One team
One goal
#endcancer
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#endcancer
As I reflect on the many accomplishments of our talented faculty and staff in Fiscal Year 2019 and on the remarkable wins stemming from MD Anderson that I have been privileged to witness, I am filled with immense pride. From advancing our mission, to again ranking as the No. 1 cancer center in the nation, to improving patient outcomes and increasing the speed of discovery, each win, big and small, has brought us one step closer to our ultimate goal: to end cancer.

Our institutional success can largely be attributed to the incredible strength of our teams, made up of 22,000 cancer fighters. The unprecedented level of engagement and unity we saw from our teams this year exceeded all expectations. No matter the opportunity or challenge, we banded together with purpose, and now we are stronger, safer and better.

Teamwork has been a hallmark of MD Anderson for decades. Perhaps one of the greatest demonstrations of our passion for teamwork is our model of providing multidisciplinary cancer care, pioneered at the Nellie B. Connally Breast Center 25 years ago. Physicians, nurses, nutritionists, social work counselors, pharmacists and more work in careful coordination to provide highly specialized treatment plans for all types and stages of breast cancer. Our teams rally around a patient’s treatment plan to integrate care in a manner that is safe, efficient and comfortable. The model, which has now been implemented throughout the institution, is just one of many ways we are utilizing a multidisciplinary model to advance our best ideas and efforts.

Within this year’s report, you will learn more about those efforts through stories that illuminate the courage of our patients, the thoughtfulness of our supporters and the strength exemplified by our employees in our quest to gather across disciplines to serve our mission. United, we are forging a path to a new level of excellence, knowing that every team member plays a role and that every moment counts.

Over the next year, I am excited to embark on the path ahead with our patients and caregivers, our friends and supporters, and our 22,000 cancer fighters, who share our goal of teaming together, building on our excellence and getting more time. We are resilient, unified, ready. And together, we are Making Cancer History.®
JC Cox is only the eighth person in the world to be treated with natural killer cells that are specially engineered in the lab to find and kill cancer cells. Just 30 days after the treatment, all signs of Cox’s lymphoma had disappeared. Today, a year later, he remains cancer-free.

“The bounceback from my treatment was amazing.”

JC Cox
Survivor
JC Cox knows the meaning of perseverance. After undergoing a dozen different cancer treatments, he embodies it.

The first sign of trouble occurred in 2006. Cox, who had always worked long hours as an air conditioning and heating technician, began to lose steam.

"I’d come home after work and fall into bed immediately without eating dinner," he recalls. "The next thing I knew, it was morning, and I was still exhausted."

But the hardworking Cox soldiered on, until one day, he could barely breathe. "I tried to inhale but couldn’t," he says. "That’s when I sounded the alarm and headed for the emergency room."

In the hospital, doctors discovered that lymph fluid had built up in Cox’s chest cavity and spilled into one of his lungs, causing it to collapse. They drained 5 gallons of the excess fluid from his body, then sent it to the lab for analysis, along with tissue from a swollen lymph node.

Cox was stunned when the results came back. His diagnosis? Follicular lymphoma, a slow-growing type of cancer that affects B cells – the white blood cells that circulate in the lymphatic system and battle infections.

"I thought I’d caught a virus," says Cox, now 66. "Cancer never crossed my mind."

After absorbing the news, Cox and his wife, Kathy, vowed to fight. "No way were we going to back down," Kathy says. "We were prepared to do whatever it took."

Initial therapies Cox’s treatment began with six cycles of chemotherapy at a Dallas hospital near his home. The treatment put him in remission for 13 months, but the cancer came back.

Seeking options Out of options, Cox’s Dallas doctor referred him to MD Anderson. There, he might be eligible for an experimental trial of a new lymphoma drug called plimumab, trade name.

"We were warned this would happen," Kathy says. "The healthy cells become collateral damage in the battle against cancer – it’s just part of the process."

To replenish the healthy cells that chemo had destroyed, Cox underwent a stem cell transplant. Immature cells that would later develop into healthy blood cells were collected from his bone marrow and infused back into his bloodstream. The treatment worked for four months, but, again, the cancer returned.

SEEK AND DESTROY

Natural killer cells live up to their ominous name

By Clayton Boldt, Ph.D.
Yervoy. The drug trains the immune system to attack and fight cancer cells. But in some patients, the drug may also attack healthy cells, causing serious side effects. That was exactly what happened to Cox.

He ran a high fever, fell into a coma and ended up on life support.

“Finally he recovered, and we were so relieved,” recalls Kathy. “But my husband was in desperate need of better options.”

At that point, Sativa Neelapu, M.D., professor of Lymphoma and Myeloma at MD Anderson, prescribed a drug named Rituxan. It didn’t eliminate Cox’s cancer, but it did prevent it from spreading — for a while. In 2017, Cox’s follicular lymphoma transformed into diffuse large B-cell lymphoma, a more aggressive form of the disease. He endured several aggressive chemotherapy treatments, but they only kept his cancer at bay a few weeks at a time.

“I had tumors on my face and my temples that came back every two weeks after chemo,” Cox recalls. “It was a race to see if cure was winning. We had to do something quickly.”

Bad timing

By then, Cox was on the waiting list for a clinical trial of a groundbreaking new cancer treatment called chimeric antigen receptor (CAR) T cell therapy. With this technology, disease-fighting T cells are extracted from the patient’s blood and taken to the lab, where scientists infuse them with a special receptor named CAR that binds to certain proteins on cancer cells. Large numbers of these CAR T cells are multiplied in the lab, then infused back into the patient’s body to seek out, stick to and kill cancer cells. CAR T cell therapy achieved approval from the Food and Drug Administration (FDA) while Cox was still on the waiting list. This meant the trial no longer needed to accept new patients.

“That was timing,” he recalls, “and very disappointing to hear.”

Another option

Just when it looked like Cox’s options were again dwindling, a new clinical trial testing CAR NK cell therapy was launching at MD Anderson. “CAR NK cells can attack cancer cells early on and destroy them, but cancers can develop ways of hiding from the immune system,” says Katy Rezvani, M.D., Ph.D., a professor of Stem Cell Transplantation and Cellular Therapy. “By engineering NK cells to include CAR, we’re able to expand upon their innate cancer-killing abilities.”

CAR NK versus CAR T therapy

CAR NK cells offer a few advantages over CAR T cells. For instance, CAR T cells have to be generated from the patient’s own T cells and can only be used to treat that patient. This is because T cells from a donor may inadvertently attack healthy cells while seeking out cancer cells — a phenomenon known as graft versus host disease. As a result, in CAR T cell therapy, T cells must be isolated from an individual patient before being engineered with CAR and given back to the patient, a process that can often take weeks and doesn’t always work.

CAR NK cells, because of their unique biology, don’t cause graft versus host disease and therefore do not need to be patient-specific. This allows for multiple doses of CAR NK cells to be manufactured from one donor; these can then be used to treat multiple patients.

Because of these unique properties, CAR NK cells have the potential to be manufactured in advance, frozen and stored, and made immediately available for any patient in need.

Cancer-free, finally

Cox enrolled in the trial and became one of the eighty people in the world to be treated with CAR NK cells. Just 30 days later, while analyzing his follow-up scans, Rezvani told Cox that things looked “pristine.” That was April 2018, and he’s been cancer-free ever since.

The results of the trial that Cox participated in were published in the New England Journal of Medicine in February 2020. Rezvani and her team treated 11 patients in the trial with CAR NK cells.

Seven, including Cox, achieved complete remission, meaning all signs and symptoms of cancer had disappeared. One had a partial remission, meaning evidence of cancer decreased, but did not completely disappear.

“While this is a small study and our follow-up is relatively short, we are extremely pleased with the promising results,” says Rezvani. “We will continue to investigate CAR NK cells in broader clinical trials, and we hope that this will be an effective new treatment option for many patients in need.”

In addition to the therapy’s effectiveness, it caused no significant side effects – another advantage of CAR NK cells.

“NK cells are very good at recognizing cancer cells early on and destroying them, but cancers can develop ways of hiding from the immune system,” says Katy Rezvani, M.D., Ph.D., a professor of Stem Cell Transplantation and Cellular Therapy. “By engineering NK cells to include CAR, we’re able to expand upon their innate cancer-killing abilities.”

We hope that these will be an effective new treatment option for many patients in need.

Katy Rezvani, M.D., Ph.D.
Physician & Researcher

See how CAR NK works:
mdanderson.org/carNK19

“The bounceback from my treatment was amazing,” says Cox. “It was like I didn’t even get sick. I was embarrassed to walk the halls at MD Anderson because I felt so good.”

With all signs of cancer gone, Cox underwent a second stem cell transplant in August 2018, to get his beleaguered body in fighting shape, on the off-chance the cancer came back. His brother Gary was a perfect match, so he traveled to Texas from his home in Maryland to donate stem cells. “We’ve always been tightknit,” Cox says, “but this takes closeness to a whole new level.”

After the transplant, Cox visited Rezvani every month for checkups. As time went by, the intervals between his visits became longer — first three months, then six. Today, he sees Rezvani once a year.

The future of CAR NK cells

In November 2019, MD Anderson announced a new license and research agreement with Takeda Pharmaceutical Company to develop and advance CAR NK cell therapies. This strategic partnership is critical to bringing CAR NK cells to more patients through multi-institutional trials, which will determine whether CAR NK cells will become an FDA-approved treatment.

Today, Rezvani and her team are working to expand CAR NK cell therapy to 10 additional types of cancer. She hopes to bring the next generation of CAR NK cells into the clinic as quickly as possible.

Cox is hopeful as well, after seeing the benefits firsthand.

“Of all my cancer treatments, CAR NK cell therapy was by far the easiest,” he says. “We’re almost ahead of schedule, we’re extremely pleased.”

Rezvani and her team led the development of CAR NK cells at MD Anderson, with the support of the adoptive cell therapy platform, the Chronic Lymphocytic Leukemia Moon Shot and the B-Cell Lymphoma Moon Shot®, all part of the institution’s Moon Shots Program®, a collaborative effort to rapidly develop scientific discoveries into meaningful clinical advances that save patients’ lives.

With his health restored, JC Cox enjoys spending time with granddaughter Annie and great-grandson Grayson.

"The bounceback from my treatment was amazing," says Cox. "It was like I didn't even get sick. I was embarrassed to walk the halls at MD Anderson because I felt so good.

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"We've always been tightknit," Cox says, "but this takes closeness to a whole new level."
When Lauren O’Malley and Jake Woodward met in law school six years ago, they knew they were destined to be together. What they didn’t know was that their journey would take them through individual cancer diagnoses, an aggressive autoimmune disease and a race to preserve their future.

Lauren was the first to be diagnosed. While she and Jake were still in law school at Georgetown University in Washington, D.C., she was rushed to the emergency room in early 2016 with severe abdominal pain. The couple received devastating news.

“They told me I had a large mass on my ovary that had likely spread to other organs,” Lauren recalls. “Essentially, they said I had advanced ovarian cancer.”

A Houston native, Lauren was familiar with MD Anderson, where she and her family sought a second opinion.

“I’ve had family members treated at MD Anderson, so I know it’s the best cancer center in the country,” says Lauren. “If I was going to be fighting for my life and future, it was going to be at MD Anderson.”

After she took an emergency flight from Washington, D.C., to Houston, MD Anderson doctors determined Lauren had a serous borderline tumor – a less aggressive mass that had not spread beyond the ovary. Kathleen Schmeler, M.D., professor of Gynecologic Oncology and Reproductive Medicine, performed surgery to remove Lauren’s left ovary and fallopian tube, leaving her cancer-free.

Preparing for a future family

Knowing this type of tumor increases the risk of developing a tumor on the other ovary, Schmeler referred Lauren to advanced nurse practitioner Deborah Holman, who counseled Lauren and her family. After that, Lauren and Jake met with fertility specialist Terri Woodard, M.D., an associate professor of Gynecologic Oncology and Reproductive Medicine. Woodard discussed fertility preservation options with the couple.

“Jake was very supportive during this process,” Lauren says. “He participated in the conversations as an advocate for me and my future.”

