

OUT IN FRONT

2020

BRAIN AND BEHAVIORAL HEALTH

COVER STORY

Reflecting on change

*Overcoming alcohol use
disorder amidst the pandemic*

Putting the pieces together

*Student research seeks
to understand social cognition
across brain networks*

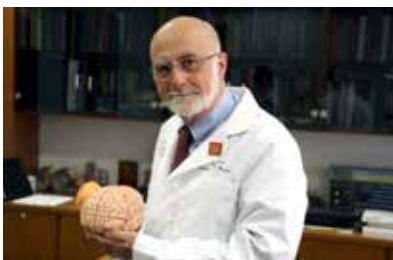
A step forward

*Investigating stem cells
to help slow the progression
of Parkinson's disease*

UTHealth's Comprehensive Campaign

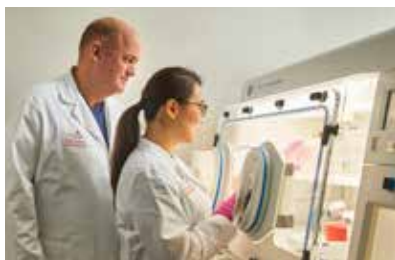
To improve health care and the well-being of our families, friends, and neighbors, we are planning for our first comprehensive campaign focusing on three themes that resonate most with our community.

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 life's milestones—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

Nearly three years into sobriety, Erin Olson was thriving. Her bustling salon was booked out a month in advance, she spent cherished family time with her daughter and husband, she stuck to regular appointments with UTHealth addiction specialist Michael Weaver, MD, and she frequently attended 12-step program meetings.

But when the COVID-19 pandemic upended life across the world, Erin knew that she would have to adapt. With the new normal brought by the pandemic, Erin is embracing this next chapter in her recovery by confronting obstacles and making the best out of difficult circumstances.

“Logic will get you
from A to B. Imagination will
take you everywhere.”

—
Albert Einstein



WITH GRATITUDE

Changes to the brain from injury, disease, or the natural aging process can profoundly impact a person's life. At UTHealth, our experts work to better understand the brain, develop and deliver innovative treatments, and prepare the students who will follow in their paths.

I am pleased to share this year's ***Out in Front: Brain and Behavioral Health*** publication, which highlights some of the ways our students and faculty are advancing this field of medicine—from COVID-19's compounding psychological impact of trauma, to developing stem cell treatments for a wide range of disorders and injuries, to applying artificial intelligence to bridge the gap between data and patient care.

These advancements continue in the midst of a pandemic that has created one of the most challenging health care environments of our time. With courage and the resolve to push forward, we are on the frontlines of innovation in patient care, research, and education.

This work is possible, in large part, because of the generosity of donors like you, who have shown that now—as ever—you stand with us for healthier lives, families, and communities.

For everything you have done for UTHealth and the people we serve, we simply say: **Thank you.**

Giuseppe N. Colasurdo, MD

UTHealth President
Alkek-Williams Distinguished Chair



REFLECTING *on* CHANGE

OVERCOMING ALCOHOL USE DISORDER AMIDST THE PANDEMIC

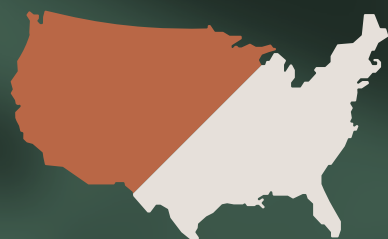
The COVID-19 pandemic has created countless excuses to drink: disturbing headlines, shuttered businesses, and isolation from friends and family, to name a few. Sales of alcoholic beverages in the United States rose 55% in the week ending March 21, just as stay-at-home orders locked down swaths of our nation. But for people pursuing sobriety, the outbreak and its challenges have become tests of resilience.

“The mind is a dangerous place that you shouldn’t walk alone,” says Erin Olson, a 40-year-old business owner, mother, and wife. “I’ve especially found that to be true as I maintain sobriety during this pandemic.”

Erin Olson opened her salon in 2017, the same year she embarked on her journey in recovery from alcohol use disorder. Three years later, she reflects on the challenges she has triumphed over and the new obstacles she faces with the COVID-19 pandemic.



40% of all hospital beds
in the United States account for
alcohol-related illnesses.



More than half of adults
in the United States have a family
history of alcohol addiction.



The third leading cause
of preventable deaths
in the United States is alcohol.

Confronting a growing problem

Erin's tumultuous relationship with alcohol began at age 13, but she traces the roots of her alcohol use disorder through her family tree, branching out to her brother, father, and late grandfather. Over the years, she watched each of them seize sobriety while her heavy drinking damaged relationships and derailed her goals.

From outside, Erin's life appeared beautiful—she had a budding career as a hair stylist, a loving husband, and a young daughter. But inside, she could not break the spell alcohol held over her, and it continued to command her life.

In 2017, she realized she could not walk her path alone and entered a 30-day residential treatment program for alcohol use disorder. Afterward, she began regular treatment with UTHHealth addiction specialist Michael Weaver, MD.

“From the beginning, Dr. Weaver emphasized that my mental health is so much more than my antidepressant prescription,” says Erin. “He helps me build on my support network and ensures I’m active in my 12-step program.”

Filled with renewed passion, Erin wasted no time regaining control of her life and opened her own hair salon later in 2017.

Leaning into sobriety

When Erin embarked on her recovery journey, no one could have predicted a virus would upend life across the globe less than three years later.

“With COVID-19, people are anxious about getting sick, keeping their loved ones safe, and maintaining their jobs, all while experiencing isolation from their support groups,” says Weaver. “These challenges may lead people in recovery to self-medicate with the drugs they worked so hard to discontinue.”

Before the pandemic, Erin's salon was booked out a month in advance, she regularly attended 12-step program meetings, and she maintained appointments with Weaver every three months. While COVID-19 has created obstacles in her path to recovery, including shutting down her salon for six weeks and isolating her from her support community, she is adapting to maintain sobriety.

