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CONQUEST

**A MAGNIFICENT
SEVEN** New treatments
for rare cancers

THE UNIVERSITY OF TEXAS

**MDAnderson
Cancer Center**

Making Cancer History®

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The mission of The University of Texas MD Anderson Cancer Center is to eliminate cancer in Texas, the nation, and the world through outstanding programs that integrate patient care, research and prevention, and through education for undergraduate and graduate students, trainees, professionals, employees and the public.

VISION

We shall be the premier cancer center in the world, based on the excellence of our people, our research-driven patient care and our science.
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By our words and actions, we create a caring environment for everyone.

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We work together to merit the trust of our colleagues and those we serve.

Discovery

We embrace creativity and seek new knowledge.



On the cover: Harry Sheppard fell in love with music at the age of 4 and hasn't let cancer stop him from playing weekly gigs at Houston restaurants.



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CONTENTS

CONQUEST SUMMER 2013



16



14



30

Departments

2 FRONTLINE

Moon Shots Program update:
Co-clinical trials platform

Self-sabotage: Why cancer vaccines
haven't worked

New therapeutic strategies for
protecting the nervous system

Practice, patterns and perceptions:
Continuing to tackle lung cancer prevention

14 PICTURE THIS

Chaplaincy plays role in healing process

30 SIGNS OF HOPE

A dose of music therapy shifts the mood

32 MOVING FORWARD: ALMA FAZ

Survivor of teenage bone and ovarian cancers

Features

6 A MAGNIFICENT SEVEN

They arrived from different parts of the United States. They have different kinds of cancer. But one thing unites them. They are among the increasing number of patients whose rare cancers are being successfully treated with new therapies.

16 PATIENTS OF ALL AGES

MD Anderson strives to understand and address the different needs of patients — from children to adolescents and young adults, seniors and those in the greater Houston community.

24 WHY LIFESTYLE CHOICES MATTER

An impressive faculty of cancer prevention clinicians and epidemiologists, behavioral scientists and health disparities researchers continue to dissect and investigate methods of prevention to reduce the number of people who develop cancer.

ELIMINATING BARRIERS

One approach doesn't fit everyone when it comes to quitting smoking, but researchers and physicians are beginning to understand addiction and find ways to help smokers kick the habit.

28 HANDS-ON WINS HANDS-DOWN

Reza Marvdashti, Ph.D., wanted practical experience for his genetics students at San Jacinto College. He had an idea that has benefited his students and the expanding MD Anderson's School of Health Professions, while the Graduate School of Biomedical Sciences honors a dean who made a difference.

FRONTLINE

MOON SHOTS PROGRAM UPDATE

Co-clinical trials speed targeted therapeutics to patients

By Hilary Graham

Providing patients with effective therapies is the goal of researchers and clinicians at MD Anderson.

Unfortunately, the approval rate for new oncology drugs is low, limiting patients' options to existing drugs, many of which have been the standard of care for decades. Only a meager 8% of all oncology drugs that enter clinical trials eventually receive approval from the U.S. Food and Drug Administration, with 65% of novel therapies failing in Phase III trials.

The high failure rate can partially be attributed to the fact that commonly used preclinical oncology models do not faithfully mirror the complexity of human tumors. Therefore, they cannot be relied on to predict a drug's effectiveness in the clinic. Additionally, the preclinical criteria that govern the progression of a drug from the bench to the clinic have not been sufficiently strict.

The Center for Co-Clinical Trials is a unique preclinical research arm that will evaluate the efficacy and tolerability of single therapeutics or drug combinations in appropriate preclinical models that more closely resemble disease evolution in humans. This research arm is one of several platforms that will contribute to MD Anderson's new Moon Shots Program.

These models will shed insight, at the molecular level, on a drug's mechanism of action, as well as how cancer cells resist therapy. Molecular markers predicting sensitivity or resistance to therapy will be identified with the ultimate goal of discovering biomarkers that predict which patients will benefit from a specific treatment.

Why MD Anderson?

MD Anderson provides an ideal setting for this integration between preclinical and clinical studies. It offers access to the largest cancer patient population and some of the best physician scientists in the nation, as well as a wealth of primary tumor samples. In addition, researchers perform cutting-edge functional genomic screens, as well as extensive genomic profiling, which identify genes that provide a survival advantage to cancer cells.

The Center for Co-Clinical Trials is led by Carlo Toniatti, M.D., Ph.D., head of research at the Institute for Applied Cancer Science, and Timothy Heffernan, Ph.D., senior associate director of target discovery at the institute. It will also coordinate some of its activities and expertise with the Moon Shots Program to accelerate the translation of preclinical discoveries and advances in experimental therapeutics into effective cures for cancer patients.



Carlo Toniatti, M.D., Ph.D. (left), and Tim Heffernan, Ph.D., discuss development of the Co-Clinical Trials Platform, which will integrate unique expertise and cutting-edge resources to accelerate the pre-clinical evaluation of drugs; this information will later be used to inform the design and implementation of biomarker-driven clinical trials.

SELF-SABOTAGE

Why cancer vaccines haven't worked

By Joey Tran and Scott Merville

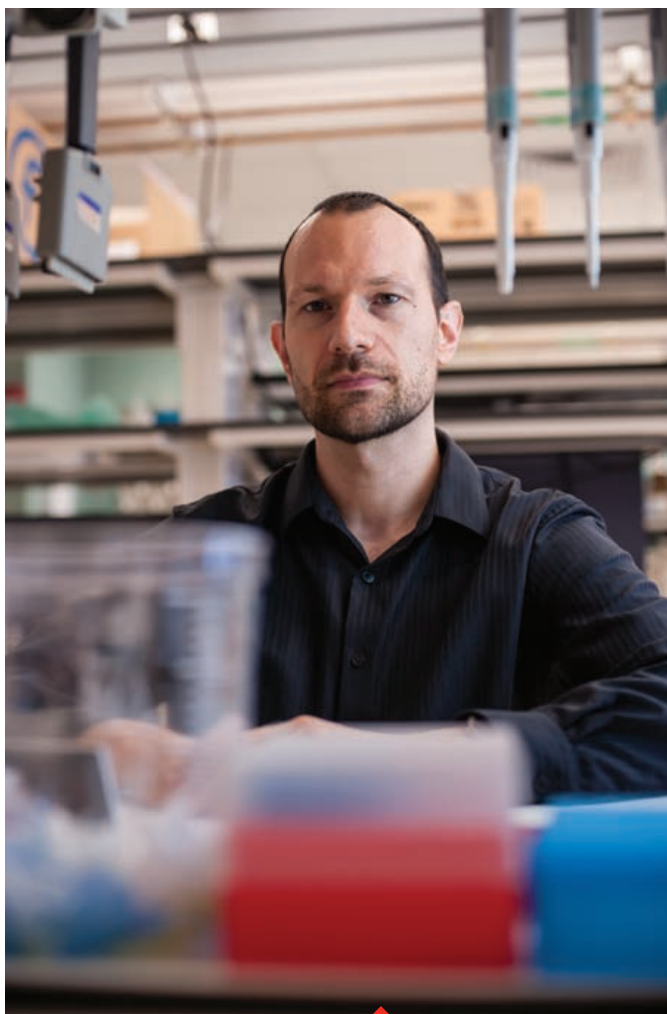
A vaccine that launches an immune attack on cancer cells has so far proved to be better in theory than in practice, and researchers may finally understand why.

Willem Overwijk, Ph.D., associate professor in MD Anderson's Department of Melanoma Medical Oncology, and his colleagues found that a mineral oil known as incomplete Freund's adjuvant (IFA), added to cancer vaccines to stimulate the immune system, might do too good a job.

The vaccine effectively activates T cells, which are supposed to target cancer cells and destroy them — shrinking tumors and preventing them from spreading to other locations and seeding new growths. But because IFA is not biodegradable, it remains under the skin at the injection site, acting as an irresistible bait for the T cells.

"Vaccines stimulate production of T cells primed to attack the target cancer, and there are many T cells in the bloodstream after vaccination. We found that only a few get to the tumor while many more are stuck at, or double back to, the vaccination site," Overwijk says.

Essentially, he says, the vaccine competes with the tumor for the attention of the immune cells. The vaccine, because of its powerful ability to stimulate the defensive cells, tends to be more dominant. "That explains why we find nice levels of T cells in blood after vaccination but no correlation with a response against tumors in patients," Overwijk says.



Willem Overwijk, Ph.D., associate professor, Department of Melanoma Medical Oncology

Engineering flaw discovered

The oil may not be the only saboteur. It's also possible that the tumor itself sends out inhibitory factors that either disguise the tumor from immune sentries, or discourage T cells from venturing too close. But if oil is part of the problem, then switching to a less persistent formulation may improve responses to cancer vaccines.

Meanwhile, Overwijk and his colleagues infer that a possible solution would be to reduce the size and persistence of vaccine "depots" at the injection site. They've tested a vaccine based on a biodegradable saline solution instead of IFA, and found antigens cleared more quickly but did not spark the desired T cell response. Adding co-stimulating agents to the saline vaccine corrected this effect, allowing more T cells to attack the tumor and leaving few at the injection site.

"It's an engineering flaw in those vaccines that we didn't appreciate until now," Overwijk says. "Fortunately, our results also directly instruct us how to design new, more powerful vaccine formulas for treating people with cancer."

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See MD Anderson's online Newsroom

(www.mdanderson.org/newsroom) and Cancer Frontline (www2.mdanderson.org/cancerfrontline) for more information on these and other basic, translational and clinical research findings at MD Anderson.

PRACTICE, PATTERNS AND PERCEPTIONS

Continuing to tackle lung cancer prevention

By Sandi Stromberg and Katrina Burton

Ellen R. Gritz, Ph.D., has spent her professional life crusading for smoking cessation. Her dedication, and that of the many researchers with whom she's worked over the years, is paying off.

A recent study, on which she was co-author, presented results of an online survey of physicians, members of the International Association for the Study of Lung Cancer. The intent was to describe physicians' practices, perceptions and barriers to providing tobacco assessment and cessation help to their patients.

More than 90% of the 1,500 members who responded believe that continuing to smoke during treatment affects outcomes. They also agree that cessation should be a standard part of clinical care. However, only 39% said they routinely provide it.

Barriers to having this conversation include a belief that patients would resist quitting and that physicians feel ill prepared to deliver the support patients need.

"The fact that several institutions — Roswell Park Cancer Institute, the Medical University of South Carolina, Yale University and MD Anderson — worked together to assess physician practice is a positive step," says Gritz, professor and chair of MD Anderson's Department of Behavioral Science and a member of the Institute of Medicine.

"Hopefully, we can continue to make progress by bringing experts in diverse fields together to increase our ability to address adverse health behaviors, such as tobacco use in cancer patients."

