

CONQUEST

THE UNIVERSITY OF TEXAS

MD Anderson
Cancer Center

Making Cancer History®

SPRING 2015 VOL 29 ISSUE 3



THEIR WHOLE LIVES AHEAD OF THEM

FROM TREATMENT TO
PREVENTION EFFORTS,
MD ANDERSON IS TACKLING
CANCER IN THE YOUNG

MISSION

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. We are Making Cancer History®.

CORE VALUES

Caring

By our words and actions, we create a caring environment for everyone.

Integrity

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: Addison Marshall has lived through some unexpected turmoil in his life. In 2005, Hurricane Katrina uprooted his family and forced them to relocate to the Houston area from New Orleans. A few years later, when he was 15, Marshall learned he had leukemia. Determined not to fall behind in school, he attended the Hospital School at MD Anderson Children's Cancer Hospital during his treatment. There, Marshall could continue his studies and keep pace with his classmates. He's now 22 and a student at Texas A&M University.

In addition to helping young patients stay on track in school, MD Anderson recently announced it's joining efforts with CATCH, the Coordinated Approach to Child Health program. CATCH is used in schools and after-school programs across the nation to help teach kids about making smarter choices that lead to healthier lifestyles. Initial efforts will focus on preventing skin cancer and tobacco use.

In this issue of Conquest, you'll read these stories and others about the many ways MD Anderson is helping young people battle and beat cancer today, as well as prevent the disease tomorrow. **Wyatt McSpadden**



Join the conversation with MD Anderson via Facebook or Twitter or follow our YouTube, Google+, Pinterest, RedLine eNewsletter, Cancerwise blog and other publications.

Links:

www.mdanderson.org/redline
www.facebook.com/MDAnderson
www.twitter.com/MDAndersonNews
www.youtube.com/mdandersonorg
plus.google.com/+mdanderson

www.pinterest.com/mdandersoncc
www.cancerwise.org
www.mdanderson.org/publications



A Comprehensive Cancer Center Designated by the National Cancer Institute

VISIT THE CONQUEST WEBSITE
AT WWW.MDANDERSON.ORG/CONQUEST



4



16



8

12



FEATURES

4 NO STUDENT LEFT BEHIND

The educators and staff of the MD Anderson Hospital School make sure pediatric patients can keep up with schoolwork during treatment.

8 ALTERNATIVE BENEFITS

The Little Yogis Program at the Children's Cancer Hospital provides young patients with tools to cope with the pain, anxiety and fear they may face as they undergo treatment.

12 PREPARED FOR PREVENTION

MD Anderson will lend its cancer prevention expertise to the Coordinated Approach to Child Health (CATCH) program, which is used in schools and after-school programs nationwide.

16 PAINTING BUTTERFLIES

While being treated at MD Anderson as a child, Meisha Brown was inspired to pursue a career in medical research. Today, she's a cancer advocate and pursuing her Ph.D.

18 RISING AMONG THE YOUNG

According to MD Anderson researchers, in the next 15 years, more than one in 10 colon cancers and nearly one in four rectal cancers will be diagnosed in patients younger than the traditional screening age.

20 DETECT AND CURE

When caught early, lung cancer can be cured. However, it almost always goes undetected till it's too late. Researchers are working on a blood test that will reveal the disease in its early stages.

24 TEAMING UP ON CANCER

In the modern world of biomedical research, collaboration between academic institutions and pharmaceutical companies is becoming more and more prevalent, necessary and productive.

28 STAYING POWER

Many patients who travel to MD Anderson from outside the Houston area for treatment face the difficult task of finding an affordable place to stay. Several nonprofit groups have been established to help.



MD Anderson's award-winning Conquest magazine is available on the iPad.

Want to combine the design of the print version with the convenience of your tablet? The iPad version is for you. It's filled with multimedia extras and features sleek, user-friendly navigation. Download for free at the iTunes App Store by searching CONQUESTMAGAZINE, and use the free subscription offer to receive notifications each time a new issue is published.

Conquest also is available at www.mdanderson.org/conquest.

CANCER FRONTLINE

MENTAL HEALTH CLINICS GO TOBACCO FREE

People with mental illness are 70% more likely to smoke cigarettes than people without mental illness, according to the Centers for Disease Control and Prevention. Yet smoking cessation programs seldom are offered to mentally ill people as part of their overall treatment plan.

To bridge this gap in caring for a particularly vulnerable population, MD Anderson has joined with Rice University, the University of Houston and Austin Travis County Integral Care — Travis County's provider of psychiatric and behavioral health services — to eliminate smoking in state-funded community mental health clinics throughout Texas.

This anti-tobacco initiative, known as the Taking Texas Tobacco Free project, is training clinic administrators to implement tobacco-free policies on their campuses and to deliver tobacco cessation interventions to their patients and staff. The initiative is greatly needed, says its director, Cho Lam, Ph.D., assistant professor of Health Disparities Research at MD Anderson and senior faculty fellow in Rice University's psychology department.

"Adults with mental illness smoke about a third of all the cigarettes in the United States," Lam says. "They're at greater risk of dying from smoke-related illnesses than from their mental health conditions."

The American Psychological Association lists a number of possible reasons why smoking is prevalent in people with schizophrenia, bipolar disorder, depression and other mental illnesses. One of the most probable is that nicotine can improve attention and concentration — appealing benefits for some mental health patients. However, nicotine's benefits only last about five minutes at a time, leading the person with mental illness to smoke even more.

When patients with mental illness decide to quit smoking, their psychiatrists or mental health professionals must be made aware of their plans to quit, says Lorraine Reitzel, Ph.D., associate professor of educational psychology at the University of Houston and co-director of Taking Texas Tobacco Free.

"Smoking can lessen the levels of psychiatric medications in the bloodstream," says Reitzel. "But when a patient quits smoking, the medication levels in the patient's blood can rise and may even become toxic. Medication levels must be closely monitored and adjusted during the process of quitting smoking."

In the past year, Taking Texas Tobacco Free has been introduced in 117 clinics. The future plan is to introduce the program in an additional 138 clinics.

Funded by the Cancer Prevention and Research Institute of Texas, it's modeled after Austin Travis County Integral Care's Tobacco-Free Workplace Program.

— Ronda Wendler



Wyatt McSpadden

MD ANDERSON RECEIVES \$22.3 MILLION IN CPRIT RESEARCH FUNDING

MD Anderson received more than \$22 million in research grants from the Cancer Prevention and Research Institute of Texas (CPRIT) in February.

Approximately half the funds awarded for Individual Investigator Research Awards (IIRA) went to MD Anderson faculty. Additionally, 40% of total IIRA funds were awarded for research in children's and adolescent cancer and early detection and prevention.

The CPRIT awards will go toward studies in the areas of breast, skin, prostate, pancreas, colon and lung cancers in adults; leukemia and brain cancer in children; and for studies aimed at preventing colon and lung cancers.

These include:

- \$16 million for Individual Investigator Research Awards
- \$3.8 million for children and adolescents
- \$2.5 million for prevention and early detection.

In addition, Immatics Biotechnologies was one of four Company Formation Awards funded by CPRIT. At more than \$19 million, the project will further enable translation of immunotherapy knowledge from

MD Anderson into new therapeutics for cancer patients.

"This is an astounding accomplishment and we're extremely pleased that CPRIT has again recognized the significant scientific contributions being made by our world-class researchers," says MD Anderson President Ron DePinho, M.D. "We could not be more proud of the work that occurs every day at this institution and we commend those investigators who were awarded funding by CPRIT, as well as all the scientists and clinicians whose daily goal is no less than to end cancer."

In 2014, MD Anderson received more than \$47 million from CPRIT for research, prevention, recruitment and training. In total, the institution has received more than \$215 million from CPRIT since its formation in 2009.

In November, CPRIT adopted new annual priorities to guide its grant awards, and specified that 10 of the awards would focus on childhood and adolescent cancers. Five would address prevention and early detection of cancer. MD Anderson was awarded two grants in each of these new categories, totaling more than \$6.3 million.

— Ron Gilmore

HWU NAMED HEAD OF CANCER MEDICINE

Patrick Hwu, M.D., chair of Melanoma Medical Oncology and Sarcoma Medical Oncology at MD Anderson, has been named division head of Cancer Medicine.

Hwu's selection came after a competitive national search to fill the position that was served by Richard Champlin, M.D., on an ad interim basis. Champlin will continue to serve as chair of Stem Cell Transplantation and Cellular Therapy.

"Dr. Hwu is an internationally respected physician-scientist who has 25 years of experience in the fields of tumor immunology, targeted therapies and translational studies," says Ethan Dmitrovsky, M.D., provost and executive vice president.

Hwu earned his medical degree from the Medical College of Pennsylvania in Philadelphia and served as a house officer in internal medicine at Johns Hopkins Hospital. He completed a fellowship in oncology at the National Cancer Institute, where

he continued to work for 10 years as a principal investigator leading tumor immunology studies. He joined MD Anderson in 2003 as the first chair of Melanoma Medical Oncology.

"Dr. Hwu and I worked closely together at the NCI for 13 years. He's one of those rare visionaries when it comes to expanding the frontiers of cancer medicine," says Steven A. Rosenberg, M.D., Ph.D., head of the Tumor Immunology Section and chief of the Surgery Branch at the National Cancer Institute's Center for Cancer Research. "He's a brilliant scientist and leader."

An expert in tumor immunology, Hwu has translated multiple concepts from the lab to the clinic and helped to launch the field of gene modified T cells, publishing research on the first chimeric antigen receptor (CAR) directed against cancer. Clinical trials using CAR-transduced T cells now are being studied in many types of cancers, and MD Anderson

has established an adoptive T cell therapy program, treating more than 80 melanoma patients with T cells to date.

During Hwu's 11-year tenure as Melanoma Medical Oncology chair, the department evolved from a purely clinical group to a National Institutes of Health-funded academic program performing novel laboratory and translational clinical research. The department has grown from 40 faculty and staff to more than 120. Its peer-reviewed grant funding has increased from \$200,000 to more than \$6 million.



Patrick Hwu, M.D.

— Ron Gilmore

DEPINHO ELECTED TO TOP CANCER RESEARCH ACADEMY

MD Anderson President Ron DePinho, M.D., has been inducted as a new fellow of the American Association for Cancer Research (AACR) Academy. He joins 10 other cancer leaders as new inductees in the prestigious academy, which recognizes those who've made significant contributions to cancer research.

All fellows are nominated and elected through a rigorous peer-review process conducted by existing AACR members and ratified by its executive committee. This process involves an assessment of each candidate's scientific achievements in cancer research and cancer-related biomedical science.

