

# OUT IN FRONT

2020

## HEALTHY AGING

### COVER STORY

#### A golden opportunity

*Paradigm shifts for treating prostate cancer*

#### The ultimate sacrifice

*A son's death saves his father's life and sheds light on a lurking killer*

#### Family history

*Three generations of UTHealth dentists under one roof*



UTHealth® | The University of Texas  
Health Science Center at Houston

# UTHealth's Comprehensive Campaign

To improve health care and the well-being of our families, friends, and neighbors, we are planning for our first comprehensive campaign focusing on three themes that resonate most with our community.

## BRAIN AND BEHAVIORAL HEALTH



Brain and Behavioral Health conditions are common and affect multiple areas of a person's life including movement, thought, mood, body function, and mental state. We are susceptible to a myriad of brain-related disorders throughout every stage of life and even more so as we age.

## HEALTHY AGING



Healthy Aging is all-encompassing, spanning from preconception to geriatric care and integrating all organ systems in the body. We care for families across the life continuum to help our community celebrate more of life's precious moments.

## WOMEN'S AND CHILDREN'S HEALTH



Women's and Children's Health begins before we are born, and it carries us through some of our most treasured moments—from genetic counseling for expectant mothers to pediatric medicine and instructional tools that address the education and developmental needs of all children.

### STORY LEGEND

The many faces of UTHealth are dedicated to delivering exceptional care to people of all ages, training the health care leaders of tomorrow, and conducting groundbreaking research to improve the health and well-being of our communities. Each story in *Out in Front* is aligned with one or more of these mission areas, indicated by the icons below.



EDUCATION



RESEARCH



PATIENT CARE

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### ABOUT THE COVER



When James F. Kellam, MD, a UTHealth orthopedic surgeon, learned he had prostate cancer, he knew he faced some tough decisions. What he didn't know is his colleague, Steven E. Canfield, MD, could hold the key to sending his cancer into remission using gold nanoparticle technology.

It sounds like alchemy—transmuting gold into a cure for prostate cancer. But through a clinical trial, Canfield is doing just that. He intravenously infuses patients with gold nanoparticles, which he activates with a laser to destroy cancer cells.



“Every age has  
its beautiful moments.”

Albert Einstein



## WITH GRATITUDE

It is often said that age is just a number—and nothing impacts how young or old we feel more profoundly than our health. At UTHealth, we have a comprehensive approach to healthy aging that helps patients feel their best at every age and stage of their life.

In this year’s ***Out in Front: Healthy Aging*** publication, I am pleased to share with you inspiring stories that highlight the extraordinary contributions of students, faculty, and staff who are working together with patients, families, and donors to reimagine the picture of health as we age.

Through innovative programs, we are bridging public health services to improve well-being, developing technology to assist patients with memory disorders and their caregivers, advancing genetic research to prevent premature death in those with aortic disease, and so much more.

Thanks to your generosity, we are actively improving the health of our patients and communities through exceptional clinical care and research while educating the health professionals who will care for our family members across generations.

On behalf of the members of the UTHealth community who share your commitment to redefining aging, we simply say:  
**Thank you.**

**Giuseppe N. Colasurdo, MD**

UTHealth President  
Alkek-Williams Distinguished Chair





# A GOLDEN OPPORTUNITY

## PARADIGM SHIFTS FOR TREATING PROSTATE CANCER

James F. Kellam, MD, is an expert at maintaining composure and a steady hand. As an orthopedic surgeon who specialized in repairing trauma for most of his career, he has helped restore the lives of countless individuals in their most critical time of need. But when an annual physical indicated he might have prostate cancer, Kellam felt the anxiety crack his poise.

“You can do nothing and hope the cancer doesn’t advance, you can undergo radiation therapy, or you can have a terrible operation to remove the prostate,” he says. “I knew I would have to make some tough decisions.”

Unsure where to begin, Kellam asked a colleague for a recommendation. Without hesitation, she directed him to Steven E. Canfield, MD, a physician-scientist at McGovern Medical School at UTHealth who is developing groundbreaking therapies for people suffering from prostate or kidney cancer.



A man is diagnosed with prostate cancer **every 3 minutes.**

A death from prostate cancer occurs **every 17 minutes.**



**3.1+ million** prostate cancer survivors live in the United States.



During their lifetime, **1 in 9 men will be diagnosed** with prostate cancer.

*Based on statistics in the United States*



James F. Kellam, MD, (left) was unsure where to begin when he learned he had prostate cancer. As fate would have it, Steven E. Canfield, MD, (right) was investigating treatments for it just down the hall at McGovern Medical School at UTHealth.



Canfield confirmed that Kellam had prostate cancer and explained the traditional options—monitor the cancer’s progression, endure radiation therapy, or have a radical prostatectomy to remove the prostate.

Radiation therapy can last for eight weeks and require testosterone suppression therapy for up to two years, causing exhaustion, hot flashes, impotence, and weight gain. Recovery from a prostatectomy can take up to six weeks and may result in urinary incontinence for up to one year and permanent erectile dysfunction.

“All of a sudden I saw a glint in his eye,” says Kellam. “He told me there was another option.”



**Steven E. Canfield, MD**

C.R. Bard, Inc./Edward J. McGuire, MD,  
Distinguished Chair in Urology  
Chief, Division of Urology  
Professor, Department of Surgery  
McGovern Medical School at UTHealth

## A new gold treatment

“Because Dr. Kellam’s cancer was localized and not aggressive, he was a candidate for our clinical trial testing gold nanoparticle technology to eradicate prostate cancer,” says Canfield.

Kellam remembers staring at Canfield in disbelief: “You can give me a magic potion and wave a magic wand, and the cancer will disappear? Sign me up!”

The process involves an intravenous infusion of gold nanoparticles—microscopic spheres of silica enveloped in gold—that travel through the bloodstream to the tumor, saturating prostate cancer cells but not the surrounding healthy tissues. Then, guided by MRI, Canfield uses a laser to activate the nanoparticles, causing them to vibrate and destroy the cancer cells while leaving the normal tissue intact. In total, the nanoparticle therapy requires just a few hours, and patients can return to their lives immediately.

Kellam received his infusion in May 2019. He returned the next day, and Canfield used a laser to activate the nanoparticles and destroy the cancer cells.

“My only complaint was that the fluid bag, which contained a little more than \$5 worth of gold, was actually blue,” jokes Kellam.

Three months later, a biopsy showed no evidence of the cancer.

“I feel guilty,” he says. “A colleague was diagnosed with lung cancer around the time I found out I had prostate cancer, and he is suffering through radiation and chemotherapy, unable to leave his home. Meanwhile, I spent a total of a few hours with Dr. Canfield, and I’m cancer free.”

## Turning the tide against prostate cancer

In August 2019, Canfield’s team reported that one year out, the gold nanoparticle therapy successfully treated prostate cancer in 15 out of the 16 initial patients. The first round of the trial includes 45 patients across three sites: McGovern Medical School, the Icahn School of Medicine at Mount Sinai, and the University of Michigan Medical School. The second round, expanding the study to 100 patients, was launched in September 2019. Researchers hope it will lead to FDA approval.