“I’m leaning into everything I’ve learned from my treatment with Dr. Weaver and recovery program,” she says. “I’m fighting off depressive thoughts, anxiety, and any urge to drink by taking things one day at a time and accepting the reality of our situation.”

Even when her salon closed and recovery programs canceled in-person meetings, Erin gave shape to her days by waking up early to attend virtual meetings and checking in with her program sponsor and the women she sponsors. She also kept her three-month appointment with Weaver by attending a UT Physicians telemedicine visit.

Another way Erin is adapting is by spending more time with her daughter.

“My schedule is usually packed, so I’m grateful for every extra moment,” she says. “I’ve been able to teach her some of the ways I’ve learned to stay positive, like choosing to be grateful, even during difficult situations, and to see the good in life.”

Erin celebrated three years of sobriety in May 2020, following in the footsteps of her brother, who has 12 years; father, who has 34 years; and late grandfather, who had more than 40 years.

The pandemic may be far from over, but as we start uncovering a new normal, Erin has hope for the future.

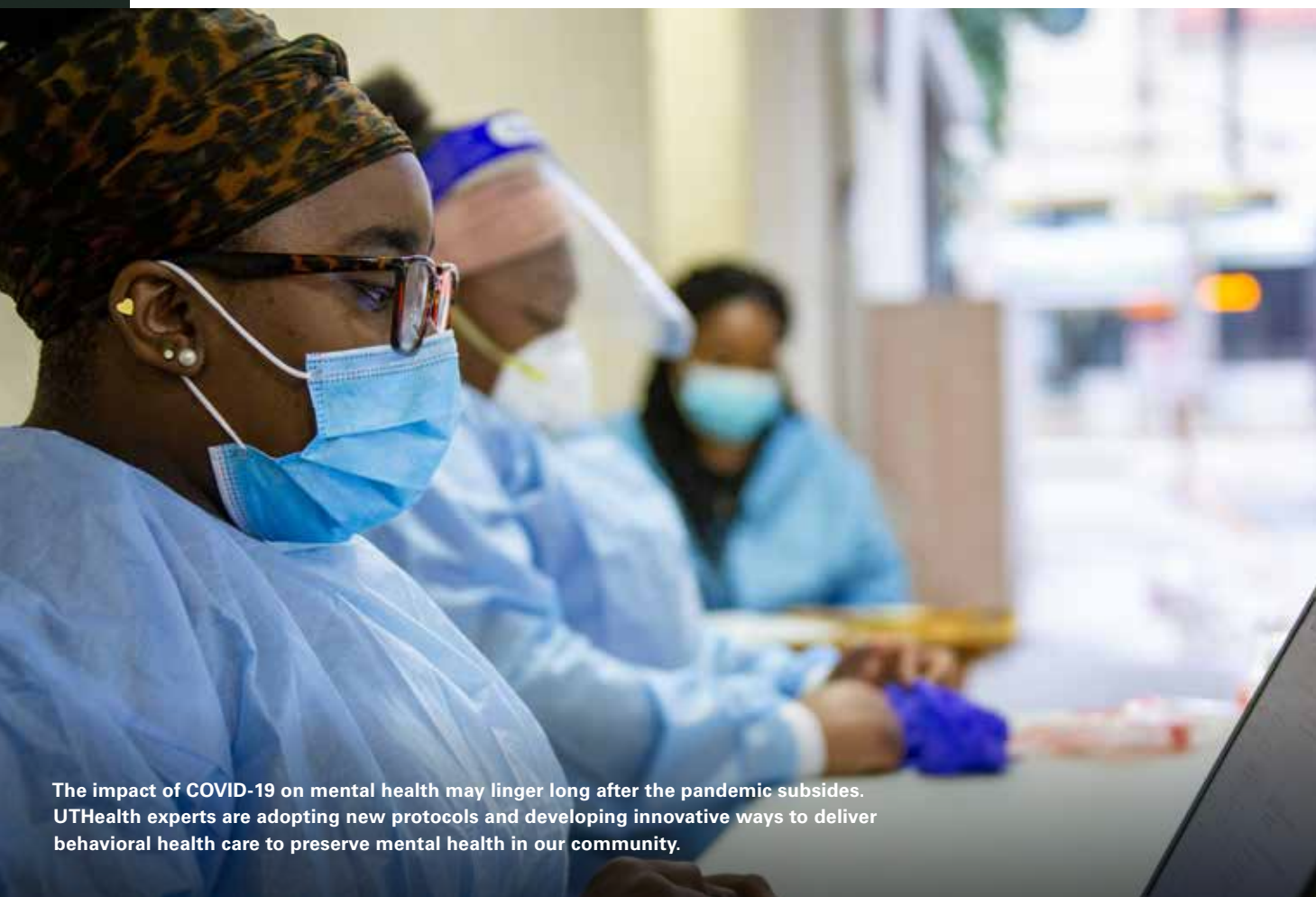


Michael Weaver, MD

Professor, Faillace Department
of Psychiatry and Behavioral Sciences
Medical Director, Center for Neurobehavioral
Research on Addiction
McGovern Medical School at UTHHealth



COPING WITH COVID-19



The impact of COVID-19 on mental health may linger long after the pandemic subsides. UTHealth experts are adopting new protocols and developing innovative ways to deliver behavioral health care to preserve mental health in our community.

UTHEALTH EXPERTS ADDRESS THE MENTAL HEALTH CHALLENGES OF THE GLOBAL HEALTH CRISIS

What we know about COVID-19 makes it a formidable threat to physical health. But what we don't know may prove just as dangerous. As we face new uncertainties such as fear of infection, working from home, temporary unemployment, home schooling of children, and restricted contact with friends and loved ones, we must safeguard mental health as well as physical health.

Across UTHealth, our experts are confronting the unknown to address the stress and anxiety caused by the pandemic—from surveying COVID-19's impact on mental health in our communities to increasing access to behavioral health care to helping health professionals cope with the anxiety and stress of being on the frontline. The following spotlights show how our extraordinary health care professionals are protecting mental health in our communities during one of the greatest health challenges of our time.