"Our 2015 class of fellows includes 11 luminaries in the cancer research field, in honor of the 11 founders of the AACR in 1907," says Margaret Foti, M.D., Ph.D., AACR chief executive officer. "We're delighted to recognize the incredible scientific accomplishments of these illustrious researchers and celebrate how their dedicated efforts have helped accelerate the pace of progress against many of the hundreds of diseases we collectively call cancer."

According to the AACR, this "brain trust" of global leaders in cancer research offers invaluable insight into the future of cancer research and patient care, and continues to work with the AACR in its mission to prevent and cure all cancers.

"Dr. DePinho's outstanding work in basic and translational research in cancer, aging and age-associated degenerative disorders has been internationally recognized," says The University of Texas System Chancellor William H. McRaven. "His selection as a member of this notable academy is further testament to his significant contributions to cancer science."

DePinho joins seven other MD Anderson faculty members who've previously been named to the academy. They are James Allison, Ph.D., Isaiah Fidler, Ph.D., D.V.M., Emil Freireich, M.D., Waun Ki Hong, M.D., V. Craig Jordan, Ph.D., Margaret Kripke, Ph.D., John Mendelsohn, M.D., and Louise Strong, M.D.

— Ron Gilmore

STUDY: LENVATINIB IMPROVES SURVIVAL FOR THYROID CANCER PATIENTS

In a pivotal Phase III study led by MD Anderson researchers, the oral anti-angiogenic therapy lenvatinib has shown dramatic improvement in progression-free survival in patients with advanced radioiodine-refractory thyroid cancer.

The global study, led by Steven Sherman, M.D., associate vice provost for Clinical Research and chair of Endocrine Neoplasia and Hormonal Disorders, was published in the *New England Journal of Medicine*. It could offer a new treatment model for a group of patients for whom, until recently, there has been no new effective treatment since the 1940s. Preliminary findings were first reported at last year's American Society of Clinical Oncology annual meeting. The published study includes updated data.

According to the American Cancer Society, 62,450 people will be diagnosed with thyroid cancer in 2015, and 1,950 will die from the disease. It's the fastest growing cancer type, says Sherman, with rates of refractory disease also on the rise. Until recent therapeutic advances, historically, radioactive iodine has been the only treatment available to patients with metastatic thyroid disease, he explains. While it does offer a cure to a select group of patients, more than half do not respond to the therapy.

"For decades in this patient population, the treatment was often to repeat ineffective doses of radioactive iodine, and possibly salvage therapy with chemotherapy," says Sherman, the study's senior author and the international principal investigator.

The international, randomized, Phase III, double-blind study enrolled 392 patients — all of whom had progressive, refractory disease — from 21 countries. Patients were randomized at a 2-1 ratio to receive either the study drug or placebo, respectively. In total, 261 received lenvatinib and 131 received a placebo. At the time of disease progression, patients in the placebo arm of the study could receive lenvatinib. The primary endpoint was progression-free survival; secondary endpoints tested response rate, overall survival and safety.

For those who received the study drug, the median progression-free survival rate was 18.3 months, compared with 3.6 months in those who received a placebo. The overall response rate in the study arm group was 64.8% (with four complete and 165 partial responses), and 1.5% in the placebo arm. The median overall survival was not reached in either group.

— Laura Sussman

Read about the latest progress in Making Cancer History® at cancerfrontline.org.



“The school program at MD Anderson gave us the security and hope to look beyond Addison’s diagnosis. He actually was ahead of his class when he went back to school and he had great confidence to return.”

— Val Marshall, Addison Marshall’s mother

CONTINUING EDUCATION

By Julie Penne

Addison Marshall, 22, is on the fast track to success. He’s a student at Texas A&M University carrying a full course load while studying to become a physician assistant. He works at a physical therapy clinic in College Station and teaches a 6 a.m. fitness and conditioning class at a local gym.

But several years ago, Marshall had to do something out of character — slow down.

“I was diagnosed with leukemia at age 15 and relapsed a year later,” he says.

At a time when most high school students are preparing for college placement tests, visiting universities and exploring scholarships, Marshall was in MD Anderson Children’s Hospital, undergoing chemotherapy and proton therapy.

“I was determined to keep up with schoolwork, graduate and go to college,” he says.

And MD Anderson made sure he could do just that.

With the help of a one-room schoolhouse tucked in the corner of the children’s hospital, Marshall didn’t miss a beat academically.

No shortage of resources

Far from an old-fashioned classroom, the school is outfitted with state-of-the-art technology, including wall-mounted flat screens for distance learning, personal tablets loaded with lessons and e-books, and two robots that allow patients to be present in their


home classrooms. Still, there are more traditional touches, like colorful drawings, a white board, posters promoting field trips and cozy study areas.

Staffed by five certified educators (two classroom teachers, two school liaisons and a full-time art teacher), the MD Anderson Hospital School is accredited by AdvancED, a nonprofit, nongovernmental organization that accredits primary and secondary schools throughout the country. Students from pre-kindergarten through 12th grade are offered learning in the classroom, by the bedside, or, for those recuperating at home, through online lessons.

In addition, school re-entry support, art classes and extracurricular activities that teach cooking, theater arts and music are provided.

Conversational English is taught to a growing population of international patients and families to help them better navigate MD Anderson and connect with others going through similar experiences.

Teachers also assist siblings of pediatric patients and children of adult patients who may need help with their homework while their mom or dad is hospitalized.

Addison Marshall was diagnosed with leukemia when he was 15. Today, the 22-year-old Texas A&M student is working toward a career as a physician assistant. Tattoos on Marshall’s left arm were inspired by his experience with cancer.  Wyatt McSpadden



English as a Second Language teacher Bonnie Butler helps pediatric patients keep up with their studies while they're treated at the Children's Cancer Hospital.  Eric Kayne

Helping patients maintain normalcy

Started in 2009 and funded solely by philanthropy, the Hospital School is a part of MD Anderson's Pediatric Education and Creative Arts Program.

Even though a family may be reeling after receiving a cancer diagnosis, Daniel Smith, the program's director, said school is often one of the first things they want to address.

"Patients and parents desire the sense of normalcy that school brings, and parents have the hope that their children will come through the cancer experience and return to their lives before cancer," says Smith, who has 11 years of experience as an educator and school administrator. "It's important to provide families with information and a game plan early so we can deliver continuity, re-establish normalcy quickly, and set the expectation that school remains a vital part of their lives."

Smith says parents are relieved to learn that the Children's Cancer Hospital makes school a priority no matter what form it may take for their child.

"It's reassuring to parents that the MD Anderson teachers take care of the logistics and details once decisions are made about which school path is best," he says.

Each patient's education plan is as individual as their cancer treatment regimen.

Working closely with the home school

Bonnie Butler, who teaches English as a Second Language, says teachers at the Hospital School are creative and use a variety of tools and methods to return students to their home schools and keep them up-to-date with their grade levels.

"Ideally, we'd like to send them home even better prepared," she says. "Just like any teacher, we push, motivate and encourage so they do their best. No one gets a pass because of their diagnosis, but we certainly accommodate it."

Wykesha Hayes is one of the two masters-degreed educators handling the school re-entry program that helps children smoothly return to their school district classrooms.

“MD Anderson’s education program is a great setting for teachers who have the passion and ability to work with students whose environment is constantly changing. It’s as challenging a setting as you will find in education, but what a privilege it is.”


— Daniel Smith

She and another school liaison communicate with the patient’s home district, identifying ways to collaborate, whether through distance learning or through homework going back and forth. When it’s time for a patient to return to his or her home classroom, the re-entry specialists meet with teachers and the class to ease the transition for the patient, who may have been away for a long time.

“It’s a teachable moment to share a lesson about cancer and how to be a good friend,” Hayes says. “And it’s an opportunity for the class to hear why their classmate may not have hair or be able to participate in physical education class.”

It’s also a chance to help pre-empt possible bullying at a time when it’s difficult enough for a child to return to school.

“Our re-entry specialists are a cross between a social worker and an education counselor,” says Hayes, who’s pursuing a Ph.D. in education at Texas A&M University. “The home districts appreciate MD Anderson coming out to speak to the class, and we do so as former classroom teachers. We can straddle both worlds to make that transition the best it can possibly be.”

Camera-and-Internet-enabled robots potentially allow hospitalized or homebound patients to interact with classmates and attend class virtually.  Eric Kayne

“Each of us who works in the Children’s Cancer Hospital Pediatric Education and Creative Arts Program wants to impact every patient and family, but it’s often the other way around. We learn so much from them during this difficult time.”

— Bonnie Butler

Taking advantage of technology

Hayes is always looking for technologies that expand learning and keep students connected, such as a Skype session with a patient’s home class.

Last fall, the Hospital School acquired Travis and Taylor, two camera-and-Internet-enabled robots that swivel around a child’s school district classroom and stream two-way video between the classroom and hospital. Hospitalized or homebound students control the “remote presence robots” with their computer or tablet. They get to interact with their classmates and stay on task, academically.

Hayes and the Hospital School staff continue to explore the best use of the robots for education, but Travis and Taylor already have been used for social activities on the pediatric unit, including remote trick-or-treating.

For Addison Marshall, the answer to keeping up his education in the hospital was not advanced technology, but a human tutor.

When the hospital’s education team asked how they could support Marshall’s education, he asked for help with AP (advanced placement) pre-calculus and physics to keep up with his classmates.

Within two days, the staff found a Rice University student to tutor Marshall two days a week in the hospital, a relationship that lasted six months. When he went back to Foster High School in Richmond, Texas, Marshall was ahead of his class and tutored his classmates. He graduated on time and participated in the school’s graduation ceremony.

“Once you lose the right to go to school by being in the hospital, you understand how valuable it is,” Marshall says. “When you’re thrust into the fire, you have to push through and go to an uncomfortable place to find that tougher spirit. I’ve learned better study habits and gained a new independence because of the tutor I had at MD Anderson and the education program there.”





Pediatric patients such as Fre'derick Redd III enjoy children's yoga therapy, which puts a creative and whimsical twist on adult yoga. 📷 Eric Kayne

By Ronda Wendler

THE WARRIOR POSE

THE LITTLE YOGIS PROGRAM USES YOGA, STORYTELLING, ART AND MORE TO EMPOWER YOUNG CANCER PATIENTS

Seven-year-old Fre'derick Redd stands 4 feet tall, but on Tuesdays, he stretches his limbs to the sky and feels 50 feet high. He's pretending to be a giant oak tree swaying in the wind while participating in a yoga class tailor-made for kids with cancer.



Each Tuesday, the Little Yogis Program at MD Anderson Children's Cancer Hospital provides young patients tools to improve their quality of life and cope with the pain, anxiety and fear they may face as they undergo treatment.

"We teach them gentle stretching exercises to keep their bodies mobile, meditation to help with stress and anxiety, and visualization to cope with the pain," says yoga teacher Amie Koronczok. "And we deliver all these in a fun and playful way."