“Prostate cancer is the most common non-skin cancer in the United States,” explains Canfield. “This treatment could change the lives of many men diagnosed with prostate cancer each year.”

Kellam hopes others continue to benefit from Canfield’s care and ingenuity.

“We have many incredible institutions in the Texas Medical Center, yet I didn’t think twice about choosing Dr. Canfield,” says Kellam. “Our faculty at UTHealth are among the best in the world. I can genuinely say I trust and respect my colleagues.”



Thanks to the gold nanoparticle treatment, Kellam (right) is able to celebrate more life events with his family, such as his son’s graduation from medical school. From left to right, Kellam’s wife, Lynda; daughter, Lindsay; and son, Patrick.



One of Kellam’s (second from left) chief responsibilities in the Department of Orthopedic Surgery at McGovern Medical School is to educate the next generation of leaders in the field.





**Brooks D. Cash, MD**

Dan and Lillie Sterling Professor  
in Clinical Gastroenterology  
Director, Division of Gastroenterology,  
Hepatology, and Nutrition  
Professor, Department of Internal Medicine  
McGovern Medical School at UTHealth

## TRUST YOUR GUT

DEVELOPING BETTER WAYS TO PREVENT  
AND TREAT COLORECTAL CANCER



With age comes wisdom, maturity, and grace. But getting older also slows us down, bringing creaking joints and gray hairs. While many of these changes are obvious, it is essential to monitor the invisible changes happening within our bodies. Brooks D. Cash, MD, is committed to helping people age healthily by detecting invisible changes in the gut that may lead to colorectal cancer.

**“Age is the greatest risk factor for developing colorectal cancer, and people should start regular screenings at age 50,” says Cash.**

Colorectal cancer usually begins as a polyp, a noncancerous growth on the inner wall of the colon or rectum. A polyp can take as many as 15 years to develop into cancer, and most people do not experience any symptoms until the disease is advanced.

Approximately 145,000 people in the United States are diagnosed with colorectal cancer each year, making it the third most common cancer. It is the second-leading cause of cancer-related deaths, responsible for an estimated 51,000 deaths in 2019.

Colorectal cancer is treatable when found early: The five-year survival rate of people with localized colorectal cancer is 90%. But once the cancer spreads to distant parts of the body, the five-year survival rate plunges below 15%.





This x-ray capsule, which is the size of a standard pill, provides a less invasive alternative to a colonoscopy.

“Unfortunately, about one in three Americans who should be tested for colorectal cancer have never been screened,” says Cash. “My goal is to remove the barriers that prevent people from getting screened and offer a variety of effective tests that appeal to the different comfort levels people have.”

Colonoscopy—where physicians insert a colonoscope (a thin, lighted tube) through the rectum into the colon to look for polyps or cancer—has long been the gold standard for colorectal cancer screening. However, many patients avoid the test because they fear discomfort or complications.

Cash is helping to develop an alternative to colonoscopy called colon capsule endoscopy, which may help more people adhere to screening guidelines. The colon capsule is a tiny camera patients swallow. It travels through

the gastrointestinal tract to take photos of the colon and detect polyps that are transmitted wirelessly. If physicians find a polyp, they can refer the patient to have a colonoscopy for further examination.

Cash is also developing an x-ray capsule test that works similar to colon capsule endoscopy but without needing to prepare the bowels. After the patient swallows the capsule, it captures x-rays of the colon. A special software recreates the x-rays into detailed images of the colon that can help physicians identify polyps.

“We keep patients at the center of everything we do by opening a dialogue with them and offering choices when it comes to colorectal screening,” says Cash. “At the end of the day, the best test is the one people will take.”



**H. Randolph Bailey, MD**

Professor, Department of Surgery  
McGovern Medical School at UTHealth

While Cash and his team specialize in making early diagnoses of colorectal cancer, their partnership with UTHealth colleagues at the UT Physicians Colon and Rectal Clinic allows them to help patients who have colorectal cancer plan for surgery. Led by H. Randolph Bailey, MD, the UT Physicians Colon and Rectal Clinic uses advanced techniques such as minimally invasive and robotic surgeries to treat colorectal cancer. UT Physicians is the clinical practice of McGovern Medical School.

“Our surgeons conduct more surgeries for colorectal cancer than any other group in Texas,” says Bailey. “The ability to collaborate with experts such as Cash and his team allows us to offer patients the most effective treatments with the best outcomes.”

“We’re like right hand, left hand,” says Cash. “Put us together, and we can treat anything in the colon.”

# GET YOUR SCREEN ON

In August 2019, the American College of Gastroenterology named Scott A. Larson, MD, PhD, and his UTHealth team from Harris Health Lyndon B. Johnson Hospital as winners of the 2019 SCOPY Award for best community awareness initiative by a hospital. SCOPY stands for Service Award for Colorectal Cancer Outreach, Prevention, and Year-Round Excellence, and the award recognizes excellence in community engagement, education, and awareness efforts for colorectal cancer prevention.

Larson’s project involved physicians, nurses, and technicians at Harris Health LBJ, who spread the message of colon cancer awareness to the community. The team raised awareness through outlets including local religious centers, barbershops, hospital events, and social media. They also took Harris Health System employees through a “megacolon” constructed with a series of inflatable tunnels.

“This award highlights the importance of promoting colon cancer awareness to underserved communities that may be apprehensive or unaware of the importance of screening,” says Larson.



**Scott A. Larson, MD, PhD**

Assistant Professor, Division  
of Gastroenterology, Hepatology,  
and Nutrition  
Department of Internal Medicine  
McGovern Medical School at UTHealth



# AN EYE ON THE FUTURE

MEDICAL STUDENT BRIDGES TECHNOLOGY WITH HEALTH CARE



**Kendall Kiser**  
McGovern Medical School Student

A plus sign can make a lot of difference. A doctor found this out when he hired a data scientist to create an algorithm—one that could analyze his notes and determine which patients with breast cancer had a high risk of recurrence after treatment.

The algorithm, adapted from one originally used by Facebook, disappointed the doctor with mediocre results. Then he noticed the program removed punctuation before analyzing his notes, a major problem because he used plus signs to indicate specific types of breast cancer. After modifying the algorithm to keep punctuation, its accuracy skyrocketed.

“You wouldn’t expect a data scientist to understand the importance of punctuation in clinical notes,” says Kendall Kiser, a fourth-year student at McGovern Medical School at UTHealth, who likes to tell the story to help others understand the importance of medical experts knowledge about health informatics. “This shows how you can’t just reuse an algorithm that Facebook created that was not built for health care.”

Kendall would not have understood algorithms at all before the fall of 2017, when during his third year of medical school he happened to attend a lecture by Jiajie Zhang, PhD. Zhang enthralled Kendall with the applications of artificial intelligence to medicine—specifically how an algorithm could distinguish between melanoma and harmless skin lesions with the accuracy of a board-certified dermatologist.

“He framed it by showing how these technologies will empower less specialized health care personnel to perform more specialized tasks,” says Kendall.

