer Center at Dallas boasts a 6,375-square-foot facility, the Swim Across America Innovative Clinical Trials Center (ICTC), offering patients better access to a wide range of new research and treatment options. The ICTC expands the already extensive program of cancer clinical trials offered at Baylor Sammons Cancer Center.

With the cost of bringing a new drug to market currently hovering around $1 billion, or more, phase 1 clinical trials at the ICTC continue, in part, due to funding sponsors from pharmaceutical or biotechnology companies; however, for those agents without a sponsor, other funding must be found to run the clinical trials. An ideal match was found for the ICTC when Swim Across America (SAA), a national organization that holds swim-related events to raise funds supporting cancer research, prevention and treatment, came forward with an offer to support the center. According to Daniel Watters, chairman of the SAA-Dallas committee and a member of the 1988 U.S. Olympic swim team, SAA-Dallas chose to support the ICTC at Baylor Sammons Cancer Center at Dallas after an intensive search for “the best of the best” in terms of cancer research and treatment in North Texas.

The first open-water swim, held in June 2011 at Lake Ray Hubbard in Rockwall, Texas, was the beginning of a four-year commitment to the ICTC, with the goal of raising in excess of $1 million during those four years to benefit the phase 1 clinical trials program. SAA-Dallas is likely to exceed that goal with the third swim in June 2013 bringing the total amount raised to $950,000. “We hope and anticipate that this commitment will be extended for many, many more years to come,” says Watters.

In recognition of the support and dedication of SAA-Dallas, the ICTC has been named the Swim Across America Innovative Clinical Trials Center at Baylor Charles A. Sammons Cancer Center at Dallas. The naming was officially announced on June 7, 2013, the day before the open-water swim.

Under the leadership of Carlos Becerra, MD, medical director of the ICTC, the center plans to use the expanding knowledge about the biology and genetics of cancer in exploring novel treatments for patients with hard-to-treat cancers. Says Dr. Becerra, “In the past, for breast cancer or colon cancer, as examples, we treated everyone the same. Now, as we dissect tumors at the molecular genetic level, we have learned that colon or breast cancer can be subdivided into different types of disease that need to be treated differently. This gives us the knowledge to be smarter in treating our patients, using specific drugs to shut down specific pathways.”
Because of current genetic research, physicians now have the tools to identify specific genetic mutations passed down through families that are responsible for a large number of colon cancers. “The current estimate is that one in 200 people has one of these genetic mutations,” says C. Richard Boland, MD, chief of gastroenterology and a physician on the medical staff at Baylor University Medical Center at Dallas. The condition is called Lynch syndrome, and knowing its genetic roots gives people the chance to protect themselves and their families from the cancers it can cause.

Experts estimate that three out of every 100 colon cancers are caused by Lynch syndrome. Screening is critical because colorectal cancer is the third most common cancer – about 150,000 Americans are diagnosed annually. It’s also the third most deadly, claiming about 50,000 lives each year, according to the American Cancer Society.

When Dr. Boland first theorized that inherited genes were the cause, he did not have to go far to find a family to study. “My father first got colon cancer when he was in his mid-20s,” he says. “Ten out of 13 of his siblings had cancer of some kind. So for me, this is personal.” Though few others supported Dr. Boland’s theory about a genetic link, Henry T. Lynch, MD, had published papers to support just that. In one of his own papers, Dr. Boland named the connection “Lynch syndrome.”

Today, researchers have not only confirmed that Lynch syndrome is surprisingly common, but they’ve identified how the mutations lead to cancer. Research also shows that, among people with Lynch syndrome, the chance of having colorectal cancer is 70 percent in men and 40 percent in women. Women also have a 40 percent chance of having endometrial cancers (in the lining of the uterus), plus smaller risks of having a variety of other cancers. Also, a child of someone with the condition has a 30 percent chance of having it, a fact that leads to large clusters of affected relatives, as in Dr. Boland’s family. “Once we identify one person with it, we end up working with entire families,” Dr. Boland says. “Then, we are able to alter how Lynch affects a person and their relatives.”

Genetic counseling at Baylor Charles A. Sammons Cancer Center at Dallas can help identify patients who are at risk of developing colon cancer as a result of a genetic mutation. Board-certified genetic counselors help patients understand their diagnosis, the inheritance pattern, and the recommended screening and prevention options.
Getting an annual mammogram is important, but life sometimes gets in the way of keeping that potentially lifesaving appointment. “Women often don’t take the time to take care of their health like they should,” says Sherry Fox, mobile account executive at Baylor University Medical Center at Dallas. “By making mammograms convenient and efficient though, they’re much more likely to follow through.” Baylor Dallas’ Darlene G. Casa Women’s Imaging Center Mobile Mammography aims to do just that. The 41-foot coach is staffed by two women, including a certified mammographer, and travels to businesses, churches, school districts and corporations to bring mammography services to women right where they are.

The specially-designed bus equipped with three-dimensional breast imaging technology began making regular stops at key locations in the fall of 2013. The mobile machine enables women to have quality breast screening at a location convenient for them. The bus serves patients with two changing rooms with direct access to the mammography area assuring convenience and privacy. The mobile program can serve up to 50 women per day and the vehicle is equipped with internet capabilities to sync patient data with the hospital.

“The mobile program features digital mammography that includes Computer Assisted Detection (CAD), an application that scans the patient’s screening mammogram to identify suspicious features that may warrant a second review by the radiologist,” says Ethel Randall, director of breast imaging for Baylor Health Care System’s Baylor Charles A. Sammons Cancer Center. “Digital mammography technology also provides faster processing times and the ability to store images electronically.
American Cancer Society

The American Cancer Society has an incredible supporter of Baylor Sammons Cancer Center at Dallas to deliver lifesaving results. Together, we are a relentless force fighting cancer. American Cancer Society representatives collaborate with oncology staff to deliver support, and serve on the cancer committee to help provide resources to fulfill the Commission on Cancer standards for cancer care.

In 2013, the American Cancer Society served 1,026 patients with 3,148 services at Baylor University Medical Center at Dallas. Patients received weekly support from the Society’s ACS Day representative and all newly diagnosed patients received a Personal Health Manager kit from the Society which provides personalized information on their specific cancer type, as well as helping patients and caregivers keep appointments, test results and prescriptions organized throughout treatment.