A tool for trauma

Roughly half of all Americans are carrying a cup that is partially filled—they endured a traumatic event such as a violent assault, disaster, accident, or combat. Pour in the stress and anxiety from the COVID-19 pandemic, and these cups risk overflowing.

“For people who suffered a past trauma, COVID-19 is creating new psychological obstacles to overcome while intensifying the memories and emotions surrounding previous trauma,” says Ron Acierno, PhD. “Just as we must be prepared to address the medical impact of this pandemic, our society needs to be prepared to address the psychological impact of a crisis like this.”

Acierno leads the UTHealth Trauma and Resilience Center, where experts use evidence-based psychotherapy to help people overcome traumatic life experiences. To improve accessibility and meet the increasing needs of our community during the pandemic, the center switched to home-based telemental health care through UT Physicians as stay-at-home orders brought most businesses and organizations to a halt.

“Without prompt treatment, the psychological impacts of trauma can become lasting impairments,” explains Acierno. “Telemental health allows us to serve patients in their homes using videoconferencing, helping us to avoid interruptions in treatment and get patients care when they need it most.”

Stephanie Emhoff, PhD, was among the first to use telemental health to treat patients when the center began testing it in September 2019.

“Although the transition to seeing patients via telemental health happened rapidly when COVID-19 struck, it was seamless,” she says. “Even patients who were initially wary about the switch have been pleased by how accessible it has made care.”

In addition to cutting out the transportation time and parking costs associated with in-person appointments, the switch to telemental health has reduced patient wait times and enabled patients to schedule multiple UT Physicians visits per week if necessary.

“When the dust settles, I think we are going to find that this pandemic impacted virtually everyone,” says Emhoff. “Telemental health is here to stay, and it will become an invaluable tool in healing the psychological damage caused by COVID-19.”



Ron Acierno, PhD

Louis A. Faillace, MD, Chair in the Department of Psychiatry and Behavioral Sciences
Professor, Faillace Department of Psychiatry and Behavioral Sciences
Executive Director, UTHealth Trauma and Resilience Center
McGovern Medical School at UTHealth



Stephanie Emhoff, PhD

Assistant Professor, Faillace Department of Psychiatry and Behavioral Sciences
McGovern Medical School at UTHealth

Helping the helpers

During times of crisis, we look to our heroes to save the day. As we weather the COVID-19 pandemic, countless health professionals have donned personal protective equipment to safeguard our communities on the frontlines. While we depend on these heroes to halt the advance of the virus and heal us if we fall ill, who can they turn to for support?

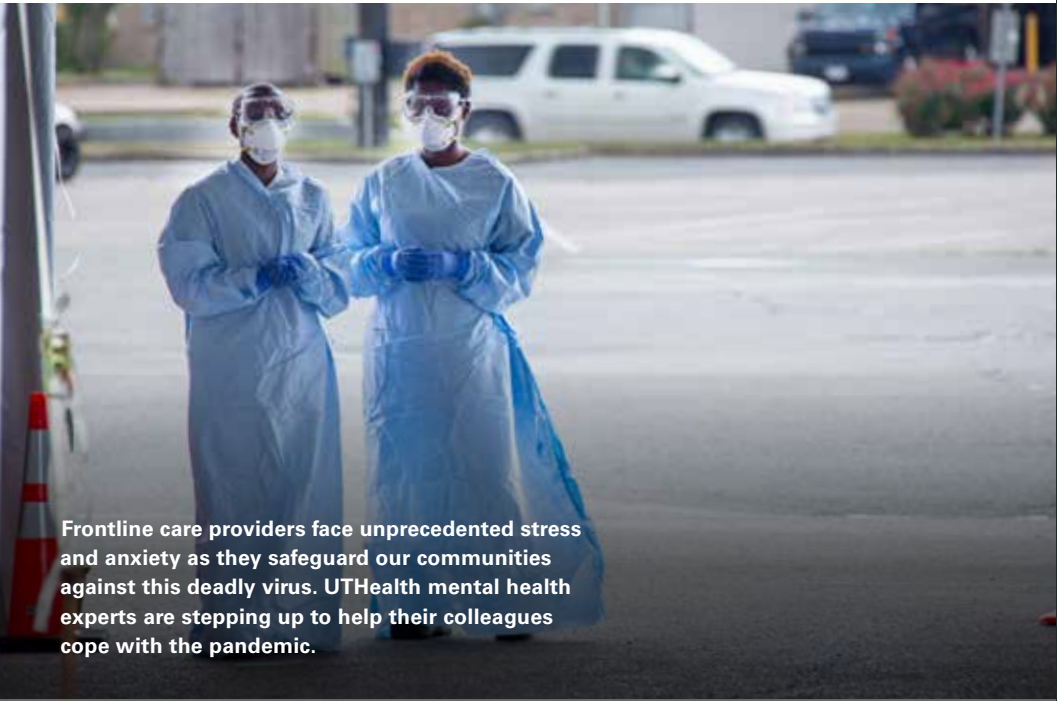
“On top of the anxieties we are all facing during this challenging time, frontline health care providers are also contending with the stress of being exposed to patients with COVID-19 and the possibility of spreading it to loved ones,” says Bobby R. Nix, MD. “Add on the initial shortages in personal protective equipment, extended work hours, and unusual schedules, and new stressors materialize each day.”

In early April 2020, Nix led an initiative to create a dedicated mental health support phone line for UTHHealth employees. Marsal Sanches, MD, PhD, and Thomas D. Meyer, PhD, joined Nix, and the trio opened up their schedules to provide mental health support to colleagues in need.

“Prior to the pandemic, there was a three-month average wait time to see a psychiatrist in Houston,” says Nix. “We wanted to provide immediate support, so we made it possible for colleagues to schedule next-day appointments via telemedicine.”

Through virtual visits, Nix and Sanches offer complete psychiatric care, and Meyer provides psychotherapy services.