Lauren decided to move forward with oocyte cryopreservation, a process where a woman’s eggs are extracted, frozen and stored for later use. The entire process took 12 days, with Lauren taking daily injections of gonadotropin, a hormone that stimulates the ovaries to recruit multiple follicles that contain eggs. She underwent frequent monitoring, including transvaginal ultrasounds and blood tests to check hormone levels. Once tests confirmed that multiple large follicles were present, Woodard performed a procedure to retrieve the eggs and freeze them.

“Technological advancements over the years have improved fertility preservation success rates,” says Woodard. “It also helped that Lauren was so young when she underwent the procedure.”

An unexpected setback

With cancer behind them and renewed hope for a future family, Lauren and Jake graduated from law school in 2017, and moved to Houston. They both passed the Texas Bar Exam on the first try. That fall, Jake orchestrated an elaborate and romantic marriage proposal with help from Lauren’s family.

The couple set a spring wedding date and jumped into wedding plans and their careers. But they soon faced another life-threatening medical setback.

Planning their future

Newlyweds take steps to preserve parenthood before treatment

By Katrina Burton
Jake’s speech began to slur, and he had difficulty chewing. Fearing her fiancé was having a stroke, Lauren rushed him to a local emergency room. Doctors there diagnosed Jake with myasthenia gravis, a rare autoimmune neuromuscular disease that causes extreme muscle weakness and swallowing problems. Scans also revealed a large tumor called a thymoma on his thymus gland. Thymomas are associated with autoimmune diseases, especially myasthenia gravis. Ten to 15% of patients with myasthenia gravis have a thymoma, and conversely, 30% to 45% of patients with a thymoma have myasthenia gravis. “When I learned Jake had a tumor, my No. 1 priority was getting him to MD Anderson,” Lauren says. “Within days, we were there.” Neuro-oncologist Sudhakar Tummala, M.D., immediately recognized the signs of a myasthenic crisis, a life-threatening medical emergency requiring respiratory support. Jake was admitted to the intensive care unit where he received breathing assistance and daily plasma treatments to strengthen his body and prepare it for surgery to remove the tumor.

Jake’s MD Anderson care team cautioned that he might need chemotherapy after surgery, which could negatively impact his fertility. Lauren contacted Woodard for guidance. “I was shocked when I received the call about Jake,” recalls Woodard. “I kept in touch with the family over the years, and was saddened by the news of Jake’s medical struggles.” Woodard helped Jake arrange to have his sperm frozen before treatment, with the hope that one day he and Lauren could have children through in vitro fertilization. Cardiothoracic surgeon Reza Mehran, M.D., then surgically removed Jake’s tumor, and he’s now cancer-free.

Fertility preservation gave us great peace of mind. It’s nice to know that when we’re ready, we can pursue parenthood.

Jake Woodward
Survivor

Fertility specialist Terri Woodard, M.D., right, helped the couple preserve their fertility before cancer treatment.

Fertility preservation gave us great peace of mind. It’s nice to know that when we’re ready, we can pursue parenthood.

Jake Woodward Survivor

Before treatment, with the hope that one day he and Lauren could have children through in vitro fertilization. Cardiothoracic surgeon Reza Mehran, M.D., then surgically removed Jake’s tumor, and he’s now cancer-free.

Fertility preservation gave us great peace of mind,” Jake says. “It’s nice to know that when we’re ready, we can pursue parenthood.”

With Jake still suffering from the debilitating effects of myasthenia gravis after surgery, the couple postponed their wedding to give him time to grow stronger.

“We leaned on our faith and love for one another to get through the tough times,” says Lauren. “After Jake’s surgery, there was no question that his health was the priority.”

A fairytale moment

On Oct. 19, 2019, the couple finally married under a majestic oak tree at a ranch owned by the bride’s family in Round Top, Texas. Both Woodard and Holman attended the fairytale event.

“Having the opportunity to attend the wedding was very special,” says Woodard. “Knowing that my work offers couples like Jake and Lauren hope gives me the sense that I’m living my purpose.”

After a honeymoon at Disney World, Jake and Lauren are taking life one day at a time as Jake continues his autoimmune disease treatment. For now, the couple’s two cats, Samson and Juniper, and their dog, Annabel, keep them busy.

“I got my wish,” says Jake. “I was able to stand at my wedding and dance with my bride. Now, it’s just a matter of me getting healthier and us growing old together. There’s so much in store for our future.”
Cancer cells that escape their original site and travel through the bloodstream to the brain find a supportive sanctuary there, where they grow and often cause significant neurological symptoms. These brain metastases, or secondary brain tumors, are notoriously difficult to treat because they’re resistant to many therapies, and they live behind the blood-brain barrier—a semi-permeable membrane that keeps the brain “safe” from toxins in the blood. When cancer cells invade the brain, the blood-brain barrier transitions into the blood-tumor barrier, which still presents a roadblock for effective drug delivery to the brain.

“This makes brain metastasis one of the most difficult challenges in oncology,” says Frederick Lang, M.D., chair of Neurosurgery. MD Anderson has led the way in meeting this challenge with innovative clinical trials that are changing the prospects for these patients, who used to be routinely excluded from tests of new drugs.

Last year, medical oncologists, neurosurgeons and radiation oncologists teamed up to launch MD Anderson’s Brain Metastasis Clinic. The goal is to sharpen their efforts and provide patients with more convenient and efficient care.

“Our Brain Metastasis Clinic enhances the patient experience, our clinical decision-making and our research efforts against these tumors,” says Lang, one of the clinic’s three co-leaders.

**Standard treatments**

Any cancer can spread to the brain, but the types most likely to cause brain metastases include melanoma, lung and breast cancers. For most patients with multiple brain metastases, treatment typically involves surgery, radiation or both.

For decades, whole-brain radiation therapy has been the primary treatment for patients with multiple brain metastases. While the treatment didn’t cure the cancer, it extended progression-free survival and reduced symptoms, such as paralysis and headache caused when tumors increase pressure inside the skull.

“But whole-brain radiation can also cause cognitive problems by diminishing a patient’s short- and long-term memory, problem-solving skills, attention span and word recall,” says Jing Li, M.D., associate professor of Radiation Oncology and co-director of the clinic. “It’s a quality-of-life issue.”

**New approaches**

Li and colleagues are conducting clinical trials to test new treatment approaches for multiple tumors.

One trial compares whole-brain radiation to a combination of immunotherapy drugs and stereotactic radiosurgery, a type of highly focused radiation.

The immunotherapy trains the immune system to fight cancer, and the stereotactic radiosurgery targets tumors while sparing nearby healthy brain tissue. This combination has
which are drugs tailored to the genetic characteristics of a patient’s specific tumor. During the trial, an Australian clinic found it had inadvertently treated a patient with a previously imaged brain metastasis. When they took new images, the tumor in the patient’s brain was gone.

The investigators persuaded the drug company to open a separate arm of the trial for patients with tumors in the brain. Of the 10 treated, nine saw their tumors shrink.

“This was a seminal moment in melanoma and in brain metastasis,” Tawbi says.

A follow-up trial led by Michael Davies, M.D., Ph.D., chair of Melanoma Medical Oncology, showed that brain tumors shrunk in 58% of stage IV melanoma patients with a specific mutation in their tumors, when treated with the targeted therapy combination. The tumors began to grow again after six to seven months, but the trial showed that small-molecule drugs could indeed reach tumors in the brain.

Tawbi subsequently led a clinical trial of two drugs that, when used together, train the immune system to attack cancer. Tumors shrank in 56% of patients in the trial; they disappeared altogether in another 26%. Nine months later, tumors still had not progressed in 59% of patients enrolled in the study.

What’s ahead

These and other trials have persuaded some pharmaceutical companies to begin designing drugs against brain metastases, and the FDA has indicated it will require an explanation for excluding these patients from clinical trials.

Fourteen open clinical trials are associated with MD Anderson’s Brain Metastasis Clinic, testing a variety of drugs in combination with other therapies. For now, these trials focus on specific cancer types – breast cancer or melanoma, for example.

But soon, Tawbi says, the clinic hopes to offer trials that will be open to all patients with brain metastases, regardless of where their primary tumor started.

Streamlined care

In a single visit, patients see a team of specialists to develop a treatment plan.

Excluded from clinical trials

Brain metastases, or secondary brain tumors, occur in 10% to 30% of adults with cancer. Historically, Tawbi notes, patients with multiple brain metastases have survived only three to six months after diagnosis.

These patients have commonly been excluded from clinical trials of new drugs. This is because the blood-brain barrier blocks most drugs from entering the brain, protecting tumors as well as brain tissue.

The Food and Drug Administration (FDA) – the federal agency that approves new therapies – applies additional scrutiny to drugs that are capable of affecting the brain. The combination of a difficult target and additional regulation has steered drug companies toward developing anti-cancer drugs that avoid the brain.

“Twelve drugs have been approved for melanoma – 6,711 patients were treated in those trials, and not one with a brain metastasis got in because these drugs weren’t designed to enter the brain,” Tawbi says.

This began to change, initially by serendipity, during an international clinical trial of combination targeted therapies, shown promising early results in disease control.

Other clinical trials have shown that some drugs are capable of penetrating the brain’s defenses to attack tumors.

And, says Li, “For some patients with one to three small brain metastases, improved surgical techniques or targeted radiation can result in a cure.”

Photographs: Wyatt McSpadden
Max Nickless says he “wasn’t too optimistic” when his wife, Becky, drove him 15 hours from their home in Indiana to see thyroid cancer specialist Maria Cabanillas, M.D., at MD Anderson in February 2017. The outlook from local doctors was so poor that he’d already picked out photos and music for his funeral.

Nickless had anaplastic thyroid cancer – the most aggressive form of the disease. “Anaplastic” is a medical term used to describe cancer cells that divide rapidly.

“Anaplastic thyroid cancer is probably one of the deadliest human cancers,” says Stephen Lai, M.D., Ph.D., professor of Head and Neck Surgery. It’s rare – only about 1,000 cases per year in the U.S. – and most patients die within three to six months after diagnosis.

“When I talked to Dr. Cabanillas on Wednesday, Max was still eating and drinking, and everything was normal,” Becky says. “But by Saturday, he had trouble swallowing, a lot of trouble breathing, and I was really worried about driving him to Houston.”

The cancer’s rapid progression wasn’t unusual. Anaplastic thyroid cancer is so aggressive that by the time many patients are fully evaluated, their disease is often beyond help. Or at least, that’s the way it used to be.

Thankfully, Nickless’ prognosis came at a time of historic progress in anaplastic thyroid cancer treatment.

Fast help

Several years earlier, Cabanillas, a professor of Endocrine Neoplasia, and her colleagues took on the Herculean task of improving outcomes for anaplastic thyroid cancer patients.

“At that time, we really had nothing to offer them that they couldn’t get at home,” says Cabanillas. “What a disappointment, as a patient, to come to the nation’s No. 1 cancer center and be told to go get chemotherapy at home. We wanted to change that.”

Working with MD Anderson’s Clinical Safety and Effectiveness program, the team first identified doctors in Endocrinology, Medical Oncology, Radiation Oncology and Surgery who could devote special appointment slots in their clinic schedule each week to anaplastic thyroid cancer patients.

The FAST (Facilitating Anaplastic thyroid cancer Specialized Treatment) team was established in 2014, with a committed group of oncolgy endocrinologists, medical oncologists, a radiation oncologist, a pathologist, a pulmonologist, and a head and neck endocrine surgeon. The group would work to get patients into treatment faster.

The streamlined system worked. The time to schedule an appointment for new anaplastic thyroid cancer patients dropped from 8-7 days to half a business day by 2018, Lai says.

A groundbreaking trial

Creation of the FAST team coincided with the opening of a clinical trial for several rare cancer types that involved a specific mutation in the BRAF gene. The mutation, known as BRAF (V600E), may increase the growth and spread of cancer cells. Nickless’ tumor had that mutation.

The international trial, led by Vivek Subbiah, M.D., associate professor of Investigational Cancer Therapeutics, was testing dabrafenib and trametinib, a targeted therapy combination that already had success treating melanoma in patients with a BRAF mutation. Targeted drugs block the growth and spread of cancer by interfering with specific molecules that help cancer progress.