AACR issues policy guidelines on tobacco use

April 9, 2013, was a red-letter day for crusaders like Gritz. Policy guidelines presented at the annual meeting of the American Association for Cancer Research urged greater focus on assessing tobacco use and offering tobacco cessation services to cancer patients during clinical visits.

In the United States alone, nearly 30% of all cancer-related deaths and 87% of all lung cancer-related deaths are attributed to tobacco use.

"The policy statement is of great importance to all physicians and oncology providers. In particular, it highlights the importance of tobacco cessation, from the point of view of both the treating physicians and other health care providers, as well as the patient," Gritz says.

Calls to action include:

- documented assessment of tobacco use by cancer patients during clinic visits and in oncology clinical trials,
- development of universal standards for the measurement of tobacco use,
- offering tobacco-cessation assistance and support for tobacco users, and
- collaborative support and funding for tobacco-cessation programs and tools.

"The general public must be aware of the increased risk and poorer survival outcomes to emphasize that it is never too late to stop smoking," Gritz says. "The diagnosis and treatment of cancer provides a 'teachable moment' to stop smoking for family members and to reduce secondhand smoke exposure in the household."

New finding shows higher risk for male smokers

Yet another study has found that male smokers with low levels of bilirubin — a yellow-tinged chemical in the blood — are at higher risk for developing lung cancer and dying from the disease.

After an analysis of global metabolite levels and further analysis of the top three metabolites among healthy controls compared to early-stage and late-stage non-small cell lung cancer patients, bilirubin emerged as the most significant. This led to another validation study with a Taiwanese cohort of more than 435,985 people, including 208,233 men.

"Our study indicates male smokers with low levels of bilirubin are a high-risk group that can be targeted with smoking cessation help, low-dose spiral CT lung screening and other preventive measures," says Xifeng Wu, M.D., Ph.D., professor and chair of MD Anderson's Department of Epidemiology and senior author on the paper presented at the American Association of Cancer Research annual meeting in April.

Efforts toward tobacco cessation and understanding lung cancer continue to be a strong focus at MD Anderson with outreach to the larger community and most recently to Mexico and Columbia. For more information on these efforts, visit www.mdanderson.org/newsroom.



Ellen Gritz, Ph.D., professor and chair, Department of Behavioral Science

NEW THERAPEUTIC STRATEGIES FOR PROTECTING THE NERVOUS SYSTEM

Neurodegenerative Consortium

By Hilary Graham

In 2011, MD Anderson received what seemed an unusual gift—\$25 million—from the Belfer Family Foundation to establish the Neurodegeneration Consortium. As a challenge gift, the donation must be matched to be realized.

The aim is to better understand the underlying biology of Alzheimer’s disease and translate this knowledge into therapeutic interventions that can effectively alleviate symptoms by delaying, reversing and/or eliminating the pathology of the disease.

The multidisciplinary team includes researchers from Baylor College of Medicine, the Massachusetts Institute of Technology and MD Anderson’s Institute for Applied Cancer Science.

So, one might ask, why is a cancer center an appropriate place for this kind of scientific research? Here is why.

Alzheimer’s is a neurodegenerative disorder of the central nervous system associated with progressive and severe brain atrophy and damage to the neurons. To date, researchers do not know exactly what causes the disease or when onset will occur.

In contrast, chemotherapy-induced neurodegeneration occurs in the peripheral nervous system and the onset is predictable.

While chemotherapy effectively kills cancer cells, it also inflicts collateral damage on normal cells, including neurons. Long after chemotherapy is completed patients can be left with neuropathy, the debilitating side effect that can cause tingling, numbness and pain.

“The large number of MD Anderson patients who suffer from this side effect provide an opportunity for collaboration between their physicians and researchers to better understand the underlying biology associated with neuropathy,” says Ronald DePinho, M.D., MD Anderson’s president. “Such a discovery could lead to the development of prevention and treatment strategies.”

What can be discovered through those suffering from chemotherapy-induced peripheral neuropathy (CIPN) could also hold significant answers for Alzheimer’s.

Innovative patient-centered research

After extensive analyses, the consortium developed a program that focuses on helping the body better protect itself by engaging innate protective mechanisms—so that the brain and neurons can resist toxic insults. Therapeutics derived from this approach would benefit patients with Alzheimer’s, other neurodegenerative diseases such as ALS, Huntington’s and Parkinson’s, as well as cancer patients on chemotherapy.

After extensive preclinical studies are completed, the effectiveness of new therapies will be evaluated in Alzheimer’s and CIPN patients. Because the disease mechanisms and onset are known for CIPN, successful trials in this patient population would provide proof of principle for the neuroprotective strategy.

The consortium hopes to demonstrate that neuroprotective compounds can provide therapeutic and protective effects, which would significantly improve the quality of life for MD Anderson’s patients, as well as for those with Alzheimer’s.

Neuroprotection is an example of the innovative patient-centered research and drug discovery programs that the consortium supports. The consortium will pursue unbiased programs that provide maximum benefit for those with neurodegenerative disorders.



Phillip Jones, Ph.D., Giulio Draetta, M.D., Ph.D., and Ming-Kuei Jang, Ph.D. (from left to right), discuss research directions and drug discovery strategies that will lead to the development of novel neural protective therapeutics.

A MAGNIFICENT SEVEN

MD Anderson continues mission of discovery, caring

By Sandi Stromberg



They arrived from different parts of the United States: Dotsy Elliott, Marvin Kimmel, Miriam Jauregui, Justin Ozuna, Mindy Morris, Harry Sheppard and Madeline Cashion.

And they have different kinds of cancer: low-grade serous ovarian, mantle cell lymphoma, thyroid, pancreatic pNET, chronic myeloid leukemia, tongue and rhabdomyosarcoma.

But one thing significantly unites them. They are seven of the increasing number of MD Anderson patients whose rare cancers are being successfully treated with therapies developed by the institution's scientists and clinicians during the past five years. The following pages tell their stories and give a snapshot of the breakthroughs that have them leading meaningful lives.

MD Anderson carries on carrying on

While MD Anderson forges ahead with its groundbreaking Moon Shots Program — an unprecedented, comprehensive assault on cancer announced in September 2012 — the institution's health care providers and researchers continue to do what they have done for the past 72 years: find new therapies for rare and common cancers and offer hope to a multitude of patients.

Over the past five years, MD Anderson faculty have:

- led clinical trials, contributing to 22 of the 71 cancer drugs approved by the U.S. Food and Drug Administration;
- been awarded more than 50 multi-investigator grants, including 12 National Cancer Institute Specialized Programs of Research Excellence grants, 10 National Institutes of Health (NIH) PO1 program project grants and 13 NIH U-series cooperative agreement grants;
- published more than 12,000 papers in distinguished journals spanning prevention to survivorship, nearly half of which were authored by multidisciplinary teams, reflecting the institution's collaborative spirit; and
- kept MD Anderson as the top grantee of the National Cancer Institute.



Marvin Kimmel (right) flies himself to Houston every 28 days to meet with his doctor, Michael Wang, M.D., and refill his prescription for ibrutinib.

THE TREATMENT — BEST ‘SINGLE AGENT TESTED’

Mantle cell lymphoma

By Sandi Stromberg

Michael Wang, M.D., has dedicated a good part of the past 12 years to researching treatments for mantle cell lymphoma. Based on the latest findings, the associate professor in MD Anderson’s departments of Lymphoma and Myeloma and Stem Cell Transplantation and Cellular Therapy believes he and his colleagues are “witnessing a breakthrough for treatment of the disease.”

Disease:

Mantle cell lymphoma (MCL) is a rare, aggressive B-cell subtype of non-Hodgkin lymphoma that accounts for 6% of cases; relapse after treatment is common.

Oral medication:

Ibrutinib is given at 560 mg daily in continuous 28-day cycles until disease progression.

Clinical trial:

In an interim report on a Phase II, international study for patients with relapsed or resistant MCL, ibrutinib continues to show unprecedented and durable results with few side effects.

Patients:

Of 115 people enrolled in the study, 110 patients with three prior treatment regimens were evaluated for the drug’s efficacy. Patients’ median age is 68; the time since diagnosis, 42 months.

Results:

Overall response rate at median follow-up period of 9.2 months is 68%; complete remission rate is 22%.

“What impressed me the most is the high complete remission rate, which continues to improve with time, and yet it is the safest drug we have for this disease,” Wang says.

THE PATIENT

A REMARKABLE ZEST FOR LIFE

When chemotherapy treatments put Marvin Kimmel in a wheelchair, no one thought he would walk again. Or imagine he would play tennis five times a week in 2013 — except Marvin Kimmel.

During the 12 years he’s battled mantle cell lymphoma, Kimmel has been treated with a string of drugs from the cocktail of hyper CVAD (cyclophosphamide, vincristine, doxorubicin and dexamethasone) to valcade, revlemid and thalidomide. The first one put him in remission for a few years, but they all had debilitating side effects. He’s dealt with blood and platelet transfusions, visits to the emergency room, overwhelming fatigue and neuropathy that required six weeks of physical therapy for him to learn to walk again.

But the latest therapy, ibrutinib, has this octogenarian bouncing through life like Tigger.

“I can only imagine how enthused the drug company has been to have a candidate approaching his mid-80s with very low platelets and a history of being in and out of remission,” he laughs. “After the first week of taking ibrutinib, I called Dr. Wang and told him that miraculously all of the cancerous nodes had disappeared.”

Kimmel is grateful for the 29 months he has now been on the therapy. “I’m still in remission with few or no side effects. I understand I’m the oldest person in the program and also one of those in it the longest.”

But what makes him the happiest is that, after being given 90 days to live in 2001, he’s had a full 12 years as husband, father, grandfather — and been around to welcome five great-grandchildren into the world.



THE PATIENT



CATCHING A BREAK

When a clinical trial failed to stop progression of Dotsy Elliott's relapsed ovarian cancer in 2007, she didn't want to take a break from treatment.

But her oncologist, Robert Coleman, M.D., professor in MD Anderson's Department of Gynecologic Oncology and Reproductive Medicine, suggested she stop treatment temporarily. He had something in mind, he told her, but wanted her to rest for a few weeks first.

Despite two surgeries and more than a dozen cycles of chemotherapy before the initial clinical trial, the tumors had continued to grow.

Coleman thought Elliott might benefit from a new clinical trial testing the MEK 1/2 inhibitor selumetinib. The drug aims to block two common mutations in low-grade ovarian cancer, KRAS and BRAF. To enroll in the trial, Elliott needed to have been off treatment for four weeks. Thus the break.

When told about the trial, Elliott was relieved. "I said, 'Where do I sign?'" she recalls with a laugh.

She's done well for the five years she's been on selumetinib. Her tumors have shrunk, and she's been healthy enough to keep working full-time through treatment at the Spoetzl Brewery in Shiner, Texas.