Much like sponges, health care providers often absorb the trauma they are helping to heal, causing them to experience it vicariously. Without outlets to address these feelings, vicarious trauma can cause burnout and compassion fatigue.



Frontline care providers face unprecedented stress and anxiety as they safeguard our communities against this deadly virus. UTHHealth mental health experts are stepping up to help their colleagues cope with the pandemic.



Marsal Sanches, MD, PhD

Associate Professor, Faillace
Department of Psychiatry and
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McGovern Medical School at UTHHealth



Thomas D. Meyer, PhD

Associate Professor, Faillace
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Bobby R. Nix, MD

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McGovern Medical School at UTHHealth



Jennifer B. Hughes, PhD

Assistant Professor, Faillace
Department of Psychiatry and
Behavioral Sciences
McGovern Medical School at UTHHealth

5-4-3-2-1

A MINDFULNESS EXERCISE TO
GROUND YOURSELF IN THE PRESENT
DURING STRESSFUL TIMES

Jennifer B. Hughes, PhD, counsels colleagues and patients to acknowledge feelings of grief and fear and to use grounding techniques to return to the present moment.

“Grounding can be a quick and easy process that anyone can use by engaging their senses,” she says. “My go-to technique is called 5-4-3-2-1: Name five things you can see, four you can touch, three you can hear, two you can smell, and one you can taste.”

Just as acknowledging emotions can provide an outlet for traumatic experiences, grounding techniques can help health professionals return mentally to the present to focus fully on caring for patients.



Acknowledge **FIVE** things
you can see.



Acknowledge **FOUR** things
you can touch.



Acknowledge **THREE** things
you can hear.



Acknowledge **TWO** things
you can smell.



Acknowledge **ONE** thing
you can taste.

There's an app for that

Extreme stress and anxiety can weaken the immune system's ability to ward off infections—a vital capability during a health crisis.

UTHealth offers help directly on phones, laptops, and tablets through a digital cognitive behavioral therapy (DCBT) app. Developed by Magellan Health, the app offers research-proven therapy through online modules tailored to six specific areas: anxiety disorders, depression, chronic pain, obsessive-compulsive disorder, substance use, and sleep difficulties.

"The program forms part of a stepped-care process," says Elizabeth Newlin, MD, who originally led the effort to create the app in response to the mental trauma caused by Hurricane Harvey. "It can help treat milder symptoms, and people who experience greater severity can seek additional intervention, including home telemental health."

The DCBT app, available for free to all Houston and Harris County adults through December 2020, screens users to determine which modules best suit their needs and can track the progress of symptoms based on user input. If symptoms worsen, the program will prompt the person to call the UTHealth Trauma and Resilience Center or the National Suicide Prevention Lifeline—otherwise known as the Suicide Hotline.

As people continue to live isolated—at least physically—from many of their supportive relationships, the DCBT app can help provide ways to cope.



"Even for those of us who might be coping well, it's always a good idea to detail a plan and identify resources in case you do need help in the future," Newlin says. "It can be difficult to find help when suffering psychological distress, but the DCBT app can help shore up your coping capacity and ensure you're well prepared for ongoing mental health demands related to the pandemic."



Elizabeth Newlin, MD

Associate Professor, Faillace
Department of Psychiatry and
Behavioral Sciences
McGovern Medical School at UTHealth



Lokesh Shahani, MD

Associate Professor, Faillace
Department of Psychiatry and
Behavioral Sciences
McGovern Medical School at UTHealth

Philanthropy and the mental health challenges of COVID-19

With the devastating physical health effects of COVID-19, it may be easy to overlook the anxiety and trauma the pandemic inflicts. As UTHealth investigates new treatments for the virus, it also works to solve the mental health challenges COVID-19 brings to our communities.

Philanthropic funds, such as the President's Excellence Fund and the Graham Family Scholars Program, have sparked collaborative research projects to explore better treatments for COVID-19, predict who will have poor outcomes, and determine the disease's long-term effects on mental health. The following projects illustrate some of the ways UTHealth experts are working together to address pandemic-related mental health issues.

Increasing access to mental health care and creating better outcomes

Lokesh Shahani, MD, and Gordon Shen, PhD, are evaluating the use of virtual technology to deliver health services in psychiatric hospitals across Texas during the pandemic. This could help improve the quality of behavioral health care in times of emergency.

"Extensive shutdowns and quarantines have exacerbated psychological distress for many people and created new mental health obstacles for others," says Shahani. "Using telemental health, we have an opportunity to tailor care to the needs of patients while making it more accessible."



Gordon Shen, PhD

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



Kevin O. Hwang, MD

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

Creating a better understanding to provide better care

Kevin O. Hwang, MD, and his team are surveying the physical and mental effects of the pandemic on patients who receive COVID-19 testing at UT Physicians clinics. The researchers aim to help health professionals optimize the care they provide.

"History warns us that the trauma and anxiety caused by a pandemic may persist long after the microbe is defeated," says Hwang. "Our study will yield a deeper understanding of issues our patients face during and after the pandemic, which will allow UT Physicians to align personnel and resources to best meet the needs of our patients."

The President's Excellence Fund and the Research Accelerator Fund—the university's crowdfunding initiative to tackle the most pressing health needs—will continue to give UTHealth leadership flexible resources to support high-impact projects that address the pandemic and future health challenges.

To join the response to COVID-19 by supporting the Research Accelerator Fund, visit go.uth.edu/raf.