Yoga therapy for children embraces the same theories and philosophies as adult yoga, but with a greater element of creativity and whimsy. It can be combined with storytelling, games, art and music.

In Koronczok's class, children roar like lions, hop like frogs and flap their arms like butterfly wings as they get lost in their imaginations, playing, moving and breathing.

Afterward, they listen to stories, sing songs and create artwork that complements their stretching exercises. They may craft sparkly butterfly wings with construction paper and glitter after gliding through the room like the winged insects, and listen to Koronczok read a story about a caterpillar that transforms into a beautiful butterfly.

"It's all connected," Koronczok explains, "and designed to be uplifting and symbolic. A child who's lost her hair may identify with the caterpillar and butterfly analogy. When her hair grows back, she'll be that butterfly."

Fre'derick likes the oak tree exercise because it makes him feel powerful.

"I can beat cancer because I'm big and strong," says the outgoing first-grader who was once in remission but is battling leukemia for the second time.

Toddlers to teens

Little Yogis launched last summer as an eight-week pilot program.

"Our adult patients love yoga, so we thought, 'why not kids?'" says Catherine Powers-James, Ph.D., a psychologist with MD Anderson's Integrative Medicine Program, which partners with Pediatrics to offer the class. "Yoga is ageless."

The pilot program was hugely successful, and now Little Yogis is here to stay. Classes are free, and parents and siblings are invited to grab a yoga mat and join in.

From toddlers to teens, kids leave their beds and gather in the activity room on the 9th floor of the Main Building. Older kids help younger ones, and able-bodied kids help those who aren't as agile.

"Hospitals can be very isolating places for kids," says Powers-James. "It's important that they socialize with other kids going through the same thing."

Sessions are tailored to meet the needs of each child, depending on the child's age, physical condition and mental state.

"I can't arrive at class with a plan," says Koronczok. "Instead, I adapt and adjust activities based on who's in class and how they're feeling on any given day. Maybe one child is dizzy and needs to sit, while another will stand. It's tailor-made yoga, yet the whole group is cohesive."

Mind and body

The more researchers learn about yoga, the more they realize its benefits, says Lorenzo Cohen, Ph.D., professor and director of the Integrative Medicine Program.

"Yoga increases our flexibility and strength, improves our balance, helps us sleep better and benefits all our bodily systems," he says, "including cardiovascular, respiratory, immune, endocrine and musculoskeletal."

Yoga strengthens the mind as much as the body. Breathing and meditation techniques can reduce stress and anxiety and redirect patients' focus away from pain. Yet little research has been conducted on the benefits of yoga for children. MD Anderson plans to expand in this area.

In Koronczok's class, children use yoga's relaxation techniques to prepare for medical procedures and to calm "monkey mind" — rapid-fire thoughts that produce anxiety and stress.

Will that needle hurt?

Will my hair grow back?

Will I fall behind in school?

Will I ever get out of the hospital?

A nurse dropped in on a recent class to take Fre'derick to chemotherapy.

"Can we have five more minutes?" Koronczok asks.

She shakes a snow globe and hands it to Fre'derick. He watches intently as the swirling glitter begins to settle.

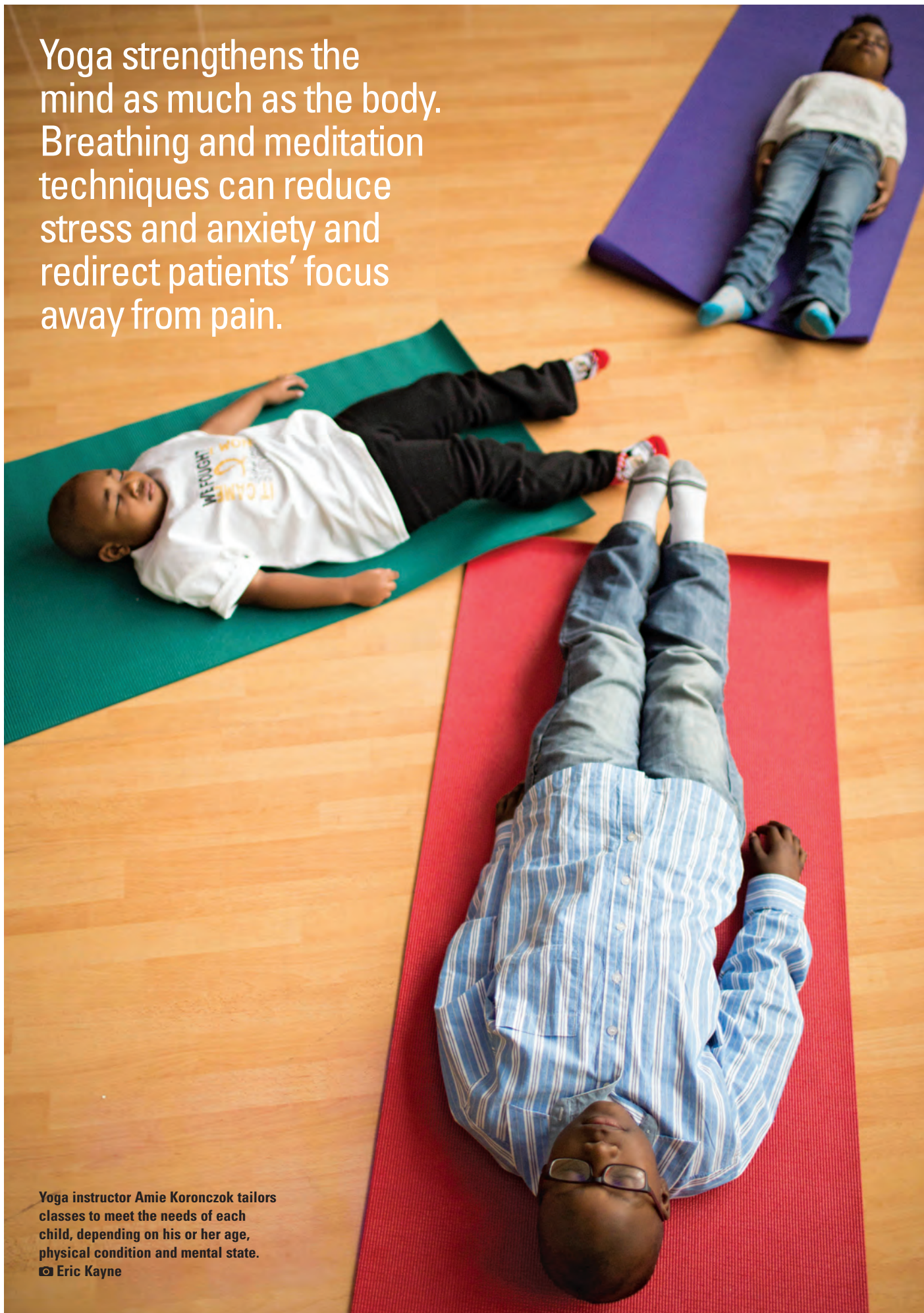
"Your mind was whirling like the snow," Koronczok says. "But now your thoughts are becoming peaceful as the snow settles down."

The last speck of snow settles and Fre'derick is ready. As the nurse returns and takes him by the hand, he looks back and flashes a thumbs-up.

"I got this," he says.



Yoga strengthens the mind as much as the body. Breathing and meditation techniques can reduce stress and anxiety and redirect patients' focus away from pain.



Yoga instructor Amie Koronczok tailors classes to meet the needs of each child, depending on his or her age, physical condition and mental state.
© Eric Kayne

Living a long life starts early.

By Scott Merville



CATCH takes on cancer

MD Anderson will add a dose of cancer prevention to a research-based program that helps children around the nation exercise more, eat better and learn skills to make healthier decisions in life.

In an agreement reached in February, MD Anderson will lend its expertise to the Coordinated Approach To Child Health (CATCH) program.

Originally developed as a childhood anti-obesity initiative, CATCH has been introduced in 10,000 schools, preschools and after-school programs throughout the nation. It helps students and their families adopt healthy lifestyles through good nutrition and exercise.

With MD Anderson's participation, the program will expand to include lessons aimed at lowering children's lifelong risk of developing cancer. The institution will focus its initial CATCH efforts on preventing skin cancer and tobacco use.

"MD Anderson's affiliation with CATCH greatly accelerates our ability to nationally promote healthy lifestyles in childhood and adolescence," says Ernest Hawk, M.D., vice president of Cancer Prevention and Population Sciences at MD Anderson.

Up to half of all cancers could be prevented if Americans adopt a healthy lifestyle starting in childhood, Hawk says.

"For example, sunburns in childhood are closely tied to the risk of skin cancer later in life, including melanoma, the most lethal form," he explains. "So sun safety is an important early lesson."

Sunbeatable superheroes

To promote sun safety in children, MD Anderson will kick off its participation in CATCH this summer with Ray and the Sunbeatables: A Sun Safety Curriculum for Preschoolers. The program features a band of superheroes (seen on the opposite page) led by Ray, who has the superpower of creating shade and wears a magic watch that reminds him to be super-protected from 10 a.m. to 4 p.m., when the sun's rays are strongest. His band of superheroes have unique superpowers of their own, including Serena, who champions sunscreen; Chloe, who promotes protective clothing; Stefan, who sports protective sunglasses; and Hannah, who covers her head under protective hats.

All are shielded from the sun as they explore the world in their travel ship, the Eclipse.

By participating in these adventures, children learn how and why to be sun safe in their daily lives, and how to find their own "sunbeatable superpowers."

"It's important to teach sun protection at an early age so children get into the habit of protecting themselves from the sun's rays," says Mary Tripp, Ph.D., a behavioral sciences instructor at MD Anderson.

Sun protection is especially important for children with cancer, because childhood cancer survivors have an increased risk of getting a second cancer such as melanoma later in

life, says Dennis Hughes, M.D., Ph.D., associate professor of Pediatrics at MD Anderson.

The MD Anderson Children's Hospital School — an accredited on-site school (see story on page 5) that helps pediatric patients stay on grade-level with schooling during treatment — has added Ray and the Sunbeatables to its curriculum.

The program will launch this summer at a limited number of schools and early childhood education centers.

Optimum impact

The agreement cementing MD Anderson's role in CATCH makes the cancer center a founding partner of the CATCH Global Foundation, a public charity established in 2014 to improve children's health worldwide.

The partnership is an initiative of the institution's Moon Shots Program, which aims to fast-track scientific discoveries into treatments or advances that improve survival rates for many of the deadliest cancers. MD Anderson's role in providing skin cancer prevention education for CATCH is part of the Melanoma Moon Shot, and its tobacco-use prevention education falls under the Lung Cancer Moon Shot.