Unfortunately, like most targeted therapies, the drugs were in pill form. Since Nickless couldn’t swallow by the time he got to MD Anderson, he was ineligible for the trial.

Doctors came up with an alternative. Although Nickless wasn’t in the trial, he would still get the drugs. He received his first dose of dabrafenib through a feeding tube.

“I remember asking Dr. Cabanillas when I would know if the dabrafenib was going to help. She said I would know within two days,” Nickless recalls.

He and Becky didn’t wait in Houston to find out. “Becky was trying to get me home before I passed away so the kids could see me,” he says. “That was our main concern.”

Two days later, Nickless realized he had regained the ability to swallow when he started craving a soda on the drive back to Indiana. The dabrafenib was working as quickly as Cabanillas had predicted. Nickless’ tumor continued to shrink, and he began receiving trametinib about a month later.

More than half the anaplastic thyroid cancer patients who qualified for the trial saw their tumors shrink. In May 2018, the Food and Drug Administration approved dabrafenib and trametinib for anaplastic thyroid cancer patients with the BRAF (V600E) mutation. It was the first drug therapy ever approved to treat the disease.

“We learned a lot about how to design clinical trials that are specifically for anaplastic thyroid cancer,” Cabanillas says. For example, a later trial allowed other drug delivery methods for patients who couldn’t swallow.

Thanks to the FAST team, more than 30% of anaplastic thyroid cancer patients at MD Anderson now enroll in clinical trials. One reason clinical trial enrollment is so much higher than the national average of 3% to 5% is MD Anderson’s use of a liquid biopsy, or blood test, that looks for mutations in cancer cells that are circulating in the blood. The goal is to target these mutations with drugs specifically designed to attack them.

“Traditionally, a tissue biopsy is taken from a patient’s tumor, then analyzed in the lab for mutations. The results often take weeks to come back, and these patients can’t wait that long,” says Jennifer Wang, M.D., assistant professor of Head and Neck Surgery. “Now, we’ve able to order the liquid biopsy. Results usually come back within a week, which allows us to choose targeted drugs within a reasonable timeframe.”
Combating resistance

Some tumors treated with the targeted therapy combination that Nickless received eventually grow back, a problem known as resistance. When it became clear that Nickless’ tumor was starting to grow again, his doctors added the immunotherapy drug pembrolizumab to his treatment plan. Immunotherapy drugs train a patient’s own immune system to attack cancer.

Nickless’ team hoped the immunotherapy would help control his tumor growth, but they didn’t stop there. They knew that when patients responded well to targeted therapy, their tumors shrink enough to be removed with surgery — something that was almost never done for anaplastic thyroid cancer.

“Traditionally, these tumors have been non-operable because they involve critical structures in the neck, such as the carotid artery or voice box,” says Mark Zafereo, M.D., associate medical director of MD Anderson’s Endocrine Center. “But once patients had such a dramatic response to targeted therapy, we realized we could re-introduce surgery into the multidisciplinary care model and improve survival while still preserving quality of life. Surgeons have been historically reluctant to operate on anaplastic thyroid cancer patients because the prognosis has historically been so bad, so this is a paradigm shift.”


Changing the trajectory

In the August 2019 cover article of the journal Thyroid, MD Anderson published the first case studies to show that treating BRAF-mutated anaplastic thyroid cancer with dabrafenib and trametinib, followed by surgery and radiation, was safe and effective. In November, the team presented survival data during the Annual Meeting of the American Thyroid Association. Average overall survival at MD Anderson for anaplastic thyroid cancer doubled after the FAST team formed, from eight months in 2000-2013 to 16 months in 2017-2019, with more than 40% of patients surviving at least two years.

With the launch of MD Anderson’s Rare Tumor Initiative, which aims to identify additional molecular and genetic targets for the next generation of therapies for rare tumors, and two new clinical trials for anaplastic thyroid cancer opening soon, the team hopes to continue improving the care, survival and quality of life for all patients diagnosed with this once hopeless disease.

“AT MD Anderson, how cancer is treated is constantly evolving. We’re always trying to change the status quo,” Wang says. “We want to lead and do everything possible to change the trajectory for these patients.”

THE POWER WITHIN

Tumors harbor cancer cells — and a cancer-fighting weapon

By Lary Kimmons

When it comes to killing cancer, T cells are some of the most important players in the field of immunotherapy. Typically, T cell therapy involves extracting T cells from a patient’s blood. These T cells are reprogrammed in the lab to recognize and attack cancer cells, multiplied to make more, then infused back into the patient so they can start attacking cancer cells. This process is known as adoptive cell therapy. But sometimes, T cells are removed directly from the tumor.

Why use T cells from a tumor itself?

“These T cells actually navigated to the tumor, so they’re ahead of the game. They must already recognize something threatening about the cancer cells,” says Amir Jazaeri, M.D., professor of Gynecologic Oncology and Administration and chief of the Urology and Genitourinary Medical Oncology Program. “They’ve already had to move away from the cancer cells while leaving healthy cells alone. Before the TIL infusion, patients undergo chemotherapy to help the TIL attack the tumor. Patients undergo close monitoring. “This is a treatment that can be safely administered to everyone,” says Rodabe Amaraia, M.D., assistant professor of Melanoma Medical Oncology. “We do a lot of screening to make sure the heart and lungs can tolerate the high doses of chemotherapy and IL-2.”

TIL therapy for cervical cancer

Until recently, TIL therapy was primarily used to treat melanoma. In fact, the National Cancer Institute first began using TIL therapy to treat melanoma patients in 1986. Patrick Hwu, M.D., head of MD Anderson’s Cancer Medicine Division, left the NCI in 2003 to start MD Anderson’s TIL program.

Today, TIL therapy is being used to treat more cancers, including colorectal, bile duct, breast, and now, cervical cancers. Jazaeri recently led a study in which almost half of advanced cervical cancer patients who received TIL therapy saw improvement.

Out of 27 patients in the clinical trial, three had no visible signs of cancer after the therapy, nine saw their cancer shrink, and 11 saw their cancer stabilize. These results were so impressive that the Food and Drug Administration granted TIL therapy a breakthrough designation to expedite its development so it could be used to treat more cervical cancer sooner.

Trials are now underway to test TILs in sarcomas, pancreatic cancer, colorectal cancer and other gynecologic cancers.

“The whole reason we can do these trials at MD Anderson is the cooperative team effort,” says Jazaeri. “It’s as much a success of collaboration at MD Anderson as it is a medical innovation.”

How T cell therapy works: mdamderson.org/Tcell19
A collaborative effort is changing the way we care for blood transfusion patients

By Kelly Calagna

The concept of a centralized virtual hub for patient monitoring is not new to medicine. Hospitals have had cardiac telemetry units that allow for continuous monitoring of patients’ hearts for decades. However, it was Carol Porter, D.N.P., chief nursing officer and senior vice president for Nursing, who envisioned using the concept for blood transfusion monitoring at MD Anderson.

“Giving a transfusion to a cancer patient is a different treatment because their bloodstream is different. They may not react the same as a person who doesn’t have cancer,” says Porter. Cancer treatment’s side effects can often mirror the warning signs of an adverse transfusion reaction, making reactions more difficult to identify in cancer patients. Porter and her team saw this as an opportunity for MD Anderson to lead the way in detecting, responding to and preventing transfusion reactions.

An unprecedented approach to transfusion care

To develop this unprecedented multidisciplinary approach, nurses and transfusion specialists worked with computer engineers to design an intuitive tool capable of sorting through patient data to identify high-risk patients and to offer real-time support to frontline staff. Using this tool, the HVU can inform a care team about a patient’s transfusion-related risks before, during and after a blood transfusion, so they can intervene if necessary.

“There’s so much more data. You’re not one nurse with one patient,” explains Porter. “There’s a whole group that’s connected.”

The HVU’s on-call unit of nurses and advanced practice providers is able to remotely monitor vitals of every transfusion patient at MD Anderson’s Texas Medical Center Campus, as well as locations in The Woodlands, West Houston, League City and Sugar Land.

If a patient shows any sign of an adverse reaction, the unit can send a practitioner to the patient’s bedside quickly.

“If the HVU nurses take note of an increase in a patient’s transfusion reaction score and there’s a suspicion of a transfusion reaction, they’ll contact their advanced practice provider,” explains registered nurse and certified nurse practitioner Tonita Bates, who supervises the Hemovigilance Unit’s staff of specially trained nurses and advanced practice providers.

“When caring for patients, you need as much support, as much reinforcement and as many eyes as you can, and that’s what the Hemovigilance Unit does. It allows our outpatient operations to have this invisible backup helping to monitor and manage what is happening,” adds Rosanna Morris, MD Anderson’s chief operating officer, who oversees outpatient operations.

Data provides new insights

The specialized unit oversees between 20 and 300 patients each day. Blood transfusions are the most common inpatient procedure at MD Anderson. Last year, the center transfused more than 190,000 blood products, or about 1% of the nation’s total transfusion procedures.

Using the data collected and analyzed by the HVU, the large number of transfusions at MD Anderson will now offer scientists new insights into transfusion medicine.

By collecting data on the different factors that may possibly impact the success of a blood transfusion, researchers can analyze and identify new variables that may influence an adverse reaction.

“Once we know those patterns, and that structure is figured out as an algorithm, every time a patient receives a transfusion, we can put all the new variables into the system and in real-time be able to predict which patients may or may not have a reaction,” says Kelley. “We’re actually building artificial intelligence models around these data so that we can build a human-machine hybrid.”

The success of the HVU and the data it offers have the potential to “impact patients, potentially worldwide, on a safer way to give blood products,” says Porter.

“We are creating – as a team and as a hospital – a new standard,” the says. Morris agrees.

“The Hemovigilance Unit is yet another example of the great work, the great research and the great innovation that has come from MD Anderson,” she says. “Us being at our best means that we are that much closer to ending cancer. And that’s what this team is all about.”
Jasmine “Jazzy” Richards is the only known person in the world to be diagnosed with a brain tumor in the bladder. Doctors believe that during the earliest stages of embryonic development, one of Jazzy’s cells, which was destined to become a brain cell, mistakenly went to her bladder. Years later, it mutated and became cancerous.

“Now I know I can handle anything that’s thrown my way.”

Jazzy Richards
Survivor

Photo: Wyatt McSpadden
Jazzy Richards’ parents, Carolyn and Walter, stayed by their daughter’s side during her treatment and recovery.

As a soccer player for the University of Oklahoma, Jasmine Richards is used to being in the spotlight. But now she’s making headlines for another reason. “Jazzy,” as friends and family call her, is the only known person in the world to be diagnosed with a brain tumor in her bladder.

“She’s completely unique,” says Ashish Kamat, M.D., Jazzy’s doctor and a professor of Urology at MD Anderson. “A type of tumor that normally develops in the lining of the brain originated in her bladder instead. This just doesn’t happen.”

Jazzy’s cancer story began in summer 2018, when she collided with another player on the field during soccer practice. Shortly afterward, her back began to hurt, and she noticed blood in her urine. That’s when she sought medical attention at an Oklahoma hospital.

At first, emergency room doctors presumed Jazzy had a bruised kidney. But a CT scan revealed a small mass in her bladder – perhaps a blood clot, doctors thought. But when a urologist biopsied the suspicious tissue and sent it to a lab for analysis, the results that came back were troubling – and perplexing.

Jazzy had cancer, the report said, but it didn’t look like bladder cancer anyone had seen before.

“It looked unusual under the microscope, and they weren’t even certain it was bladder cancer,” Jazzy recalls. “Something wasn’t adding up.”

The hospital referred Jazzy to a urologist, who jotted down names of three top cancer centers in the country and told her to pick one. She chose MD Anderson in Houston because it’s near her parents’ home and is ranked first in the nation for cancer care.

An unusual diagnosis was no match for MD Anderson’s experts – or college soccer player Jazzy Richards.

By Ronda Wendler
No standard treatment

Scientists have documented cases involving drift throughout history, but no one had seen a case like Jazzy’s. Bottom line: Kamat was navigating in uncharted territory. With no prior knowledge to draw upon, he had no way of knowing what treatments would and wouldn’t work for his first-of-a-kind patient.