As the official sponsor of birthdays, the American Cancer Society knows how important each and every birthday can be. In May of 2013, the Society celebrated its 100th birthday – one-hundred years of saving lives and twenty years supporting Baylor hospitals. In the last two decades the Society has contributed to a 20% decline in cancer death rates in the US. Last year the Society and Baylor hospitals reached over 2,100 patients with more than 6,000 programs and services, that’s 1-in-4 cancer patients treated at Baylor receiving valuable services by the Society.

Patients at Baylor University Medical Center at Dallas are able to receive guidance on Society programs, including the Reach To Recovery® program for those coping with their breast cancer experience. Female patients may also get involved in the Look Good Feel Better® program, dedicated to improving the self-esteem and quality of life of people undergoing treatment.

Cancer education and support are two vital components in one’s cancer journey. Baylor Charles A. Sammons Cancer Center boasts a valuable patient education and support center named in honor of one of our former patients, Virginia R. Cvetko. The Cvetko Center provides many disease-specific education and support programs to help patients and their caregivers understand the physical, emotional and spiritual challenges of fighting cancer.

Virginia R. Cvetko Patient Education and Support Center

Cancer education and support are two vital components in one’s cancer journey. Baylor Charles A. Sammons Cancer Center boasts a beautiful patient education and support center named in honor of one of our former patients, Virginia R. Cvetko. The Cvetko Center provides many disease-specific education and support programs to help patients and their caregivers understand the physical, emotional and spiritual challenges of fighting cancer.

Disease-Specific Support Groups
- Amyloid Support North Texas: Quarterly
- Bladder/Kidney Cancer Support Group: Monthly
- Breast Cancer Support Group: Monthly
- Gynecological Cancer Support Group: Every other Monday
- Lung Cancer Education Support Group: Monthly
- North Texas Myeloma Support Group: Monthly
- Oral and Head and Neck Cancer Support Group: Monthly
- Pediatric Cancer Education and Support Group: Monthly
- Waldenstrom’s Macroglobulinemia Support Group: Bimonthly
- Young Adult Cancer Survivors: Bimonthly

Through the Patient Navigation Program, patient navigators provide free and confidential support and guidance to all patients and their caregivers during their cancer journey.

The American Cancer Society is the only organization offering cancer patients and their families around-the-clock guidance and support through their toll-free line, 1-800-227-2345 and at www.cancer.org.

TOGETHER, WE ARE A RELENTLESS FORCE FIGHTING CANCER.
Free Community Screenings
Baylor Sammons Cancer Center at Dallas hosted a head and neck cancer screening on April 27 followed by a skin cancer screening conducted on May 11. In all, a total of 38 patients received abnormal results and were contacted by a member of our patient navigation team to facilitate an appointment with a member of our medical staff.

Community Outreach Events
On October 6, women from throughout Dallas gathered to take a proactive stand against breast and ovarian cancers at this year’s Sole Sisters™ event held at Tower Club Dallas. This health & beauty boot camp event promotes good health/fitness practices and early detection. More than 100 women enjoyed spa treatments, group workout classes and health/beauty consultations. A special highlight of the event was an interactive discussion panel covering genetics, prevention/screening, integrative medicine and survivorship. Ivana Hall, Miss Texas 2013 served as event emcee.

More than 100 survivors and their families attended the Blood and Marrow Transplant Reunion: Cirque du Celebration, on September 29, 2013. Attendees enjoyed carnival style games, treats and were entertained by Circus Freaks, a circus style performance group. The highlight of the reunion was when John King, a leukemia survivor from Bossier City, Louisiana met his blood donor match, Camilla Bresciani who traveled from Dubai to meet the man her donation saved. Through the Be The Match® National Marrow Donor Program database, Camilla was identified as a perfect match for Mr. King, enabling him to receive his life-saving transplant on June 5, 2012.

Baylor Charles A. Sammons Cancer Center at Dallas hosted a lighted vigil as part of a national campaign to raise awareness for lung cancer on November 14, 2013. Dallas joined more than 100 communities across the nation in hosting a Shine a Light on Lung Cancer Vigil in collaboration with the Lung Cancer Alliance. The purpose of this vigil was designed to provide hope, support and compassion to the thousands who are diagnosed with lung cancer.

Young Adult Cancer Survivors’ Summit
In an effort to better meet the needs of young adult cancer survivors (YACS), the Young Adult Cancer Survivors’ Coalition hosted the annual Down with Cancer. Up with Survival YACS Summit in April at the University of Texas at Arlington. This year’s event featured keynote speakers: Heidi Adams, a young adult cancer survivor, author and president and CEO of Critical Mass along with Karen Albritten, MD, a researcher specializing in young adult cancers at Cook Children’s Medical Center at Fort Worth. Event attendees participated in interactive breakout sessions covering topics such as: nutrition, caregiving and building emotional support.
Baylor Sammons Cancer Center at Dallas held 350 site-specific tumor conferences in 2013, where more than 1500 patients were discussed. Nearly 8,000 physicians, trainees, nurses and allied health staff attended these conferences focusing on malignancies in Bone & Soft Tissue, Breast, Chest, Colorectal, Endocrine, GI, Gynecology, Head & Neck, Liver, Neuro-Oncology, Pancreas, Skin, Urology and Hematopoietic Diseases. Value of Tumor Conferences by Robert G. Mennel, MD

Exposure to interesting and problematic cases:

The conferences are a clearing-house for the most interesting and difficult cases seen at Baylor. In this one place a health care professional can learn about every aspect of a patient’s case, the pathology, the radiological findings, the genetics, the social impediments to the therapy, etc. The whole book of business about the patient’s problem is presented in one venue. It has tremendous value and efficiency of time for the health care practitioner.

Insight into other disciplines’ thought processes towards the same problem:

Different disciplines, by virtue of their training, approach the same problem from different angles. For example the pathologist and medical oncologist may need more tissue for a diagnosis and think that this would be a minor procedure of very little risk for the patient. However, the interventional radiologist or surgeon sitting in the same room and looking at the same images may point out that the procedure to get the tissue may be much more involved than originally thought and fraught with significant risk for the patient. This could change the whole care of the patient.

Education leading ultimately to better patient care:

These conferences have all levels of trainees from students to staff and all disciplines from general surgeons to genetic counselors. Interpreting X-rays with a radiologist teaches the other disciplines how to interpret X-rays, what is the best X-ray to order, and the problems the radiologist faces in interpreting the film. The same is true for anatomic pathologists, molecular pathologists, surgeons, medical oncologists, and radiation oncologists. Having the scientific studies presented that apply to this patient’s disease teaches everyone about the disease. Education and discussion lead to better patient care.