Hawk, along with MD Anderson's vice president of governmental relations, Mark Moreno, leads the moon shots' cancer prevention and control platform, which supports prevention efforts through enhanced public policy, public education and the sharing of clinical practices to effectively address community needs and priorities.

The Melanoma and Lung Cancer Moon Shots each have youth cancer prevention education programs underway that build on or extend programs developed by the institution's Cancer Prevention and Population Sciences faculty.





MD Anderson will lend its cancer prevention expertise to the Coordinated Approach to Child Health (CATCH) program. Initial efforts will focus on preventing skin cancer and tobacco use.
© Eric Kayne



Another objective of moon shots is to extend MD Anderson's expertise nationally for maximum impact.

"Effective cancer prevention will play a powerful role in the future health of our country and in our team meeting its moon shots goals," says MD Anderson President Ron DePinho, M.D.

"It's important that we deploy MD Anderson's programs for optimum impact," he says. "With CATCH, we're fortunate to combine our expertise with a successful, longstanding program providing a practical, research-based approach to child health that's already national in scope."

The four-year agreement calls for MD Anderson to provide \$3.3 million in funding for infrastructure and operations, curriculum development and dissemination, and program and technology support. Anticipated projects will:

- Transform CATCH curriculum to a digital format
- Develop and disseminate new program content, including UV light protection to reduce skin cancer risk, and tobacco use prevention to reduce the risks of at least 15 types of cancer
- Promote peer-to-peer student engagement in prevention programs
- Educate students and parents about vaccination to prevent cancers associated with the human papillomavirus (HPV)

The start of CATCH

When childhood obesity began to emerge as a serious public health problem in the 1990s, researchers at The University of Texas Health Science Center School of Public Health at Houston (UTHealth) set out to address it with science. They concluded the challenges were so deeply embedded in modern life that efforts focusing on a single aspect — diet alone, for example — wouldn't get the job done.

Originally developed by a coalition of five research universities, including UTHealth's School of Public Health, CATCH has expanded through the school's Michael & Susan Dell Center for Healthy Living. It includes programs for early childhood education, elementary school, middle school and after-school programs. Each have components for nutrition, physical education, classroom activities and community and family outreach.

Recommendations are specific and practical. For example, the physical education program offers an "activity box" of 250 vigorous but fun games and activities, tailored by age group, with tips on how to devote at least half of physical education class time to moderate-to-vigorous activity.

The nutrition component features healthy menu consultation with cafeteria staff as well as educational materials for children, including a stoplight icon that sorts foods into GO, SLOW and WHOA categories.

The classroom component focuses on nutrition and physical activity. Family and community events reinforce the overall message of healthy living.

From the beginning, research has shown that CATCH programs are working. The initial study revealed it reduced fat consumption and increased physical activity for children and adolescents, and that these changes were maintained for three years after exposure to the program, through the end of eighth grade.

Subsequent studies showed:

Children in El Paso, Texas, who participated in CATCH were 11% less likely to experience the onset of excessive weight and obesity — a significant difference.

In Central Texas' Travis County, it led to a 9% decrease in excessive weight and obesity among fourth-graders.

Steve Kelder, Ph.D., and Deanna Hoelscher, Ph.D., professors at the UTHealth School of Public Health and founding directors of the Michael & Susan Dell Center for Healthy Living, initiated the CATCH Global Foundation last year to ensure that effective programs are put into broad practice.

"Our goal is to create a public entity dedicated to improving the health of children, in perpetuity, by disseminating programs developed and proven effective at UTHealth and MD Anderson. MD Anderson's generous support and cancer prevention expertise will greatly accelerate the foundation's progress in obesity prevention, cancer prevention and population health," Kelder says.

Duncan Van Dusen, founding executive director of the foundation and a UTHealth graduate, notes: "CATCH is backed by 25 years of scientific evidence proving that it's the most cost-effective means to prevent childhood obesity. And since obesity is a leading risk factor for cancer, it has really always been an anti-cancer program."

The mission of the foundation is to improve children's health worldwide, Van Dusen says, by developing, disseminating and sustaining the program in collaboration with UTHealth researchers.

"The foundation links underserved schools and communities to resources that create and sustain healthy change for future generations," he says.

Since CATCH began as a program to prevent obesity and the associated long-term risks of developing Type 2 diabetes and heart disease, obesity itself has emerged as a risk factor for cancer. According to the National Cancer Institute, adult obesity is associated with increased risk for at least eight different types of cancer.

"Joining forces with MD Anderson immediately expands the value of CATCH to our partners in schools, YMCAs, Jewish community centers, and other settings around the country, and will power several large initiatives to benefit hundreds of thousands more kids," Van Dusen says.

The foundation is seeking school and community partners to implement CATCH. For more information, visit catchinfo.org.



THE UNSTOPPABLE MEISHA BROWN

How a young patient metamorphosed
into a tireless cancer advocate

By Ron Gilmore



Eric Kayne

JAMEISHA “MEISHA” BROWN WAS JUST 8 YEARS OLD IN JUNE 1998 WHEN SHE HEARD HER MOTHER TALKING TO THE DOCTOR IN HUSHED TONES.

At an age when she should've been thinking about how to dress her favorite doll, young Meisha's world was about to turn upside down.

“I knew it was bad,” Brown says. “I heard him mention that he wanted to order an emergency CT scan.”

That day, Brown began a journey that would take her from cancer patient to survivor to advocate. When she was diagnosed with Burkitt's lymphoma, an aggressive, fast-growing type of B cell non-Hodgkin lymphoma that occurs most often in children and young adults, it was another sad twist in a young life that had already witnessed more than its share of challenges.

Brown doesn't gloss over her childhood trials.

“I was raised in what could be considered a disadvantaged family,” she says. “At the time of my diagnosis, my mother was a single mom raising five kids. She was also taking care of my grandmother, who had a stroke 10 years earlier.”

She smiles slightly as she thinks back to the house where she grew up.

“When it rained outside, it rained inside. I was always looking for plastic to cover things with,” she recalls.

“My hope is to work on making health care, particularly for cancer, even more accessible and available to everyone.”

And then, just weeks after she had finished the second grade, she received the cancer diagnosis. While playing outside that summer, she began to experience stomach pain and nausea and became more and more fatigued. At the pediatrician's office, Brown heard the doctor telling her mother she needed to decide which hospital to take her to. That same day she went to MD Anderson, and three days later, she underwent emergency surgery to remove tumors around her small intestine, colon, ovaries and appendix.

Over the next few months, Brown received chemotherapy and endured severe gastrointestinal problems that made a feeding tube necessary. Still, she had some lighter moments during her treatment. Kids are still kids she says, even when they have cancer.

“We played hard, even in the hospital. I always encouraged the other pediatric patients to ‘live for today.’ We would go skating down the hallway with our IV poles and generally made life difficult for some of our physicians,” she says.

Following three months of standard-of-care treatment, Brown wasn't better. She was placed in a clinical trial and given a drug regimen of rituximab, cyclophosphamide, hydroxydaunorubicin, oncovin and prednisone. In the end,

it proved to be the right decision, and Brown sees herself as living proof of clinical research's power to help patients.

“The doctors weren't saying, ‘we can expect this,’ or ‘this has been proven with that,’” she recalls. “With this treatment they were saying, ‘we hope.’ It gave me a sense that I had a fighting chance because there was the word ‘hope.’”

During her time in the hospital, Brown continued her schoolwork through the Pediatric Education and Creative Arts Program. While participating in the MD Anderson Children's Art Project, she did a painting of a butterfly symbolizing her metamorphosis from cancer patient to survivor. The butterfly was later made into a glass ornament that was sold through the program.

Although Brown was cancer-free by February 1999, she continued participating in the Children's Art Project until age 19. She also worked through the long-term side effects of the many surgeries and treatments, and is still followed by an interdisciplinary team of cancer specialists.

Today, Brown's life is still focused on health. She received her master's degree in health studies from Texas Woman's University — just blocks from where she was a young patient at MD Anderson. She'll pursue a Ph.D. in health education, studying chronic disease and health disparities research at Texas A&M University. She hopes one day to be an MD Anderson scientist working with other cancer patients who come from disadvantaged backgrounds.

“My hope is to work on making health care, particularly for cancer, even more accessible and available to everyone,” says the energetic and upbeat Brown.

For someone in her early 20s — she's 24 — Meisha Brown already is earning a reputation as a cancer advocate. She was recently featured in a special video on cancer patients in the American Association of Cancer Research's (AACR) Annual Progress Report, which was released on Capitol Hill in September at the Rally for Medical Research. In 2014, she also received the AACR's Cancer Advocate Award and MD Anderson's Legacy Award.

This past October, she made the Society for Public Health Education's ‘30 Under 30’ list, which highlights health educators under age 30 for their contributions to the promotion and improvement of community health. Brown designs cancer education curriculums for early detection programs serving medically underserved communities in Houston. She's an associate member of AACR and participates in the association's Women in Cancer Research and Minorities in Cancer Research special interest groups.

From a house where it rained indoors to her fight with Burkitt's lymphoma to her studies in the halls of higher education, Brown's journey continues. The butterfly, it seems, is still transforming.





COLORECTAL CANCER

DOESN'T CARE

HOW OLD YOU ARE

By Laura Sussman

Colorectal cancer patient Annie Speck has received a lot of support from her Delta Zeta sorority sisters at Stephen F. Austin State University.
📷 Eric Kayne

COLLEGE KIDS ARE TOO YOUNG TO GET COLORECTAL CANCER. THAT'S WHAT ANNIE SPECK THOUGHT UNTIL SHE WAS DIAGNOSED WITH THE DISEASE AT AGE 21.

In her third year at Stephen F. Austin State University, Speck was home for summer break when she started showing symptoms.

"I was having multiple bowel movements a day, diarrhea and blood in my stool. I thought it was going to fix itself and I'd be fine," she says.

But Speck's symptoms worsened throughout the fall.

"Still, I thought I was just having fiber and diet issues."

Finally, in November, Speck told her mother about what was going on. Alarmed, she convinced Speck to visit her doctor, who then referred the young woman to a gastroenterologist. A colonoscopy revealed a cancer mass in her colon and rectum.

"My diagnosis came as a tremendous shock — we don't have a strong family history of cancer that would put me at a higher risk. And I thought this was a disease you could only get when you were much, much older," she says.

ALARMING TREND

An MD Anderson-led study, however, reveals that youth doesn't somehow make a person immune to these types of cancer.

In the next 15 years, more than one in 10 colon cancers and nearly one quarter of rectal cancers will be diagnosed in patients ages 20-34, according to the study. It also found that, in this age group, colon and rectal cancers are expected to increase by 90% and 124.2%, respectively, by 2030. For those ages 35-49, the predicted increase will be 27.7% for colon cancer and 46% for rectal cancer. Routine screening currently is not recommended for those under 50.