CLOSING THE GAP

NEW UTHealth BEHAVIORAL SCIENCES CENTER NEARS COMPLETION

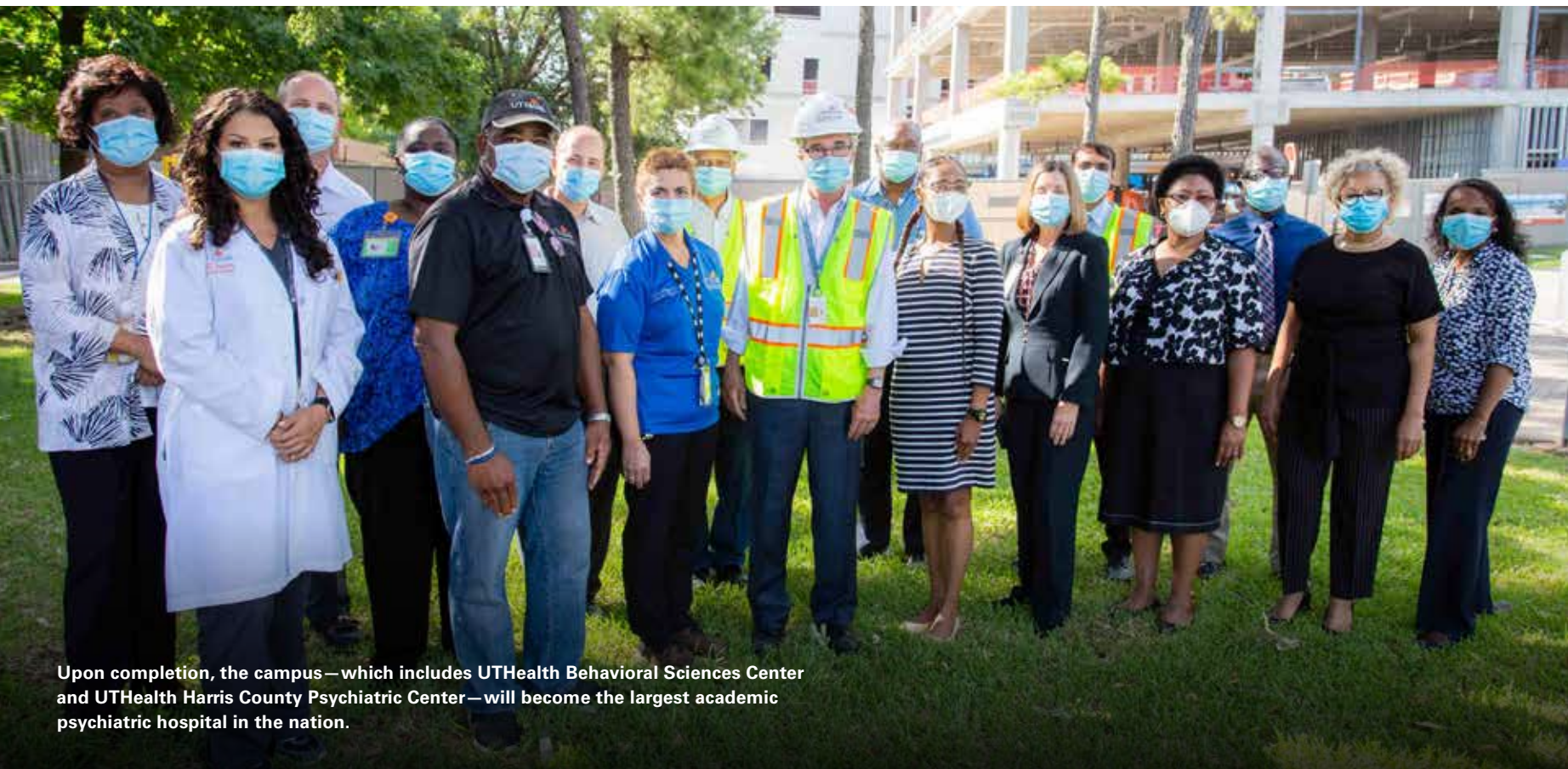
In addition to expanding patient care, the new campus will provide opportunities for faculty to conduct research to better understand behavioral disorders and to develop treatments that improve mental health throughout Texas.

The impact of the pandemic has reverberated through us individually and as a community, bringing to light behavioral disorders that we didn't know we had and exacerbating conditions that we thought were under control.

As we encounter new stressors every day, it has become clear that one thing binds us all: We must safeguard our mental health as we protect our physical health.

In summer 2019, UTHealth broke ground on a 264-bed center for acute and subacute treatment to do just that. UTHealth Behavioral Sciences Center, a joint project between UTHealth and the Texas Health and Human Services Commission, is being built adjacent to the existing 274-bed UTHealth Harris County Psychiatric Center.

Slated to open in early 2022, the new facility is centered around light, nature, and central living space to be naturally supportive of appropriate and helpful interactions between patients and health care professionals. Plans include a therapy mall, activity room, and a communal dining facility that look into the internal courtyard through floor-to-ceiling windows.



Upon completion, the campus—which includes UTHealth Behavioral Sciences Center and UTHealth Harris County Psychiatric Center—will become the largest academic psychiatric hospital in the nation.



While the Harris County Psychiatric Center can provide acute inpatient care—the most expensive form of care—to 274 patients at a time, as many as 100 individuals may be on the waiting list for an available bed. Furthermore, many of our community’s most severely and persistently ill patients do not receive the treatment they need, especially as their treatment needs change as they integrate back into society from acute inpatient care. In addition to more acute beds, the new hospital will also have subacute care units for patients who need a longer stay to heal.

Chronic and rapid readmissions to hospitals are two consequences of this gap in the continuum of care. It also strains the limited resources of hospital emergency rooms, psychiatric emergency services, law enforcement personnel, and jail services across the Houston area. The Behavioral Sciences Center will benefit Houston and the state of Texas through fewer readmissions, faster admissions for children and adolescents, reduced burden on law enforcement personnel and facilities, shorter time in hospital emergency rooms, and more cost-effective community-based levels of care.

“The integrated campus will help our team of carefully selected specialists maximize efforts to provide relief to Houstonians suffering from mental illnesses,” says Jair C. Soares, MD, PhD.

“Leveraging the latest research and education surrounding mental health will help us provide innovative and comprehensive care and help set a standard for how mental illness should be treated moving forward,” he says.