After doing his own research, Kendall decided to postpone his medical education to earn a master’s degree in biomedical informatics from UTHealth School of Biomedical Informatics. He worked with curriculum directors to condense the two-year program into one, graduating in May 2019.

“Now in addition to the technical skillsets I gained, I can speak the languages of medicine and information technology together,” he says. “That positions me as an interpreter between data scientists and the practitioners who will use their software.”

After he completes medical school, Kendall plans to specialize in radiation oncology—a technology-intensive field that uses advanced systems to target radiation beams at tumors while sparing healthy tissue. He anticipates his informatics background will help him communicate with software developers and perhaps create his own software based on clinical needs.

“Radiation oncologists draw lines to designate treatment areas,” he says. “Artificial intelligence algorithms are approaching the point of being able to do this, which would free physicians to focus on other aspects of care.”

In the medical field as a whole, Kendall sees tremendous potential for a doctor-technology bridge in electronic health records. In the last 10 years, these digital patient records have gained widespread use among physicians, who rely on them for nearly every aspect of documentation. However, some doctors find the systems ineffective and cumbersome, opening an opportunity to improve electronic health records with additional input from clinicians.

In a way, it illustrates the broader reason he earned a degree in informatics: to be a connection between technology—with all its potential—and the real people who use it every day.



Recognizing the importance of data in health care, medical student Kendall Kiser completed a master’s degree in biomedical informatics. He celebrated this milestone with commencement speaker Marie Lynn Miranda; his wife, Kirsten Siebach; and his mother, Susan Kiser (left to right).

“We need the voices of physicians, nurses, and every clinical provider who uses these systems,” he says. “Clinicians have an incredible opportunity to help shape the way we implement health information technologies in medicine.”

“Informatics holds vast potential in terms of what it can do for medicine,” says Zhang. “Having clinicians who also understand data science will really help bring that potential to life.”



**Jiajie Zhang, PhD**

The Glassell Family Foundation Distinguished Chair in Informatics Excellence  
Dean and Professor  
Director, National Center for Cognitive Informatics and Decision Making  
UTHealth School of Biomedical Informatics





## THE ULTIMATE SACRIFICE



A SON'S DEATH SAVES HIS FATHER'S LIFE AND  
SHEDS LIGHT ON A LURKING KILLER



At 24 years old, Benjamin Bradford  
was finding his way in life when an inexplicable  
condition brought things to a sudden halt.

Benjamin Bradford lived as if he knew his time was limited. The first of three sons born to Carol and Bruce Bradford, he grew up to become a loving older brother, a friend to many, and a hero to his father.

Like his father, Benjamin never met a stranger. His two greatest passions were people and golf, and after graduating high school, he worked alongside Bruce at the family's golf store in Katy, Texas. For nearly 60 hours each week, the father and son duo built a thriving business and became friends to many in the Katy community.

"Benjamin was coming into his own," says Bruce. "He would move mountains to help family and friends, and I was so proud to watch him become successful in business and life."

Late one night in July 2012, a searing abdominal pain struck Benjamin. His roommates rushed him to the emergency room as Benjamin agonized in pain.

Doctors struggled to pinpoint the cause of Benjamin's pain, concluding that his gall bladder was to blame. With the pain inexplicably intensifying, he stayed the night at the hospital with his mother at his bedside.

Benjamin's condition continued plummeting until the following afternoon when his heart stopped beating. Although doctors were able to revive him, his heart soon gave out again. At 24 years old, Benjamin—a healthy, flourishing young man—left this world.

"His doctors took me to that private room and told me they didn't know what happened," Bruce recalls. "They urged us to have Benjamin autopsied."



Dianna M. Milewicz, MD, PhD, and the John Ritter Foundation for Aortic Health joined the Bradfords at the inaugural Remembrin' Benjamin Golf Tournament in 2017.



**Dianna M. Milewicz, MD, PhD**

President George Bush Chair in  
Cardiovascular Medicine  
Director, Division of Medical Genetics  
Vice Chair, Department of Internal Medicine  
McGovern Medical School at UTHealth

Biochemistry and Cell Biology Program  
Genetics and Epigenetics Program  
MD Anderson UTHealth Graduate School



## Searching for answers

Over the next few days, the Bradfords learned Benjamin suffered an aortic dissection—a deadly condition where the inner layer of the aorta, the main vessel that carries blood from the heart to the body, tears. Doctors suggested they contact The John Ritter Research Program in Aortic and Vascular Diseases at UTHealth to learn whether Benjamin’s condition was genetic.

Led by Dianna M. Milewicz, MD, PhD, The John Ritter Research Program is improving the diagnosis, treatment, and public awareness of thoracic aortic disease to prevent premature deaths.

“Dr. Milewicz and her team helped us navigate the most difficult time of our lives,” says Bruce. “Thanks to them, we found that Benjamin had a mutation in the ACTA2 gene, which caused his aortic dissection. We also learned that our family was at risk of suffering from the same genetic mutation.”

With help from The John Ritter Research Program, Bruce, his wife, and his two sons received genetic testing and cardiovascular imaging to detect thoracic aortic disease. None of them had the same mutation in the ACTA2 gene, but doctors found Bruce had an aortic aneurysm through the imaging.

“Had doctors not screened my aorta as a result of my son’s death, I almost certainly would have suffered an aortic dissection,” says Bruce. “With the sacrifice of his life, Benjamin alerted doctors to my condition and saved my life.”

Siddharth Prakash, MD, PhD, who works with Milewicz at The John Ritter Research Program, now regularly monitors Bruce’s aorta to minimize the risk of dissection. Bruce maintains his health using medication to lower his blood pressure and relax his blood vessels, reducing strain on his aorta.

## A hole in one

In 2017, the Bradfords established Remembrin’ Benjamin, Inc., a nonprofit organization that hosts an annual golf tournament each July to support The John Ritter Research Program.

“It is a way for us to honor Benjamin and hopefully save a life,” says Bruce.

The inaugural Remembrin’ Benjamin Golf Tournament teed off in July 2017. Bruce had planned to raise about \$20,000, but an outpouring of community support brought in \$40,000. The total has grown each year since, resulting in more than \$150,000 for the research program. Expanding their fundraising initiatives in 2019, Remembrin’ Benjamin also led a campaign to raise funds for The John Ritter Research Program on UTHealth’s online crowdfunding platform.

“We are honored to share the mission of Remembrin’ Benjamin to prevent early deaths from thoracic aortic disease,” says Milewicz. “Their support has been remarkable in helping us find the genetic triggers that cause aortic dissections.”

“My hope is that no other family has to suffer the heartbreak and loss that we did,” says Bruce. “I’m grateful I was able to spend five years working alongside Benjamin before he left us, and I will always honor his memory.”