This alarming trend must be reversed, says George Chang, M.D., the study's principal investigator.

"Our study represents an important moment in cancer prevention," says Chang, associate professor of Surgical Oncology and Health Services Research. "We're observing the potential real impact of colon and rectal cancers among young people if no changes are made in public education and prevention efforts."

The study analyzed data from more than 393,000 patients diagnosed with colorectal cancer between 1975 and 2010. Researchers examined age at diagnosis in 15-year intervals starting at age 20.

Chang and his colleagues discovered that the number of early- to late-stage colorectal cancer cases in patients under age 34 is on the rise.

He suspects lifestyle, including lack of physical activity and a diet high in calories and fat, is a possible culprit, though the exact causes of the predicted increases aren't known.

SISTERLY SUPPORT

When first diagnosed, Speck says telling her family and friends was "incredibly emotional." It took a month to get past her "sadness factor," but she knew she'd just have to fight through it.

"Of course, there are still moments of sadness when I'm upset or angry," she admits. "I've told my friends they can expect 'Roller Coaster Annie' for a while. At times, it still amazes me to think this is really happening."

In those difficult moments, Speck has found comfort and support in her parents, sister Kelly and her Delta Zeta sorority sisters.

Two weeks after being diagnosed, Speck received a special delivery in the mail from the members of her sorority: a blanket they'd made to keep her cozy during treatment. Weeks later, they surprised her with a get-well basket filled with lotions, fuzzy socks, lip balm and other goodies to get her through chemo.

"My sisters check on me daily," she says.

Now a champion for screening and early detection, Speck strongly encouraged her father to schedule his first colonoscopy. Her mother and sister are up next.

For people of any age experiencing symptoms, Speck offers this advice: "Be in touch with your body. If something feels new or weird, please don't wait to see the doctor."

REDUCE YOUR RISK OF COLORECTAL CANCER

- 1 Get screened regularly
- 2 Maintain a healthy weight throughout life
- 3 Adopt a physically active lifestyle
- 4 Consume a healthy diet with an emphasis on plant sources, specifically:
 - Choose foods and beverages in amounts that help achieve and maintain a healthy weight**
 - Limit consumption of red and processed meat**
 - Eat at least 2½ cups of vegetables and fruits each day**
 - Choose whole grains instead of refined grain products**
- 5 If you drink alcoholic beverages, limit consumption
- 6 Consume the recommended levels of calcium, primarily through food sources
- 7 Avoid tobacco products

From the American Cancer Society's Colorectal Cancer Facts & Figures 2014-2016

GETTING THE DROP ON LUNG CANCER

A simple blood test may one day detect the disease early enough to cure it

By Ronda Wendler

AS A YOUNG DOCTOR, SAM HANASH HAD THE DIFFICULT DUTY OF DELIVERING BAD NEWS TO PATIENTS WITH LATE-STAGE CANCER.

“I had to look them in the eyes,” he says, “and tell them they had only months to live.”

Patients and family members were understandably stunned, Hanash recalls. Often, they would tearfully ask why the disease wasn't caught sooner.

“I told them certain cancers grow silently in the body and don't produce symptoms until the disease has reached an advanced stage,” he says. “By then, the prognosis has worsened.”

Believing medicine had failed his patients, Hanash, M.D., Ph.D., professor of Clinical Cancer Prevention, resolved to find a way to detect cancer in its earliest stage, when the disease is still curable. His first target? Lung cancer, the No. 1 cause of cancer deaths because of its absence of early-stage symptoms.

“Instead of offering patients bad news,” he says, “I wanted to offer them a chance for a cure.”

Today, he's leading a study that, when completed, is hoped to result in a simple, noninvasive blood test that can detect early-stage lung cancer.

“This test, when it's available, will be practice-changing,” Hanash says.

The project is part of MD Anderson's Moon Shots Program, a bold plan to quickly improve survival rates for many of the deadliest cancers, including lung cancer.

WITHOUT WARNING

A stealthy disease that can lurk in the body years before symptoms arise, lung cancer almost always goes undetected until it reaches an advanced — and usually incurable — stage. By the time patients show typical warning signs such as persistent coughing, shortness of breath and chest pain, the disease has already spread beyond the lungs, vastly diminishing the chance for a cure.

“That's why it's called a silent killer,” says Therese Bevers, M.D., professor of Clinical Cancer Prevention. “It blindsides you.”

National Cancer Institute statistics show that only 16% of lung cancer patients survive beyond five years after diagnosis — simply because their cancer is detected too late.

“Of every 10 people found to have lung cancer,” Bevers says, “nine are, unfortunately, inoperable.”

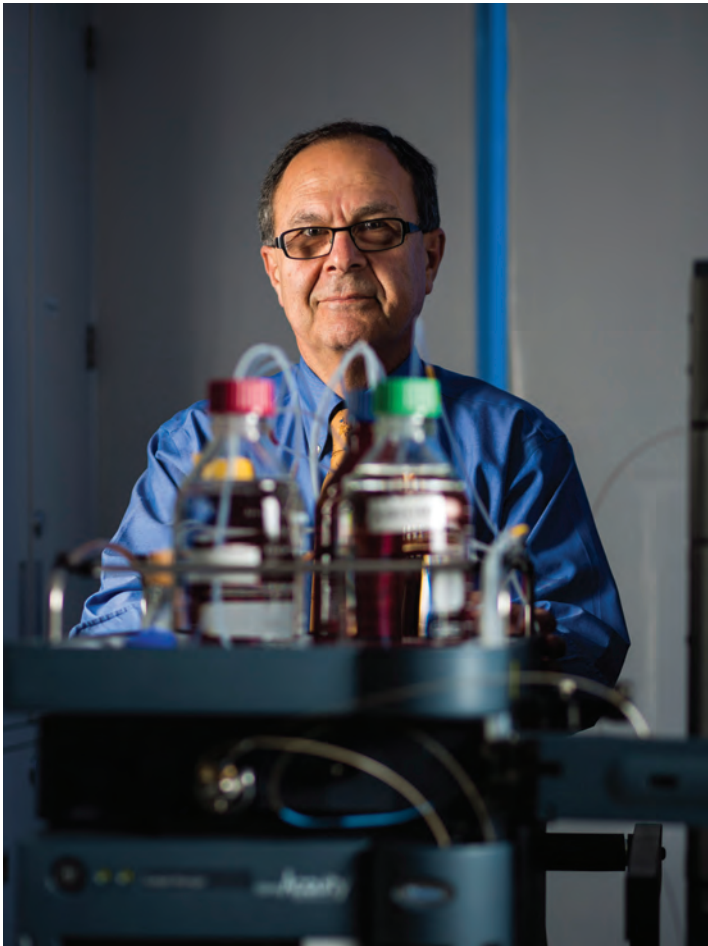
OUTLOOK IMPROVING


But the news isn't all bad. The outlook for lung cancer patients is improving as scientists create new ways to detect the disease earlier.

For example, the 2011 National Lung Screening Trial, which enrolled 53,000 current and former smokers, showed that an imaging technique known as low-dose computed tomography, or low-dose CT, detects lung cancer early enough to reduce deaths by 20%. In scientific terms, that's extraordinarily significant, Bevers says.

CT images are made by combining multiple X-ray images taken from different angles. To lessen patients' exposure to radiation, low-dose CT scans take fewer images than regular CT scans. The images from low-dose CT aren't as sharp as those produced by full-strength scans, but they're good enough to reveal lung nodules that warrant further investigation.

"The National Lung Screening Trial offered the first clear, scientific evidence to support routine screenings for lung cancer," says Bevers. "Like breast, cervical and colorectal screenings, the study showed that lung cancer screenings can save lives through early detection."



Sam Hanash has made it his mission to find a way to detect lung cancer in its earliest stage, when it's still curable.  Eric Kayne

Lung cancer can be cured, but it has to be detected early, while the tumor is still small and confined to the lung where it developed, Bevers says.

"So it makes sense for high-risk patients, like current and former smokers, to undergo periodic screenings at regular intervals to catch cancer before it spreads," she explains.

The U.S. government agrees. In January, insurers who offer plans through the Affordable Care Act began covering the cost of annual low-dose CT screenings for current and former heavy smokers. And on Feb. 9, Medicare began covering the cost of screenings for high-risk people as well.

"The Centers for Medicare and Medicaid Service's decision to support low-dose CT lung cancer screening means that almost all high-risk patients will have access to screening exams regardless of whether they have public or private insurance," says Bevers. "It also means that we can expect the impressive growth in lung cancer screening programs to continue."

SERIOUS DOWNSIDES

Using low-dose CT to detect lung cancer is new and still catching on, says Hanash, who also is the director of the Red and Charline McCombs Institute for the Early Detection and Treatment of Cancer. Less than 8% of primary care physicians are referring their high-risk patients for scans, though Hanash expects that number to increase over time.

Still, the technology has serious downsides, including a high rate of false positives.

"Only four percent of patients with abnormal scans in the National Lung Screening Trial were actually found to have lung cancer," says Hanash. "This means that 96 percent were false positives."

Suspicious spots often turn out to be noncancerous calcium buildups in lung tissue, scars from previous respiratory infections, and other such harmless nicks, cuts and dings.

Yet every abnormal scan must be taken seriously. Patients with suspicious scans typically undergo a series of follow-up CT scans over two years to detect any growth or change in the troublesome spot, which would point to possible cancer. Some undergo more invasive lung biopsies. In this procedure, doctors remove a small sample of lung tissue with a needle or surgical tool and examine it under a microscope. The procedure can lead to problems such as a collapsed lung, bleeding into the lung or infection.

"False positives put healthy people at risk of complications — and even death — following unneeded biopsies, not to mention the tremendous psychological distress of being told they tested positive for lung cancer," says Hanash. "We don't want to send healthy people for unnecessary biopsies."

AND LOW-DOSE CT HAS ANOTHER DOWNSIDE. IF USED TOO OFTEN, IT CAN EXPOSE PATIENTS TO TOO MUCH RADIATION, WHICH INCREASES THEIR RISK OF DEVELOPING CANCER.

Hanash says to increase the odds of early detection, high-risk patients would need to undergo low-dose CT scans at regular intervals. Repeated scans can also allow doctors to monitor an existing lung mass.

“But the cumulative radiation, even though it’s low-dose and much less than that of a standard chest CT, can still take a toll,” Hanash warns.

BLOOD TEST

To circumvent these issues, Hanash and colleagues are developing a blood test to detect lung cancer earlier.

“Wouldn’t it be great to have a blood test as our first line of defense?”

Hanash asks. “If the blood test signals possible cancer, then, and only then, would patients be sent for further testing?”

The test will hunt for tumor markers — microscopic telltale proteins or other molecules produced by the

body in response to cancer, or by the cancer itself. These markers are released into the patient’s bloodstream in very small amounts, and can be measured with sensitive tests to signal the presence of cancer. Some markers are specific to one cancer, while others are seen in several types of cancer.