Professional camaraderie:

In this era of increasing ways of communication (Emails, tweets, webinars, etc.) but decreasing depth of communication, these conferences put everyone in the same room, face to face, to engage in education and friendly professional bantering that builds the ties within this cancer center. This camaraderie may be the major benefit of our tumor conferences.
Clinical Oncology Research Coordination (CORC) Office

The Clinical Oncology Research Coordination Office underwent a major change in April of 2013 when Angelia Drake, MSN, RN, assumed the role of director. In addition to being responsible for this system-wide office she also supervises the Division of Surgical Oncology and the development of the Surgical Oncology Clinical Research Database or SOCORD. SOCORD is a meta-registry where multiple databases are connected from the tumor registry data imports, multi-disciplinary tumor conferences, investigator-initiated clinical trials, pathology, and radiology. SOCORD is a central location where information from all of these sources can be stored, validated, and accessed for feasibility and future research.

Currently, Drake and her staff are re-amping the infrastructure and processes in the department to accommodate the rapid expansion of clinical trials in Baylor Health Care System. While focusing on continuing the growth of these trials, as well as trials in the Innovative Clinical Trials Center (ICTC), the department is maintaining its focus on providing quality and service to patients, investigators, and sponsors. In August 2013, M.Y. Levy, MD, became the medical director of Hematological Malignancies of the ICTC. Thanks to Dr. Levy and Dr. Carlos Becerra, medical director of Head and Neck Oncology, there has been a big increase in the number of phase I and II trials being offered through the clinic. At present, oncology clinical trials are being conducted at the Dallas, Fort Worth, and Irving campuses. CORC hopes to expand to more of the Baylor Scott & White locations in the near future. The expanded network of locations for clinical trials should result in growth of the number of clinical trials and the number of patients enrolled in the trials.

At Baylor Charles A. Sammons Cancer Center at Dallas, we understand the overwhelming nature of a cancer diagnosis. Understanding and following complex treatment recommendations can be difficult for both the cancer patient and family members. This is why every family that walks through our doors has access to a patient navigator. Our patient navigation team is a group of dedicated registered nurses that partner with patients and their families to serve as an advocate, guide, and resource through cancer treatment and recovery.

Our patient navigation team also works very closely with our Virginia R. Cvetko Patient Education and Support Center. Free cancer screenings are one of many resources our Cvetko Center offers to the community. In 2013, we screened 109 individuals and found 38 of them to be at risk for either skin cancer or head and neck cancer. To make sure those at-risk individuals are connected with a physician on staff at Baylor as quickly as possible, patient navigators will call each person to facilitate setting up an appointment with the appropriate provider.

PATIENT NAVIGATORS:
- ANSWER QUESTIONS AND ADDRESS PATIENT CONCERNS
- EDUCATE AND EMPOWER PATIENTS TO MAKE INFORMED DECISIONS
- WORK WITH A MULTI-DISCIPLINARY TEAM OF DOCTORS TO PROVIDE EFFICIENT, TIMELY, AND QUALITY CARE
- ASSIST PATIENT AND FAMILY MEMBERS WITH FINDING APPROPRIATE RESOURCES
- EXPLORE AND ASSIST WITH FINANCIAL RESOURCES

PATIENT NAVIGATION

CANCER CENTER HIGHLIGHTS +
CLINICAL ONCOLOGY RESEARCH COORDINATION (CORC) OFFICE

2011-2013 Patient Accruals to Baylor Clinical Oncology Trials

- Breast
- Chest
- GI
- GU
- Gyn
- Head and Neck
- Healthy Donor
- Hematology
- Neuro
- Other
- Skin

2011 2012 2013

Patient Accruals

2011 2012 2013

Breast 27 33 14 2 23 68 80
Chest 37 33 14 2 23 68 80
GI 1 8 1 8 1 8 1 8
GU 128 68 80 1 8 1 8
Gyn 33 33 33 33 33 33 33
Head and Neck 120 120 120 120 120 120 120
Healthy Donor 30 30 30 30 30 30 30
Hematology 30 30 30 30 30 30 30
Neuro 30 30 30 30 30 30 30
Other 30 30 30 30 30 30 30
Skin 30 30 30 30 30 30 30
In 2007, 38-year-old Teri Rodgers was leading an active, normal life. She was a wife, mother of a four-year-old and a seven-year-old and working full-time as an elementary school assistant principal in Arlington, Texas. An autumn day in October would change her life and the lives of her family, forever.

“I felt a lump under my left arm pit,” remembers Rodgers. “At first, I brushed it off, not thinking much about it. After a few weeks, when it wasn’t gone away, I began to worry. I saw my physician who referred me to oncologist in Arlington. I’m never forget the day I told him I had a golf ball sized tumor that was a melanoma with no external sign. The first thing that ran through my mind was, ‘OK, it was skin with no external spot. The first thing that ran through my mind was, ‘OK, it was skin cancer."

Rodgers remembers Rodgers. “At first, I brushed it off, not thinking much about it. After a few weeks, when it wasn’t gone away, I began to worry. I saw my physician who referred me to an oncologist in Arlington. I’m never forget the day I told him I had a golf ball sized tumor that was a melanoma with no external sign.

“Testing my health history and health status, my doctor recommended immunotherapy using high dose Interleukin II. This was seven years ago and immunotherapy wasn’t the standard of care. It was risky, it was aggressive, it was cutting edge.” Rodgers treatment regimen was intense. She spent one week in the intensive care unit, received treatment consisting of two doses twice a day, recovered, had scans to check the size of the tumor, then scheduled another week in the ICU to repeat the process. This was repeated over four cycles. Rodgers says she was fortunate that her body was able to tolerate the aggressive therapy.

“Every time we scanned that the tumors were shrinking. It didn’t happen immediately, but the tumor decreased a centimeter here and a centimeter there. After the four rounds of Interleukin II, we finally got to no evidence of disease status."

In thinking about her experience, Rodgers isn’t shy about her feelings. “I love Baylor. I have been to multiple hospitals and cancer care facilities and Baylor is number 1. Everyone – the secretaries, the nurses, the physicians, the lab technicians, they knew my children by name. They become my family and they treated me as family as well.”

In 2009, Rodgers’ scans revealed another tumor. She began a two-year clinical trial testing another form of immunotherapy at Baylor Dallas. Today, she has been cancer free for two years. Rodgers credits her physician and the clinical trials offered through Baylor Institute for Immunology Research for her remarkable recovery.