Leaders from across the state were instrumental in securing these funds in 2017, including appropriations bill SB 1 author Senator Jane Nelson, and House sponsor Representative John M. Zerwas, MD, (now The University of Texas System Executive Vice Chancellor for Health Affairs), as well as state leaders

Governor Greg Abbott, Lieutenant Governor Dan Patrick, and House Speaker Joe Straus. Senator Charles Schwertner, MD, and Representative Sarah Davis, who oversaw budget negotiations for health and human service programs, led the effort in their respective chambers to make sure this critical funding was included. Other members of the Harris County delegation were vocal in their support of the project and to ultimately ensure Houstonians will have access to mental health care.

UTHealth Behavioral Sciences Center was a recommended project by two interim committees before the 2017 session. After a long study, tours, and briefings, the Houston project was recommended for funding by the Senate Interim Committee on Health and Human Services, led by Senator Schwertner and vice chaired by Senator Lois Kolkhorst (now Chair of the Committee), and the House Select Committee on Mental Health, which was led by Representative Four Price and included local mental health champions Representatives Garnet Coleman, Sarah Davis, and Senfronia Thompson.



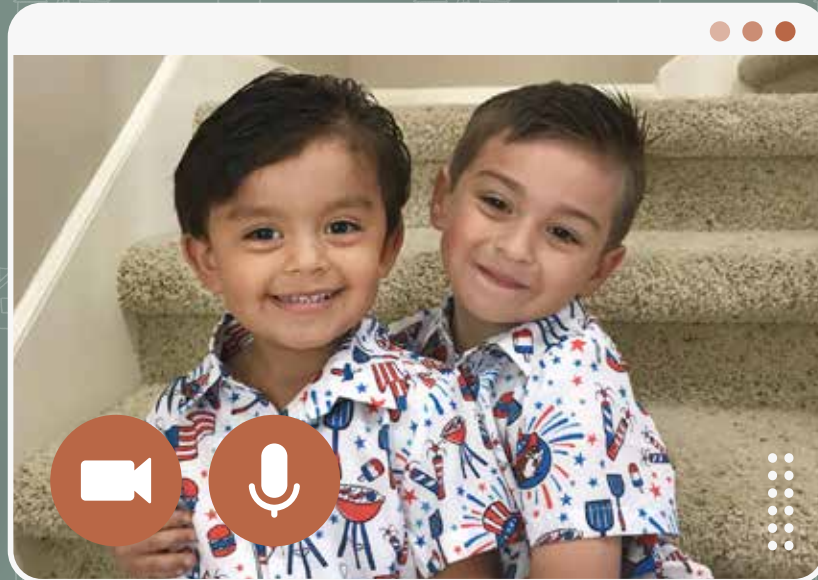
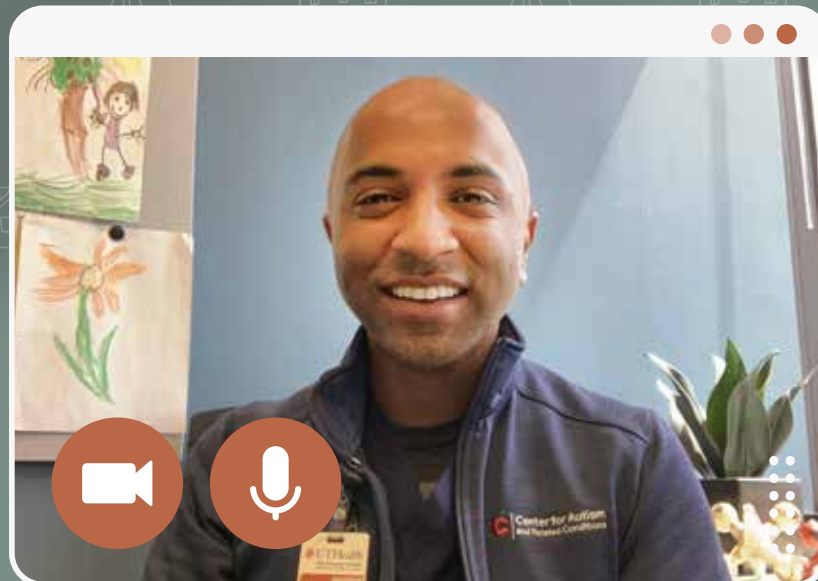
Jair C. Soares, MD, PhD

Pat R. Rutherford, Jr. Chair in Psychiatry
Professor and Chair, Faillace Department
of Psychiatry and Behavioral Sciences
Director, UTHealth Center of Excellence
on Mood Disorders
Executive Director, UTHealth Harris County
Psychiatric Center
McGovern Medical School at UTHealth

Neuroscience Program
MD Anderson UTHealth Graduate School

A NEW ROUTINE

TREATING DEVELOPMENTAL DISORDERS DURING THE PANDEMIC

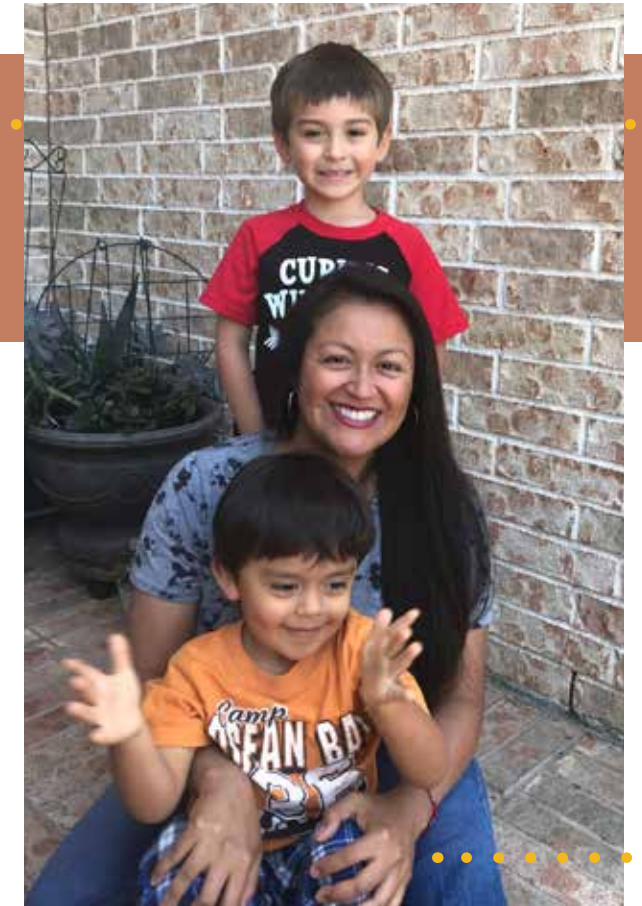


Melody DiPasca gets up early to start working from home before her two children, Juan and Giovanni, wake up. An executive assistant, she suddenly saw her life change when the COVID-19 pandemic caused schools, day care facilities, and businesses to close. Working from home now means Melody has overlapping roles as professional and parent, day care provider and guardian, and teacher and mother.