Scientists at MD Anderson and beyond have already identified some lung cancer tumor markers. Hanash himself has discovered several.

Blood tests designed to detect these previously identified tumor markers are already in use, including one in the United Kingdom and a couple in the United States. But the tests have limited accuracy, have only been tested in a small number of people and are not yet approved by the Food and Drug Administration.

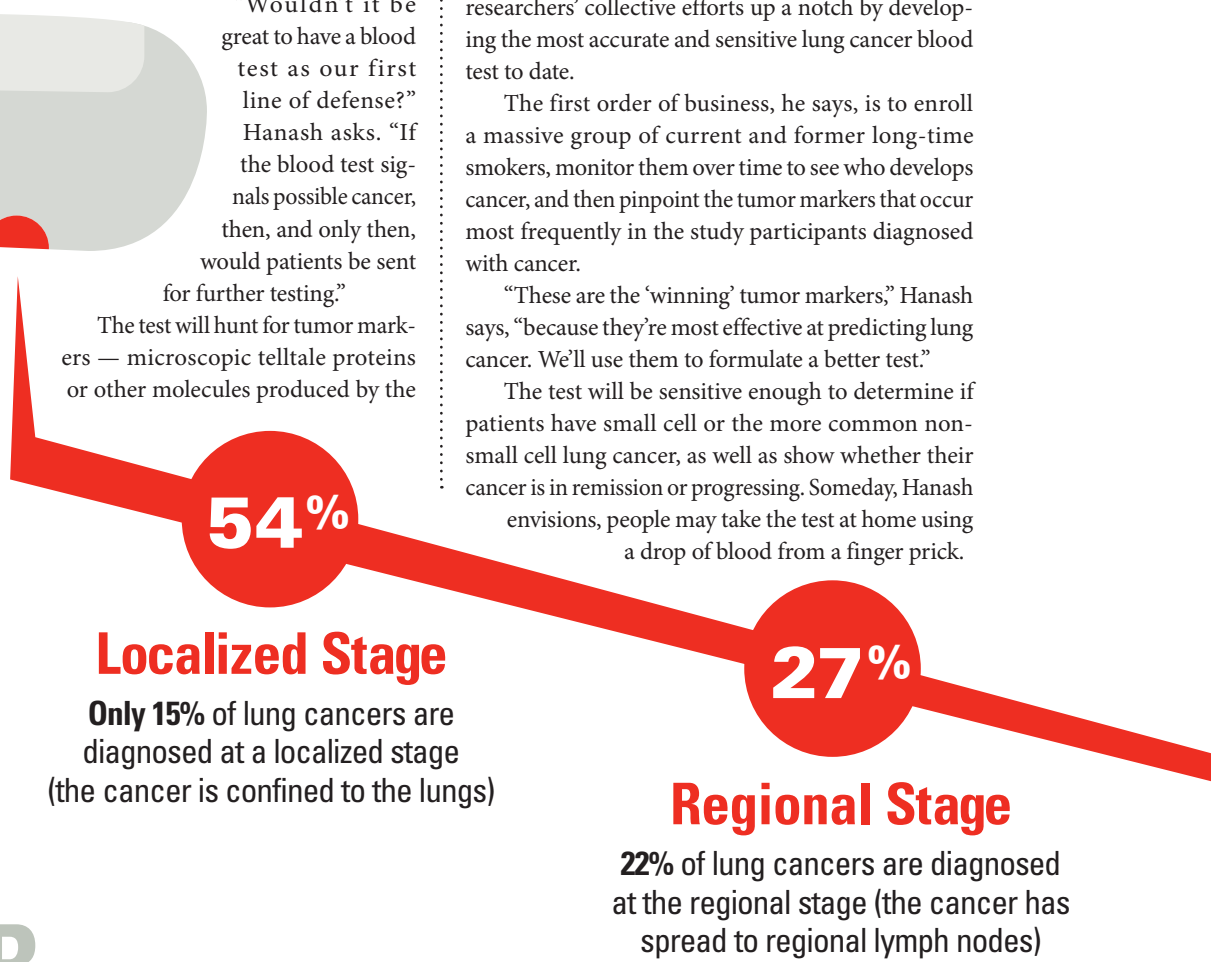
Hanash says we can do better. He wants to bump researchers’ collective efforts up a notch by developing the most accurate and sensitive lung cancer blood test to date.

The first order of business, he says, is to enroll a massive group of current and former long-time smokers, monitor them over time to see who develops cancer, and then pinpoint the tumor markers that occur most frequently in the study participants diagnosed with cancer.

“These are the ‘winning’ tumor markers,” Hanash says, “because they’re most effective at predicting lung cancer. We’ll use them to formulate a better test.”

The test will be sensitive enough to determine if patients have small cell or the more common non-small cell lung cancer, as well as show whether their cancer is in remission or progressing. Someday, Hanash envisions, people may take the test at home using a drop of blood from a finger prick.

What if the key to fighting lung cancer could be found in a drop of blood? Watch the video that explores the potential of MD Anderson’s lung cancer screening trial: www.mdanderson.org/lungscreeningvideo



5-YEAR RELATIVE SURVIVAL RATES FOR LUNG CANCER

Hanash and his colleagues are in the very early stages of launching an expansive international trial in which blood from up to 30,000 heavy smokers will be collected and analyzed at multiple sites throughout the world.

The undertaking, kickstarted with a \$10 million grant from the Lyda Hill Foundation, will be massive and unprecedented, he says. The trial will enlist MD Anderson experts from many disciplines, including diagnostic radiology, thoracic surgery, pulmonary medicine, epidemiology and pathology.

“We’ll evaluate dozens of biomarkers in thousands of patients throughout the world,” says Ziding Feng, Ph.D., the study’s leading statistician. “When we finish, we’ll have the information needed to create a highly accurate and comprehensive test that can save lives.”

The initial study will be conducted in conjunction with low-dose CT screening. Ultimately, Hanash foresees the blood test predicting the need for CT scans. If the blood test shows no cancer, then no CT scan would be needed.

“But we’re not there yet,” he says. “Our trial is still in its early stages. We have to crawl before we walk, and walk before we run.”

FIRST LAUNCH

The trial launched last summer at its first site, MD Anderson’s Center for Advanced Biomedical Imaging.

Study participants visit the center to have their blood drawn and undergo low-dose CT scans once a year for three years to check for lung nodules.

“Our CT scanners are equipped with special software that improves the image quality, which helps us glean as much detailed information as possible,” says Jeremy Erasmus, M.D., professor of Diagnostic Radiology and principal investigator for the MD Anderson study site. “We pay close attention to each nodule’s shape and texture, which may significantly improve our ability to discern whether it’s malignant.”

Study participants must be age 50 and above, and have smoked the equivalent of a pack of cigarettes a day for the past 30 years, or two packs a day for the past 15 years. Participants must be current smokers or have quit within the past 15 years.

All participants are strongly encouraged to enroll in MD Anderson’s smoking cessation programs, Erasmus says.

Additional study sites will soon launch throughout the U.S., China and Europe, says Hanash, who is principal investigator of the overall trial.

“Our intent is to have at least a dozen sites in the U.S. and additional sites in other countries.”

SIMPLE SOLUTION

Lung cancer takes the lives of 158,000 Americans a year, making it the leading cause of cancer deaths by far. Lung cancer causes more deaths than breast, prostate, colon, liver and bladder cancers combined.

Hanash says blood tests hold great promise for outwitting the disease. But he says people should also know that quitting tobacco is the key to progress.

“The risk of developing lung cancer decreases each year after a person stops smoking, as normal cells grow and replace damaged cells in the lung,” he explains. “In former smokers, the risk of developing lung cancer begins to approach that of a nonsmoker about 15 years after quitting.”

Though sometimes caused by familial predisposition, breathing heavily polluted air for long periods of time or exposure to second-hand smoke, asbestos or radon gas, the majority of lung cancer cases are linked to tobacco use.

“Half the people who are regular smokers will die of lung cancer or other smoking-related diseases,” Hanash says. “The answer is obvious: Don’t smoke.”

4%

Distant Stage

More than half (57%) of lung cancers are diagnosed at a distant stage (the cancer has spread)

17%

Average rate for all stages

The numbers shown here are relative survival rates calculated from the National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) Cancer Statistics Review, 1975-2011. Courtesy of the American Cancer Society

**“THE HARDEST PROBLEMS
OF PURE AND APPLIED SCIENCE
CAN ONLY BE SOLVED BY THE
OPEN COLLABORATION
OF THE WORLDWIDE
SCIENTIFIC COMMUNITY.”**

— Kenneth G. Wilson, Ph.D., 1982 Nobel Prize Laureate in Physics



MD Anderson puts the lab in collaborations

Industry partnerships prove to be symbiotic relationships that benefit patients

By Ron Gilmore

The myth exists of a lone scientist toiling away in a lab late at night in search of that one magical moment when everything clicks and a life-saving discovery is born.

Yet any modern-day biomedical investigator will tell you that it takes not only a team, but several teams to further scientific advancements that can lead to potential therapies for diseases such as cancer.

Collaboration across medical disciplines and among academic institutions has never been more prevalent, necessary and productive. Flat federal budgets and ever-more sophisticated and expensive lab equipment only add to this need. Read any major medical journal and you're likely to see a profusion of professional titles representing the various institutions and people who collaborated on research projects.

Nowhere are joint efforts evolving faster than in medical academia and at pharmaceutical companies. This growing phenomenon has been occurring for some time, but efforts to combine forces are starting to make major inroads into the development of new therapies in big ways.

Combining forces

At MD Anderson, an office to attract, maintain and grow such collaborations was created in 2013. Strategic Industry Ventures, headed by Ferran Prat, Ph.D., J.D., works with outside companies to look for potential partners that will help advance new biomedical discoveries. Currently, the office has established 12 collaborations with pharmaceutical companies. Their goal? Get treatments to patients faster.

"We're just now realizing the potential," says Prat. "Collaboration with industry is good for our investigators, but more importantly, ultimately for our patients, who will benefit from new therapies that emerge from these joint efforts."

He credits the enviable "brain trust" of MD Anderson's top scientists, in addition to the cancer center's highly respected clinical operation. This winning combination has attracted more than \$50 million in funding commitments from industry in new collaborations this year.

Such undertakings are hardly new. Academics have long worked with pharmaceutical companies both in individual investigator-driven projects and in larger-scale studies. But some scientists and members of the public still view the pairing of private industry and academia as potentially incongruous.