Rodgers has taken a new position as a school counselor in a smaller school district. She enjoys every day with her husband and children and she says every day she remembers here for her and her family have come and friends over to her home. “I love the feel and sound of a house full of friends and family and the memories that are being made,” she says.

“Being in remission is a new place for me because for the past several years I’ve been living and dealing with cancer,” Rodgers admits. “I’m living proof that immunotherapy works and that there can be hope at the end of the tunnel.” The research continues to identify new treatment options. Whatever we can do to increase the research, increase the opportunities for new clinical trials to unfold and increase the outcomes to increase the survival rate and have more survivors, then I’m all for it!”

In 2007, 38-year-old Teri Rodgers was leading an active, normal life. She was a wife, mother of a four-year-old and a seven-year-old and working full-time as an elementary school assistant principal in Arlington, Texas. An autumn day in October would change her life and the lives of her family, forever.
ONCOLOGY QUALITY METRICS 2012

<table>
<thead>
<tr>
<th>Diagnosis Year 2011 (CoC)</th>
<th>*2009</th>
<th>*2010</th>
<th>*2011</th>
<th>*2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Breast Cancer Surgery Irradiation: Radiation therapy is administered within 36 months (104 days) of diagnosis for patients under age 80 with AJCC III (lymph node positive) breast cancer (Accountability Measure)</td>
<td>NCDB, CoC, NQF, NAPBC</td>
<td>90%</td>
<td>90%</td>
<td>86.8%</td>
</tr>
<tr>
<td>Adjuvant Chemotherapy: Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under age 70 with AJCC T1bN1M0, or Stage II or III hormone receptor positive breast cancer (Accountability Measure)</td>
<td>NCDB, CoC, NQF, NAPBC</td>
<td>90%</td>
<td>90%</td>
<td>88.8%</td>
</tr>
<tr>
<td>Colon Cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjuvant Chemotherapy: Adjuvant chemotherapy is considered or administered within 4 months (120 days) of diagnosis to patients under age 80 with AJCC III lymph node positive colon cancer (Accountability Measure)</td>
<td>NCDB, CoC, NQF</td>
<td>90%</td>
<td>90%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Surgical Resection Includes at Least 12 Lymph Nodes: At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer (Survival Measure)</td>
<td>NCDB, CoC, NQF</td>
<td>80%</td>
<td>80%</td>
<td>89%</td>
</tr>
<tr>
<td>Rectal Cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiation Therapy for Rectal Cancer: Radiation therapy is considered or administered within 6 months (180 days) of diagnosis for patients under the age of 80 with clinical or pathological AJCC T1bN1M0 or Stage II receiving surgical resection of rectal cancer (Survival Measure)</td>
<td>NCDB, CoC, NQF</td>
<td>90%</td>
<td>90%</td>
<td>91.6%</td>
</tr>
</tbody>
</table>

*Source: American College of Surgeons National Cancer Data Base*
## Baylor University Medical Center Dallas: Analytic/Non-analytic Cases Diagnosed 2012

### Primary Site

<table>
<thead>
<tr>
<th>Total</th>
<th>Analytic</th>
<th>Non-analytic</th>
<th>Male</th>
<th>Female</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>NA/Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sites</td>
<td>4050</td>
<td>1239</td>
<td>1510</td>
<td>2240</td>
<td>150</td>
<td>1345</td>
<td>779</td>
<td>795</td>
<td>365</td>
</tr>
</tbody>
</table>

| Oral Cavity | 124 | 83 | 81 | 43 | 1 | 32 | 62 | 11 | 18 |
| Larynx | 5 | 3 | 2 | 0 | 0 | 2 | 2 | 2 | 2 |
| Tongue | 51 | 36 | 15 | 33 | 18 | 1 | 18 | 25 | 3 |
| Oropharynx | 4 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 1 |
| Hypopharynx | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 |
| Other | 62 | 27 | 30 | 41 | 21 | 0 | 12 | 32 | 3 |

### Digestive System

<table>
<thead>
<tr>
<th>Total</th>
<th>Analytic</th>
<th>Non-analytic</th>
<th>Male</th>
<th>Female</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>NA/Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagus</td>
<td>758</td>
<td>455</td>
<td>214</td>
<td>298</td>
<td>6</td>
<td>260</td>
<td>232</td>
<td>156</td>
<td>132</td>
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<tr>
<td>Stomach</td>
<td>81</td>
<td>21</td>
<td>30</td>
<td>17</td>
<td>0</td>
<td>8</td>
<td>17</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Colon</td>
<td>174</td>
<td>113</td>
<td>61</td>
<td>97</td>
<td>77</td>
<td>0</td>
<td>38</td>
<td>61</td>
<td>45</td>
</tr>
<tr>
<td>Rectum</td>
<td>136</td>
<td>110</td>
<td>26</td>
<td>87</td>
<td>49</td>
<td>2</td>
<td>44</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>Anus/Anal Canal</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Liver</td>
<td>221</td>
<td>178</td>
<td>43</td>
<td>167</td>
<td>54</td>
<td>0</td>
<td>128</td>
<td>52</td>
<td>16</td>
</tr>
<tr>
<td>Pancreas</td>
<td>127</td>
<td>86</td>
<td>39</td>
<td>59</td>
<td>27</td>
<td>2</td>
<td>22</td>
<td>57</td>
<td>19</td>
</tr>
<tr>
<td>Other</td>
<td>56</td>
<td>48</td>
<td>8</td>
<td>29</td>
<td>27</td>
<td>1</td>
<td>12</td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

### Respiratory System

<table>
<thead>
<tr>
<th>Total</th>
<th>Analytic</th>
<th>Non-analytic</th>
<th>Male</th>
<th>Female</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>NA/Unknown</th>
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</thead>
<tbody>
<tr>
<td>Nasal/Sinus</td>
<td>386</td>
<td>233</td>
<td>153</td>
<td>100</td>
<td>180</td>
<td>2</td>
<td>62</td>
<td>77</td>
<td>163</td>
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<tr>
<td>Larynx</td>
<td>34</td>
<td>18</td>
<td>12</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Lung/ Bronchus</td>
<td>346</td>
<td>207</td>
<td>134</td>
<td>117</td>
<td>1</td>
<td>53</td>
<td>62</td>
<td>59</td>
<td>72</td>
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<tr>
<td>Other</td>
<td>3</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Blood & Bone Marrow

<table>
<thead>
<tr>
<th>Total</th>
<th>Analytic</th>
<th>Non-analytic</th>
<th>Male</th>
<th>Female</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>NA/Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leukemia</td>
<td>206</td>
<td>143</td>
<td>68</td>
<td>74</td>
<td>0</td>
<td>1</td>
<td>141</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>87</td>
<td>44</td>
<td>30</td>
<td>57</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>78</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>7</td>
<td>12</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Bone</td>
<td>18</td>
<td>13</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