Side effects have included an intermittent rash on her face, mouth sores and bleaching of her hair to "the yellowest blonde you've seen in your life."

Along the way, she, Coleman and her medical team have become close. "We're all old friends now," she says. "They know more about me than I do."

THE TREATMENT — OUTSMARTING A TRICKY OPPONENT

Recurrent low-grade serous ovarian cancer

By Mary Brolley

David Gershenson, M.D., has long puzzled over a rare, wily adversary: the slow-growing but extremely chemo-resistant low-grade serous ovarian cancer. Once it recurs, which it usually does, there are few effective treatments. The professor in MD Anderson's Department of Gynecological Oncology and Reproductive Medicine and his research team gambled they could target mutations in the MAPK pathway to combat tumor growth.

Disease:

Low-grade serous carcinoma of the ovary (LGSC) is less common and aggressive than high-grade types of ovarian cancer, but it resists many kinds of chemotherapy. Relapse after treatment is common.

Oral medication:

Selumetinib is given at 50 mg twice daily until disease progression.

Clinical trial:

In this open-label, single-arm Phase II study, women with recurrent low-grade serous ovarian, or peritoneal carcinoma, are given selumetinib until progression.

Patients:

Participants in the study must be 18 years of age or older, have pathologically confirmed recurrent disease and have been off chemotherapy for at least four weeks.

Results:

Of 52 women enrolled in the study, eight had an objective response to treatment. One had a complete response, and seven had partial responses. Thirty-four (65%) had stable disease.

"These are remarkably encouraging results for what can ultimately be a devastating disease," Gershenson says.

THE TREATMENT — INNOVATIVE TECHNOLOGY REFINED

Head and neck cancers

By Laura Sussman

With its ability to target tumors precisely while minimizing damage to healthy tissue, proton therapy has rapidly gained a foothold as an option for radiation treatment in the past decade. And MD Anderson has gone a step beyond. The institution is the only center in North America to treat patients with one of the most advanced forms of proton therapy, called intensity modulated proton therapy with multi-field optimization (IMPT).

How it works: IMPT relies on complex treatment planning systems and an intricate number of magnets to aim a narrow proton beam and essentially “paint” a radiation dose layer by layer.

Diseases treated:

IMPT is best used to deliver a potent and precise dose of protons to tumors embedded in the nooks and crannies of the head and neck or skull base, including nasal and sinus cavities; oral cavity; salivary gland, tongue, tonsils and larynx.

Clinical trial:

This summer, MD Anderson will open the first trial comparing IMPT to intensity modulated radiation therapy (IMRT), which is the standard of care for radiation therapy in head and neck cancer.

“In the era of personalized medicine, IMPT is a type of radiation so sophisticated that we can adjust it to a patient’s specific tumor with unique precision,” says Steven J. Frank, M.D., associate professor in the Department of Radiation Oncology. “It’s especially well-suited for patients with complicated tumors nestled in the head and neck region where you want to retain key functions, such as vision, speech, swallowing and taste.”

THE PATIENT

MUSICIAN KEEPS IT MOVING

Harry Sheppard remembers exactly when he fell in love with music.

“I was 4 years old, banging on pots and pans. Finally, my mother said to my dad, ‘Get him some drums. He’s ruining all my pots!’” Sheppard says. “At 7, I had my first lesson as a drummer. Years later, I switched to the vibraphone.”

That banging was just the start of an illustrious career as a jazz musician, drumming for greats like Billie Holiday, Benny Goodman and Barbara Streisand. At 85 years young, Sheppard still plays around Houston almost every night of the week. Not even a cancer diagnosis could slow down his career.

It was surgery for a carotid artery that led to the discovery of an “ugly” lymph node, which doctors feared was malignant. The origin: cancer of the base of the tongue.

A fellow cancer survivor and restaurateur, where Sheppard has played every Wednesday night for the past 12 years, suggested he be treated at MD Anderson.

At his first meeting with radiation oncologist, Steven Frank, M.D., to discuss the possibility of receiving proton therapy, Sheppard told his physician he was unsure of treating his cancer, in part, because of his age. Dr. Frank’s response: “You are too young to talk like that!”

Sheppard “breezed” through six weeks of intensity modulated proton therapy with manageable side effects, keeping up with most of his music gigs during treatment. And he has no plans of slowing down.

“I can still play circles around 20-year-olds,” Sheppard says. “I just keep doing it and moving straight ahead.”





THE PATIENT



Madeline Cashion was facing aggressive rhabdomyosarcoma when her surgeon attended a presentation by Andrea Hayes-Jordan, M.D., associate professor at MD Anderson Children’s Cancer Hospital, on a special surgery she was performing in Houston.

Less than a month later, the family left their home in California to find out more about hyperthermic peritoneal perfusion with chemotherapy, better known as HIPEC.

“We just hit it off with Dr. Hayes-Jordan immediately. We felt like she had the team for us, and that we were a part of the team,” says mother, Rachele Cashion.

Originally diagnosed at the age of 4 in September 2010, Madeline underwent chemotherapy and radiation for a year and was declared cancer-free on her first day of kindergarten. Then, another lesion appeared in March 2012. After the second treatment protocol failed to keep Madeline’s tumor in remission, the Cashions and their MD Anderson team moved swiftly to perform the surgery on April 8.

“With the tumor presentation, we had concerns going into HIPEC because of how Madeline fared in two other surgeries,” Rachele says. “But we found comfort in Dr. Hayes-Jordan’s experience and reputation for taking the time to do a thorough job.”

While recovering from a 12-hour surgery, 7-year-old Madeline spent close to three weeks in the hospital honing her artistic skills. Her main goal is to get well enough to again take up horseback riding, her favorite hobby. Each day, her progress was closely monitored and celebrated with Hayes-Jordan, who even knew that Madeline was an artist.

“This care and connection to Madeline, as a patient and as a child, is what makes Dr. Hayes-Jordan an incredible surgeon,” Rachele says. “Madeline is one tough cookie. She’s got a great spirit and what some might say a sense of flare.”

THE TREATMENT — A PIONEER SURGERY

Rhabdomyosarcoma

By Sara Farris

Desmoplastic small round cell tumor (DSRCT) had only been defined as a cancer for 15 years when Andrea Hayes-Jordan, M.D., pioneered a surgery for children with the rare disease. Associate professor in the Department of Surgical Oncology and director of pediatric surgical oncology, her surgery is known as HIPEC (hyperthermic peritoneal perfusion with chemotherapy).

Disease:

In North America each year, fewer than 100 patients get DSRCT, which is found in the abdomen. Other tumors, such as rhabdomyosarcoma, a rare, soft tissue cancer originating in the skeletal muscles, may present in the same area.

Treatment:

The entire surgery usually takes 10 to 12 hours, beginning with removal of multiple tumors followed by circulating heated cisplatin in the abdominal cavity.

Clinical trial:

The success of the Phase I trial allowed for a Phase II trial, which is currently open to those with various tumors in the abdomen. Thus far, 13 pediatric patients have been enrolled on the study.

Results:

The Phase I study and retrospective analysis showed that patients receiving HIPEC in addition to surgical resection had an overall three-year survival rate of 71%. For patients who received only standard treatment, the three-year survival rate was 26%.

“In the past, parents were told nothing else could be done, but now we can add months and often years to the lives of these young patients using this surgery. Moving forward, we hope to try different chemotherapies with the procedure to better the outcomes and decrease any toxicities,” Hayes-Jordan says.

THE TREATMENT — IMPROVING ON SUCCESS

Chronic myeloid leukemia

By Scott Merville

For patients with chronic myeloid leukemia (CML), treatment news has been great since the successful clinical trials for the drug Gleevec® and its approval by the U.S. Food and Drug Administration (FDA) in 2001. Now, a new drug — ponatinib, known commercially as Iclusig™ — tackles the previously untreatable T315I mutation of CML and was approved in December 2012 by the FDA. Jorge Cortes, M.D., professor in MD Anderson's Department of Leukemia, led all of the clinical trials for the drug.

Disease:

CML occurs with the overproduction of white blood cells caused by the Philadelphia chromosome, in which swapped DNA creates a mutant fusion bcr-abl protein that drives the disease.

Oral medication:

Given at 45 mg per day.

Clinical trial:

The pivotal trial showed high rates of major cytogenetic response (reduction of cells expressing the Philadelphia chromosome) and normalization of white blood cell counts.

Patients:

Effectiveness and safety were gauged in a clinical trial of 449 patients with varied stages of CML and some with Philadelphia chromosome-positive acute lymphocytic leukemia (PH+ALL).

Results:

Of all patients enrolled, 54% achieved major cytogenetic response — as did 70% of those with the T315I mutation.

“Ponatinib’s availability will drastically improve the outcome of most patients with CML and PH+ALL, who are resistant or intolerant to prior tyrosine kinase inhibitor therapy,” Cortes says.

THE PATIENT

BACK FROM THE BRINK

Ever since his diagnosis of chronic myeloid leukemia (CML) at the shockingly young age of 24, Justin Ozuna has benefited from the revolution in disease treatment. But the ride on the new wave of drugs for CML has been more rollercoaster than highway.

At his diagnosis in 2006, Gleevec® had been available five years. Primed to deal with the fusion protein that causes the disease, the drug nearly doubled the percentage of patients who survived for five years, from 50% to 90%.

Ozuna felt good. “But I wasn’t getting quite the response we hoped for. I never went into a deep remission.”

Even so, the drug worked for five years. When it stopped, he shifted to a second-generation drug called dasatinib (Sprycel®). When that drug failed after six months, he ventured from his Dallas-area home to MD Anderson and Jorge Cortes, M.D., professor in the Department of Leukemia.

A new analysis showed that his CML now had the T315I mutation, a variation untreatable by approved drugs. Clinical trials for ponatinib, a promising drug capable of hitting T315I, were closed. Another experimental drug failed, then Cortes secured compassionate use of ponatinib. By October 2012, Ozuna was in complete molecular remission, “about as good as it gets in the CML world.”

Now his life, so frustratingly interrupted for seven years, is in full, focused swing. He works at a utility company, is back in school at The University of Texas at Dallas and will marry his sweetheart, Katie Navarte, in October.

“The best you can hope for with CML, and cancer in general, is to take what works until it doesn’t and hope by then something has come along that works better,” Ozuna says. “And you try to live life in the meantime.”



THE TREATMENT — EARLY LEADERSHIP TRANSLATES INTO NEW THERAPY

Advanced thyroid cancer

By William Fitzgerald

Patients with medullary thyroid cancer had a 40% response rate in a Phase I clinical trial with the drug cabozantinib. This led the U.S. Food and Drug Administration (FDA) to allow researchers to bypass the standard Phase II trial and immediately begin a randomized Phase III trial for this patient population. Now, a clinical trial is investigating how this drug could help those with papillary thyroid carcinoma.