Better together

In their children's book "How to Clean a Hippopotamus: A Look at Unusual Animal Partnerships," authors Robin Page and Steve Jenkins discuss the symbiotic relationship between the hippopotamus and the African helmeted turtle. The hippo spends so much time in the water that its hide is turned green with thick algae growth. The turtle feasts on the algae, removing the annoying slime while enjoying an enviable warm resting spot on the hippo's back.

A similar beneficial connection exists between pharma and academia.

While understanding the intricacies of recombinant proteins and immune checkpoint inhibitors are certainly in a different realm than the growth of water plants on a hippo, the comparisons to how pharma and academia may have differing motivations, yet share an ultimate goal, cannot be denied.

Certainly, pharmaceutical companies are interested in profit while academics concentrate on new discoveries. However, both hope to develop new therapies for patients. How the collaborations are carried out to ensure that compliance, ethics, profit, legal considerations and other potential areas of concern are addressed, while meeting all regulatory and academic standards, is where Prat's team comes into play.

One MD Anderson scientist who fully understands the value of working with the pharmaceutical industry is Guillermo Garcia-Manero, M.D., professor of Leukemia. Garcia-Manero heads a collaborative effort with the biopharmaceutical company Amgen. The collaboration focuses on an immunotherapy developed by Amgen that, once approved by the Food and Drug Administration, will serve as a "bridge" between T cells and cancer cells.

The immunotherapy, known as BiTE, will be used to treat myelodysplastic syndrome, a bone marrow disorder that occurs when the body doesn't produce enough healthy blood cells. The disease mainly affects adults over the age of 60 and can cause severe anemia, potentially leading to acute myelogenous leukemia, a blood cell cancer.

"Our patients come to MD Anderson for the very latest in therapies and they're quite sophisticated in asking about what's happening with new clinical trials," says Garcia-Manero. "That's what drives all of us who come to work each day to not only treat our patients, but to seek novel medical solutions. That's why partnering with pharmaceutical companies makes sense."

Garcia-Manero adds that funding from drug company collaborations allows researchers to make significant progress in a relatively short period of time. And, like funding from the National Institutes of Health and other federal agencies and nonprofit organizations, the research complies with existing study guidelines and regulations.

"We, of course, have all the checks and balances in place that are required for any clinical study, to protect the safety of our patients and the viability of the research," he says. "By sharing our expertise with drug companies that offer a large array of resources, the result is a win-win-win situation for MD Anderson researchers, the drug companies and our patients, who need therapies that work."

A growing trend

The Amgen collaboration, which aims to take new drug development from "A to Z," is one of several new partnerships initiated in the past year. MD Anderson is not alone in this burgeoning new approach to therapy development. Other collaborations between academic institutions and drug companies include:

- Harvard Medical School (Sanofi, élan)
- Weill Cornell Medical College (Abbott, AstraZeneca, Bayer, Eli Lilly, GlaxoSmithKline, Merck and Pfizer)
- Washington University School of Medicine (AstraZeneca, Genentech and Merck)
- Yale School of Medicine (GlaxoSmithKline)
- University of Pennsylvania's Perelman School of Medicine (Novartis)
- The University of California, San Francisco, Medical School (Sanofi)
- Vanderbilt University School of Medicine (Bristol-Myers Squibb)

Even leading international institutions see the value in such partnerships, including the University of Oxford (Novo Nordisk), Heidelberg University (Accuray) and King's College-London (Eli Lilly, Roche and Pfizer). Independent funding organizations such as the Bill and Melinda Gates Foundation also enter into collaborations with industry (Abbott, AstraZeneca, Eli Lilly, GlaxoSmithKline and Merck).

Without such partnerships, patients today wouldn't have access to corticosteroids or cortisone, streptomycin and other standard treatments routinely dispensed. These days, the scale of collaborations is larger and can include multimillion dollar, multiyear agreements aimed at discovering drugs for highly specific disorders.

"Patients are going to benefit sooner when we work with pharmaceutical companies to develop new therapies," says Prat. "For example, we have a collaboration with Bristol-Myers Squibb to evaluate the best immunotherapy combinations in leukemia at a faster pace than we could achieve with a single researcher operating on a federal grant."



Ferran Prat is the head of Strategic Industry Ventures at MD Anderson.
 © F. Carter Smith



Working together for cancer care

Here's a look at the new cancer therapies that MD Anderson is developing jointly with pharmaceutical companies:

AMGEN

Exploring new BiTE immunotherapy agents for myelodysplastic syndrome

ASTRAZENECA

Conducting multiple, parallel clinical and clinically related studies of new therapies designed to improve outcomes in patients with ovarian and other gynecologic cancers

BAYER

Using a new assessment tool to learn directly from patients how clinical trial drugs impact their symptoms

BOSTON STRATEGICS CORP.

Developing new oncology drugs with Boston Strategic's True Open Innovation network, which brings together experts to share expertise in translational and clinical oncology

BRISTOL-MYERS SQUIBB

Evaluating multiple immunotherapies, including nivolumab, ipilimumab and other early-stage agents, as potential treatment options for acute and chronic leukemia, as well as other hematologic malignancies

FOUNDATION MEDICINE

Determining if targeted therapies based on molecular profiling of tumors result in longer, progression-free survival for patients with advanced cancer, compared with standard-of-care treatments

GLAXOSMITHKLINE

Developing immunotherapy drugs, including an OX40 monoclonal antibody, that help the body's immune system combat cancer

JOHNSON & JOHNSON INNOVATION

Developing immunology-based cancer treatments, including drugs to target immune checkpoint receptors

MEDIMMUNE

Identifying optimal immunotherapy drug combinations to help patients' immune systems fight cancer, and developing biomarkers to assess the safety of immunotherapy drugs, especially in melanoma, sarcoma and colorectal cancers

NANOSTRING TECHNOLOGIES INC.

Multiyear collaboration to accelerate the development and adoption of a new type of assay, providing a powerful tool for probing tumor biology with the potential for optimizing cancer therapeutics

ONCOCEUTICS INC.

Initiating clinical development of ONC201, a novel anti-cancer drug that appears to kill cancer cells without harming healthy cells

PFIZER

Speeding the delivery of immune-based treatments to cancer patients and becoming more efficient in identifying and using new combination therapies

SUITE RELIEF

By Laura Sussman

CONVENIENT, AFFORDABLE HOUSING HELPS LIGHTEN THE LOAD FOR PATIENTS TRAVELING TO MD ANDERSON FOR TREATMENT



Nathan Fowler, a leukemia doctor at MD Anderson, established Halo House to provide housing for leukemia, lymphoma and myeloma patients receiving long-term treatment at MD Anderson and other Texas Medical Center hospitals.

Adolfo Chavez III

Rosa Serda knew she was in for the fight of her life last year when doctors diagnosed her with breast cancer — for the third time.

The mother of three first battled the disease in 1998 and then again in 2008. Because her cancer was manageable and her life was so busy, MD Anderson doctors agreed that Rosa could undergo treatment at home in McAllen, Texas, with periodic visits to Houston.

But when the cancer returned recently in a more complicated form, Rosa understood she needed to receive all her care at MD Anderson's Texas Medical Center campus in Houston. However, repeatedly making the 700-mile round-trip drive between McAllen and Houston became difficult for Rosa and her husband, Ángel.

"Often we'd leave McAllen for my appointments before 3 a.m.," Rosa remembers.

The bills mounted, and when Rosa learned she'd need to remain in Houston for six weeks of radiation, she and Ángel, a retired probation officer, scoured the city for a reasonably priced hotel or apartment.

They were about to sign a short-term lease when Rosa received a call from her MD Anderson social worker. She told Rosa about Suites of Hope, a nonprofit organization that provides affordable, furnished housing to out-of-town breast cancer patients enrolled in MD Anderson clinical trials. A condominium had just become available and she wondered if the Serdas might be interested in staying there cost-free.

Suites of Hope was founded in 2012 by Rachel Midgett, who was just 37 when she was diagnosed with metastatic breast cancer. Despite her diagnosis, Rachel always felt blessed to live just five minutes away from MD Anderson, says her husband, Clint.

"She was struck by how many people traveled so far to come here for help," he says.

Rachel met another metastatic breast cancer patient who she learned couldn't afford to come to MD Anderson for treatment if it weren't for the generosity of someone who paid for her hotel stay. Inspired by the story, Rachel came home one day and told Clint she had an idea to provide lodging for breast cancer patients who traveled to the institution for care.

Once Rachel got the idea to purchase a condo, she was unstoppable, Clint recalls.

"She located one to buy, secured a mortgage, closed the deal, then set about furnishing it so others would feel at home," he says. "And she did all this while holding down a full-time job and battling cancer."

Rachel died of her breast cancer in August 2013, less than a year after Suites of Hope opened its doors.

"I'm going to be eternally grateful to Ms. Rachel for her beautiful act of kindness," Rosa says. "Financially, it's lifted a burden that weighed heavy. Mentally and emotionally, this is a tremendous blessing," she adds. "It's truly a godsend."

Each tenant leaves the condo a little better than when they arrived, Clint says, adding their own personal touches such as needlepoint designs or a list of recommended restaurants and attractions in the area.

Suites of Hope plans to open a second condo soon.



Breast cancer patient Rosa Serda and her husband, Ángel, live in McAllen, Texas, but stay at Suites of Hope in Houston while she undergoes treatment.
 © Wyatt McSpadden

MATTHEW'S MIRACLE HOUSE

When Matthew Rager was diagnosed with brain cancer at age 5, his entire family moved from California to Texas so he could be treated at MD Anderson's Proton Therapy Center.

Representatives with the Jimmy Burns Foundation, a charity named for a cancer patient who lost his battle with leukemia, heard about the family's plight and footed the housing bill.

"It still gives me chills," says Matthew's mom, Denise. "It was such a blessing."

Not long after Matthew successfully completed treatment, the Ragers received a family inheritance. Remembering how they were helped by the Jimmy Burns Foundation, the family decided to "pay the kindness forward." They purchased a two-bedroom condo and remodeled it for out-of-town cancer patients and their families.

Yet a week before they were to close escrow, Matthew's father, Eric, was diagnosed with testicular cancer. As he underwent treatment at MD Anderson, the Ragers became the first guests in their own condo. Seven years later, both father and son are cancer free.

Matthew's Miracle House provides reduced-cost housing to patients undergoing treatment and their family members. About half the patients are children treated at MD Anderson Children's Cancer Hospital.

Denise and Eric continue to "pay it forward." They've adopted two children, and Denise is back in school, studying to be a social worker.

"Cancer changed our priorities and how we choose to live our lives," she says.



In 2012, Rachel Midgett founded Suites of Hope for breast cancer patients who travel to MD Anderson for care. Once Rachel got the idea to purchase a condo, she was unstoppable, says her husband, Clint.  Wyatt McSpadden

HALO HOUSE

A chance encounter with a patient changed the life of Nathan Fowler, M.D., and inspired him to dream big.