**Siddharth Prakash, MD, PhD**

Associate Professor, Division of Medical Genetics  
Department of Internal Medicine  
McGovern Medical School at UTHealth

Genetics and Epigenetics Program  
MD Anderson UTHealth Graduate School

# LOVE FOR LIVIE

A LITTLE GIRL WITH A BIG HEART LEAVES  
BEHIND AN EXTRAORDINARY LEGACY

Nancy Petrera and Justin Cohen welcomed their beautiful daughter Olivia (Livie) into the world on May 30, 2015. Olivia came home as a healthy bundle of joy who made life easy for her first-time parents—she slept well, she ate regularly, and she rarely cried. But less than two weeks later, Olivia began suffering from inexplicable conditions including congenital heart defect, high blood pressure affecting her lungs, dilated pupils, seizures, and abnormalities on her brain scans.

Nancy began searching for answers online and found an article published by Milewicz and her team at The John Ritter Research Program, which identified a new disease called multisystemic smooth muscle dysfunction syndrome (MSMDS).

MSMDS is a rare disease that impairs the activity of smooth muscle throughout the body, causing widespread problems including aortic and cerebrovascular disease. Milewicz’ team discovered a certain mutation in the ACTA2 gene could cause this disease.

Genetic testing confirmed Livie had the syndrome, and Nancy and Justin decided to help advance research on the condition by supporting Milewicz’ work at The John Ritter Research Program. Their first contribution helped Milewicz launch preclinical studies to reveal the genetics behind MSMDS.

As Nancy and Justin began planning to host the inaugural Love for Livie Legacy Benefit to raise more support for Milewicz, Olivia caught a virus just before her second birthday. After fighting for her life for 12 days, she passed away surrounded by loved ones.

“We felt the best way to honor our daughter and prevent other families from suffering heartbreak was to push forward with the benefit,” says Nancy.

In partnership with the John Ritter Foundation for Aortic Health, Nancy and Justin hosted the Love for Livie Legacy Benefit in 2017 and 2018, raising approximately \$230,000 for research in MSMDS at The John Ritter Research Program.

“There is still so much that we don’t know about this syndrome,” says Milewicz. “But Nancy and Justin and supporters like the John Ritter Foundation for Aortic Health are helping us shed light on this devastating disease to bring hope to other families.”



Olivia Petrera-Cohen condensed a lifetime of laughter and love into two brief years. Her parents, Nancy Petrera and Justin Cohen, honor her legacy by raising awareness of multisystemic smooth muscle dysfunction syndrome and supporting research in search of a treatment.



# AT THE INTERSECTION OF CARE

BRIDGING SERVICES THROUGH PUBLIC HEALTH TO IMPROVE WELL-BEING

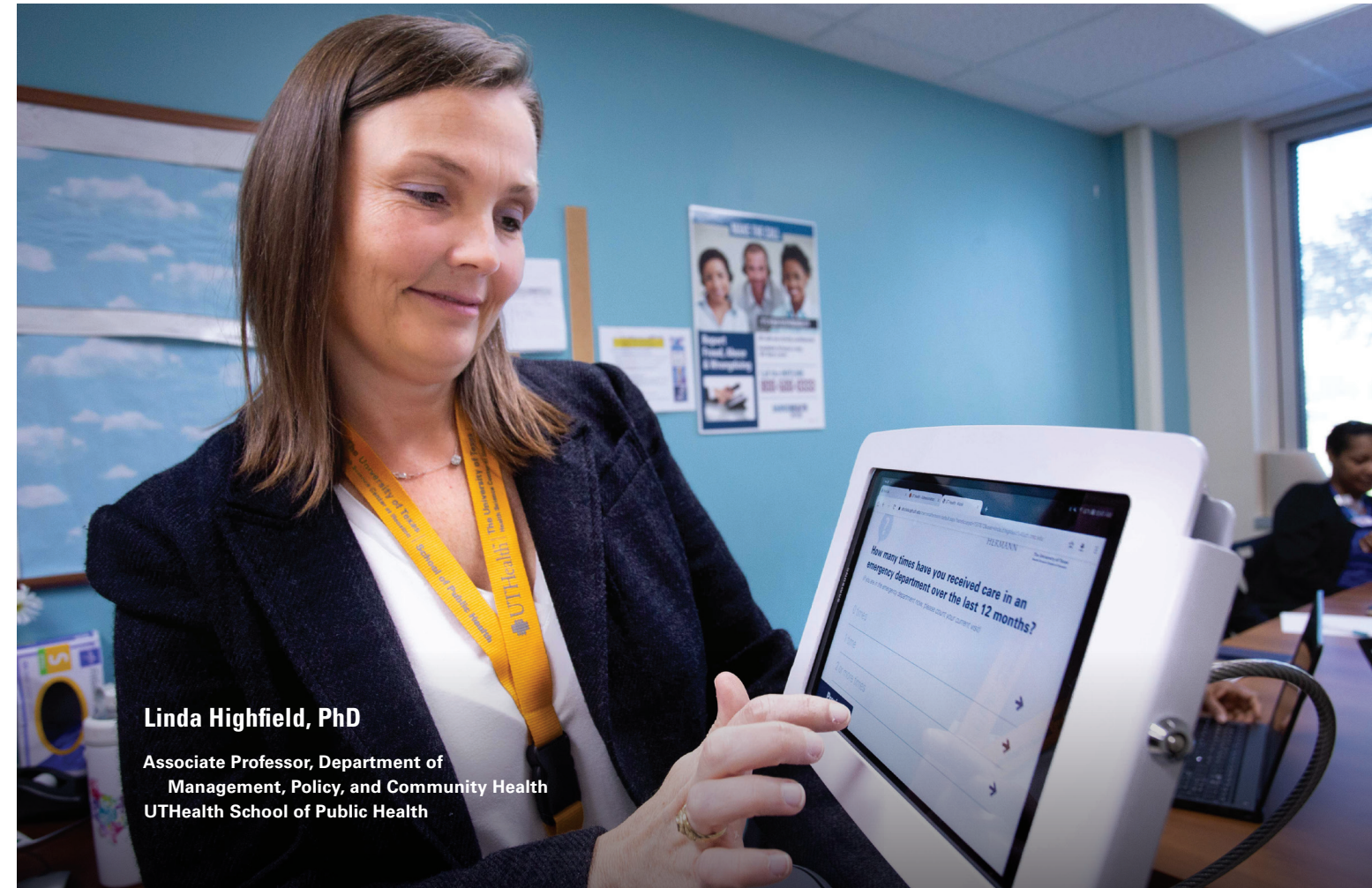


A life-changing illness caused by a genetic predisposition or an unhealthy lifestyle choice can hurl an individual's life into an unexpected and sudden flurry of motion. But for some, it's a slower build caused by social factors such as food insecurity or lack of transportation.

"My team encountered a patient who had been in the emergency department 50 times over the course of a year because he was diabetic and not getting the food he needed," says Linda Highfield, PhD, principal investigator of an innovative project to address social factors that affect the health of Medicare and Medicaid beneficiaries in Harris County. Along with one of the highest uninsured rates in the nation, Harris County has a poverty rate of nearly 17%.

"What motivated me to focus on public health was recognizing that where people live and how they live affects their health," explains Highfield, adding that 80% of health outcomes are driven by factors outside of health care.

"If you don't have food or a stable home, you can't be healthy."