“We have well-established ways of treating commonly occurring cancers,” Kamat says. “But in Jazzy’s precedent-setting case, we didn’t have that advantage.”

He met with Jazzy and her parents, Carolyn and Walter Richards, and proposed two options: Monitor the tumor, and if it grows, remove the entire bladder to prevent the tumor from spreading. Or, remove the bladder now.

“If Jazzy’s tumor had developed in her brain, we know it would have behaved very aggressively,” Kamat explains. “Surgical removal would be the only way to treat it. Chemotherapy wouldn’t work, because ependymomas are generally chemo-insensitive.”

But Jazzy’s tumor was in her bladder, not her brain, so perhaps it would behave differently. Kamat considered removing the tumor while leaving her bladder in place. But after intense discussions with colleagues, he dismissed the idea.

“That’s a gamble we weren’t willing to take,” Kamat says. “What if the tumor grew back and spread quickly?” he says. “Well be out of options.”

He thought about his daughter, who is close in age to Jazzy. If Jazzy were his daughter, he would want to do all he could to give her the best chance for a future,” he says. “I’ll remove the bladder.”

Jazzy and her parents agreed without hesitation. “Jazzy can live without a bladder,” says Carolyn, “but we can’t live without Jazzy.”

Weighing the options

Now the Richards family faced yet another decision. Once Jazzy’s bladder was removed, Kamat could build her a new one using tissue from her small intestine. Or, Jazzy could do without a bladder and wear an external pouch called a urostomy bag for urine collection.

The first option – constructing a new bladder – is one of the most complicated surgeries performed at MD Anderson, Kamat says.

“Think of the bladder as a balloon,” he explains. “The round, inflatable part of the balloon is the bladder where urine is stored. The balloon’s mouthpiece is the bladder’s neck. This neck connects to the urethra, a tube that carries urine out of the body.”

If Jazzy decided on a new internal bladder, Kamat would need to remove her old one but leave the neck of her original bladder in place. He’d then hook her new, man-made bladder up to her old bladder neck.

This could invite trouble, Kamat cautions.

“Cancer cells from Jazzy’s original tumor could be lurking in the neck of her original bladder,” he explains. “There’s a risk these cells could spread into her new bladder.”

And there’s one more downside: Jazzy would need to train her new, man-made internal bladder to function properly.

“It takes about seven to eight months to train a replacement bladder,” Kamat says. “You’re like a toddler going through toilet training. You have accidents.”

Jazzy turned down the internal bladder, choosing the external bag instead.

“I wanted to have the best chance of continuing to play soccer and the lowest possibility of the cancer coming back,” she says. “If that meant wearing a urostomy pouch, then that was the choice I felt was best.”

Back in the game

Once Jazzy made her decision, it was “off to the races,” Kamat says.

“She was focused and determined. I told her, ‘It’s just like soccer. You’re the coach, you’re the player. Listen to me and follow my instructions. We’ll do this together’”

Jazzy was the perfect patient. Six weeks after her surgery was completed by Kamat and a team of reconstructive surgeons, she returned to school. Her flawless 4.0 grade point average was completed by Kamat and a team of reconstructive surgeons, then she’ll return less frequently. Eventually, she’ll be seen once every three months for checkups. As time goes on, she’ll be seen once a year, then every other year.

“Should another patient someday be diagnosed with a brain tumor in the bladder, their health care team can look to Jazzy’s case for treatment guidance,” Kamat says.

He applauds the multidisciplinary team of MD Anderson experts who weighed in on Jazzy’s case, including pathologists, neuro-oncologists, urologists and others.

“Providing from multiple disciplines met to discuss Jazzy’s case when she was first admitted, recalls John de Groot, M.D., professor of Neuro-Oncology.

“We all listened and learned from each other,” he says. “Then, we developed a treatment plan we believed would work best.”

“It’s a tremendous advantage to have experts from all different fields working together at one institution to care for a patient,” Ashish Kamat, M.D., Physician

photo: Johnson-Gooden

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Physician

Today, a year after surgery, Jazzy is cancer-free.

photo: Johnson-Gooden

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Karen Moody, M.D., is co-developer of a conversation guide that helps doctors and nurses explain treatment options to pediatric patients and their parents.

Karen Moody, M.D., associate professor of Pediatrics, and colleagues have developed a conversation guide and visual aids designed to help pediatric oncologists and nurses discuss treatment options and goals with parents of children facing a poor prognosis.

“We found that patients had less pain and emotional distress, and parents felt less uncertain about the future and more hopeful when they were completely informed about their treatment options and knew what to expect during treatment,” says Moody, who leads the Pediatric Integrative Medicine and Supportive Care program at MD Anderson.

The program hosts weekly meetings attended by oncologists, palliative care and pain specialists, child life specialists, integrative medicine and creative arts therapists, ethicists, social work counselors, psychologists, and nurses. This multidisciplinary team helps parents identify their values and those of their child and set realistic goals for care that align with those values.

“Every patient’s needs are different, and we see patients from a variety of backgrounds and cultures,” says Moody. “To ensure each family receives the support they need, it’s necessary for the entire team to be aligned with the family.”

Music therapy, yoga or creating art through MD Anderson’s Arts in Medicine Program takes some children’s minds off treatment. Others may focus on a lifestyle-based approach involving diet and exercise.

“Will better communication improve experience for kids?”

By Katrina Burton

It’s important for families to know there are options for them.

Karen Moody, M.D.
Physician

“It’s important for families to know there are options for them,” Moody says. “I find that patients feel less anxious when they understand what those options are, and when we can help incorporate specific supportive services into their care.”

The conversation guide, developed by Moody in collaboration with registered nurses Joan Haase, Ph.D., of Indiana University, and Verna Hendricks-Ferguson, Ph.D., of St. Louis University, will soon be tested at MD Anderson and five other hospitals, with support from a National Cancer Institute grant. The guide was recently pilot-tested with success at Riley Hospital for Children in Indianapolis and Cardinal Glennon Children’s Hospital in St. Louis.

“We’re hoping our guide will serve as a model for pediatric supportive care programs around the country,” says Moody. “I envision it being a pocket tool physicians can use to better explain treatment options to patients and their families, and to help them pivot to the appropriate care when needed.”
What is the best surgical option for patients with cancer of the pelvis, the ring-shaped bone that anchors the spine and the hips? A new research project will help doctors decide.

“Few cancer surgeries are as invasive or difficult to recover from as those involving the pelvis,” says Valerae Lewis, M.D., chair of Orthopaedic Oncology at MD Anderson. “Removing parts of the pelvis can keep patients off their feet for more than a year.”

Now, Lewis and Benjamin Fregly, Ph.D., professor of Mechanical Engineering and CPRIT scholar in cancer research at Rice University, are working together to create personalized computer models for pelvic cancer patients waiting to undergo surgery for bone cancer of the pelvis. The models can predict which reconstruction option will last the longest and will get patients back up and walking in the shortest amount of time.

For pelvic cancer patients, those options include removing the cancerous portion of the bone with no reconstructive surgery, reconstructing the removed section using a combination of cadaver bone and metal implants, or a custom-designed, man-made pelvis.

“Each option has its advantages and disadvantages, and what’s best for one person may not be best for another,” says Lewis, one of the country’s leading orthopaedic cancer surgeons. “There’s no ‘one size fits all.’”

Simulating recovery

Using motion capture technology similar to that used in the film industry, Fregly and his team are building customized computer models of Lewis’ patients to simulate how they will function after each possible treatment option.

Patients are outfitted with electrodes and reflective markers that measure muscle activity and track body motion as they walk across the floor of the Biomotion Lab, located on the nearby campus of The University of Texas Health Science Center. These data are used to create a personalized computer model of the patient, which the research team uses to predict how the patient will walk after different surgical or rehabilitation treatments.

Not only that, but the data can also allow the research team to print custom 3D prostheses that may potentially help patients get back on their feet sooner:

“Custom pelvic prostheses have great potential, but the ones that are currently available clinically are not reliable,” Fregly says. “That’s an engineering problem we’re in a good position to tackle.”

And the same 3D imaging data used to design a prosthetic pelvis can be used to make custom surgical cutting guides, which help surgeons map out prior to surgery where they will cut bone. This minimizes unnecessary removal of bone and muscle.

Fregly says this five-year research project, funded by the Cancer Prevention and Research Institute of Texas, couldn’t have happened without a collaborative team.

“Rice is handling the computational modelling and 3D printing, MD Anderson is providing us with patients and clinical problems to address, and The University of Texas Health Science Center is doing the pretreatment testing,” explains Fregly. “It takes all of us to make this project go.”

Lewis, Fregly and Kellam work together to build customized computer models that predict how a patient will function after surgery.

Few cancer surgeries are as invasive or difficult to recover from as those involving the pelvis.

Valerae Lewis, M.D.

Physician
Driven by memory of her mother

Pancreatic cancer researcher sets her sights on a cure

By Scott Merville

ewly graduated from medical school in her native Argentina in 2002, Florencia McAllister, M.D., joined a lab in New Orleans where she used gene therapy to defend the body against opportunistic fungal and bacterial infections. After many pioneering findings, McAllister trained to become a gastrointestinal medical oncologist – a highly specialized doctor who treats cancers of the stomach, liver, bile duct, gallbladder, pancreas, bowel and esophagus. She thought her days studying bacterial immune response were over.

“I was saying, ‘I’m done with this. I want to go study tumor biology and tumor immunology,’” she recalls. But McAllister wasn’t done with bacteria.

A new approach

Recently, McAllister, now an assistant professor of Clinical Cancer Prevention, published striking findings in the journal Cell, raising the possibility of transplanting feces from a healthy donor into a pancreatic cancer patient to fight the disease.

McAllister and colleagues reported:

• The rare long-term survivors of pancreatic cancer have a distinctive bacterial signature, or microbiome, on their tumors that is connected to a strong immune response against the cancer.

• Using fecal transplants from these long-term survivors to alter the tumor microbiome in laboratory mice who had pancreatic cancer greatly prolonged their survival.

“Results of our experiments represent a significant opportunity to improve pancreatic cancer treatment by altering the tumor immune microenvironment,” McAllister says. “There’s promise here, but we have a lot of work ahead.”

A fecal transplant clinical trial is under development and is expected to open in 2020.

More research needed

McAllister is applying a full-court press to the disease, which took her mother’s life at age 55.

In addition to her lab research and mentorship of young scientists, McAllister treats patients and directs MD Anderson’s high-risk clinic, devoted to finding ways to catch the disease early when it’s still treatable, or even better, to prevent it outright.

“Florencia’s a phenomenal physician-scientist who is working on critically important questions of pancreatic cancer and how to both treat and prevent it,” says Powell Brown, M.D., Ph.D., chair of Clinical Cancer Prevention.

“She works fulfills the goal of a physician-scientist – to do discovery research in the lab, have an impactful finding that will eventually lead to treatment and then have the wherewithal to take it to clinical trial.”

Only 20% of pancreatic cancer patients are diagnosed when the disease is still in its early stages and surgery is possible, making survival more likely. Treatment options are few for the 80% whose disease has advanced, with only 5% to 7% surviving five years.

While surgical patients have better survival – more than 40% of MD Anderson patients who receive chemotherapy before surgery live at least five years – progression can still be swift.

McAllister’s mother had chemotherapy and a surgery known as the Whipple procedure, in which surgeons remove the wide part of the pancreas, the first part of the small intestine, the gallbladder and the bile duct. Those who undergo the operation may have a five-year survival rate of up to 25%.

“I was a postdoc at the University of Pittsburgh when she was diagnosed,” McAllister recalls. “I was in the bed next to her the night before her surgery and during the two weeks of recovery time, writing my papers and grants.”

Despite surgery and chemo, the disease eventually spread to her liver, and McAllister’s mother passed away 16 months after her diagnosis.

“It was very difficult,” McAllister says. “She remains a big motivation for me.”

Looking back

McAllister first became interested in research while studying at the National University of Rosario Medical School in Rosario, Argentina. She landed a research fellowship at Johns Hopkins University, she showed a connection between interleukin-17 and early cellular changes that lead to pancreatic cancer.