Before the pandemic closures began, Melody noticed two-year-old Giovanni wasn't developing like her older son. "By the time Giovanni turned two, he wasn't speaking or eating table food. My pediatrician recommended we wait and reevaluate Giovanni in a year, but my maternal instincts told me something was different about him," she recalls.

To get a diagnosis, Melody needed a specialist. Although the pandemic was closing the world around her family, she got an appointment with Anson Koshy, MD, at UT Physicians Pediatric Center for Autism and Related Conditions. While the UT Physicians clinic's physical doors were closed to ensure the safety of patients and staff, Koshy and his team quickly pivoted to offer evaluations and other services remotely via telehealth.

Telehealth visits through UT Physicians, the clinical practice of McGovern Medical School at UTHealth, have become vital tools for delivering health care services during the COVID-19 pandemic. Patients can consult with health care providers about ongoing medical needs from the safety of their own homes via videoconferencing, rather than visiting a doctor's office.



Anson Koshy, MD

Raghuthaman Family Professor in Pediatric Neurology
and Developmental & Behavioral Pediatrics
Director, Center for Autism and Related Conditions
Children's Learning Institute
Assistant Professor, Department of Pediatrics
McGovern Medical School at UTHealth



Melody admits she was a little nervous before the appointment. “I was worried about doing telehealth. I really wanted my son to be evaluated in person because I thought it would be better, but the telehealth appointment ended up being great! Dr. Koshy could see the true Giovanni in his element and not the little boy who gets scared at the doctor,” she says.

Koshy has noticed some surprising trends since he began offering telehealth appointments. “What’s fascinating is that in some situations, telehealth actually works better for our patients, especially younger children,” he says. “A lot of kids with autism struggle when they first come to see me because it is a new setting and a new person outside their normal routine. But with telehealth, I get to see them at home where they are most comfortable.”

For older children, Koshy notes, remote appointments can be a little more challenging. “We want to sit down with older patients in person to conduct tests and get a full sense of their abilities. Right now, we are working hard to ensure older kids get the best services possible under the unusual circumstances of the pandemic.”

After two UT Physicians telehealth appointments, Koshy diagnosed Giovanni with autism spectrum disorder. Despite her initial misgivings, Melody admits remote medicine has been a positive experience for her family. “Dr. Koshy was very thorough and professional. He explained everything and made us feel comfortable.”

Giovanni is involved in speech, occupational, and behavioral therapy multiple times a month. While coordinating these telehealth appointments and making sure he engages with therapists over video calls can be challenging, Melody has already noticed great progress in her son’s behavior.

“Before we started therapy, Giovanni wouldn’t give hugs or kisses,” she says. “Now, he runs up and hugs me all the time. He makes eye contact with us, and he wants to be in all of my videoconference calls with work. It’s a blessing to be able to see his progress every day.”

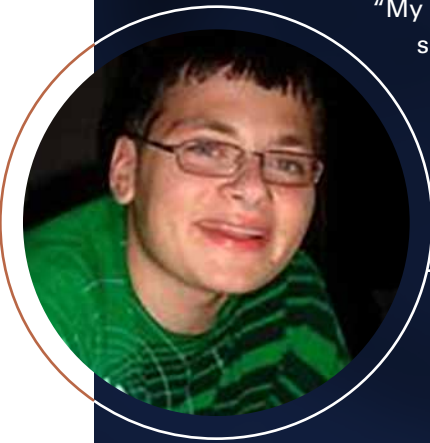
THE MANY FACES OF AUTISM AT WORK

Benjamin Geigerman was diagnosed with Asperger’s syndrome, a condition on the autism spectrum, when he was just a child. A talented young man with a wry sense of humor, Benjamin overcame bullying and many other challenges during his childhood to graduate *cum laude* from Texas State University in 2011, where he majored in finance.

Unfortunately, Benjamin encountered serious obstacles to employment after graduating. Finding a job is no small task for anyone, but it can be especially challenging for people with an autism spectrum disorder. While many people on the spectrum complete a vocational program or college, differences in social and communication skills can make obtaining employment difficult, and nearly 91% remain unemployed or underemployed.

Benjamin suffered from feelings of hopelessness and passed away shortly after graduating. To honor Benjamin’s memory and help others avoid similar struggles, his parents, Louis Geigerman and Joanne Must, established the Benjamin J. Geigerman Lecture Series to help advocate for people with autism and create a bridge toward employment. The lecture series provides a platform for people on the spectrum to share their experiences and describe how to overcome the unique barriers they face in the job market. By showcasing success stories, the series provides hope, guidance, and encouragement.

The 2020 lecture, “The Many Faces of Autism at Work,” highlighted how companies around the nation build inclusive, neurodiverse teams by changing the hiring process. People with autism tend to struggle with the traditional interview process due to its social focus. By adapting interviews to focus more on skills and problem-solving abilities, companies play to the strengths of people with autism, who in turn gain employment and training to help them achieve lifelong success.



“My son had so much untapped potential that the world just couldn’t see,” Louis said at this year’s virtual event. By helping people with autism transition into the workforce, the Geigerman Lecture Series opens the eyes of employers and the world to see the untapped potential of these talented individuals.