As the patient was being wheeled in for a CT scan, Fowler noticed he had tears in his eyes.

"He told me all that he'd sacrificed to leave Florida and receive care — his house, his job, his sense of security," recalls Fowler, associate professor in Lymphoma/Myeloma. "He'd spent much of his savings on hotels for his family during his treatments, and was devastated by the idea that he'd be leaving his family with nothing."

Moved by that encounter, Fowler established a grassroots nonprofit organization called Halo House Foundation to provide housing for leukemia, lymphoma and myeloma patients receiving long-term treatment at MD Anderson and other Texas Medical Center hospitals.

Halo House opened its doors in January 2011 with two apartments, and now has eight furnished units, with more on the way. A capital campaign has been launched to build a new facility with 22 apartments, a large community room for families to gather for group meals, an interfaith chapel, a fitness center and plenty of peaceful "green space." Recently, the foundation celebrated a milestone of providing more than 9,000 days of housing to families from 19 states and four countries.

"At the beginning, it was just a few close friends and family members with me trying to get this off the ground," Fowler says. "The support we've received from the community and beyond has been amazing. It's really allowed Halo House to take on a life of its own and offer so much more than just housing for patients."



Nathan Fowler was inspired to start Halo House by a patient who spent much of his savings on hotels for his family.  Adolfo Chavez III

Cooperating with Cooper to make great care even better

By La Chanda Ricks

Eighteen years after completing his surgical oncology fellowship at MD Anderson, Francis Spitz, M.D., is back at MD Anderson – but not in Houston.

Spitz is deputy director of MD Anderson Cancer Center at Cooper in Camden, New Jersey.

When the \$100 million, four-story cancer center opened in October 2013, it represented a new partnership between MD Anderson and Cooper University Health Care, and a return to MD Anderson for Spitz.

“This partnership has been a remarkable success for patients, physicians and both institutions,” says Spitz, who also is vice chairman of Surgery for Cooper University Health Care, the clinical campus of Cooper Medical School of Rowan University. The Cooper network is the leading provider of health services in Southern New Jersey and serves more than half a million patients a year.

Patient visits to MD Anderson in Camden and its satellite location in nearby Voorhees Township have been steadily increasing. Since opening, the two campuses together have served more than 55,000 new and established patients.

Something in common

Before partnering with MD Anderson, Cooper already had a sizable cancer program and planned to construct a new facility. It also had a goal to elevate the quality of its cancer care. Leadership and physicians there knew MD Anderson could help reach that goal.

“Our leadership wanted a relationship with an institution known for quality and excellence,” says Spitz.

Likewise, MD Anderson wanted confidence that that its standards would be met by the care provided at Cooper.

Through visits at both locations, MD Anderson at Cooper’s team of more than 30 physicians specializing in urology and medical, radiation, surgical and gynecologic oncology began building relationships with MD Anderson physicians in Houston and integrating its approaches to patient care.

“Our physicians were all in from the start,” Spitz says. “They want to provide the highest level of care and to learn from the best cancer team in the world. They wanted to take our cancer care to the next level and they’ve done that.”

Clinicians at both locations have developed strong relationships. MD Anderson clinicians in Houston routinely collaborate on tough cases with Cooper physicians, and work together to decide the best approach to care. The result has been improved clinical care and a better patient experience.

“Standardization helps patients. And when it’s a gold standard like MD Anderson, it makes the care even better,” says Spitz. “It’s remarkable. Now it’s become the expected.”



Francis Spitz, left, is deputy director of MD Anderson Cancer Center at Cooper in New Jersey. Umur Atabek, the head of Surgical Oncology, is among 30 physicians specializing in cancer care at Cooper, a partner member of the MD Anderson Cancer Network.

MD Anderson Cancer Center at Cooper

Lessons we can learn from a teacher's cancer experience

By Claudia Heymach

After being diagnosed with Stage IV breast cancer in 2012, Jennifer Glover drew strength from many sources: a positive community of friends and family, a deep faith, an active lifestyle and the 15 years she spent as a teacher.

"Teaching runs in the blood," said the 42-year-old, noting the superintendents, principals and other educators in her extended family.

When she was a child, her parents bought her a chalkboard, and she remembered fashioning her bedroom into a classroom, her stuffed animals serving as students.

Glover pursued a business degree during her first two years in college. While working at a bank she volunteered her time as a reading mentor and quickly realized teaching was her true calling.

An early impactful teaching experience was working in an alternative learning center in Kentucky.

"It was a very rough assignment, but one of my favorites," Glover said.

Many of her students grew up in low-income areas, where they were exposed to crime and drugs.

It was rewarding for her to connect with students and discover how to make the classroom a helpful, supportive place.

"The kids are still smart. They know what's going on, but they just grew up in an environment with drugs, stealing and gangs."

Glover encouraged them by providing individual attention and developing activities that fostered creative thinking.

When she was diagnosed with cancer, her students were supportive and compassionate. They could relate to her struggles because of the difficulties in their own lives, she said.

The first year and a half of her treatment, Glover took off work and concentrated on her health. In 2014, while participating in a Phase I clinical trial at MD Anderson, she felt well enough to return to work full time at Navarro Middle School in Fort Bend County's Lamar Consolidated

Independent School District. The treatment succeeded in shrinking her disease and, although strenuous at times, her work gave her purpose and an improved outlook. When she was feeling weak, she would rest in the nurse's office to get back her strength and finish the day.

"I had to rely on others to help me try to avoid stress. I've always been very positive and I have a strong network," Glover said. "They have always treated me like 'we're going to get through this' and 'we'll get you whatever you need to get through to be as healthy as you can.'"

Glover urged cancer patients to find activities that stoke their passions. For her, finding a reason to get up every morning — whether it was reciting scripture, teaching children

or participating in investigational drug trials — helped her maintain a positive outlook.

As Glover continued her treatment, she planned to continue teaching, which she called a "mission field."

"You really have to love your job," she said. "I love it when I know I have that connection."



Jennifer Glover passed away in January. Claudia Heymach wrote this story before her death. Heymach, an 18-year-old senior at Houston's High School for Performing and Visual Arts, met Glover during her time working with COLLAGE: The Art for Cancer Network. COLLAGE is a nonprofit organization that brings artists and writers to MD Anderson to work with patients and their families. It was founded in 2006 by Jennifer Wheler, M.D., an associate professor of Investigational Cancer Therapeutics.

THE UNIVERSITY OF TEXAS SYSTEM BOARD OF REGENTS

Paul L. Foster, *El Paso*
Chairman

Wm. Eugene Powell, *San Antonio*
Vice chairman

R. Steven Hicks, *Austin*
Vice chairman

Ernest Aliseda, *McAllen*

Alex M. Cranberg, *Austin*

Wallace L. Hall Jr., *Dallas*

Jeffery D. Hildebrand, *Houston*

Brenda Pejovich, *Dallas*

Robert L. Stillwell, *Houston*

Max Richards, *Austin*
Student regent

Francie A. Frederick
General counsel to the Board of Regents

THE UNIVERSITY OF TEXAS SYSTEM ADMINISTRATION

William H. McRaven
Chancellor

Raymond S. Greenberg, M.D., Ph.D.
Executive vice chancellor for Health Affairs

THE UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER EXECUTIVE COMMITTEE

Ron DePinho, M.D.
President

Ethan Dmitrovsky, M.D.
Provost and executive vice president

Thomas Buchholz, M.D.
Executive vice president and physician-in-chief

Thomas Burke, M.D.
Executive vice president,
MD Anderson Cancer Network®

Leon Leach, Ph.D.
Executive vice president and
chief business officer

R. Dan Fontaine, J.D.
Executive chief of staff

Helen Piwnica-Worms, Ph.D.
Vice provost for science

Maureen Cagley
Vice president for academic operations

Margaret Row, M.D.
Vice president for operations

Amy Hay
Vice president for business development

Wenonah Ecung
Vice president for clinical administration

MD ANDERSON CANCER CENTER BOARD OF VISITORS OFFICERS

Melvyn Klein
Chair

James Mulva
Chair-elect

Nancy Loeffler
Vice chair

Harry Longwell
Immediate past chair

LOCATIONS

MD Anderson has Houston-area locations in the Texas Medical Center, Bay Area, Katy, Sugar Land, The Woodlands, Bellaire (diagnostic imaging) and Memorial City (surgery). MD Anderson physicians also provide cancer care to patients at Lyndon B. Johnson Hospital in Houston. In addition, there are two research campuses in Bastrop County, Texas. The institution also has developed a network of national and international locations.

MD ANDERSON CANCER NETWORK®

www.mdanderson.org/cancernetwork

PARTNER MEMBERS

- Banner MD Anderson Cancer Center (Gilbert, Arizona)
- MD Anderson Cancer Center at Cooper (New Jersey)
- Baptist MD Anderson Cancer Center (Jacksonville, Florida)

CERTIFIED MEMBERS

- 12 health systems and hospitals in 10 states

ASSOCIATE MEMBER

- Hospital Israelita Albert Einstein (São Paulo)

AFFILIATES

- MD Anderson Cancer Center Madrid (Spain)
- MD Anderson Radiation Treatment Center at American Hospital (Istanbul)
- MD Anderson Radiation Treatment Center at Presbyterian Kaseman Hospital (Albuquerque, New Mexico)

Sarah Newson, *associate vice president, Communications*

Jim Newman, *director, External Communications*

EDITOR

Andy Olin, *program director, External Communications*

DESIGNER

Michael Clarke

Conquest is published by the MD Anderson Cancer Center Board of Visitors on behalf of MD Anderson.

All correspondence should be addressed to the Communications Office - Unit 700, MD Anderson Cancer Center, 6900 Fannin St., Houston, Texas 77030-3800, 713-792-3457.

Email: ConquestMagazine@mdanderson.org. Articles and photos may be reprinted with permission.

For information on supporting programs at MD Anderson, please contact Patrick Mulvey, vice president, Development, 713-792-3450, or visit the myGiving website at www.mdanderson.org/gifts/q0215.

For information on patient services at MD Anderson, call askMDAnderson at 877-632-6789, or log on to www.mdanderson.org/ask.

© 2015 The University of Texas MD Anderson Cancer Center
Not printed at state expense. Printed with soy-based ink.

Visit the Conquest website at www.mdanderson.org/conquest.

The University of Texas
MD Anderson Cancer Center
Communications - 600784-30-107175-55028-21
PO Box 301439
Houston TX 77230-1439

CONQUEST

SPRING 2015

Address Service Requested

Please change my name or address.

I received a duplicate copy. Please make the necessary correction.

Please remove my name from the Conquest mailing list.

Please check the appropriate box and return this page to the address above.

NONPROFIT
U.S. POSTAGE
PAID
HOUSTON, TX
PERMIT NO. 7052