“Recently, research revealed that new-onset diabetes can be a risk factor in developing pancreatic cancer,” McAllister says. “As a result, lab tests to detect diabetes are now included in high-risk clinic visits.”

The clinic also conducts studies to identify proteins, DNA or other biomarkers that can be tested to confirm the presence or absence of cancer. The goal is to use these biomarkers to identify and treat pre-malignancies, and to develop clinical trials aimed at preventing pancreatic cancer.

Relatives also are monitored for other risk factors, such as chronic inflammation and cysts in the pancreas. When warranted, imaging is done to screen for cancer.

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“Florencia McAllister, M.D., was inspired to become a pancreatic cancer doctor and researcher after her mother and grandfather died from the disease.”
Playing with the Checkpoints was great, but not enough. "We wanted to play more often," Prat explains, "but it's really hard with a national band."

So they decided to go local, starting with three Checkpoints: Hwu, Prat and Allison.

Hwu connected with lead guitarist Anthony Lucci, M.D., professor of Breast Surgical Oncology, then Greg Lizee, Ph.D., professor of Melanoma Medical Oncology, who played a number of instruments before settling on the drums.

Ferran Prat, Ph.D., J.D., adds some soulful notes.

They formed a new band, the Checkmates - named for the running title of clinical trials of Allison's drug, ipilimumab.

The band lacked a bass player.

"Seriously, I Googled, 'MD Anderson bass player,'" Hwu recalls. "Up popped a bio of Adela Justice, senior librarian at The Learning Center."

"Ex-cop, librarian, bass player – perfect," says Prat. Hwu adds, "she's a total musician, went to High School for the Performing and Visual Arts, a music major in college – she's played professionally."

Prat connected with trumpet player Powel Brown, M.D., Ph.D., chair of Clinical Cancer Prevention, who helped the Checkmates fill out their horn section with Scott Krueger on trombone and Kyle Krueger on bass saxophone. The father and son duo are the only non-MD Anderson musicians in the group.

"The horns bring a completely different dimension," Hwu says.

He plays a digital recording of the Checkmates' version of Bruno Mars' song "Uptown Funk" from a recent gig.

"They nailed it!" he exclaims.

A ton of fun

The strength of the local band is regular practice.

"You can't play Stevie Wonder cold," Prat says.

"In the band, we're all the same," Hwu says. "It's beautiful. We love each other; it's a ton of fun. Every time we play, we think, 'Why don't we do this more often?'"
When MD Anderson employee Toni Vasquez Jordan was diagnosed with breast cancer three years ago, she saw cancer treatment from a patient’s point of view. Today, Jordan participates in the Patient and Family Advisor Program – a group of patients and their family members who improve the care experience by serving as a voice for patients.

“How wonderful to know that, as a patient, my preferences and needs are respected.

Toni Vasquez Jordan
Survivor
Giving patients a seat at the table

Program provides forum for input from patients and their families

By Claudia Feldman

In the world of science and medicine, they were a perfect match.

Ishwaria Subbiah, M.D., was an expert on the best ways to maintain patient contact between hospital visits. But she knew she was missing an important element in her work - patient input.

MD Anderson Office Manager Toni Vasquez Jordan didn’t have Subbiah’s education or training. But she was a breast cancer survivor. She appreciated the importance of patient tracking, yet she had strong feelings about the many telephone surveys she was asked to complete.

Subbiah, assistant professor of Palliative, Rehabilitation and Integrative Medicine, spotted Jordan at a meeting of the Patient and Family Advisor Program. Founded in 2014, the program seeks to improve the patient experience by providing a forum for patients’ and families’ voices to be heard and understood.


Humanizing the patient experience

That evening they hashed out ways to improve the questionnaires. Their ongoing collaboration has resulted in better supportive care for patients, a more enlightened medical staff, and proof that a program designed to foster communication among patients, their families and staff truly works.

When Subbiah found Jordan, the palliative care doctor was working on two grant applications and the design of a clinical trial. All three projects focused on telephone and electronic patient surveys and best practices for patient support between clinic visits.

That fortuitous meeting was the beginning of what has been a beautiful working relationship.

It turned out that Jordan worked just one floor above Subbiah at MD Anderson. Jordan shared her cancer experiences over the next weeks and months, usually over coffee. “The proximity to coffee is always helpful,” Subbiah jokes.

Sometimes they shared more - photos of their children, stories about their spouses, their passion to help their institution and alleviate suffering.

When Jordan found her breast lump three years ago, she told Subbiah, she tried not to jump to conclusions. Her husband, already upset about the recent loss of his mother, burst into tears. The cancer diagnosis, she realized, was not just a hand grenade tossed into her life, but also into the lives of her husband and three children.

During her treatment, Jordan tried to stay calm, appreciate the care she was getting and accept life as it came. She soon learned she had the BRCA2 gene mutation, which raises the risk of breast and ovarian cancer. She would need a hysterectomy in addition to her breast surgeries. Even worse, her two daughters were at risk for the mutation, too.

Subbiah took Jordan’s comments to heart and redesigned the clinical trial that dealt with integrated, supportive care for patients in early-stage trials. Also, Subbiah reworked her grant proposals. The first one already has been funded by the American Cancer Society. “It was one of those career-defining moments,” Subbiah says.

The second grant – an application to the American Society of Clinical Oncology – is still pending, but if it comes through, it will be a triumphant moment for Subbiah and Jordan, too. Both their names are on the grant. Jordan boosted their chances with a letter of support, saying she was grateful the proposed study incorporates the human element of telephone calls and the give and take of real conversations in addition to the surveys.

As Jordan wrote, “I think there will be many patients who look forward to these calls. And you and the medical team will find out much earlier if something is not right.”

That’s what it’s all about, Subbiah says. Supporting patients. Identifying problems.

Extending lives. ◆

Ishwaria Subbiah, M.D., redesigned her clinical trial to include suggestions from breast cancer patient Toni Vasquez Jordan.
ANSWERING THE CALL
askMDAnderson ensures patients and caregivers get the help they need when they need it

By Katie Brooks

A recently discharged patient said he was feeling fine when nurse Liliana Larsson called to check on him. But as Larsson asked more questions, the patient said he was light-headed, seeing white spots and couldn’t get a reading from his blood pressure monitor.

As a care manager for askMDAnderson, Larsson has the clinical training and people skills needed to ask the right questions. She’s part of a new clinical team that helps patients continue to benefit from MD Anderson’s care after they’ve gone home.

All patients discharged from the hospital, Emergency Center, and outpatient surgical and procedural areas receive automated phone calls within 24 hours. The calls start with a recorded greeting from Chief Nursing Officer Carol Porter, D.N.P., before transitioning to a short automated survey about their care, how they’re feeling and whether they have questions about discharge instructions and medications.

Twelve care managers, who are trained registered nurses and advanced practice registered nurses, monitor responses and answer patients’ requests within a day. They document calls electronically so the patient’s care team has the up-to-date information needed to help the patient the next time they’re seen.

Is this normal?

Many patients have questions and concerns about drains, ports, medication and pain. They want to know if something’s normal or a sign to seek medical attention.

Calls are documented electronically so the patient’s care team has up-to-date information.

“We have an obligation to provide patients with the support they need, when they need it,” says Elizabeth Garcia, associate vice president of Patient Experience. “Immediately following discharge can be a vulnerable time for patients and their family members, so we have to be proactive and responsive.”

Garcia says it’s important to help patients get to an emergency room quickly when needed, or if appropriate, give them additional information to help them manage their care at home.

In the case of the patient who was seeing white spots and failing to get a blood pressure reading, Larsson encouraged his caregiver to seek immediate assistance, and the patient arrived by ambulance safely at a hospital in his town. However, Larsson recounts an exchange with a caregiver who called repeatedly because he was anxious about managing his wife’s care correctly.

“He gave me updates, and I told him he was doing a great job,” Larsson says. “And then I encouraged him to get some sleep and take care of himself so he could continue to take great care of her.”

Without Larsson’s advice, both the patient and caregiver might have spent hours worrying at home or waiting to ask a question in an emergency room.

Everyone wins

Since the team started in August 2019, more than 15,000 discharged patients have received automated calls, and more than 9,000 patients have received answers to questions about their care.

Janice Finder, director of Patient Experience Clinical Services, says the high number of responses from the patients called shows they’re engaged in their care. She says things can change when patients go home, so other clinicians appreciate that care managers provide real-time support.

The number of after-hours pages to providers has dropped by 59% since care managers started helping patients, says Michael Frumovitz, M.D., associate chief patient experience officer.

Joanna-Grace Manzano, M.D., assistant professor of General Internal Medicine, is grateful that care managers listen carefully to every detail.

“They help is invaluable in ensuring patients’ questions are answered, and if needed, they quickly reach out to the right provider for additional guidance,” says Manzano.

Research shows interventions like these elevate quality and continuity of care by reducing unnecessary Emergency Center visits and unplanned hospital readmissions, says Chief Patient Experience Officer Randal Weber, M.D. They also lower an organization’s overall cost of care and protect the time and capacity of emergency rooms and hospitals to care for their most critical patients.

“This means a safer, more efficient, less expensive and more satisfying care experience for patients,” Weber says.

Support after clinic hours

Any patient with a clinical question who calls MD Anderson’s main line and askMDAnderson during evenings, weekends and holidays can speak with a care manager directly. Care managers document everything and only page providers if needed. During the day, patients with clinical questions are connected with their clinicians.

A nurse for 15 years, with more than seven years at MD Anderson, Larsson knows how busy care team members can be. She says supporting patients and care teams makes this her most rewarding role ever.

◆

After-hours support available:

- 877-632-6789
- Monday through Friday: 5 p.m. to 11 p.m.
- Saturday, Sunday and holidays: 8 a.m. to 7 p.m.
Caregivers need care, too

By Ina Fried

Cynthia Galvez had a hard time when her husband, Robert, was diagnosed with cancer in his lung and kidney.

"I just went through the motions of getting through the surgeries and the chemotherapy," she says. "Then, I started to panic and think that I was going to be left alone, that I was going to be a widow."

At her husband’s encouragement, she decided to seek help. A social work counselor at MD Anderson League City, where Robert was receiving chemotherapy, sent a list of caregiver support groups. Galvez chose one at MD Anderson’s Texas Medical Center Campus because it met at a convenient time.

"I don’t know what I would have done if I hadn’t had the support group. It’s just wonderful what MD Anderson does. They’re taking care of the patient, but they also want to take care of the caregivers," she says.

Sharing experiences

MD Anderson’s Social Work department has offered the Care 4 Caregivers support group since 2007. It meets weekly at the Rotary House, a Marriott hotel attached to MD Anderson.

"People take care of each other," says Tiffany Meyer, one of five social work counselors who take turns facilitating the group. "Caregivers often come in and say, ‘I don’t really like talking about my stuff, but I didn’t realize how much I needed to talk,’ or ‘I didn’t realize that it’s OK for me to share some of this stuff with other people.’ I love how it decreases the isolation that a lot of caregivers feel."

While some caregivers – especially those from out of town – can’t attend support group meetings on a regular basis, others return again and again. Galvez has attended about 10 times.

"Those meetings are very comforting – to be able to share your experience and hear other people’s experiences," Galvez says. "I was able to deal with my feelings and realize that every-thing that I was feeling was pretty normal."

A family illness

Fear, anxiety, anger, frustration and guilt are all common feelings among caregivers. Educating and supporting caregivers to understand and deal with those feelings are goals of a support group called Cancer is a Family Illness, offered by the Psychiatry department since February 2018.

"One person in the family is diagnosed, but the whole family feels this disease," says Carmella Wygant, a clinical psychotherapist. "Any change will bring about loss and grief, and one of the most common reactions to grief is anger."

Wygant describes a typical caregiver: "They’re no longer able to go to work, their income is compromised, they are completely out of their element, and they are at the whim of the different appointments that are necessary, so they are very aware that they have no control over the situation. A lot of the reason there’s anger is that the old strategies that worked in a life that was cancer-free don’t work now, when there is cancer and so much uncertainty!"