### Connective Tissue

<table>
<thead>
<tr>
<th>Total</th>
<th>Analytic</th>
<th>Non-analytic</th>
<th>Male</th>
<th>Female</th>
<th>In Situ</th>
<th>Local</th>
<th>Regional</th>
<th>Distant</th>
<th>NA/Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>134</td>
<td>94</td>
<td>40</td>
<td>75</td>
<td>55</td>
<td>8</td>
<td>58</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Melanoma</td>
<td>124</td>
<td>89</td>
<td>35</td>
<td>72</td>
<td>52</td>
<td>8</td>
<td>54</td>
<td>29</td>
<td>10</td>
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<tr>
<td>Other</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Data Source:
Electronic Registry System, Baylor Health Care System Cancer Registry

This report includes CA in-situ cases, squamous and basal cell skin cases, and intrathoracic neoplasms cases phoma/myeloma category.
Background

According to the American Cancer Society, in 2013 there were an estimated 13,780 new cases of acute myelogenous leukemia (AML) and 10,230 deaths. While the 5-year relative survival of patients diagnosed with AML is only 24%, there are large differences in patients’ prognoses, which are influenced by patient-specific factors and perhaps most importantly the genetics of the disease. While AML was initially classified by the French-American-British (FAB) system, which used cell morphology and cytochemical stains to categorize the disease, a newer classification system developed by the World Health Organization (WHO) that incorporates genetic information is now used. This system, most recently updated in 2008, combines the traditional clinical features, morphologic features, and immunophenotypic criteria with cytogenetic and molecular analyses. Based on the WHO categorization of myeloid neoplasms, AML is defined as the presence of 20% or more blasts in the peripheral blood or bone marrow occurring de novo in a patient with a prior diagnosis of myelodysplastic syndrome or myeloproliferative neoplasms. In the setting of specific genetic abnormalities, however, the requirement for a blast count of 20% or more does not apply. These specific mutations include t(8;21)(p22;q22), t(15;17)(p10;q22), and acute promyelocytic leukemia (APL) with t(15;17)(p22;q22); in addition, to the WHO classification system, the international European LeukemiaNet (ELN) guidelines for reporting genetic alterations in AML were published recently, further delineating specific mutations based on genetics as well as age.

Cytogenetic information not only influences the diagnosis of AML but also provides important prognostic information regarding remission rates, risk of relapse, and overall survival. Patients with favorable, intermediate, or adverse cytogenetics have 5-year survival rates of 65%, 41%, and 14%, respectively. Table 1 lists the mutations related to each prognostic group with specific mutations in normal vs. malignant karyotypes that provide information regarding treatment response in addition to survival. Those classified as favorable show complete response rates to therapy of 90%, while those in the adverse or unfavorable category have a complete response rate of approximately 40%.

Current Recommendations and Practice Guidelines

Based on the previous guidelines, morphologic assessment of bone and marrow smears using Wght-Giemsa stains to categorize the disease, a new system for bone marrow aspirate remains fundamental to the diagnosis of AML, the most recent published from the international LeukemiaNet. These guidelines, in addition to the previous guidelines, serve as a reference and guide for the diagnosis and risk stratification of newly diagnosed cases of AML.

Table 1. Prognostic Value of Cytogenetics

<table>
<thead>
<tr>
<th>Prognostic Group</th>
<th>5-Year Survival</th>
<th>Mutation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable</td>
<td>~65%</td>
<td>t(8;21)(p22;q22) (15;17)(p10;q22) APL with t(15;17)(p22;q22) Normal karyotype with mutated CEPBA, or mutated NPM1 without FLT3-3</td>
</tr>
<tr>
<td>Intermediate</td>
<td>~41%</td>
<td>t(16;16)(p13.1;q22) t(15;17)(p22;q11) Abnormal (11q23) Complex cytogenetics 2 del(5q) - del(7q) - Abnormal 3q</td>
</tr>
<tr>
<td>Adverse</td>
<td>~14%</td>
<td>Normal - Normal +21 +22 del(13q) del(17p) Abnormal (11q23) Complex cytogenetics 5 del(5q) - del(7q) - Abnormal 3q</td>
</tr>
</tbody>
</table>

In addition to morphologic assessment, immunophenotyping using multiparameter flow cytometry or immunohistochemistry is also essential in new AML diagnosis for determination of cell lineage, with a preference towards use of flow cytometry. While comprehensive data do not give a specific cutoff point for considering a specific marker to be positive, expression of specific markers in >20% of leukemic cells is commonly used. For all patients with a new or suspected AML diagnosis, cytogenetic analysis is considered mandatory as part of the diagnostic evaluation. Cytogenetic abnormalities are present in approximately 35% of adult AML cases, and they provide the most important prognostic information. Additionally, they allow, in cases of B2(12)(q21), t(15;17), inv(16), or t(16;16), the AML diagnosis to be made with >20% blasts in the peripheral blood or bone marrow aspirate. As the results of the karyotype are the strongest prognostic factor for predicting response to therapy and overall survival, recommendations suggest that a minimum of 20 metaphase cells be analyzed to define an abnormal karyotype, and that this number is mandatory before diagnosing a normal karyotype. For cases with inadequate or failed cytogenetic analyses, fluorescence in situ hybridization (FISH) may be used for detection of gene rearrangements.

Based on expert panel recommendations, blood and marrow specimens should be collected routinely for molecular genetics evaluation. While conventional cytogenetic studies are considered mandatory, molecular cytogenetic studies are not. In non-acute patients who have AML with normal cytogenetics (CN-AML), testing for mutations in the NPM1, CEBPA, or FLT3 genes is considered mandatory, but it is recommended. Traditionally classified as intermediate risk, the CN-AML group includes approximately 40% to 45% of young adults with AML. Identifying the presence of these particular mutations has provided further prognostic information and allowed for stratification within the intermediate-risk group to intermediate-I and intermediate-II based on the presence of specific isolated mutations has also allowed for movement among risk groups. Isolated mutations of the NPM1 and CEBPA genes offers a favorable prognosis associated with higher complete response rates, reduced relapse risk, and longer overall survival. In comparison, mutations of the FLT3 gene, whether present as a single mutation or in combination, are
considered intermediate-risk, informing patients’ prognosis due to limited disease free survival and overall survival rates. Mutations in KIT have also been noted to be of prognostic significance in patients with t(9;22)(q34;q11) and t(11;19)(q23;p13). Among this specific patient population a mutation of KIT is associated with a worse prognosis changing the risk status from favorable to intermediate.