Disease:

While medullary disease is a rare subtype that comprises 3% to 4% of all thyroid cancers, papillary thyroid carcinoma includes about 80% of all thyroid cancers diagnosed in the United States.

Oral medication:

Cabozantinib (Cometriq®) was approved under the FDA's priority review program in 2012, making it the second treatment approved for the medullary subtype in the past two years.

Clinical trial:

Researchers are now studying its effects on the papillary subtype, which occurs most commonly in women between the ages of 30 and 50.

"It's a very exciting compound, and we feel we played an absolutely critical role in identifying the value of cabozantinib and moving it forward," says Steven Sherman, M.D., professor and chair of the Department of Endocrine Neoplasia and Hormonal Disorders, who was also the senior investigator on the trial with medullary thyroid cancer patients and now working with papillary thyroid patients.

THE PATIENT

OPTIMISTIC ATTITUDE A MUST

When the results of Mindy Morris' pathology came back, she was relieved. The needle biopsy confirmed the lump in her neck was not malignant. Three years went by, however, and the mass continued to grow. Surgery was soon scheduled, and when it was finished, the news this time was not good.

"The doctors found a lemon-sized tumor, and I was immediately in a high-risk situation," Morris says. "It turned out to be metastatic papillary thyroid carcinoma. After seven years, five additional surgeries and four rounds of radiation, I was told to get my affairs in order."

The prognosis came as a complete shock. "How could this be?" Morris recalls thinking after first being told everything would be fine. With cancer now spreading throughout her chest and lungs, the only thought she could keep was what to do next.



That's when Morris traveled to MD Anderson and enrolled in a clinical trial, evaluating a new drug called cabozantinib. Since she started the therapy in 2010, she's responded well with some tumors now gone and others shrinking in size. The treatment is not curative at this point, but Morris has learned to maintain an optimistic attitude.

"I feel like one of the lucky ones because I qualified for this trial," she says. "Ultimately, it's given me 2 1/2 more years of life that I wouldn't have had otherwise."

Morris plans to continue her treatment in hopes the drug will stave off the disease long enough for another promising agent to be developed.

THE TREATMENT — A DRUG FOR THE RAREST OF CANCERS

Pancreatic neuroendocrine tumor

By Laura Sussman

In 2011, James Yao, M.D., associate professor in the Department of Gastrointestinal Medical Oncology, and his colleagues published pivotal findings from a Phase III randomized trial, led by MD Anderson, showing that everolimus dramatically improved progression-free survival for patients with advanced pNET (pancreatic neuroendocrine tumors). Before that, there were no large-scale, well-conducted randomized studies to guide treatment decisions and only one approved therapy for the treatment of this disease.

Disease: pNET is a more rare and less aggressive form of pancreatic cancer than the more common adenocarcinoma and involves cells that secrete a variety of hormones. Tumors can be functional and produce high amounts of hormones, or non-functional and not produce any. This disease accounts for approximately 1% of pancreatic cancers, and 3 in 1 million of all cancers diagnosed.

Oral medication: Everolimus, an immunosuppressant agent used to prevent rejection of organ transplants, is taken once daily.

Clinical trial: Showed a 65% reduction in risk of disease progression; an increase in median progression-free survival of 2.4-fold in those taking everolimus, compared to 9% in those receiving a placebo.

Results: The drug was approved for the treatment of pNET in May 2011.

“Our research had immediate clinical implications,” Yao says. “Ultimately, everolimus’ approval led to a definitive change in the standard of care for those patients with pancreatic neuroendocrine tumors.”

THE PATIENT

A GIFT TO A CANCER-FREE LIFE

Miriam Jauregui simply does not have time for cancer. For the 36-year-old mother of three, there is always a softball game to attend, homework to help with and a house to run.

Long a sufferer of acid reflux, Jauregui had learned to live with the condition — never thinking it was a sign of a cancer.

However, when diagnosed with an umbilical hernia, a pre-surgery ultrasound revealed spots on both her pancreas and liver. Ultimately, at just 34 years old, she was stunned when told she had one of the rarest of cancers, pancreatic neuroendocrine tumor (pNET).

“My first worry was my children, to leave them alone so young. I would wake up in the middle of the night, crying, and asking God to make everything OK,” Jauregui says.

Her local surgeon in McAllen, Texas, informed her just how rare the tumor was, especially in someone so young. He immediately suggested she travel to MD Anderson for care.

Jauregui’s MD Anderson medical team soon put her at ease and let her know that while rare, the cancer was slow growing. Also, the treatment regimen had been pioneered at the institution. She first underwent an intricate surgery to remove the pancreas and was then put on the oral medication, everolimus. Two years later and still on everolimus, Jauregui has only a small trace of cancer on her liver.

“I thank God every day for my life and for my family,” she says. “I realize now that I can live relatively free from cancer, and for that I’m so grateful.”





Picture This

Chaplaincy plays role in the healing process

By David Berkowitz

For many people, cancer is more than just a disease. It's a test of faith.

The Department of Chaplaincy and Pastoral Education knows that finding or reaffirming a belief in a higher power is part of the healing process.

It offers a variety of resources to guide patients on their spiritual journey, whatever path that may take.

Chaplains are available at any hour to patients and their family members, with worship services, bedside visits, prayer requests, support groups and more.

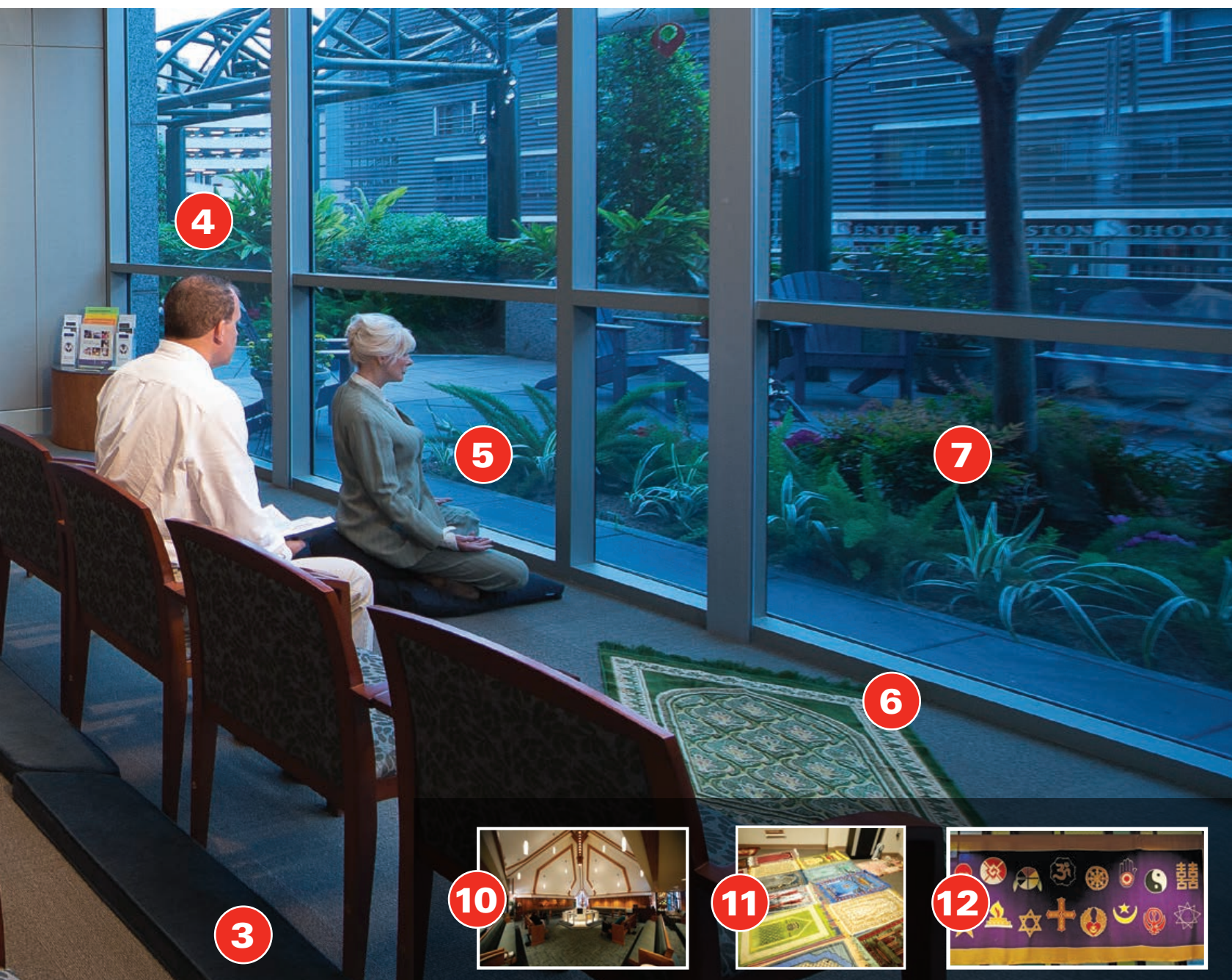
The Freeman-Dunn Chapel in the Main Building and the Louise J. Moran Chapel in

the Lowry and Peggy Mays Clinic are open to anyone seeking solace through prayer or meditation.

In addition, there are prayer rooms available that serve as peaceful retreats in a more private setting.

Through supervised training, Chaplaincy's Clinical Pastoral Education Program prepares students for congregational work and chaplaincy.

To learn more about the department and its services, check the website at www.mdanderson.org/chaplaincy.



The Moran Chapel on Floor 2 in Mays Clinic offers a peaceful setting for prayer and contemplation.

1. Jose Cedillo, manager of clinical chaplaincy programs, and Christiana Liem, chaplain, are just two members of a diverse staff that caters to patients and caregivers of all faiths. The department also partners with local community chaplaincy programs to provide faith-specific ministry.

2. Copies of the Bible, Koran and various prayer books are available in the chapel.

3. Comfortable pads are available for those who would like to kneel in prayer.

4. While no formal services are scheduled in the Moran Chapel, seating is open to anyone. The chapel is open 6 a.m.-11 p.m. daily.

5. Chaplain Donna Strasser relaxes on a cushion as she meditates.

6. Several prayer rugs are available for Muslim visitors.

7. The garden area just outside the chapel provides a serene backdrop, with plants, trees and birds that drop by.

8. Each Wednesday, when the chaplains meet for group prayer and devotion, they read aloud prayer requests and pray for the requestors.

9. The acrylic painting by Amanda Richardson of Cornwall, England, speaks to the “rush” of life, featuring rough waters that can be interpreted as challenge and adversity. But despite this, delicate flowers continue to grow along the stream.