**Linda Highfield, PhD**

Associate Professor, Department of Management, Policy, and Community Health  
UTHealth School of Public Health

Led by Highfield and funded by the Centers for Medicare & Medicaid Services—part of the United States Department of Health and Human Services—the five-year project began in 2017 at UTHealth School of Public Health in partnership with community and clinical partners, including UT Physicians, Memorial Hermann-Texas Medical Center, and Harris Health System.

The team began by building an electronic questionnaire to assess five social determinants of health: housing insecurity, food insecurity, transportation, interpersonal violence, and ability to pay utility bills. The questionnaire is designed to not disrupt the current workflow of clinical sites and to automate processes as much as possible.

Through an innovative public health project, researchers from UTHealth are screening Medicare and Medicaid patients for five social factors related to health.



**Housing insecurity**



**Food insecurity**



**Transportation**



**Personal safety**



**Difficulty paying bills**





Using a portable electronic questionnaire, Linda Highfield, PhD, (left) and her teammate Gayla Ferguson, MPH, (right) train health care workers to assess social factors that may affect their patients' health.

When a patient is scored as high risk for poor health outcomes on the questionnaire at any of the partner clinical sites, the health care team seamlessly accesses a database of 550 resources in Harris County. Thanks to geographic information system software, they are able to identify resources closest to the patient and find organizations that provide more than one resource at a time, increasing the efficiency and likelihood of the patient completing social services.

"We are seeing about 40% of our patients are at high risk," explains Highfield. Since switching to the new system, Highfield says the research team's productivity has increased six-fold.

By December 2019, Highfield's team screened approximately 6,400 beneficiaries. Nearly 45% were identified as having a social need and referred to community resources.

Furthermore, the system was built to be easily scalable across the nation with the majority of the work involving the creation of the local community's resource list. "We have received a lot of requests from other groups wanting to expand the project, particularly in rural parts of the community," says Highfield. "It's far less costly and more efficient to address health issues up-stream, and we can get a much better return on investment."

But it is the individuals who truly inspire Highfield and her team. "While in the emergency department, we screened a Medicaid patient who had been on her way to her husband's funeral when she was involved in a vehicular accident," shares Highfield.

Using the project's system, Highfield and her team uncovered that the patient was deeply concerned about her living situation, food, and transportation now that her husband was deceased. She did not know how she could remain in her current home, which was in need of repairs, or how she would continue to get food.



"Our team spent the next several months working through the fragmented system of local organizations to get nearby agencies to repair her home on multiple occasions and to connect her with food assistance," says Highfield. "Her story is one of many that keep me going every day."





# FAMILY HISTORY

THREE GENERATIONS  
OF UTHealth DENTISTS  
UNDER ONE ROOF



Wednesday is when members of the Van Wart family take a day off from work to concentrate on family and personal matters. It also provides an opportunity to sit and talk about what it is like for three generations of Van Warts to work side-by-side in the family business.

"A lot of families probably could not do it, but to be honest, we're so busy all day," laughs Christina Noblett-Thomas, DDS '18. Christina is the latest member of her family to practice at Van Wart Family Dentistry in Houston after graduating from UTHealth School of Dentistry in May 2018. "It's very rare that we get to sit down together and have lunch, but it's nice having my mom there as a mentor."

Christina's mother, Sherry Van Wart-Noblett, DDS '88, says her dad, William Van Wart, DDS '57, encouraged his two daughters to be independent.

"My generation was the first generation that said women can have their own careers to support themselves," says Sherry. "My older sister is a retired nurse. My other sister, Tammy (Van Wart-Hemann, DDS '85), is a dentist with us. My other daughter, Nicole, graduated from Cizik School of Nursing at UTHealth in 2018. My niece went to The University of Texas Medical Branch at Galveston for nursing school and works in a plastic surgeon's office. I can't imagine women of my generation not doing what we've done: getting an education, stimulating your brain, growing, adding to society, and raising your own children to do so."





Nicole Noblett is the family's latest graduate from a UTHealth school in August 2018.

Sherry also points out that the School of Dentistry went from having no female students when her father graduated to 30% of the enrollment when she graduated 31 years later. Today, women make up about 56% of the school's students.

William retired from dental work in 1997, shifting his focus to the practice's paperwork and payroll. He says he was happy and surprised that his daughters and granddaughter decided to become dentists. "It surprised me when Christina said she was going to be a dentist, just like her mother," he remembers.

Christina first decided on dentistry when she applied for college. Her father is an engineer, and she excels in math, but an aptitude test showed she was also good at crafts, which was a good fit with dentistry. Also, her mother was a big influence. "Growing up and having my mom coming to my school events, I learned that dentistry is great career choice," she says. "You get to be your own boss, and it allows for flexibility. Why would I not go into this?"

Christina says another advantage of working in a family practice is seeing patients who become like family. "Years ago, I was seeing five generations in one family, from the great-great-grandmother to the great-great-grandchild," Sherry says.

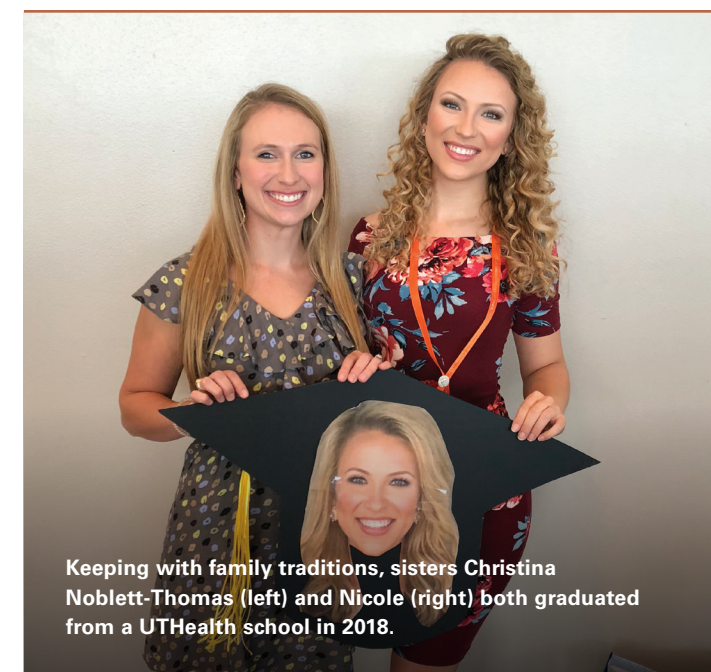
"My mom has a family she's been seeing forever," Christina adds. "They now live in London, but every time they come back to the United States, they make a dental appointment to come to see her."

"We're so blessed," says Sherry. "Christina's first patient was a fellow I grew up with. He saw my dad. He saw me. And he wanted to be the first patient to see all three generations."

Sherry's philanthropic goals are as straightforward as her career goals. She has consistently supported programs related to the schools of dentistry and nursing. "There are certain things I feel passionate about, and UTHealth is one of them," explains Sherry. "It has given me my career and helped me provide for my family. And as I've gotten older, I am able to do more. I think it's part of maturing, of who you are."