Testing for the presence of additional fusion genes via reverse transcriptase-polymerase chain reaction, such as RUNX1-RUNX1T1, CBFB-MYH11, and 5`sl-PCR, and FISH, and PAI-1 can, however, be performed, but these tests are presently considered optional, although recent alterations in the WHO classification have categorized these abnormalities as intermediates.

Additional studies for mutations: in the specific gene KIT, RUNX1, MLL, KITL, and FMS-like tyrosine kinase for genotypic-phenotypic correlation are currently considered investigational and only advised for use in clinical trials.

In addition to bone marrow examination and genetic studies to diagnose a disease of AML, several additional tests and assessments should be performed as a standard in the initial patient evaluation.

Review and documentation of a patient’s personal and family history, comorbidities, basis blood counts and chemistry profile, coagulation studies, hepatitis and HIV testing, chest x-ray and electrocardiogram, and transplant assessment should all be performed based on standard guidelines and expert panel recommendations. Documentation of these various factors to determine if an abnormality is important, as age > 60 years and medical comorbidities, specifically diabetes, coronary artery disease, and connective tissue or polyarthritis disease, have been associated with adverse prognostic outcomes. Among treatment guidelines, age > 60 years is often associated with higher prevalence of unfavorable factors, such that this is a considered a division point for therapeutic recommendations. Patients considered potential candidates for allogeneic stem cell transplant should have HLA typing performed at diagnosis, along with typing of their first-degree relatives, an assessment of key importance particularly in patients with adverse cytogenetics.

Acute Myelogenous Leukemia at Baylor Scott and White Cancer Center

The laboratory results are summarized in Table 3. All patients had complete blood count at initial presentation. The mean white blood cell count was 35.9 K/μL (range, 0.5–349 K/μL). All patients except one were anemic at presentation, with mean hemoglobin levels of 8.6 g/dL (range, 3.6–12.0 g/dL). Thrombocytopenia was present at presentation in 72 patients (93.3%) and the mean platelet count was 9.5 K/μL (range, 0.8–217 K/μL). The presence of blasts in the peripheral blood was also assessed in all patients at the time of presentation, with a mean of 33.1% (range, 0–94%).

All cases had histologic evaluation of the bone marrow accompanied by flow cytometric analysis. The mean blast percentage in the bone marrow was 60% (range, 9%–98%). Conventional cytogenetic analysis was completed in 74 patients (98%). Based on results of conventional cytogenetics, 17 patients (23%) were given a priori classification of favorable, 34 patients (47%) were classified as intermediate risk, and 23 patients (32%) were classified as adverse; 3 patients were not classified.

All cases had histologic evaluation of the bone marrow accompanied by flow cytometric analysis. The mean blast percentage in the bone marrow was 60% (range, 9%–98%). Conventional cytogenetic analysis was completed in 74 patients (98%). Based on results of conventional cytogenetics, 17 patients (23%) were given a priori classification of favorable, 34 patients (47%) were classified as intermediate risk, and 23 patients (32%) were classified as adverse; 3 patients were not classified.

HLA typing at presentation was completed in 38 patients (49%). Of those patients in the intermediate and adverse risk category, 20 cases (53%) were HLA-typed, and of those below age 60, 60% had HLA typing at presentation (Table 4).

Conventional cytogenetic evaluation is considered standard in the diagnosis and workup of new cases of AML. In our cohort, conventional cytogenetics was identified in only 96% of the patients; however, of the three patients without conventional cytogenetic evaluation, molecular cytogenetics was performed in two, giving the necessary genetic information (Table 2).

Overall, complete cytogenetic evaluation was performed in 98.6% of our patients. For the single patient who did not have conventional cytogenetics, the reason was unclear, as charts were not reviewed for treatment or survival data. This patient was classified as adverse risk.

Optional/Investigational Studies

Additional molecular cytogenetic evaluation via FISH was performed in 96 patients (98.7%). The presence of the PML-/RARα gene rearrangement was identified in 11 patients of the 96 patients. Of those eleven patients, all but one had conventional cytogenetic evaluation. Of the remaining patients, molecular cytogenetics was performed in two, giving findings consistent with the presence of t(15;17)(q22;q21) consistent with a diagnosis of APL. Overall, patients with APL accounted for 11% of our new AML diagnoses.

Four patients had inv(16)(p13.1q22) by cytogenetic evaluation. In these three of these patients, molecular cytogenetics was performed, and all demonstrated the presence of the CBFB-MYH11 gene rearrangement. Patients with inv(16)(p13.1q22) accounted for 3% of our new AML diagnoses.

Mutations in the RUNX1 gene were

### Table 2. Patient Demographics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤20</td>
<td>25</td>
<td>27</td>
<td>25</td>
<td>77</td>
</tr>
<tr>
<td>&gt;20</td>
<td>53</td>
<td>54</td>
<td>52</td>
<td>159</td>
</tr>
</tbody>
</table>

### Table 3. Results

#### Table 3. Results

<table>
<thead>
<tr>
<th>HLA Typing</th>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Group</td>
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<td>11</td>
</tr>
<tr>
<td>Adverse Risk</td>
<td>25</td>
<td>14</td>
</tr>
</tbody>
</table>

#### Table 4. Performance of HLA Typing by Risk Group and Age

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=60</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>&gt;60</td>
<td>17</td>
<td>25</td>
</tr>
</tbody>
</table>
isolated NPM1 mutations, while seven patients had mutations of both NPM1 and FLT3. This additional information obtained by mutation analysis allowed for the reclassification of the five patients with an isolated NPM1 mutation from the intermediate-risk group to the favorable-risk group. Four patients with C-kit-AML did not undergo any mutation analysis for further risk stratification.