Being present

"I think everybody comes out feeling better, a little more optimistic," says Galvez. "It’s very small, but it means so much to the caregivers," she says.

Most important, the groups provide a safe place for caregivers to talk and share. Caregivers consistently say they are revealing feelings and experiences in the group they have never said out loud before.

"I think everybody comes out feeling better, a little more optimistic," says Galvez. "It’s like, I’m going to be able to get through this."
Helping older patients bridge
THE DIGITAL DIVIDE

When Barbara Hsu was born in 1939, no one had a television in their home, let alone a computer or smartphone.

“Times were simpler then,” says Hsu. “Sometimes I wish they still were, but it’s 2020 and there’s no turning back.”

Today, she’s using technology to manage her health care online. She’s mastered MyChart – MD Anderson’s patient portal – and uses it to check her medical results, communicate with her health care team and schedule appointments online.

Empowered by personalized tech help

But the 80-year-old leukemia survivor wasn’t always so digitally savvy.

“At first I felt intimidated,” she recalls. “Then I discovered Tech Tuesdays, and everything changed.”

Tech Tuesdays are free technology help sessions held in The Learning Center. MD Anderson’s patient education library, the last Tuesday of each month. Patients, their family members and caregivers can drop by for personalized help with electronic devices, social media, mobile apps, MyChart and more.

Adela Justice, a senior librarian at the center, says those who seek help are typically older.

“The average age of cancer patients in the United States is 66, which means they weren’t raised in the age of digital technology. Yet as patients, they’re expected to use it,” Justice notes. “Furthermore, they’re battling cancer. It can all be very overwhelming. We’re here to help.”

With no judgement and infinite patience, Justice and her fellow staff members sit side-by-side with patients and their loved ones, teaching them how to download and use an app, save documents to iCloud, find a book on a Kindle, customize computer or smartphone settings, set up and use new devices, create social media accounts on platforms like Facebook or Instagram, install updates, and much, much more.

“Most people learn better with a hands-on approach,” Justice says. “We show them how. Then we watch as they practice.”

The joy that accompanies that “aha” moment when a patient grasps how to execute a digital task is enormously rewarding, she says.

“Now they can do it themselves. They feel confident. They no longer have to ask their grandchildren for help.”

Justice offers these words of encouragement to help senior citizens overcome techno-stress, her phrase for fear of technology. “You can do this. It’s basically ‘push this button, type inside this box.’ It’s not an inborn talent. It’s an acquired skill anyone can learn.”

‘We should have come to MD Anderson first’

By Virgil Woods

I am a very skeptical person, so when I hear things described as “the best,” I don’t really believe it. But MD Anderson has been called the best cancer hospital in the world for years. And now, I know it’s true.

My wife, Tralisa, was diagnosed with ovar-i-an cancer in late 2017, at a hospital near our home in Dallas. We came to MD Anderson for a second opinion.

It was there that we learned she’d been misdiagnosed. My wife actually had uterine cancer. If she’d gone much longer without the correct diagnosis, she probably wouldn’t be here today.

Initial misdiagnosis

We learned something was wrong in early December. Whilst I was taking our son to driving lessons, Tralisa called and said she had a lump in her chest. I thought it was something she ate or maybe a little gas. But she was hurting pretty bad, so her mother took her to the emergency room.

A little later, I got another call. Tralisa needed me at the hospital. When I got there, the doctors said my wife had a huge mass in her chest and abdomen. They didn’t know what it was, but it had to be removed.

We agreed to the surgery. The surgeons removed the mass and one of her ovaries. Tralisa was still recovering in the hospital when the pathology report came back.

The oncologist said Tralisa had ovarian cancer. And while the diseased ovary had been removed, he wasn’t sure if the cancer had spread to any nearby lymph nodes. He recommended chemotherapy and a complete hysterectomy.

An instant bond

Something about that didn’t sit right with me. After I got Tralisa home, I started doing research online. I kept running across references to MD Anderson, so I talked to my wife about getting a second opinion there. She wasn’t sure she wanted to, both because it was five hours away and because she was eager to get on with her cancer treatment and be done with it.

But I felt this was very important and kept pushing. She finally agreed.

We drove to Houston a few days later. My first thought when we got to MD Anderson was, “We should’ve come here first.”

My wife and Michaela Onstad, M.D., had an instant bond. Tralisa’s face glowed when they interacted. I was not going to break that up. If she felt more comfortable at MD Anderson, that’s where she needed to be.

A second chance

After additional testing showed that Tralisa actually had uterine cancer, she had a hysterecto-my at MD Anderson on Feb. 6, 2018, followed by radiation therapy and chemotherapy. Today, she’s cancer-free and doing great.

That’s why we still travel 500 miles round trip for follow-up appointments. The level of care at MD Anderson is simply amazing. And I put a lot of faith in Dr. Onstad. Not just because she cured my wife’s cancer, but because she identified the real problem and gave Tralisa a second chance at life.

If she felt more comfortable at MD Anderson, that’s where she needed to be.

Virgil Woods
Caregiver

We were shocked when MD Anderson changed Tralisa’s diagnosis to uterine cancer. At the time, a part of me thought, “OK. Maybe the first hospital just missed it. They just slipped.” But you can’t slip with someone’s life. Dr. Onstad and MD Anderson went that extra slip. And that gave my son his mom back and me my wife back.

Read more stories like the Woods’ on Cancerwise, MD Anderson’s blog for patients and caregivers mdanderson.org/cancerwise.

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Expanding their horizons

Volunteers support patients and staff at Houston-area locations

By Kelley Murfin

Rashida Jinnah knows MD Anderson inside and out. After all, she worked here for 23 years before retiring in 2008.

“In my role as a nutrition support specialist, I interacted with patients every day. The connection was so rewarding. I didn’t want to give that up.”

It turns out she didn’t have to. Jinnah became a volunteer at MD Anderson in Sugar Land, just a few minutes from her home.

“The number of patients in Sugar Land is small, compared to MD Anderson’s Texas Medical Center Campus. Most come back every week,” says Jinnah. “This gives volunteers more time to spend with patients and staff. You develop comfortable and rewarding relationships with them.”

MD Anderson’s Texas Medical Center Campus has more than 1,000 volunteers. The cancer center’s four suburban locations have 26 altogether. This small but dedicated crew serves MD Anderson’s locations in Sugar Land, The Woodlands, West Houston and League City. They’re a diverse group that includes cancer caregivers, cancer survivors, military veterans, college students and retirees—each with their own unique reason for volunteering.

Larisha Sellers became a volunteer after her mother and father died of cancer.

“Losing my parents motivated me to give back to patients who are fighting cancer today,” says Sellers, a military veteran who volunteers at MD Anderson League City.

Volunteers typically work one four-hour shift each week. They talk with patients and caregivers, serve snacks and beverages, and pass out warm blankets.

Volunteers also provide patients with information about support services, including social work, dietary consulting, educational literature and groups, and resources such as myCancerConnection—MD Anderson’s cancer support community that offers free, one-on-one support by matching cancer patients with trained survivor and caregiver volunteers.

“Volunteers are the connection between each patient at the Houston-area locations and the support services located on the Texas Medical Center Campus,” says Mary Jackson, a director in MD Anderson’s Volunteer Services and Merchandising department. “Our volunteer program is a consistent strength of our multidisciplinary approach to patient care.”

Because they have close and candid interactions with patients, volunteers often are called upon to represent the patients’ perspective. For example, when MD Anderson The Woodlands was transitioning to its new building, which opened last fall, a volunteer served on the planning committee and discussed patients’ needs and preferences for the new location.

“Patients and volunteers alike report that our Houston-area locations feel like relaxed, neighborly spaces,” Jackson says. “This further promotes the relationship-building that is so important to patients and volunteers alike.”

Our volunteer program is a consistent strength of our multidisciplinary approach to patient care.

Mary Jackson
Director
Volunteer Services & Merchandising
smokers enrolled in MD Anderson’s Tobacco Treatment Program will have a better chance of quitting than those participating in other programs. That’s the verdict of a recent study that revealed almost half of the more than 3,000 people who entered MD Anderson’s Tobacco Treatment Program have quit successfully. Other smoking cessation programs, by comparison, only boast success rates of around 20%.

“Patients deserve the absolute best opportunity we can give them to quit smoking,” says Paul Cinciripini, Ph.D., chair of Behavioral Science and director of the program. “Based on our findings, we recommend offering cancer patients who smoke a comprehensive smoking cessation program to accompany their other treatment.”

The secret of the MD Anderson program’s success, he says, lies in its approach, which uses a combination of nicotine-replacement therapy, medication and eight to 12 weeks of behavioral counseling to help smokers kick the habit. The comprehensive program also offers participants treatment for underlying psychiatric conditions, such as depression, anxiety and insomnia, which can make it harder to quit.

Immediate benefits

The payoff for cancer patients who quit smoking at the time of diagnosis is indisputable, Cinciripini says. Their chances of survival immediately improve by 30% to 40%. Quitting can also make their treatments more effective and reduce their chances of relapsing or developing a secondary cancer.

“Quitting smoking doesn’t just add years, it adds quality years to your life,” notes Cinciripini. “It’s the most cost-effective cancer prevention strategy we have.”

Sometimes, patients mistakenly assume they can’t quit, because they’ve already tried several times on their own without success.

“We let them know that most people who quit make numerous attempts before succeeding,” says Diane Beneventi, Ph.D., assistant professor of Behavioral Science and the program’s clinical director. “And we’re here to make it easier.”

Going mobile

Last year, the Tobacco Treatment Program began offering counseling sessions through live video conferencing to make these meetings more convenient. The sessions are available through a mobile app that patients can access from anywhere. The video conferencing option has already proven popular with two or three evaluations the first month and now a quarter of our patients contact us from their homes. Preliminary data indicates that patients treated remotely are able to quit at similar rates to those coming in for treatment in person.

The team expects the number of patients using the remote video option to grow over the next year. They’re also planning to open a mobile smoking cessation clinical trial this year for current smokers living anywhere in Texas.

“Quitting smoking doesn’t just add years, it adds quality years to your life,” notes Cinciripini. “It’s the most cost-effective cancer prevention strategy we have.”

“Many of the people we’re training will become the go-to people for tobacco treatment at their hospitals or clinics,” says Cassie Richardson, a clinical pharmacist and medical director of the Certified Tobacco Treatment Training Program, is a joint program of MD Anderson and the Texas Department of State Health Services. “Many also take advantage of the Certified Tobacco Treatment Training Programs to deliver tobacco treatment specialist training and certification.”

Many of the people we’re training will become the go-to people for tobacco treatment at their hospitals or clinics.

Paul Cinciripini, Ph.D.
Researcher

“I grew exponentially,” says Maher Karam-Hage, M.D., professor of Behavioral Science and medical director of the Tobacco Treatment Program. “We started video conferencing with two or three evaluations the first month and now a quarter of our patients contact us from their homes. Preliminary data indicates that patients treated remotely are able to quit at similar rates to those coming in for treatment in person.”

The team expects the number of patients using the remote video option to grow over the next year. They’re also planning to open a mobile smoking cessation clinical trial this year for current smokers living anywhere in Texas.

Branching out

To help even more smokers kick the habit, experts at MD Anderson have begun teaching other health care providers how to launch the Tobacco Treatment Program in their own clinics, hospitals and doctors’ offices. The initiative, named EndTobacco®, is a joint effort between EndTobacco® and the Behavioral Science department. It’s one of only 12 courses in the U.S. – and the only one in Texas – accredited by the Council for Tobacco Treatment Training Programs to deliver tobacco treatment specialist training and certification.

“Our team has world-renowned tobacco treatment experts, and now they’re spreading their version of treating tobacco addiction beyond our walls,” says Jennifer Cofer, director of EndTobacco®, an initiative of the cancer prevention and control platform of MD Anderson’s Moon Shots Program®.

Since the training program began, 455 people have completed the course, and 92% have become certified tobacco treatment specialists. Participants include psychologists, psychiatrists, case managers, social work counselors, respiratory therapists, registered nurses and community health educators. They work in settings ranging from community-based health centers to large health care systems.