10. Regularly scheduled worship services are held in the Freeman-Dunn Chapel on Floor 1 in the Main Building. The sanctuary is always open. Those who can't attend in person can view services live in patient rooms on MDA-TV, Channel 24. Other religious programs are available through the MDA-TV on-demand system.

11. The Muslim Prayer Room on Floor 3 in the Main Building is available for meditation, prayer and fellowship.

12. A colorful banner near the Freeman-Dunn Chapel represents some of the many denominations that are served by Chaplaincy and Pastoral Education.

■ NEW SPACE, NEW SERVICES

The Children's Cancer Hospital is open for business

By Gail Goodwin

It's great to hear the sound of children's voices again at MD Anderson Children's Cancer Hospital.

For several years, families and patients worked alongside architects and hospital staff designing the floor, which now brings treatment services together in one central location. During construction, children were cared for on another floor. Now that it's wrapped up, the renovated and expanded hospital reopened its doors on May 1 to children, adolescents and young adults with cancer and their families.

The new 25,664-square-foot home includes two inpatient pods, the relocated Pediatric Ambulatory Treatment Center, Patient Intensive Care Services and a designated pharmacy for these young patients.

It also welcomes the Ronald McDonald House Charities® as a more highly involved partner. A Ronald McDonald Family Kitchen, two Family Bedrooms, a Family Lounge and a Family Waiting Area are all located in the newly designed space.

Having services available in one place allows outpatients and inpatients to interact with one another in a secure environment and participate more easily in the school program and Child Life activities.

Although pediatric cancer is rare, the cancers that develop in this younger age group are often very different from those seen in adults. Dissimilarities in tumor pathology appearance, signs and symptoms of the disease and response to treatment are common. The children's hospital is now even more equipped to provide exceptional pediatric and adolescent cancer care.



The Teddy Bear Clinic at MD Anderson Children's Cancer Hospital

■ A CHANGE IN THE TREND Improving survival of children with brain tumors

By Sara Farris

Brain tumors are the second most common cancer diagnosed in children, but the survival rate is lower than that of many other childhood cancers. This trend could change thanks to a collaborative group treating these difficult tumors.

The Pediatric Brain Tumor Program of MD Anderson Children's Cancer Hospital and Children's Memorial Hermann Hospital combines the talent and expertise from two leading medical institutions to focus on brain and spinal tumors in children and young adults.

The team of board-certified specialists from each institution partners with patients and families to deliver the best treatment, including many services not provided by other children's hospitals. Patients have access to the latest in treatments, such as proton therapy, the BrainSUITE® surgical unit with intraoperative MRI, advanced diagnostic imaging and clinical trials found nowhere else.

"We've put together an experienced team," says David Sandberg, M.D., pediatric neurosurgeon at both institutions and co-director of the program with Soumen Khatua, M.D., assistant professor at MD Anderson Children's Cancer Hospital. "Our goal is not only to improve overall survival for children with brain cancer, but to develop better treatments that minimize side effects and provide the best quality of life."



■ KIDS ARE STILL KIDS

Even when they're being treated for cancer

By Gail Goodwin

Teddy bears, lemonade and tugs-of-war are all part of growing up, and pediatric cancer patients get to experience all of these at the MD Anderson Children's Cancer Hospital.

For example, there's field day, an old-fashioned, end-of-school activity for most students. With activities ranging from relay races, carnival games, tug-of-war and a cakewalk, the patients and their siblings have a great time. The Pediatric Education and Creative Arts Program hosted the 2013 celebration. Volunteers with Jackie Sherrill's Texas A&M 12th Man Kickoff Team Foundation were on hand to add to the fun.

Children's hospital patients also learned about entrepreneurship as they teamed up with Southwest Airlines for National Lemonade Day. Building on their first taste of business marketing, children set up a lemonade stand in the hospital's main lobby and served up more than 200 cups to fellow patients. Southwest Airlines sponsored the lemonade supplies and helped young patients serve the summertime favorite.

Young patients sported white coats and played doctor for a day using teddy bears as their patients. Each child learned more about their own cancer treatments in an interactive way as they guided their patient-bear through some of the same tests, services and treatments they receive at MD Anderson.

■ DIFFERENT STROKES FOR YOUNGER FOLKS

Serving the needs of generations X and Y

By Sandi Stromberg

That the needs of pediatric and adult patients differ may surprise no one. But who takes into consideration that differences also exist between baby boomers and generations X and Y?

Today's generation X includes those born roughly between 1965 and 1980, 33- to 48-year-olds; generation Y, those born between the 1980s and 2000, now 13- to 33-year-olds. So it's natural that they have a worldview that varies from the one held by cancer patients in the silent and baby boomer generations.

These younger groups have greater comfort with, and access to, technology through computers, smart phones and video games. They often dress differently, listen to different music and form their own distinct opinions. So, of course, they have different needs when diagnosed with cancer and go through cancer treatments.

Fortunately, over the last decade MD Anderson's awareness of these differences has led to the creation of councils and programs to make sure their distinctive needs are considered.

The Children's Cancer Hospital now incorporates family-centered care as its model of health care delivery. The Family Advisory Council, Patient Advisory Council for Teens (imPACT), Young Adult Advisory Council and Supportive Care Council also play key roles in giving a voice in what matters to the patients and families.

In addition, there's the special Cancer180 group for those twenty- and thirtysomethings. The slogan of these young adults is: When cancer strikes, life does a 180. To battle the loneliness of this time, the program provides a social environment where they can connect with other young adults affected by cancer.

Offered by the Anderson Network, a patient and caregiver support organization and program of the Department of Volunteer Services, Cancer180 offers various activities, most recently an evening mixer at the Houston Zoo, dinner and a movie, and an art exhibit launch reception at the Houston Museum of Health and Science.



Kyle DacDac and Ashley Cavender, along with other members of imPACT, helped create an art installation from childhood trinkets and toys for the newly remodeled children's hospital.

Teens make an imPACT

By Joey Tran

When it comes to family-centered care, MD Anderson Children's Cancer Hospital is leading by example. This model of health care delivery puts patients and their families first, and weaves their input into the fabric of the hospital.

The latest example is a group that welcomes teens to have a voice: imPACT, the Patient Advisory Council for Teens. This group, which includes patients and survivors younger than 18, works to improve the hospital experience for pediatric patients.

"One of the best aspects of the group is that it consists of patients currently in treatment, as well as long-term survivors. It's really incredible to see this diverse group come together to make our hospital a better place," says Lauren Shinn, a child life specialist and imPACT co-facilitator with art teacher Mindy LeBoeuf.

Aiming to help improve the quality of care and make the pediatric cancer experience the best it can be, the council picked technology, food and hospital environment as the platform for its first year's agenda.

Last year, AT&T made a generous donation of 18 Pantech Element tablets. ImPACT members incorporated the tablets into the Patient Tablet Donor Program, which lends them out, along with laptops, to help teen patients maintain their online connections during their stay at the hospital.

TEEN OPINIONS VALUED

Other significant contributions include collaborating with MD Anderson's Department of Clinical Nutrition. Members participated in a food tasting and provided feedback to hospital chefs and managers. Based on this feedback, the department began the process of finding local vendors who could provide halal (Middle Eastern) foods to help meet the needs of the institution's multicultural population.

This year, the council created an art piece from a collection of childhood trinkets and toys. This piece is installed in the newly remodeled children's hospital as a representation of the pediatric perspective. Also, the council participated in a research-based survey that helped determine the type of artwork that is appropriate for pediatric settings.

They have also partnered with the children's hospital's education program to develop a resource for teens to help them talk to their peers about their cancer treatment. Shinn sits on the Family Advisory Council and imPACT, as a liaison between the two groups.

THINKING AHEAD

Advancements in fertility preservation

By Joey Tran

As the number of young and adult cancer survivors of childbearing age increases due to progress in oncology, the adverse effect on reproductive function assumes greater importance.

The good news, according to Anna Franklin, M.D., assistant professor in MD Anderson's Department of Pediatrics, is that techniques to harvest and store reproductive cells have vastly improved in the last several years.

"Fertility preservation is still an emerging discipline," Franklin says, "but rapid advances in technology now provide new options for patients."

Freezing sperm remains a stable and reliable technique while recent advances in assisted reproduction technology have revolutionized the options available for women. The major advancement is a new method of freezing oocytes (eggs) called vitrification that avoids the damage caused by ice crystal formation within the eggs. The American Society of Reproductive Medicine now considers this technique standard procedure, though it still has limited application.

One scientific challenge is cultivating and storing sperm and egg tissue from prepubescent cancer patients. Boys do not produce sperm until they go through puberty, and girls' ovaries may not respond to hormone stimulation required to harvest eggs. Studies for both are ongoing.

"The hope is that the tissue could be used later in patients' lives to create pregnancies," Franklin says. "But we need to make sure we do not re-implant cancer cells along with the reproductive tissue."

One of the most important remaining hurdles is educating patients about the available options for fertility preservation at the same time they learn about the cancer diagnosis and the treatment that lies ahead of them. Patients need to be referred to infertility specialists familiar with the unique time constraints a cancer patient faces and who have credible experience with the various options.

Timing is of the essence, Franklin notes. "Fertility preservation treatments can take two to three weeks, and it's better to take the steps before cancer care begins. Fortunately, Dr. Terri Woodard, a board-certified fertility specialist, recently joined our faculty to address this significant need of our young patients and survivors."



Savannah Andrews discusses fertility issues with Anna Franklin, M.D., a physician dedicated to helping young adults work through these concerns.

■ BAM, BAM GOES THE MRI

Tha-thump, tha-thump goes the pacemaker heart

By Julie Penne

Rarely are today's cardiac pacemakers or defibrillators a second thought for patients who rely on them for an active life.

That is, until it comes time to have an MRI (magnetic resonance imaging), a diagnostic test that the majority of patients at MD Anderson have at some point.

The MRI's powerful magnetic and radiofrequency fields — that produce a distinctive cross-section study of the patient's body — are the same technologies that can confuse a patient's cardiac device.

Enter Marc Rozner, Ph.D., M.D., an anesthesiologist who splits his week between monitoring patients in surgery and those with pacemakers in the MRI bays. His equipment, focus and expertise are surprisingly similar in the two settings. He also checks patients' pacemakers and defibrillators before and after they have surgery or an MRI, and may reset them.

While there are other specialists around the nation who monitor patients with cardiac devices in the MRI units, they are often radiologists or cardiologists. As the only anesthesiologist in the country with this specialty, Rozner also is the only specialist at a cancer center with such a practice. Professor in MD Anderson's Department of Anesthesiology and Perioperative Medicine, Rozner has a joint appointment in the Department of Cardiology.