The conversation turned into a chance for Christina to look into the future, to that time when her children start thinking about college and careers. Would she encourage them to follow in the family tradition? "My mom never said I had to become a dentist," says Christina. "We'll probably do the same with our kids and make it more of a fun atmosphere instead of something they have to do."

Regardless of the path they choose, the next generation of Van Warts will have the role models to help them make the best decision.



Keeping with family traditions, sisters Christina Noblett-Thomas (left) and Nicole (right) both graduated from a UTHealth school in 2018.



For Christina (center), receiving her white coat was a milestone in joining the family dental practice with her grandfather William Van Wart, DDS '57 (left), and her mom, Sherry Van Wart-Noblett, DDS '88 (right).





# EUREKA!

FOR ONE RESEARCHER, LINK BETWEEN ORAL HEALTH AND OVERALL HEALTH BECOMES PERSONAL



At first, neurons and saliva seemed worlds apart to Cameron Jeter, PhD.

A brain scientist by training, she studied traumatic brain injury and neurological disorders like Tourette syndrome at The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences, where she earned an appointment to the school's faculty.

As UTHealth School of Dentistry placed increasing emphasis on the connection between oral health and overall health—including the brain—they asked Jeter to join their faculty as well.

"I didn't know how I was going to use my neuroscience expertise on oral health when I joined," she remembers.

The answer was unexpected. Within a year, her father developed parkinsonism, a general term for a group of neurological disorders with movement problems seen in Parkinson's disease.

"My eureka moment was when I realized symptoms of Parkinson's disease include poor swallowing and that I could improve my dad's health and the health of others who share the same challenges brought on by their conditions," says Jeter.



**Cameron Jeter, PhD '10**

Associate Professor, Department of  
Diagnostic and Biomedical Sciences  
UTHealth School of Dentistry

Neuroscience Program  
MD Anderson UTHealth Graduate School

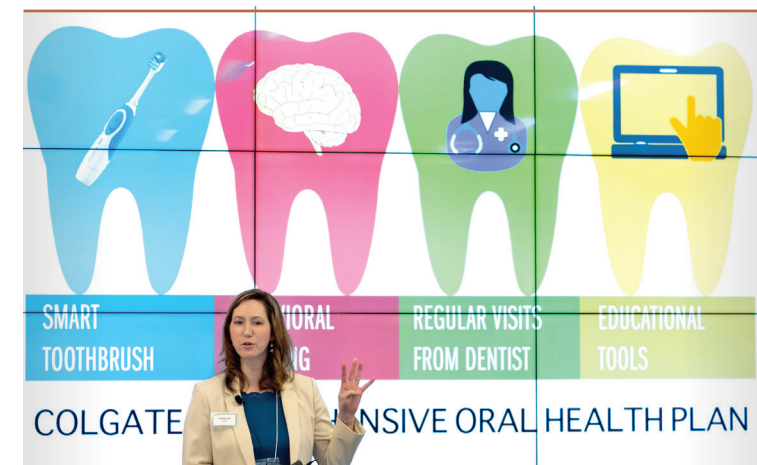
Parkinson's disease often leads to the inability to swallow saliva, which results in drooling and can change the bacterial content and the pH balance of the saliva. The act of swallowing helps to clear pathogens from the mouth.

"Drooling and difficulty swallowing can result in aspiration pneumonia, which is the leading cause of death in Parkinson's disease," says Jeter. And that led me to think about the link between oral health and morbidity in Parkinson's disease."

Jeter believes a high-tech solution can help Parkinson's patients and all older adults remove oral health barriers such as physical limitations and access to a dentist. Her research, funded by a Colgate-Palmolive grant, looks at whether a tablet app to track the oral hygiene of nursing home residents can lead to better oral health.

Even as she continues her study, she thinks about converting her idea into a smart toothbrush. "The challenge is collecting the necessary information, including pictures of the mouth, that can be shared with a dentist, while being affordable and easy to use," says Jeter.

Jeter's father passed away in 2014, but her determination continues. "We want to improve not only the quality of life for these individuals, but also the time they have with us," she notes.



Cameron Jeter, PhD (above) shared how she is combining her expertise in neurological disorders with dentistry to help individuals with parkinsonism, like her father, Randy Fahrenholtz, MD, MPH (below) at the inaugural Colgate Clinical Research Innovation Day.



# PHONE FOR HELP

USING A CELL PHONE TO HELP AT-RISK DEMENTIA PATIENTS AND CAREGIVERS



Today's cell phones pack more punch than the computers that helped land astronauts on the moon. Beyond its assortment of applications, a cell phone could be a lifesaver for an older adult suffering from dementia who is spiraling down to dangerous self-neglect.

Sabrina L. Pickens, PhD, RN, and Sandy M. Branson, PhD, RN, at Cizik School of Nursing at UTHealth are conducting a six-month pilot study of a modified telephone-based care program for homebound seniors with dementia who receive Meals on Wheels. The program is a modification of one used for veterans and their caregivers.

"We are testing whether the program could reduce caregiver burden and prevent overutilization of hospitalization and placement in long-term care for the recipient," says Pickens, a member of UTHealth Consortium on Aging.

Texas has more than 3.6 million residents over the age of 65. As that number increases, so does the need to address the health care issues of this population, particularly for those requiring home-based care because they cannot perform basic tasks such as managing finances, preparing meals, and giving themselves medication.

In many cases, the informal caregiver—usually a family member or friend—is overwhelmed from juggling a full-time job and children or living in another state, which leads to depression and anxiety in the caregiver, Pickens says.

The UTHealth study will assess recipients and caregivers through questions that focus on several areas, including memory problems, sleep, depression, capacity to provide care, medications, and pain. Pickens' team uses a web-based protocol to evaluate unmet needs and to provide information about resources and services that support those needs. They use the phone to follow up with the study participants.

"We hope this can identify the unmet needs of the caregiver and the recipient and link both to services that can help them," Pickens says.

Results from the program could lead to a larger study and, eventually, to better outcomes for everyone involved.

## ALZHEIMER'S DISEASE BY THE NUMBERS

**10%**

of people in the United States age 65 and older have Alzheimer's disease.

**\$234 billion**

in care is provided by unpaid caregivers.

**2 out of 3**

Americans with Alzheimer's disease are women.



**Sabrina L. Pickens, PhD, RN**

Assistant Professor, Nursing Systems  
Cizik School of Nursing at UTHealth



**Sandy M. Branson, PhD, RN**

Assistant Professor, Nursing Systems  
Cizik School of Nursing at UTHealth





# BEFORE AND AFTER

CLINICIANS AND SCIENTISTS TEAM UP  
TO SAFEGUARD PATIENTS AFTER SURGERY

The thought of undergoing surgery triggers anxiety in many of us—whether it is the first time or one of many, a minor or complex operation. The reassuring news, says Holger Eltzschig, MD, PhD, is that surgery has become safer over the years thanks to refined surgical techniques and advancements in anesthesia.

“Since the 1950s, we went from one out of 1,000 to now one out of 200,000 people dying from causes related to anesthesia,” Eltzschig says. “This is because we developed better ways to monitor patients, safer drugs, and a specialty training for anesthesiologists.”