“Many of the people we’re training will become the go-to people for tobacco treatment at their hospitals or clinics,” says Cinciripini. “Physicians want to help their patients stop smoking, but they don’t necessarily have the time or training to do that. Having someone in their immediate practice who can deliver that service is a win-win.”

The four-day course is offered three times a year at MD Anderson. It’s also hosted at other locations in the U.S. “I learned new and alternative ways to approach tobacco cessation treatment,” says Cassie Richardson, a clinical pharmacist who attended the first training. “Now I’m putting my knowledge to use by helping smokers become ex-smokers.”

After completing the training and obtaining certification, specialists can earn a national credential from the Association for Addiction Professionals by acquiring 240 hours of clinical or community practice. Many also take advantage of MD Anderson’s free, weekly tele-mentoring program, Project TEACH, where they can discuss difficult cases and continue to learn from each other and program leaders, while earning continuing education credits. ◆
Narrowing the gap
Program trains students from Puerto Rico to become physician-scientists

By Anissa Anderson Orr

Growing up in Puerto Rico, Carolina Garcia Garcia always knew she would be a doctor. But while learning and making discoveries in the lab in college at the University of Puerto Rico, Garcia Garcia felt the pull of scientific research. Then she encountered MD Anderson representatives who were recruiting students for the institutional M.D./Ph.D. training program, which opened her eyes to another option: She could become a physician-scientist.

“I didn’t know you could actually do both,” Garcia Garcia says. “The idea of earning both an M.D. and a Ph.D. was so appealing to me. It’s the best of both worlds. You can see patients; you can understand what they need and how medicine can advance.”

Training the best and brightest
Garcia Garcia is one of a select group of Puerto Rican students studying to become physician-scientists and exploring biomedical research as it relates to cancer at MD Anderson. They’re here thanks to the M.D./Ph.D. program that’s part of the Partnership for Excellence in Cancer Research—a collaboration of MD Anderson, the MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences and the University of Puerto Rico School of Medicine. The program seeks to eliminate cancer health disparities in underserved populations in Puerto Rico and Texas through research, education, and training.

Last October, the Partnership received $13 million in renewed funding from the National Institutes of Health to support the initiative’s collaborative research projects, community outreach and joint education programming.

“The idea is to find and train the best and brightest students from Puerto Rico, so that they can return and improve cancer care and research,” says Elizabeth Travis, Ph.D., associate vice president for Women and Minority Faculty Inclusion at MD Anderson. She’s been with the program since its start in 2008, and is a lead researcher on the grant. “We thought this was an opportunity to build that pipeline with M.D./Ph.D. students from Puerto Rico,” Travis says. “It’s been a resounding success.”

In 2018, the program received accreditation as a Medical Scientist Training Program, which only the top M.D./Ph.D. programs in the United States have achieved. And the eight graduates of the dual-degree program have earned prestigious honors, residencies and fellowships at other top medical institutions. Garcia Garcia recently received the Marie Curie Award from the Radiation Research Society, given to the trainee showing the highest potential for a successful career in radiation research.

Competitive program
Only two or three students are accepted into the program each year. They spend three years in medical school in Puerto Rico, four years or more doing research to qualify for a Ph.D. at MD Anderson UTHealth Graduate School, and then return to Puerto Rico for their final year of medical school. While at MD Anderson, students have firsthand experiences and mentorship in basic, clinical or translational research alongside world-renowned faculty.

“They start doing laboratory research right away to pick which lab that they would like to join for their thesis research,” says Dean Michelle Barton, Ph.D. Barton leads a grant that funds a summer program that is the gateway to the dual-degree program.

Garcia Garcia is in the third year of her Ph.D. studies. Like many students in the program, she came to MD Anderson through the Partnership’s Summer Scholars Program, which hosts up to 20 students a year. She says working in the lab of an MD Anderson pathologist awakened her to opportunities she wouldn’t have had in Puerto Rico.

“Before that, I was considering just doing medical school. He introduced me to some students in the program and to other physician-scientists. If it wasn’t for him, I wouldn’t even have considered doing an M.D./Ph.D.”

Today, Garcia Garcia is working in the lab of radiation oncologist Cullen Taniguchi, M.D., Ph.D., exploring ways to reduce side effects of radiation.

“I’m trying to trick the intestines into thinking they’re low in oxygen, and in that way we can protect them from high doses of radiation,” Garcia Garcia says, adding that the approach holds promise for patients with pancreatic cancer.

“You can’t maximize the effect of cancer therapies because of the toxicities they have on the intestines,” she says. “We could cure more patients if we could optimize chemotherapy and radiation.”

Moving forward
Garcia Garcia has one more year of medical school in Puerto Rico, then several more years of training before she becomes a full-fledged physician-scientist. Her goal is to become a radiation oncologist and have her own laboratory in Puerto Rico, dedicated to radiation oncology research.

She knows there are obstacles to achieving this dream, though. Puerto Rico is in the midst of a financial crisis and still recovering from Hurricane Maria. And many of the best training opportunities are stateside.

“But with the grant money, the hope is to shore up health, medical and cancer facilities back in Puerto Rico to allow students to start up their own labs,” Barton says.

In the meantime, Garcia Garcia continues on her journey to becoming a physician-scientist. “When I think back on all the opportunities I’ve had at MD Anderson, I’m very grateful; I definitely would not have had them anywhere else. It’s been an amazing experience.”

Garcia Garcia works with radiation oncologist Cullen Taniguchi, M.D., Ph.D., exploring ways to reduce side effects of radiation.
Collaborative approach yields better prostate cancer care

By Lany Kimmons

Bringing together all of the specialists patients need to see under one roof so they can receive integrated, collaborative treatment is the hallmark of multidisciplinary care. So, what happens when men receive prostate cancer care from multidisciplinary care clinics like the one at MD Anderson?

Findings from a new MD Anderson study show that these patients are more likely to receive treatments that adhere to the national standard of care. In simple terms, that means “best practices for treating the disease.”

Prostate cancer patients who receive care at multidisciplinary prostate clinics are also more likely to participate in discussions with their doctors and to have a say in their treatment options.

The study—the largest of its kind—compared almost 4,500 prostate cancer patients who received care at MD Anderson’s multidisciplinary prostate cancer clinic to a similar-sized group listed in the Surveillance, Epidemiology, and End Results (SEER) national cancer database. Patients in the SEER database were not necessarily treated in a multidisciplinary clinic.

“We were interested in querying the results of our multidisciplinary clinic experience, as our clinic has been open since 2004,” says Chad Tang, M.D., assistant professor of Radiation Oncology and leader of the study.

A balanced approach to treatment

More than 170,000 men are diagnosed with prostate cancer each year, according to the American Cancer Society. It’s the most common cancer in men, outside of skin cancer.

A variety of treatment options are available, including surgery, radiation therapy, hormone therapy, chemotherapy and active surveillance, in which a relatively slow-growing cancer may be watched rather than treated.

“Some men,” Tang says, “are never informed about all the options available to them, and some doctors tend to recommend the treatment that they can deliver. But in a multidisciplinary clinic, patients quickly receive a balanced view of treatment options without needing to schedule multiple appointments with multiple doctors.”

Chad Tang, M.D.

Physician

to deliver higher quality and advanced care to patients in their communities.

“It’s important to offer patients the full spectrum of care, a well-balanced approach, assistance with decision-making, and the resulting effects connected with a patient-centric, multidisciplinary style,” says Deborah Kuban, M.D., vice president of Cancer Network clinical operations. “These findings are important, and hopefully can encourage the development of more multidisciplinary clinics.”
Breast Center celebrates 25 years of Making Cancer History

MD Anderson’s Nellie B. Connally Breast Center, named for a breast cancer advocate and former first lady of Texas, celebrated its 25th anniversary with a Dec. 17 gala.

More than 40,000 patients are treated at the center each year, making it one of the largest in the country.

The multidisciplinary approach to cancer care that is now the hallmark of MD Anderson was spearheaded by the Breast Center, where medical oncologists, surgeons, radiation oncologists, pathologists, geneticists, registered nurses and other health care providers meet regularly to review each patient’s status.

“Individual health care professionals bring their skills to our multidisciplinary teams, where they work together to develop treatment plans that address the unique nature of each breast cancer patient,” says Debu Tripathy, M.D., professor and chair of Breast Medical Oncology.

The center is renowned for its long history of offering innovative therapies, many which today have become standard treatments.

“We’ve developed a number of new treatments that were not even considered possible 25 years ago,” says Gabriel Hortobagyi, M.D., program director of Breast Medical Oncology.

Advances like these, he says, mean that more and more women are surviving breast cancer each year.
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PROFESSOR AND CHAIR AD INTERIM
John Maslen, M.D.

DEPARTMENT OF NEURO-ONCOLOGY
PROFESSOR AND CHAIR AD INTERIM
Donald Schomer, M.D.

DEPARTMENT OF NUCLEAR MEDICINE
PROFESSOR AND CHAIR
Horner A. Macapinlac, M.D.

DEPARTMENT OF THORACIC IMAGING
PROFESSOR AND CHAIR AD INTERIM
Mylene Truong, M.D.

*Current as of Dec. 31, 2019
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At-large member

Walker N. Moody
At-large member

Sam L. Susser
At-large member

Eric S. Zorn
At-large member
Fiscal Year 2019

Sources of revenue

<table>
<thead>
<tr>
<th></th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Revenue</td>
<td>$7,677,779,285</td>
<td>$7,571,428,899</td>
<td>$8,214,974,402</td>
<td>$8,926,301,950</td>
<td>$10,842,677,115</td>
</tr>
<tr>
<td>Deductions from gross patient revenue[^2]</td>
<td>3,305,310,324</td>
<td>4,344,324,875</td>
<td>4,405,356,592</td>
<td>4,642,147,440</td>
<td>5,538,836,528</td>
</tr>
<tr>
<td>Net patient revenue</td>
<td>$4,372,468,961</td>
<td>$3,227,102,584</td>
<td>$3,754,638,850</td>
<td>$4,084,154,519</td>
<td>$5,873,840,208</td>
</tr>
<tr>
<td>Restricted grants and contracts, philanthropy</td>
<td>$402,702,183</td>
<td>$446,882,317</td>
<td>$491,018,777</td>
<td>$498,042,406</td>
<td>$516,082,981</td>
</tr>
<tr>
<td>State-appropriated general revenue</td>
<td>187,350,746</td>
<td>201,848,404</td>
<td>203,433,111</td>
<td>201,136,776</td>
<td>203,733,672</td>
</tr>
<tr>
<td>Auxiliary income[^3]</td>
<td>44,808,473</td>
<td>42,482,482</td>
<td>44,137,590</td>
<td>44,292,387</td>
<td>45,681,796</td>
</tr>
<tr>
<td>Other income[^4]</td>
<td>107,622,303</td>
<td>112,510,985</td>
<td>113,117,342</td>
<td>120,376,674</td>
<td>130,300,243</td>
</tr>
<tr>
<td>Investment and other non-operating income</td>
<td>121,604,475</td>
<td>129,632,830</td>
<td>232,501,280</td>
<td>268,234,770</td>
<td>402,329,746</td>
</tr>
</tbody>
</table>

TOTAL REVENUE $4,495,768,037 $4,480,444,361 $4,999,342,760 $5,225,221,554 $5,878,442,025

Sources of revenue (in millions)

$4,573.80 | Net Patient Revenue

$402.30 | Investment and Other Non-Operating Income

$130.9 | Other Income

$45.9 | Auxiliary Income

$209.70 | State Appropriated General Revenue

$516. | Restricted Grants and Contracts, Philanthropy

\[^1\] Amounts discounted from established rates as a result of agreements with third-party payors, including Medicare, Medicaid and insurance companies. Also includes deductions associated with indigent care and bad debt.

\[^2\] Includes support for parking, food and gift shop services, as well as general institutional support (e.g., information technology, human resources, administration, development activities, etc.).

\[^3\] Includes tuition and student fees, Children's Art Project sales, management fees and other sources.

\[^4\] Includes support for parking, food and gift shop services, as well as general institutional support (e.g., information technology, human resources, administration, development activities, etc.).