Last year, he and his team supervised 78 MRI studies in patients with cardiac devices, almost doubling the number done in 2011. Since 2004, the team has monitored 242 MRI studies. Rozner is also studying the impact of radiation, proton therapy and chemotherapy on cardiac devices.

"This is an expanding field of research. It's vital that we learn all we can so our patients get the best care," Rozner says. "More and more patients are coming to us with devices, and we implant many more, unfortunately, as a result of some chemotherapies. We're learning as we go. We must keep learning so we can improve care."

**Marc Rozner, Ph.D., M.D.,
professor, Department
of Anesthesiology and
Perioperative Medicine**



■ LEVERAGING A 'VILLAGE'

Taking on rare soft tissue, bone tumors in the pelvis

By Julie Penne

In her head, Cathy Helminiak knew that her MD Anderson team could bring her through a complex surgery and long recovery from a chondrosarcoma in her right hip joint.

But it was Helminiak's heart, filled with the prospect of grandchildren, that finally moved her to commit to it.

Looking back more than four years after she had her right leg amputated at the top of the hip, Helminiak's head and heart served her well. She is cancer-free and mobile with or without her prosthetic leg, and it's a good thing because her two toddler granddaughters are on the move, too.

Helminiak had a form of surgery called hemipelvectomy, in which the pelvis and/or sacrum (the lower back part of the pelvis) are removed or reconstructed depending on the size, type and location of the bone or soft tissue tumor. The pelvis not only provides the scaffold for bone, muscle and weight distribution, but it encases the pelvic organs, including the prostate or uterus, the bladder, rectum and the large vessels and nerves that serve the lower extremity.

The bone and soft tissue tumors that call for a hemipelvectomy are rare, and for many adult and pediatric patients, finding a skilled surgical team to tackle their cases and save their legs can be a challenge.

The eight- to 16-hour surgeries are difficult unto themselves, but a patient's post-surgery recovery and rehabilitation also are demanding.

TEAMWORK ESSENTIAL TO RARE SURGERY

Two years ago, Valerae O. Lewis, M.D., associate professor in the Department of Surgical Oncology and chief of Orthopaedic Oncology, launched the Multidisciplinary Pelvic Sarcoma Surgery Program.

This entity formally brought together a group of specialized surgeons, anesthesiologists, nurses, technicians and rehabilitation specialists, creating a single go-to team for patients who face hemipelvectomies. Together, the team performs all of MD Anderson's 30 to 50 cases per year.

Lewis says the formalized program has brought a new dimension of collegiality, communication and calm to the operating room. For the patient, the cohesion has reduced time under anesthesia and in the Intensive Care Unit after surgery. A prospective study is underway to determine how the dedicated team ultimately influences outcomes.

"Hemipelvectomies are complicated surgeries for our patients, but they also are physically and mentally tough for the entire surgical team," Lewis says. "With a designated team that works together frequently, a patient can have great confidence in a team that has great confidence in each other."



Valerae O. Lewis, M.D., associate professor, Department of Surgical Oncology

CLINICAL TRIALS ON A PATIENT'S DOORSTEP

Regional centers expand cancer care options

By Beth Dombrowa



Erica Adlakha, research coordinator, discusses with Douglas Nelson, M.D., the potential for more clinical trials at The Woodlands Regional Care Center.

First, they provided radiation. Then, they added chemotherapy and laboratory services, surgery and rehabilitation therapy. Now, MD Anderson's regional care centers are allowing patients to enroll in clinical trials that offer hope and could change how certain diseases are treated in the future. All of this conveniently located where patients live and work.

Offering clinical trials in the regional care centers is also helping MD Anderson's Texas Medical Center (TMC) campus and community-based physicians accrue more patients while expanding the institution's mission of rigorous research.

In November 2010, MD Anderson's regional care centers in The Woodlands, Katy, Sugar Land and the Bay Area enrolled their first patients in one of the nine clinical trials available to community patients at the time.

By the end of Fiscal Year 2011, 48 patients had been enrolled on research protocols in the regional care centers. This number rose to nearly 180 by the end of FY2012. By the end of FY2013, the centers are on track to have 200 patients participating in one of 19 open studies, bringing the total to nearly 375 patients since the program's inception.

IDENTIFYING ELIGIBLE PATIENTS

The rapid rate of accruals is due, primarily, to increased collaboration between regional care center physicians, who are eager to offer trials to their eligible patients, and TMC primary investigators, who seek to fill their trials and collect significant data.

The growing number of patients who qualify to participate in a trial in a community setting prompted MD Anderson's Clinical Research Support Center to devote full-time research coordinators to The Woodlands and Sugar Land locations earlier this year, with a goal of adding research coordinators in the Bay Area and Katy as well.

Erica Adlakha, research coordinator in The Woodlands, spends much of her day scanning patient records to identify suitable candidates for available trials.

“We’re accruing patients to trials very quickly,” Adlakha says. “When I find eligible patients, I speak with their physicians. Once the physicians ask the patients if they’re interested, I meet with them to further explain the protocol and answer any questions they might have.

“Most patients want to participate,” she adds. “They know they might be helping themselves and someone in the future. Likewise, the physicians are eager to participate in the research.”

COLLABORATION SERVES PATIENTS BETTER

Benjamin Smith, M.D., assistant professor in MD Anderson’s Department of Radiation Oncology, echoes the sentiment that the regional care centers are eager to enroll patients in protocols. Smith is principal investigator on a trial, with the goal of including 288 patients. As of press time, 206 patients have been enrolled, largely due to participation from the centers.

“My trial is asking a question that’s very relevant to community-based patients with less complicated breast cancers,” Smith says. “We’re looking at two different courses of radiation following a lumpectomy. More than half of the patients have been accrued through the regional care centers. We’re working closely together to further establish a collaborative research infrastructure.”

The collaborative research is further supported by a clinical research committee and working group that engages and encourages principal investigators from the TMC to open their trials to community-based patients. Sunil Patel, M.D., assistant professor at MD Anderson’s center in Katy, participates on the committee.

“We work to ensure that there aren’t any logistical issues that might make it difficult for a community patient to participate in a particular protocol,” Patel says. “Our goal is to open as many studies as we can, help our colleagues accrue to their trials and, ultimately, answer these important research questions faster and help patients sooner. We have a steady interest from regional patients, who inquire about trials and want to participate in them.”

Matthew Ballo, M.D., professor in the Department of Radiation Oncology and based in the Bay Area center, opened a trial in 2011 that is almost full. While only a handful of regional care center physicians are principal investigators on their own trials, Ballo expects that to change, given the heavy interest in research among MD Anderson’s community-based physicians.

“As regional care center physicians, we share a career path with our TMC colleagues that includes the research component of MD Anderson’s mission,” he says. “We can offer a larger number of patients in the greater Houston area access to trials with clinical implications, overseen by people who strongly support the institution’s research objectives — and offer hope to patients.”



Joanie Blais, clinical research quality specialist, works closely with Sunil Patel, M.D., to enroll patients in clinical trials at the Katy Regional Care Center.

WHY LIFESTYLE CHOICES MATTER

Cancer prevention
as a way of life

By Katrina Burton

Leading the efforts of cancer prevention at the world's top cancer center is no small task. Yet Ernest Hawk, M.D., vice president and head of MD Anderson's Division of Cancer Prevention and Population Sciences, embraces this mission.

He stands at the helm of one of the largest international efforts in prevention and control. And his impressive faculty of cancer prevention clinicians and researchers has spent many years dissecting and investigating methods to reduce the number of people who develop cancer.

"We know how to prevent at least 50% of all cancers," Hawk says. "We also know that early detection and screening are critical keys to reducing cancer incidence and mortality."

Everyday choices matter

"Cancer is not caused by a single event, but is the result of a process that takes years to develop," Hawk says. "It's the result of a combination of inherited susceptibilities and a variety of lifestyle choices people make daily."

Research has shown that people can do a lot to reduce their risk of developing cancer over time, including being physically active,

maintaining a healthy diet, and limiting harmful occupational and environmental exposures.

Because there are limited effective therapies for treating advanced cancers, information about strategies to detect and prevent cancer are extremely important.

With greater frequency, people are becoming more comfortable talking about cancer and cancer risks, such as a sedentary lifestyle, obesity, UV exposure and smoking. But there are conflicting messages not only for the general public, but also for those in the medical industry, Hawk says.

The public often depends on popular reality programs such as "The Biggest Loser" or the latest news reports for health information, but there can be confusion about the importance and credibility of the findings. People tend to follow advice they are most comfortable with. To make the best decisions, they need trusted sources for this information.

Collaboration leads to promising discoveries

Over the past few years, several discoveries under Hawk's leadership have advanced the goal to prevent and control cancer. For example, MD Anderson epidemiologists recently reported in *The Lancet* results of a large study that showed 15 minutes of exercise a day, or 92 minutes per week, extended a person's expected lifespan by three years — a 14% reduction in mortality.

Another study, led by health disparities researchers, involved an intervention in health care settings to help reduce tobacco-related mortality and morbidity. The study, Ask Advise Connect, was published in the *Journal of the American Medical Association Internal Medicine* and showed that smokers directly connected to the Texas Quitline were 13 times more likely to enroll in a treatment program, compared to smokers who were advised to contact the quitline (see page 27).

Cancer prevention is a multi-prong approach and requires collaborations across a broad spectrum of disciplines.

- Behavioral scientists are making strides in dissecting the brain's response to emotional cues to understand smoking behavior, cessation and relapse.
- Physicians and scientists in clinical cancer prevention are investigating the earliest changes in cells that could signal transformation toward cancer.
- Epidemiologists are working to identify risk markers in the human genome.
- Health disparities researchers are studying and implementing ways to reduce the cancer burden in the poor and medically underserved.
- Health services research investigates the delivery, quality and cost of health care.

Making meaningful changes

Hawk maintains that consistent, meaningful changes can have a significant impact in reducing the incidence of, and deaths due to cancer.

“Screening and early detection are critical strategies,” he says. “Over the years research has shown that screenings are responsible for a 20% reduction in mortality for breast and lung cancers, 30% reduction in colorectal cancer and a steady and impressive decline in cervical cancer. There’s no doubt that we’re making significant progress. Yet, there’s still much to be done.”

Since the announcement by Ronald DePinho, M.D., MD Anderson president, of the Moon Shots Program, Hawk and his team are developing and supporting the prevention aspects of the moon shots.

Much more can be done through a combination of broad public education programs and legislative action. One example concerns ultraviolet (UV) light exposure — particularly during youth.

“We still have high rates of minors using tanning beds in the state of Texas,” Hawk says. “UV exposure represents a substantial risk for developing skin cancers, especially melanoma, which can be life-threatening. Through legislation Texas has been able to restrict minors’ access to tanning beds, thus reducing the incidence of skin cancers.”