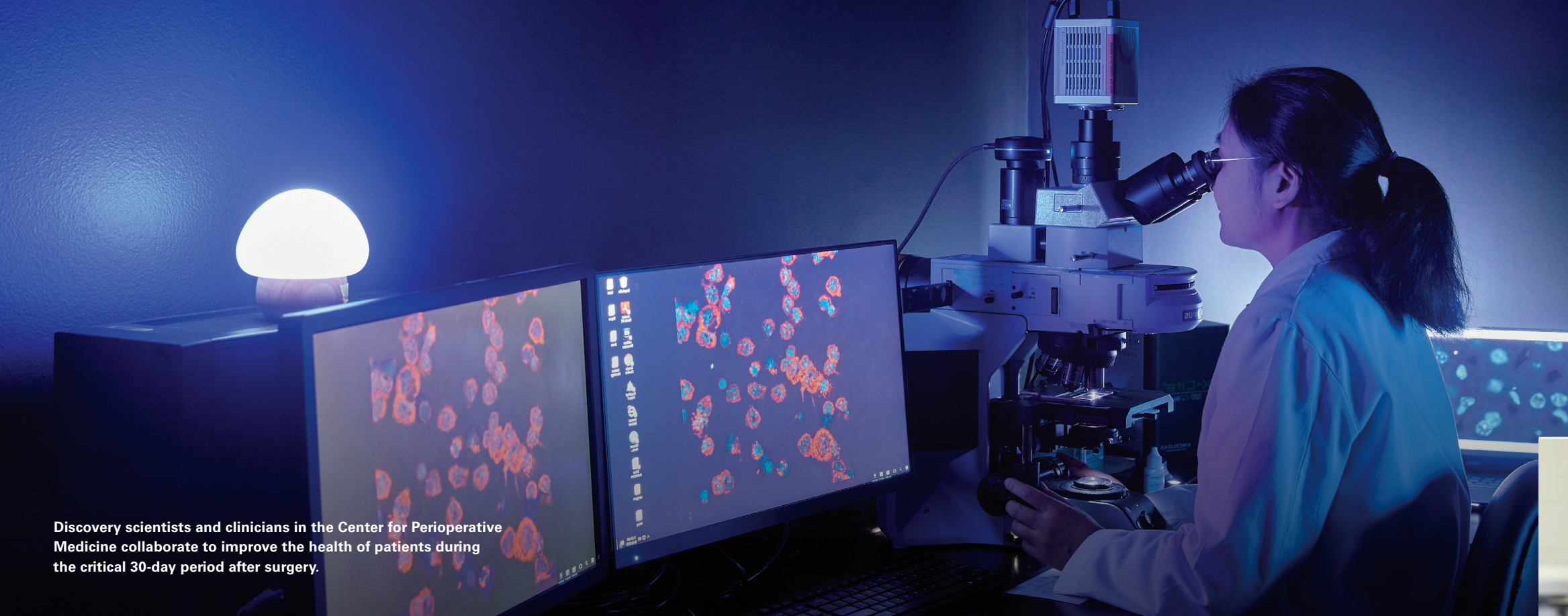
However, perioperative mortality—deaths related to the period after surgery—has remained unchanged.

“Patients often come out of the surgery actually quite healthy. The surgery goes well, but they develop some kind of perioperative organ injury,” explains Eltzschig. “It could be injury to the kidney, liver, heart, or lung. It’s really a problem.”

In fact, dying within 30 days following an operation is a leading cause of death in the United States and across the globe, resulting in at least 42 million deaths worldwide each year.

This inspired Eltzschig to establish the Center for Perioperative Medicine at McGovern Medical School at UTHealth. “UTHealth has a strong clinical enterprise, so we wanted to leverage this clinical environment in a highly collaborative way that is truly bench to bedside and then bedside to bench,” he explains.





Discovery scientists and clinicians in the Center for Perioperative Medicine collaborate to improve the health of patients during the critical 30-day period after surgery.

The center, comprising of more than 100 members across McGovern Medical School, fosters collaboration between discovery scientists and clinicians to identify novel treatment approaches to improve the health of patients undergoing major surgery, which can lead to common complications such as multiple organ failure and systemic inflammatory response syndrome. The interdisciplinary center includes anesthesiologists, surgeons, critical care physicians, physician-scientists, and discovery scientists from the fields of cancer and kidney, liver, heart, and lung disease.

Beginning in 2018, the group meets monthly to foster communication and connections among members. Junior and senior members have the opportunity to present their research for critique to a panel, mimicking the process similar to review by the National Institutes of Health, which strengthens the research and helps educate the next generation of physician-scientists.

Co-Director of the center and discovery scientist Changqing (Cynthia) Ju, PhD, collaborates with clinicians to understand the inflammatory mechanisms of acute and chronic liver disease to help develop methods to protect vital organs from surgery complications. She believes her research into the inflammatory response of the liver following surgery has implications for other organs as well.

“Following surgery, the innate immune system is triggered and can create a cytokine storm,” says Ju. Cytokines are cell-signaling molecules involved in the immune response that rouse cells toward sites of inflammation, infection, and trauma. These cytokines can overact, causing flu-like symptoms, tissue injury, and cell death. “If we can figure out the cellular and molecular causes of inflammation, then we can develop treatments to prevent and overcome it.”

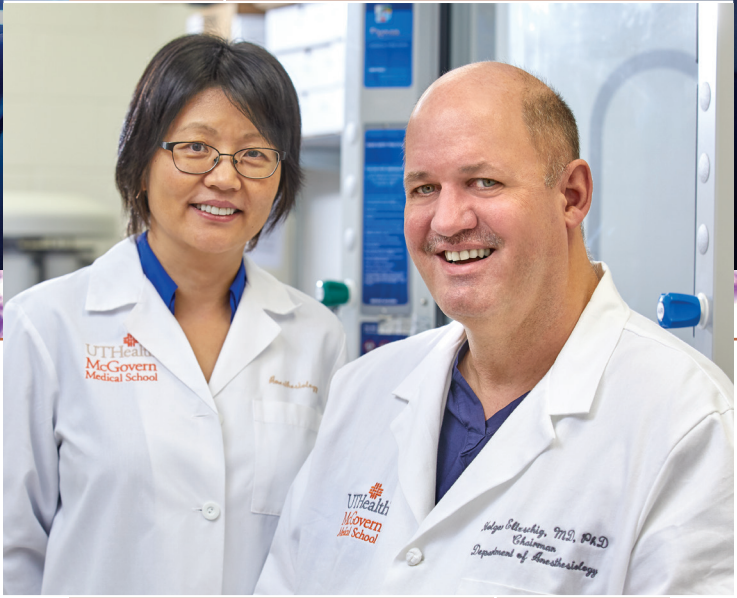
The symbiotic and collaborative nature of the center enables discovery scientists like Ju to integrate with physician-scientists, allowing physicians to ask clinically important questions in a discovery research environment and for discovery scientists to address questions from the laboratory in patients.