Further investigational mutation analysis was performed for the presence of the C-ITD mutation in 20 patients (25.6%) and was positive in only one patient (1.3%). In total, 53 patients (68.8%) underwent additional analysis for the presence of mutations in NPM1, CEBPA, FLT3, and KIT-ITD. Also considered to be investigational, molecular genetic studies evaluating the presence of fusion genes were performed in 15 patients (19.5%). 13 patients were assessed for PML-RARA for AML. Of those evaluated, eight patients demonstrated the presence of the PML/RARA fusion gene, and both analyses for BCR-ABL were negative. Overall the rates of conventional and molecular cytogenetic evaluation of patients presenting to Baylor University Medical Center at Dallas were similar in 2012 with 21 of 22 patients having conventional cytogenetics and 18 of 22 having molecular cytogenetic evaluation. Patient evaluation and characterization by molecular recognition was compared from year to year with a noted increase in use of molecular genetics from 2010 to 2012. Of newly diagnosed AML patients in 2010, 8% had molecular genetics performed. Of those cases evaluated in 2011 and 2012, 18% and 27% of the cases had KIT-ITD mutation analysis performed, respectively. Similar to cytogenetic evaluation, rates of mutation analysis over time were fairly consistent being performed in 72% of cases in 2010 and 2011, and in 68% of cases in 2012. Per expert recommendations on behalf of the European LeukemiaNet published in January 2010, mutation analysis for the presence of mutations in the NPM1, CEBPA, and FLT3 genes, testing for the presence of mutations in other genes such as KIT was considered investigational. Of the 53 patients who had molecular genetics performed, the testing was only relevant in one patient. In one additional patient in whom the analysis was prognostically relevant, testing was not performed. Overall in our cohort, of the 55 patients who had mutation analyses performed, 33 patients had testing that would not be considered standard or optional and should be restricted to investigation.

Conclusion
AML is a heterogeneous disease char-
Gliomas are tumors that arise from glia, or support cells from within the central nervous system. Grade IV glioma, or glioblastoma (GBM), is the most common and most aggressive glioma in humans. Unfortunately, GBMs are very aggressive, and the median survival remains dismal at 14.3 months with standard therapy. Based on data from the Central Brain Tumor Registry of the United States, 15.6% of all brain tumors are GBMs, and 45.2% of malignant brain tumors are GBMs. They are more common in older adults and are approximately 1.5 times more common in men than women. The 5-year survival of patients with GBMs is poor, normally less than 5%. Thus, GBMs are one of the most challenging types of brain tumors to treat. With research dedicated to better understanding this disease, along with clinical trials testing new treatments, survival is improving.

It is important that patients receive the standard of care according to National Comprehensive Cancer Network (NCCN) guidelines or enroll in clinical trials to add to our knowledge base and improve their chances of survival.

We determined how radiation treatment of patients at Baylor University Medical Center at Dallas (Baylor Dallas) from 2010 to 2012 compared with NCCN guidelines. Treatment for GBM involves a combination of surgery, radiation treatment, and chemotherapy. The recommended radiation dose for high-grade gliomas is 60 Gray in 1.8- to 2.0-Gy fractions. A slightly lower dose of 55 to 57 Gray can be applied when the tumor volume is very large, such as in gliomatosis or grade III astrocytoma. For debilitated patients or the elderly, a hypofractionated accelerated course of 3 to 4 weeks with a total dose of 40 to 50 Gray has also been found to be effective.

Results

A total of 30 patients were diagnosed with GBM at Baylor Dallas from 2010 to 2012. Of these 30 patients, 27 patients had surgery. Thirty of these 30 patients received chemotherapy. In the remaining 3 patients, four refused chemotherapy and five died prior to the recommended therapy. Among those who died, one patient had Gliadel wafer implanted at the time of surgery and died before planned systemic therapy. Of the patients treated at the Baylor Dallas campus from 2010 to 2012, 30 patients received radiation therapy. Among the nine patients who did not receive radiation therapy, four declined it and five died prior to the recommended treatment. Of the 30 patients who were treated with radiation therapy, 27 had up to the recommended 60 Gray of radiation, and three patients received less than 45 Gray of total fractionation. When the records were checked to determine the reason for these patients receiving less than the recommended dosage, two patients had stopped their treatment while the remaining patient had whole-brain radiation treatment. This patient was discovered to have gliomatosis cerebri, a rare diffusely infiltrating glioma of the cerebral cortex, and whole-brain radiation is the recommended treatment for this rare brain tumor.

In addition to the 30 patients who received all of their treatment at Baylor Dallas, 27 patients received some of their care at Baylor Dallas from 2010 to 2012. Of these 27 patients, 24 underwent surgery to remove all or part of their tumor, and 22 received chemotherapy. Among those who did not receive chemotherapy, for one patient it was not recommended; another patient refused treatment, two patients died before they could get the recommended treatment, and the other patient was referred to but was never seen by Dr. Fink, so was lost to follow-up. Finally, these same 22 patients out of 27 who received chemotherapy also received radiosurgery. Of the 22 patients who did receive radiation treatment, 20 received the full 60-Gy dose, while one received a total of only 33 Gray fractions, expiring before the end of the treatment. The remaining patient received radiation treatment, but at an unknown dosage.

For patients treated entirely or partially at Baylor Dallas, the NCCN guidelines were followed regarding radiation treatment of GBMs. When patients did not receive the recommended treatment, the reason was the death of the patient or patient choice, not any decisions made by their oncologist.

Therefore, we determined how radiation treatment of patients at Baylor University Medical Center at Dallas (Baylor Dallas) from 2010 to 2012 compared with NCCN guidelines.

PAtIENT ouTcoME STUDIES + RADIATION TREATMENT FOR GliOBLASTOMA MULTIFORME: THE BAYLOR C. CHARLES A. SAMMONS CANCER EXPERIENCE, 2010 TO 2012

Gliomas are tumors that arise from glia, or support cells from within the central nervous system. Grade IV glioma, or glioblastoma (GBM), is the most common and most aggressive glioma in humans. Unfortunately, GBMs are very aggressive, and the median survival remains dismal at 14.3 months with standard therapy. Based on data from the Central Brain Tumor Registry of the United States, 15.6% of all brain tumors are GBMs, and 45.2% of malignant brain tumors are GBMs. They are more common in older adults and are approximately 1.5 times more common in men than women. The 5-year survival of patients with GBMs is poor, normally less than 5%. Thus, GBMs are one of the most challenging types of brain tumors to treat. With research dedicated to better understanding this disease, along with clinical trials testing new treatments, survival is improving.

It is important that patients receive the standard of care according to National Comprehensive Cancer Network (NCCN) guidelines or enroll in clinical trials to add to our knowledge base and improve their chances of survival.

We determined how radiation treatment of patients at Baylor University Medical Center at Dallas (Baylor Dallas) from 2010 to 2012 compared with NCCN guidelines. Treatment for GBM involves a combination of surgery, radiation treatment, and chemotherapy. The recommended radiation dose for high-grade gliomas is 60 Gray in 1.8- to 2.0-Gy fractions. A slightly lower dose of 55 to 57 Gray can be applied when the tumor volume is very large, such as in gliomatosis or grade III astrocytoma. For debilitated patients or the elderly, a hypofractionated accelerated course of 3 to 4 weeks with a total dose of 40 to 50 Gray can be applied when the tumor volume is very large, such as in gliomatosis or grade III astrocytoma.