“Another ongoing project involves tobacco cessation. Long-term exposure to tobacco continues to account for more than 80% of lung cancers. In the United States, mortality from this disease is higher than from breast, ovarian, prostate, colorectal and pancreas cancers combined. In addition to programs for adults, MD Anderson has interactive, educational programs designed for youth and adolescents to inform them about the dangers of tobacco products with the goal of dissuading their use.

“The earlier you invest in education and screening, the better the chance you have of preventing cancer,” he says.

With his dedicated team of researchers, scientists and clinicians, Hawk hopes the next five years will generate more resources dedicated to bringing about meaningful changes in which healthy lifestyles and broader use of evidence-based screening exams become the prevailing way of life.



Ernest Hawk, M.D., professor and head, Division of Cancer Prevention and Population Sciences, fields a question on prevention during the September 2012 launch of MD Anderson's Moon Shots Program.

ELIMINATING BARRIERS

New approaches help smokers quit

By Katrina Burton and Joey Tran

MD Anderson understands that when it comes to quitting smoking, one approach doesn't fit everyone. That's why researchers and physicians spend long hours trying to understand smoking addiction and designing programs that might help smokers give up this life-threatening habit.

Two recent initiatives are showing promise for many. One involves a drug that could help relieve the side effects of quitting, the other shows the benefits of counseling.

ANTI-SMOKING DRUGS HELP KICK THE HABIT FOR GOOD

Quitting can be tough, no matter how long you've been smoking. However, recent findings from an MD Anderson comparative study of two popular smoking cessation drugs showed that smokers can come closer to eliminating their smoking habits.

"When smokers try to quit, many are likely to experience a range of nicotine withdrawal symptoms, including negative mood, difficulty concentrating, irritability and even depression making quitting difficult and increasing the chances of relapse," says Paul Cinciripini, Ph.D., professor in MD Anderson's Department of Behavioral Science and lead investigator on the study.

He believes that minimizing these withdrawal symptoms could help smokers strengthen their quit-smoking attempt, especially when it's will power versus habit.

Addressing withdrawal symptoms

Fortunately, the study revealed an increased probability of quitting and a less unpleasant smoking-cessation experience among smokers taking varenicline, compared to those on bupropion or a placebo. Cinciripini also provided intensive counseling during the process.



Paul Cinciripini, Ph.D., professor, Department of Behavioral Science

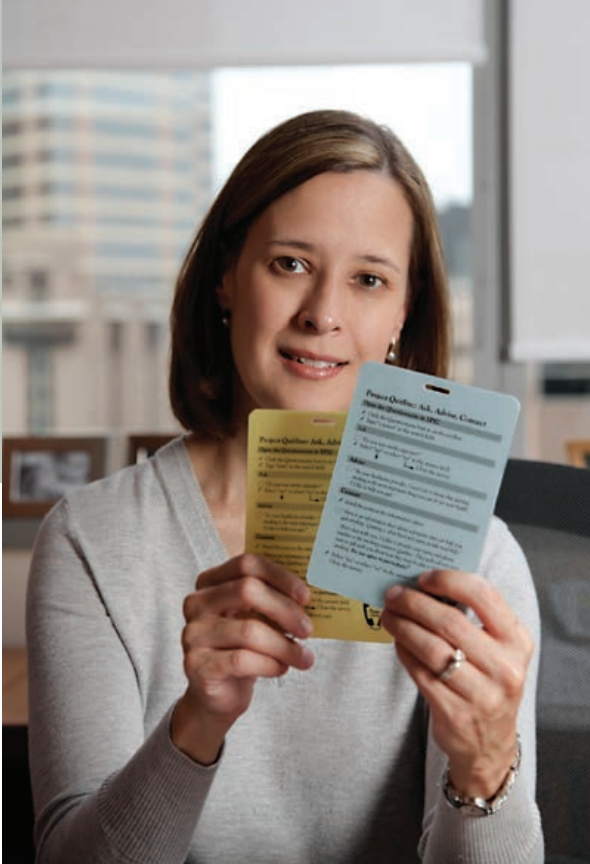
"The more we can reduce these negative symptoms associated with quitting, the better the smoker's experience. This may mean that even if they don't quit this time, they'll be encouraged to try again," he says.

The study, funded by the National Institute on Drug Abuse, included 294 smokers randomized into three groups. All participants received smoking cessation counseling from QuitRx, alongside their corresponding anti-smoking medication or placebo.

QuitRx is an MD Anderson research study designed to better understand how the brain responds when people experience negative emotions (e.g., agitation, irritability, sadness) often associated with quitting.

The findings showed that varenicline was more effective in minimizing depressive symptoms and cravings, and could even eliminate the psychological reward or pleasure gained from smoking.

"It's evident from the findings that varenicline is hitting many more effective targets, in comparison to bupropion or a placebo," Cinciripini says. "There's a distinct benefit of these effects on cessation even among those who don't fully abstain."



Jennifer Irvin Vidrine, Ph.D., associate professor, Department of Health Disparities Research

ASK ADVISE CONNECT A quit-smoking approach

Self-identified smokers directly connected to a tobacco cessation quitline are 13 times more likely to enroll in a treatment program as compared to smokers who are handed a quitline referral card and encouraged to call on their own.

The study, published in the *Journal of the American Medical Association Internal Medicine*, evaluated a new approach to linking smokers in health care settings with evidence-based smoking cessation treatment delivered via the Texas Quitline. Called Ask Advise Connect, the program was designed to eliminate barriers to treatment.

“The study’s primary outcome was impact — defined as the proportion of all identified smokers who enrolled in smoking-cessation treatment with the Quitline,” says Jennifer Irvin Vidrine, Ph. D., associate professor in MD Anderson’s Department of Health Disparities Research and principal investigator on the study.

Licensed vocational nurses and medical assistants at 10 Kelsey-Seybold Family Practice clinics were trained to ask all patients about their smoking status at the time vital signs were collected, to record this information in the electronic health record (EHR), provide all smokers with brief advice to quit and to connect smokers with the Quitline through an automated link within the EHR.

“The findings reflect one of the highest rates of tobacco-cessation treatment enrollment reported in the literature to date,” Vidrine says. “Given that smoking is the leading cause of preventable morbidity and mortality in the United States, Ask Advise Connect has tremendous potential to make a significant public health impact if adopted broadly by other health care systems.”

BREAKING NEWS: A NEW TYPE OF DEPARTMENT IS BORN

Breast medical oncologist and cancer care outcomes researcher Sharon Giordano, M.D., has been chosen to lead MD Anderson’s new Department of Health Services Research (HSR), a multidisciplinary area of research that examines the delivery, quality and costs of health care.

Giordano sees the new department as an opportunity to position MD Anderson as a leader in HSR. “We have a growing need to develop strategies for cancer care delivery and to demonstrate value in health care, specifically in prevention, treatment and survivorship,” Giordano says. “Cost of care is important on a national level. We need to provide the best care possible without bankrupting the country.”

Health Services Research incorporates an array of established areas of research and brings together investigators from diverse specialties. The goal is to identify the best personalized treatment for people to maximize their safety, timeliness, effectiveness, equity, efficiency and patient-centeredness, thus improving access, cost and quality of care.

— Katrina Burton



Scan this QR code or visit www.mdanderson.org/conquest to learn how donors made it possible for 5,000 middle school students from the Corpus Christi area to participate in a non-smoking seminar in February.



The future of health care is in good hands

A strong investment in education

Through the School of Health Professions and the Graduate School of Biomedical Sciences, a collaboration with The University of Texas Health Science Center at Houston, MD Anderson is investing in a future of strong scientific discovery and excellence in health care.

Hands-on wins hands-down

The School of Health Professions

By Sandi Stromberg

Reza Marvdashti, Ph.D., wanted practical experience for his genetics students at San Jacinto College (SJC), and he had an idea. First, he took the unusual step of using his sabbatical to enroll in MD Anderson's School of Health Professions in 2009-2010, studying cytogenetics.

Second, he talked to the school's administration about a collaborative program with his students, one that would allow them to have hands-on experience with well-established faculty.

The results of his efforts have been rewarding for him, the school and his students. Not only did he pass the national American Society of Clinical Pathologists' Board of Certification for Technologist in Cytogenetics, but he also helped start a program that has been giving his students the experience he hoped for.

Each fall for the past four years, SJC students have spent two days a week for six weeks at the school. The program has been so successful that MD Anderson is now preparing a National Institutes of Health "Bridges to the Baccalaureate Program" grant to be submitted in October 2013. It will include SJC, as well as students in the genetics program at Houston Community College Northwest and in the biotechnology program at Lone Star Community College-Montgomery.





Alfred G. Knudson Jr., M.D., Ph.D., enjoys talking science with former colleagues and recipients of the award established in his honor.



Reza Marvdashti, Ph.D.,
San Jacinto College

“What we’re hoping for from this grant is to have summer internships to feed students from colleges into our cytogenetics and other programs,” says Vicki Hopwood, assistant professor and director of the SHP’s Cytogenetic Technology Program.

To illustrate what is being done when they submit the grant, SHP has three interns from Lone Star for eight weeks this summer.

“The biggest barrier for students entering our programs is that they need to work and have families to care for,” says Shirley Richmond, Ph.D., professor and dean of SHP, who will lead the grant if it is secured. “When they come, it makes it hard to continue working. Having grants to provide internships and scholarships removes that financial barrier.”

SHP widens its scope

Another avenue opens for the school this August. In addition to the nine undergraduate programs already offered, a master of science in diagnostic genetics is being added as the first graduate-level program.

“Our two-year master of science program addresses the growing need for a graduate level program that combines a strong diagnostic genetics curriculum with a vigorous clinical environment,” says Peter Hu, Ph.D., program director for the master’s degree in diagnostic genetics. “The program is tailored to people seeking a career in this cutting-edge field of clinical laboratory sciences.”

The program concentrates on the mastery of interpretive skills in major areas of the field, including:

- pre- and post-natal genetic disorder testing,
- cancer genetics testing,
- infectious disease testing,
- DNA forensic science testing,
- prokaryotic and eukaryotic genomics, and
- molecular evaluation and bioinformatics.

The man who discovered the ‘two-hit’ theory

The Graduate School of Biomedical Sciences

By Sandi Stromberg

Not everyone’s desk is brought from obscurity to a place of honor. But on March 5, the Graduate School of Biomedical Sciences (GSBS) dedicated both the Art Deco desk used by former dean, Alfred G. Knudson Jr., M.D., Ph.D., and a plaque containing the names of all recipients of the outstanding dissertation award established in his honor.

A geneticist and physician, Knudson, now in his 90s, was recruited to MD Anderson as dean of the school in 1969 by the institution’s first full-time president, R. Lee Clark, M.D. At that time, the school was housed in the Hermann Professional Building. His job was to merge the graduate school, then under the administration of MD Anderson, with the basic science faculty at The University of Texas Medical School at Houston, which had just been established.