“We are still a young center, but we have been quite successful in getting people together to pursue collaborative research. Additional philanthropy will allow us to recruit exceptional research faculty to make a transformative impact on the patients who are getting care here,” explains Eltzschig. “We share one goal: We want to make surgery safer.”

**Changqing (Cynthia) Ju, PhD**

Joseph C. Gabel, MD Endowed  
Chair in Anesthesiology  
Roy M. and Phyllis Gough Huffington  
Distinguished Professor  
Professor and Vice Chair for Research,  
Department of Anesthesiology  
Co-Director, Center for  
Perioperative Medicine  
McGovern Medical School at UTHealth

Biochemistry and Cell Biology Program  
Immunology Program  
MD Anderson UTHealth Graduate School



**Holger Eltzschig, MD, PhD**

John P. and Kathrine G. McGovern  
Distinguished University Chair  
Professor and Chair, Department  
of Anesthesiology  
Associate Vice President,  
Translational Medicine  
Director, Center For Perioperative Medicine  
McGovern Medical School at UTHealth

Biochemistry and Cell Biology Program  
Immunology Program  
MD Anderson UTHealth Graduate School





# MOVING FORWARD >> >>

AFTER DODGING DEATH, CRAIG LIVES TO THE FULLEST WITH HELP FROM UTHealth RHEUMATOLOGIST

Craig Plumhoff's treatment team encouraged him to rise from his hospital bed and take a few steps. "I tried to walk, but I couldn't lift my legs," he says. "My hip flexors were being attacked."

What began as a persistent dry cough in 2006 soon afflicted Craig's breathing, which grew steadily worse as doctors, who diagnosed pneumonia, flooded him with antibiotics to no effect. He wound up in the hospital, where physicians informed his wife, Mary Leslie, that he might not survive unless they could decipher what was causing his illness.

"She would stay with me most of the day and then go home and cry at night," Craig says. "I was pretty much at death's door, but she and all of my family were a tremendous support."

Nearly a dozen specialists examined Craig for more than a week before determining he suffered from an autoimmune disease of some type. After stabilizing Craig's breathing, doctors encouraged him to start moving around again, at which point his inability to walk finally revealed the culprit. Known as polymyositis, the rare disease occurs when the body's immune system attacks muscle tissue. It can cause lung scarring—Craig's first symptom—but it mainly damages arm or leg muscles.

"With this kind of an illness, there are three ways it can go," Craig says. "It can go away, and you never have it again. Or you could receive treatment and keep it under control. Or it can't be controlled. In my case, I was very fortunate that my doctors were able to control it."

After leaving the hospital, Craig began treatment under the care of a graduate of McGovern Medical School at UTHealth who specialized in rheumatology. A regimen of immunosuppressant drugs kept the disease at bay, and soon Craig returned to his normal life.

When Craig's physician moved to Chicago six years later, he recommended that Craig continue his care with Shervin Assassi, MD, at UT Physicians, the clinical practice of McGovern Medical School. Since then, Craig has seen Assassi for regular checkups to assess his disease level and make any needed medication adjustments. Craig appreciates not only the high standard of care Assassi provides, but also the doctor's nearly constant accessibility and genial personality.

"I don't do well with doctors who act almost like machines," Craig says. "I want to talk to a real person. Dr. Assassi is very gracious and easy to talk with, and anytime I've had a question or a need, I can contact him, and he'll get back to me quickly."

Craig also serves as an ambassador for the Rheumatology Research Foundation, the largest private funder of research into autoimmune disorders. The foundation provides a platform for Craig—its first patient ambassador—to share with clinicians and researchers how great a difference their work can make.

"I do everything I can to show my appreciation for what rheumatology has done for me," he says. "Because without it, I would not be alive today."

"Craig has a great story," Assassi agrees. "He shows how advances in understanding and treating autoimmune diseases, combined with a strong physician-patient relationship, can help patients manage their conditions and live enjoyable lives."



With UTHealth keeping his autoimmune disease at bay, Craig Plumhoff can enjoy time with his wife, Mary Leslie, and grandchildren Mary Morgan, Catherine, Maddy, and Parker (left to right).

In addition to his appointments with Assassi, Craig diligently sticks to his medication and makes sure to get half an hour of aerobic exercise every day. Not only does he still breathe and move normally, but even with a suppressed immune system, he has yet to experience additional illnesses.

"I've been very blessed to have Dr. Assassi as my rheumatologist," Craig says. "He's dedicated to making sure my story continues to be a good one."



**Shervin Assassi, MD**

Professor, Division of Rheumatology and Clinical Immunogenetics  
Department of Internal Medicine  
McGovern Medical School at UTHealth





Our vision is to provide excellence above all in the quest to be an acknowledged leader in the collaboration to treat, cure, and prevent the most common diseases of our time through education, research, and patient care.

## ACADEMIC CLINICAL PRACTICES



### UT★Physicians

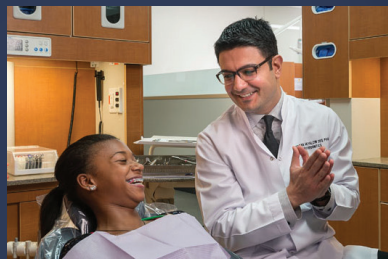
A Part of UTHealth

The medical group practice of McGovern Medical School

**2,000+** clinicians

**80** medical specialties and subspecialties

**1.8M+** patient visits a year



### UT★Dentists

The multidisciplinary group practice of the School of Dentistry



### UT★Health Services

The nurse-managed care center of Cizik School of Nursing

## PRIMARY TEACHING AND AFFILIATED HOSPITALS

Children's Memorial Hermann Hospital  
Harris Health Lyndon B. Johnson Hospital  
Memorial Hermann-Texas Medical Center

TIRR Memorial Hermann  
The University of Texas MD Anderson Cancer Center  
UTHealth Harris County Psychiatric Center

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By supporting UTHealth, you help to create healthier lives in our community and well beyond. Together, we are on the frontier of discoveries that bring quality patient care to our communities.

## OUT IN FRONT: HEALTHY AGING

2020

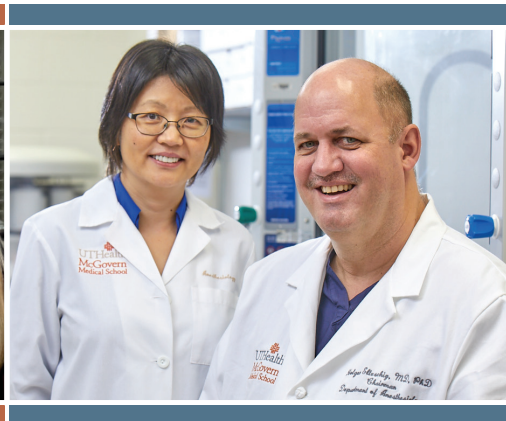
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EDUCATION



RESEARCH



PATIENT CARE

The mission of UTHealth is to educate health science professionals, discover and translate advances in the biomedical and social sciences, and model the best practices in clinical care and public health.

We pursue this mission in order to advance the quality of human life by enhancing the diagnosis, treatment, and prevention of disease and injury as well as promoting individual health and community well-being.

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