For debilitated patients or the elderly, a hypofractionated accelerated course of 3 to 4 weeks with a total dose of 40 to 50 Gray has also been found to be effective.

Results

A total of 30 patients were diagnosed with GBM at Baylor Dallas from 2010 to 2012. Of these 30 patients, 27 patients had surgery. Thirty of these 30 patients received chemotherapy. In the remaining 3 patients, four refused chemotherapy and five died prior to the recommended therapy. Among those who died, one patient had Gliadel wafer implanted at the time of surgery and died before planned systemic therapy. Of the patients treated at the Baylor Dallas campus from 2010 to 2012, 30 patients received radiation therapy. Among the nine patients who did not receive radiation therapy, four declined it and five died prior to the recommended treatment. Of the 30 patients who were treated with radiation therapy, 27 had up to the recommended 60 Gray of radiation, and three patients received less than 45 Gray of total fractionation. When the records were checked to determine the reason for these patients receiving less than the recommended dosage, two patients had stopped their treatment while the remaining patient had whole-brain radiation treatment. This patient was discovered to have gliomatosis cerebri, a rare diffusely infiltrating glioma of the cerebral cortex, and whole-brain radiation is the recommended treatment for this rare brain tumor.

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Therefore, we determined how radiation treatment of patients at Baylor University Medical Center at Dallas (Baylor Dallas) from 2010 to 2012 compared with NCCN guidelines.

2. BW 37.


Baylor Charles A. Sammons Cancer Center at Dallas | BUILDING 72

ONCOLOGY


Baylor Sammons Cancer Center and Baylor T. Boone Pickens Cancer Hospital are located on the campus of Baylor University Medical Center at Dallas, and are accessible from U.S. 75 (North Central Expressway/I-45) and I-30.

A map on the facing page illustrates highway access to the medical center.

Valet parking is available at the front entrance and other nearby locations.

Self-parking is conveniently located adjacent to Baylor Sammons Cancer Center in garage 4.

Self-parking for the new Baylor T. Boone Pickens Cancer Hospital is available in garage 4 or valet in front of the hospital.

The campus is also accessible via the DART Green Line to Baylor University Medical Center station. Baylor Sammons Cancer Center is a two-block walk.
Beating cancer

Referrals
Baylor Sammons Cancer Center at Dallas
Patient Navigation Program  214.820.3535
Physician ConsultLine  1.800.9BAYLOR
Administration
Jaimee Jones, RN, FACHE
Vice President/Oncology, Baylor HealthCare System
Chief Operating Officer, Baylor Sammons Cancer Center/Baylor T. Boone Pickens Cancer Hospital
Alan M. Miller, MD, PhD
Medical Director, Baylor Sammons Cancer Center
Erik Presson, MHA
Director, Blood and Marrow Transplant/Oncology, Baylor HealthCare System
JaNeene Jones, RN, FACHE
Vice President/Oncology, Baylor HealthCare System
Chief Operating Officer, Baylor Sammons Cancer Center/Baylor T. Boone Pickens Cancer Hospital
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Medical Education
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President, Baylor University Medical Center at Dallas
Department of Oncology
Alan M. Miller, MD, PhD
Chief of Oncology, Baylor Health Care System
Divisions
Gynecologic Oncology
C. Allen Stringer, Jr., MD, Director
214.370.1300
Medical Oncology and Precision Medicine
Robert G. Morell, MD, Director
214.820.9611
Oncologic Pathology
Peter Cripps, MD, Director
214.820.3071
Radiation Oncology
Barry H. Wilson, MD, Director
214.210.1400
Surgical Oncology
John F. Pezzet, MD, Director
214.820.6500
Cancer Center Programs
Blood and Marrow Transplant
Inpatient Services  214.820.3535
• Outpatient Center
  214.370.1500
• Cytoreductive Lymphoma Clinic
  214.370.1500
• Graft-Versus-Host Disease
  214.370.1500
Clinical Oncology Research Coordination
214.818.8471
Darlene C. Cowart’s Imaging Center
W. & Peggy Smith Breast Center  214.820.9500
• Breast cancer prevention research trials
• Breast Care for Lifetimes™
• Breast health education
• Personal risk evaluation
Cancer Genetics Program
• Breast and ovarian
  214.820.9500
• Genetic counseling
  214.820.9500
Integrative Medicine Program
Lung and Pancreatic Disease Center  214.820.1756
Lymphoma Prevention and Treatment Services
Oncology Outpatient Clinic  214.820.6767
• Bone and Soft Tissue Tumor Clinic
• Cardiology Services
• Dental Clinic
• Fibroids for Life
• Head and Neck Clinic
• Medical and Pediatric
• Physical Medicine and Rehabilitation
• Radiology Services
• Skin Cancer Screening Clinic
• Mixed Case Clinic
• Speech Therapy
• Supportive and Palliative Care Services
Radiography Center  214.820.7285
Office of Scientific Publications  214.820.3549
Research
Clinical Oncology Research Coordination
214.818.8471
Baylor Institute for Immunology, Research
Yong-Jun Liu, MD, PhD, Director
Baylor Research Institute
Michael A. Ramsey, MD, President
Breast Cancer Prevention Research Trials
Joyce A. Staugaard, MD, Director
US Oncology/Texas Oncology Research
Joanne L. Blum, MD, PhD, Site Leader
Support Services
A. Webb Roberts Center for Continuing Education  214.820.2517
Cancer Registry  214.820.3819
Concierge Desk  214.820.3617
Patient Navigation  214.820.3535
Marketing and Public Relations  214.820.2116
Smell/Appearance Center
• Prosthesis and specialty care items for cancer patients
• Wigs
Sammons Events and Community Forums
214.818.8473
Screenings
• Head and neck cancer (April)
• Skin cancer (May)
Smoking Cessation Program
• Dental Clinic—Oncology Outpatient Clinic
214.820.6767
• Martha Foster Lung Care Center  214.820.9791
Virginia C. Cookson Patient Education and Support
214.820.3868
Patient/family education and support programs
• Patient resource centers/oncology libraries
Baylor Health Care System
Patient Transport  214.818.6450
Valet Parking  214.820.8077
Baylor HealthCare System