MD Anderson Annual Report FY2019

MD Anderson provided more than $238.6 million in uncompensated care to Texans with cancer in FY19.*

*This figure includes uncompensated costs of care for patients who either have no insurance or are underinsured, or whose care was not fully covered by government-sponsored health programs.

Uses of revenue

<table>
<thead>
<tr>
<th></th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>$988,542,371</td>
<td>$965,040,923</td>
<td>$745,481,237</td>
<td>$750,400,856</td>
<td>$774,312,061</td>
</tr>
<tr>
<td>Instruction, academic support and public service</td>
<td>230,871,577</td>
<td>234,488,229</td>
<td>248,155,843</td>
<td>257,216,738</td>
<td>262,166,575</td>
</tr>
<tr>
<td>Patient care</td>
<td>2,268,872,960</td>
<td>2,644,165,329</td>
<td>2,656,839,231</td>
<td>2,703,124,497</td>
<td>2,888,325,463</td>
</tr>
<tr>
<td>Facilities and depreciation</td>
<td>506,972,014</td>
<td>556,277,985</td>
<td>562,964,579</td>
<td>572,428,945</td>
<td>586,656,058</td>
</tr>
<tr>
<td>Institutional support, auxiliary and other[^4]</td>
<td>195,829,953</td>
<td>196,060,122</td>
<td>197,031,230</td>
<td>195,161,823</td>
<td>203,019,040</td>
</tr>
<tr>
<td>Allocation to capital plan (for future projects to replace and improve facilities and technology)</td>
<td>566,878,529</td>
<td>207,532,714</td>
<td>698,454,651</td>
<td>768,890,639</td>
<td>955,067,239</td>
</tr>
</tbody>
</table>

TOTAL EXPENSES $4,495,768,037 $4,480,444,361 $4,999,342,760 $5,225,221,554 $5,878,442,025

Uses of revenue (in millions)

$955.0 | Allocation to Capital Plan

$203.0 | Institutional Support, Auxiliary and Other\[^4\]

$585.7 | Facilities and Depreciation

$3,088.3 | Patient Care

$794.2 | Research

$262.2 | Instruction, Academic Support and Public Service

$348.1 | Other (International/ Self Pay/Other)

$84.8 | Indigent

$445.6 | Medicare

$5,294.8 | Managed Care

$585.7 | Facilities and Depreciation

Gross revenue by payor classification (in millions)

$5,294.8 | Managed Care

$209.30 | Medicaid

$4,045.6 | Medicare

$84.8 | Indigent

$445.6 | Other (International/ Self Pay/Other)

$348.1 | Other (International/ Self Pay/Other)

$5,294.8 | Managed Care

MD Anderson provided more than $238.6 million in uncompensated care to Texans with cancer in FY19.*

*This figure includes uncompensated costs of care for patients who either have no insurance or are underinsured, or whose care was not fully covered by government-sponsored health programs.

64 65
### Sources of research expenditures

<table>
<thead>
<tr>
<th></th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External funding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal grants, contracts</td>
<td>$161,170,908</td>
<td>$155,543,499</td>
<td>$162,501,117</td>
<td>$173,899,865</td>
<td>$179,405,413</td>
</tr>
<tr>
<td>Private industry grants, contracts</td>
<td>$8,076,353</td>
<td>$8,645,654</td>
<td>$12,756,609</td>
<td>$14,666,018</td>
<td>$156,234,119</td>
</tr>
<tr>
<td>Philanthropy, foundations</td>
<td>$72,455,257</td>
<td>$66,746,314</td>
<td>$181,961,241</td>
<td>$171,352,086</td>
<td>$164,033,426</td>
</tr>
<tr>
<td><strong>Total external funding</strong></td>
<td>$241,683,480</td>
<td>$241,652,061</td>
<td>$344,108,548</td>
<td>$344,507,568</td>
<td>$506,064,957</td>
</tr>
<tr>
<td><strong>State funding allocated for research</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State-appropriated general revenue</td>
<td>$15,005,173</td>
<td>$14,991,540</td>
<td>$15,021,736</td>
<td>$15,720,026</td>
<td>$16,480,661</td>
</tr>
<tr>
<td>Tobacco settlement receipts</td>
<td>$13,277,890</td>
<td>$12,186,002</td>
<td>$13,453,222</td>
<td>$15,590,115</td>
<td>$15,296,590</td>
</tr>
<tr>
<td>CPTRT</td>
<td>$10,045,453</td>
<td>$9,273,540</td>
<td>$9,232,732</td>
<td>$8,999,386</td>
<td>$9,415,637</td>
</tr>
<tr>
<td>Total state funding</td>
<td>$35,328,416</td>
<td>$26,456,772</td>
<td>$37,705,486</td>
<td>$43,709,537</td>
<td>$41,792,887</td>
</tr>
<tr>
<td><strong>Internal funding allocated for research</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital operating margins</td>
<td>$188,809,206</td>
<td>$193,071,941</td>
<td>$197,850,259</td>
<td>$198,687,225</td>
<td>$205,603,625</td>
</tr>
<tr>
<td>Institutional grants*</td>
<td>$111,374,685</td>
<td>$115,938,206</td>
<td>$118,849,952</td>
<td>$122,036,708</td>
<td>$121,893,291</td>
</tr>
<tr>
<td>Total internal funding</td>
<td>$299,183,891</td>
<td>$313,010,107</td>
<td>$316,790,211</td>
<td>$320,724,033</td>
<td>$327,496,916</td>
</tr>
<tr>
<td><strong>TOTAL RESEARCH EXPENDITURES</strong></td>
<td>$780,567,447</td>
<td>$771,281,407</td>
<td>$844,174,582</td>
<td>$862,882,584</td>
<td>$932,559,075</td>
</tr>
</tbody>
</table>

*Philanthropic donations to the institution internally designated to support research and PRS funds internally allocated to support research activities.

### Clinical profile

<table>
<thead>
<tr>
<th></th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital admissions</td>
<td>26,167</td>
<td>27,391</td>
<td>28,793</td>
<td>29,118</td>
<td>30,339</td>
</tr>
<tr>
<td>Patient days</td>
<td>302,483</td>
<td>198,080</td>
<td>202,411</td>
<td>207,071</td>
<td>218,217</td>
</tr>
<tr>
<td>Average daily census</td>
<td>574</td>
<td>681</td>
<td>777</td>
<td>587</td>
<td>618</td>
</tr>
<tr>
<td>Average length of stay</td>
<td>7.2</td>
<td>7.2</td>
<td>7.0</td>
<td>7.1</td>
<td>7.2</td>
</tr>
<tr>
<td>Average number of inpatient beds</td>
<td>695</td>
<td>681</td>
<td>681</td>
<td>673</td>
<td>698</td>
</tr>
<tr>
<td>Outpatient clinic visits, treatments, procedures</td>
<td>1,440,694</td>
<td>1,404,329</td>
<td>1,441,403</td>
<td>1,458,076</td>
<td>1,547,197</td>
</tr>
<tr>
<td>Pathology/laboratory medicine procedures</td>
<td>12,324,917</td>
<td>12,073,679</td>
<td>12,700,333</td>
<td>13,280,436</td>
<td>13,262,586</td>
</tr>
<tr>
<td>Diagnostic imaging procedures</td>
<td>530,590</td>
<td>524,044</td>
<td>574,018</td>
<td>611,190</td>
<td>615,053</td>
</tr>
<tr>
<td>Total active clinical protocols</td>
<td>1,197</td>
<td>1,603</td>
<td>1,556</td>
<td>1,526</td>
<td>1,364</td>
</tr>
</tbody>
</table>

### Education profile

<table>
<thead>
<tr>
<th></th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
<th>FY 2018</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical residents, fellows</td>
<td>1,907</td>
<td>1,809</td>
<td>1,683</td>
<td>1,715</td>
<td>1,988</td>
</tr>
<tr>
<td>Research trainees</td>
<td>1,890</td>
<td>1,847</td>
<td>1,773</td>
<td>1,791</td>
<td>1,800</td>
</tr>
<tr>
<td>Observers, visitors, special programs</td>
<td>752</td>
<td>838</td>
<td>906</td>
<td>837</td>
<td>876</td>
</tr>
<tr>
<td>Nursing trainees</td>
<td>1,252</td>
<td>1,459</td>
<td>1,566</td>
<td>1,444</td>
<td>1,550</td>
</tr>
<tr>
<td>Student programs participants</td>
<td>817</td>
<td>810</td>
<td>806</td>
<td>888</td>
<td>900</td>
</tr>
<tr>
<td>School of Health Professions students</td>
<td>303</td>
<td>317</td>
<td>359</td>
<td>357</td>
<td>337</td>
</tr>
<tr>
<td><strong>TOTAL TRAINES</strong></td>
<td>6,621</td>
<td>7,004</td>
<td>7,091</td>
<td>7,082</td>
<td>6,887</td>
</tr>
</tbody>
</table>

### Workforce

- **Total Employees**: 21,719
- **Faculty**: 1,782
- **Student Programs Participants**: 1,118
- **Volunteer Hours**: 1,000
- **Total Volunteer Hours**: 120,431

### Sources of research expenditures

- **Federal grants, contracts**: $161,170,908
- **Private industry grants, contracts**: $8,076,353
- **Philanthropy, foundations**: $72,455,257
- **Total external funding**: $241,683,480

### State funding

- **State-appropriated general revenue**: $15,005,173
- **Tobacco settlement receipts**: $13,277,890
- **CPTRT**: $10,045,453
- **Total state funding**: $35,328,416

### Internal funding

- **Hospital operating margins**: $188,809,206
- **Institutional grants**: $111,374,685
- **Total internal funding**: $299,183,891

### Total Research Expenditures

- **Total research expenditures**: $780,567,447

### Education profile

- **Clinical residents, fellows**: 1,907
- **Research trainees**: 1,890
- **Observers, visitors, special programs**: 752
- **Nursing trainees**: 1,252
- **Student programs participants**: 817
- **School of Health Professions students**: 303

### Total Training

- **Total Trainees**: 6,621
Total philanthropic gift support by purpose

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>$160,328,326</td>
</tr>
<tr>
<td>Annual Unrestricted/Undesignated</td>
<td>$17,943,122</td>
</tr>
<tr>
<td>Education/Prevention/Patient Assistance</td>
<td>$7,419,644</td>
</tr>
</tbody>
</table>

Total philanthropic gift support by type

<table>
<thead>
<tr>
<th>Cash gifts</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>$14,359</td>
</tr>
<tr>
<td>Foundations</td>
<td>$128,977,712</td>
</tr>
<tr>
<td>Individuals</td>
<td>$70,934,032</td>
</tr>
<tr>
<td>Organizations</td>
<td>$3,570,018</td>
</tr>
<tr>
<td>Trusts and estates</td>
<td>$56,495,283</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$106,479,404</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pledge gifts</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>$11,120,812</td>
</tr>
<tr>
<td>Foundations</td>
<td>$9,197,613</td>
</tr>
<tr>
<td>Individuals</td>
<td>$1,204,831</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$20,522,256</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gifts-in-kind</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>$14,359</td>
</tr>
<tr>
<td>Foundations</td>
<td>$0</td>
</tr>
<tr>
<td>Individuals</td>
<td>$27,748</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$42,049</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$185,491,092</td>
</tr>
</tbody>
</table>

1. Donor-directed gifts to research in all mission areas.
2. Donor-directed gifts to research in all mission areas.

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Kelsey L. Warren, Dallas
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Francois A. Frederick, J.D.
General counsel to the Board of Regents

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John Zaros, M.D.
Executive vice chancellor for Health Affairs

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James C. Mulva
Immediate past chair

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MD ANDERSON CANCER NETWORK®

www.mdanderson.org/cancernetwork

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• Baptist MD Anderson Cancer Center (Jacksonville, FL)
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• Scripps MD Anderson Cancer Center (La Jolla, CA)
• UTHealth San Antonio MD Anderson Cancer Center (San Antonio, TX)

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• Banner MD Anderson Cancer Center at McKee Medical Center (Loveland, CO)

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Kelly Sanford, program manager, Creative Communications

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