“If Dr. Clark wanted something to happen, it did,” Knudson says. “MD Anderson was a place that didn’t know failure or impossibility. The melding of the two organizations went smoothly and with excitement on everyone’s part.”

Knudson served as dean from 1970 to 1976, making a lasting mark on the school and its educational philosophy.

He is internationally recognized for his “two-hit hypothesis” of cancer causation, which explained the relationship between the hereditary and non-hereditary forms of a cancer and predicted the existence of tumor-suppressor genes that can prevent cancer cell growth. This now-confirmed theory has advanced understanding of errors in the genetic program that turn normal cells into cancer cells.

The Knudson Award was initiated in 1997 by MD Anderson’s faculty to note a distinguished scientist and educator whose early landmark contributions to the field of genetics are made while associated with MD Anderson and the GSBS.

Signs of Hope Hitting the high notes

By Gail Goodwin

A dose of music therapy shifts the mood

Children have been known to call Michael Richardson “the music man.” As patients in MD Anderson Children’s Cancer Hospital, they love to follow his lead, playing keyboards, drums and boom whackers.

Packing a guitar, beautiful choir chimes, keyboard and an assortment of professional percussion instruments, MD Anderson’s music therapist is often seen in the hallways on his way to work with patients and families.

Ingrid Moeller, a part-time music therapist, and Erin Feuerstein, a music therapy intern from West Texas A&M University, round out the MD Anderson team.

“It’s hard to tell you what I like best about this internship,” Feuerstein says, “but more than likely it would be getting to interact with a broad range of patients from around the world and creating music that is meaningful to them.”

Feuerstein remembers an experience with a 4-year-old boy, who was referred by his doctor. Her goal was to normalize the hospital environment for the young patient. Using age-appropriate musical play, the patient learned ways to express his feelings and explore his surroundings, leading to decreased anxiety.

Music therapy an emphasis since 1991

Richardson, who began working as a contract employee at MD Anderson in 1991 before becoming a full-time employee in 2004, enjoys patient interaction. He measures his success by sessions, such as a recent one, when music distracted a patient from her pain. That’s a big win for a music therapist, who tries to understand a patient’s mood and then affect a change that is beneficial for that person.

To receive music therapy, patients must be referred by their physicians. Once the order is received, the therapist works with a patient to manage stress, deal with pain, help express feelings, improve communication, encourage physical rehabilitation and, in general, promote wellness.

Hidden benefits

Patients’ needs vary from physical to emotional to cognitive and, finally, to social. A simple tune can go a long way to improving well-being.

One of the offerings of MD Anderson’s Integrative Medicine Center, music therapy is provided to children and adult inpatients, outpatients and their families. Here, health care teams have discovered that a dose of music therapy can change a patient’s mood and behavior. Being involved in an activity not normally associated with being an inpatient has been shown to increase a patient’s self-esteem, self-confidence and coping mechanisms.

Music therapy is more effective when patients can choose music they have a connection to. So patients are always invited to help select the music the therapist uses.

While Richardson may be singing or playing for patients, his ultimate goal, along with that of his colleagues, is to contribute to a patient’s health and well-being — with every tune.



Michael Richardson is MD Anderson’s “music man” to patients like Judith Nelson.

No musical experience required MD Anderson’s Celebration Singers

When her doctor sent her to a nutrition class, she heard singing from the next room. “That sounded like a lot of fun so I joined up,” says Liz Lewis, a Celebration Singer.

The singers enjoy singing together, but they also come for the friendship and support they receive from Michael Richardson and each other. The only criterion to join the Celebration Singers is that you must be a cancer patient, survivor or caregiver.

Singers are not expected to read music. Richardson, MD Anderson’s music therapist, is there to guide participants. Hold a note, repeat the chorus, take a breath and, most important, have a good time. Richardson leads his singers through a mix of all genres during each rehearsal.

“We sing a little bit of everything,” Richardson says. “It’s definitely a variety show.”

He speaks the truth, leading the Celebration Singers through songs such as “Eye of the Tiger,” “Amazing Grace” and even that old favorite, “Happy Trails.” During the rehearsal, in between songs, there is plenty of time for members to catch up on the latest in their lives and share the most recent news with the group.

The Celebration Singers meet weekly to make beautiful music. “Come join us,” Richardson says. “It’s relaxing and fun, and we grow as singers and friends each week.”

For rehearsal information or to join the Celebration Singers, contact Michael Richardson at 713-563-0858.

— Gail Goodwin



Left to right: Sally Berger, a patient in active treatment, sings out with Marifel Malacara, a caregiver and MD Anderson employee, Jeri Coalman, a patient and new member, and Liz Lewis, a patient and member of the group for the past six years.

By Joey Tran

The term “handicapped” is no longer considered politically correct, but, in any case, it would be a misnomer for Alma Faz, an amputee and computed tomography technologist at MD Anderson.

Faz was a freshman in college when she was diagnosed simultaneously with bone and ovarian cancers.

In March 1998, she had three cycles of chemotherapy, which did not treat the bone tumor. Subsequently, she had to undergo surgery to amputate her right leg.

“I’d always been outgoing and motivated. Suddenly, there were a lot of ‘I can’t’s,” Faz recalls. “It was a very trying time at that age. You’re finding out who you are, and that was interrupted for me.”

Her treatment ended in summer 1998, and she has remained completely cancer-free.

Getting on with life

It’s been more than 15 years since her leg was amputated. In this time, Faz has achieved much in both her personal and professional lives.

“The doctor said I would have no limits,” Faz recalls. “I can run. I can bike. I can ski. I can do anything I set my mind to.”

She has participated in five half-marathons and run more than 1,100 miles in the last two years. She is now ready to begin training for her first triathlon.

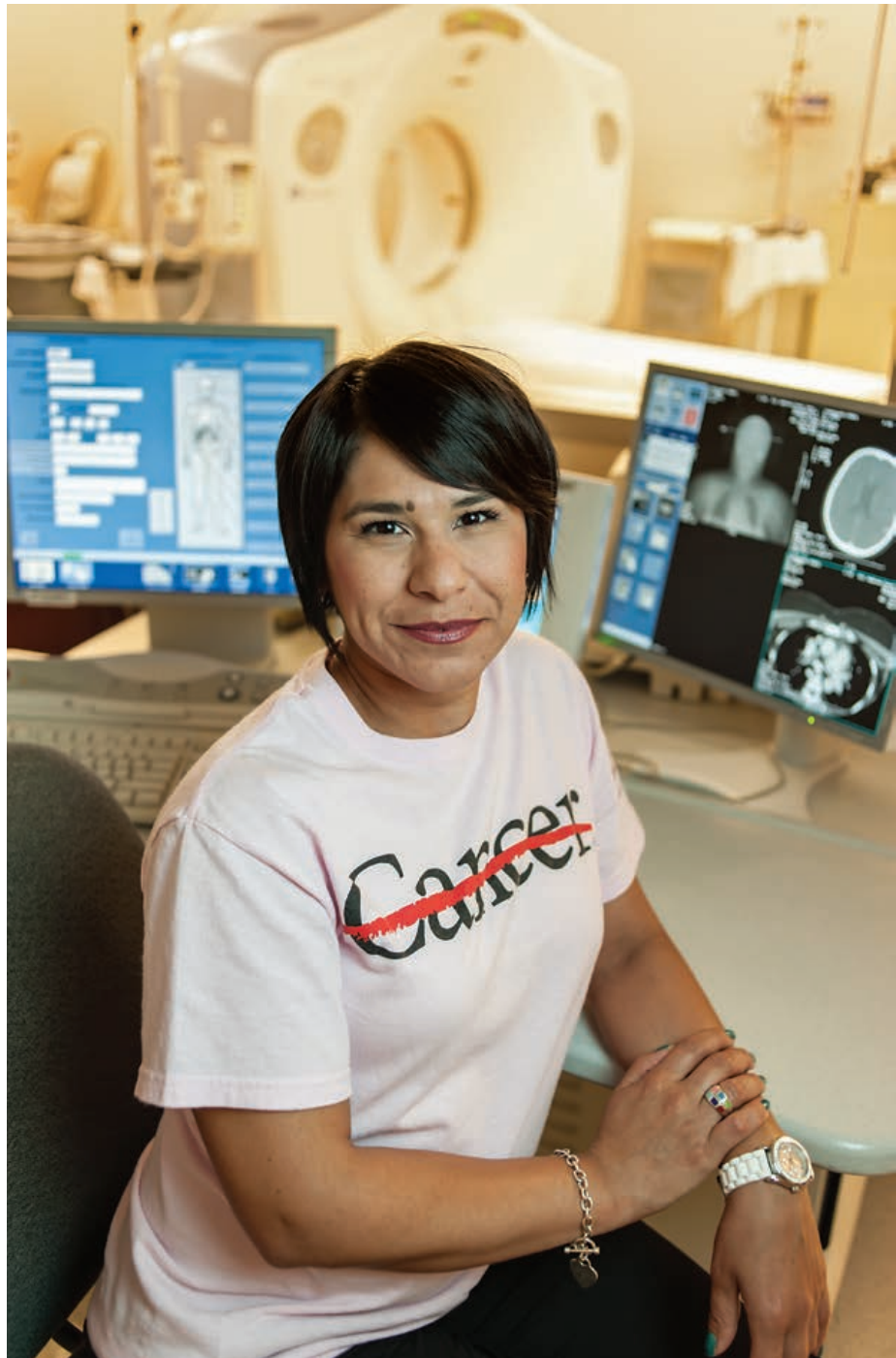
During her treatment, Faz fell in love with radiology and decided to pursue it as a career.

“My goal was always to work for MD Anderson,” she says. In August 2008, she graduated from MD Anderson’s School of Health Professions with a bachelor’s degree in diagnostic imaging. She specializes in using computerized tomography (CT) scanners that help diagnose patients’ medical condition by producing cross-section images of internal organs and tissues.

Faz, who feels that she wouldn’t be where she is today if it weren’t for MD Anderson and her large support network, says that she needed a special way to thank her heroes. She is one of the original members of MD Anderson’s Young Adult Advisory Council, a group of young cancer survivors dedicated to sharing opinions and ideas to help other patients.

Although she is cured, she realizes that someone else’s story is just beginning. As such, she hopes that her efforts and contributions will positively impact others.

“I have no limitations,” Faz tells other patients. “I can do anything I put my mind to, so can you.”



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In addition to MD Anderson's main campus in the Texas Medical Center in Houston, four regional care centers in the greater Houston area (Bay Area, Katy, Sugar Land, The Woodlands) and two research campuses in Bastrop County, Texas, the institution has developed a network of national and international locations.

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www.mdanderson.org/cancernetwork

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