Benjamin Geigerman

PUTTING THE PIECES TOGETHER

STUDENT RESEARCH SEEKS TO UNDERSTAND SOCIAL COGNITION
ACROSS BRAIN NETWORKS



Imagine living in a world of daily struggles with conversations, encounters, and relationships—where expressing feelings and exchanging information results in overwhelming anxiety. This is the world for tens of millions of individuals suffering from social dysfunctions associated with autism, schizophrenia, and other neuropsychiatric disorders.

Social dysfunction is a general term to describe emotional problems related to social situations, such as shyness. It differs from social anxiety disorder, which is a medically diagnosed chronic condition where an individual experiences intense anxiety during everyday social interactions.

Melissa Franch, a doctoral student at The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences, wants to improve our understanding of the complex relationship between the brain and social behavior.

“When you reflect on life’s moments, your fondest memories probably include your family and friends,” Melissa says. “Most of our enjoyable and successful experiences do not occur in isolation. In fact, now—during the COVID-19 pandemic—more than ever, the world has become increasingly aware of the importance of social interactions in everyday life.”

Melissa studies what happens in the brain during cooperation, one of the two basic modes of social cognition. In any interaction, an individual must cooperate with others as they seek positive outcomes for all parties. To achieve this, the individual must perceive and integrate socially relevant information to respond appropriately.

“The motivation and capacity to be social is a key component of human behavior,” she says. “Unfortunately, neurological disorders such as autism spectrum disorder, which affects almost six million people in the United States, can impair social communication and behavior.”

In Melissa’s experiments, subjects must work together to obtain a desired outcome. Using a system she developed to track eye movements and brain activity, she discovered subjects use visual clues from each other, which affect neural responses and the decision to cooperate.

According to Melissa, examining the correlation of observations and brain activity during cooperation will provide a better understanding of how we process, store, and apply information about other individuals and social situations. In turn, these results may lead to targeted therapeutic interventions, such as medications or neural implants and stimulation.

Melissa’s work is also personal. “I have a brother with autism, so I understand how social dysfunction can impact individuals and their families,” she explains. “I hope to find ways to help people like my brother be more comfortable and effective in social interactions.”

Organizers of the 2019 Society for Neuroscience annual meeting in Chicago, Illinois, highlighted Melissa’s preclinical research, a recognition they give to only about 100 of more than 14,000 projects. The annual meeting attracts more than 30,000 attendees from 80 countries.

Melissa is pursuing her doctorate in neuroscience under the mentorship of Valentin Dragoi, PhD, who is pioneering research on the complex functions of the brain.

“Melissa is among the next generation of UTHealth researchers uncovering the mysteries of the brain,” he says. “She combines technical sophistication and computational analyses to improve the quality of life for individuals and their families around the world.”



Valentin Dragoi, PhD

Rochelle and Max Levit Distinguished
Professor in the Neurosciences
Professor, Department of Neurobiology
and Anatomy
McGovern Medical School at UTHealth

Neuroscience Program
Quantitative Sciences Program
MD Anderson UTHealth Graduate School



Katherine A. Loveland, PhD

Landmark Charities Professor
in Autism Research and Treatment
Professor, Faillace Department
of Psychiatry and Behavioral Sciences
McGovern Medical School at UTHealth

PRACTICE MAKES PERFECT

Wearing a virtual reality headset, patients enter a computer-generated party full of people, lights, and sounds. Patients engage with this virtual world easily, interacting with partygoers as if they were at a real social event. While it sounds like the latest video game, this module is part of a new treatment to help people with autism who struggle with social anxiety.

Difficulty processing social information, a central feature of autism spectrum disorder, can make social interactions challenging.

“People on the spectrum learn from an early age to feel like they are a square peg in a round hole,” says Katherine A. Loveland, PhD. “Growing up, they realize that they don’t know how to navigate the social world very well, and as a result, they often develop social anxiety.”

With the help of virtual reality and the longstanding generosity of Landmark Charities, Loveland and her team are working to treat social anxiety in people with autism. In the virtual party, patients navigate the scenario with help from trained therapists. Loveland’s team has also developed several virtual people who patients can interact with individually.

While there are some similarities with video games, these virtual environments are more robust with limitless speech options. Experts control and adapt the social interactions to help patients build conversational skills. Loveland hopes that exposing people with autism to realistic social scenarios in a safe environment will help reduce their social anxiety.

Loveland’s team has developed these extensive virtual reality environments and is now in the process of enrolling adults on the spectrum into a 12-week program to determine if it works to treat social anxiety.

“I am hopeful these virtual reality scenarios will become a new, effective method to help people with autism navigate and thrive in the world around them,” Loveland says. She also hopes these tools will help people combating other mental health disorders, such as post-traumatic stress disorder, trauma, and auditory hallucinations.

SEEING THE LIGHT

IMPROVING THE DIAGNOSIS AND TREATMENT OF POST-STROKE ANXIETY



After conducting a retrospective review of electronic health records, Jennifer E. S. Beauchamp, PhD, RN, and her team identified risk factors for developing anxiety—a common and disabling condition—after suffering a stroke.

More than 795,000 individuals suffer a stroke each year in the United States. Even though post-stroke depression affects about one-third of these patients, significant gaps exist in the identification and management of the psychological effects of stroke, such as post-stroke anxiety.

“While we’ve known that post-stroke anxiety is common and disabling, there was not a lot of research on factors linked to anxiety,” says Jennifer E. S. Beauchamp, PhD, RN. “Our study delved deeper into a cohort of racially and

ethnically diverse stroke patients, shedding light on those factors to enable earlier detection and personalized intervention.”

Beauchamp and the research team, which included Anjail Z. Sharrief, MD, and other members of UTHealth Institute for Stroke and Cerebrovascular Disease, found that unmarried, depressed, or excessively fatigued people who suffer stroke are more likely to develop post-stroke anxiety, a known risk factor for suffering another stroke.

“These findings highlight the importance of understanding social support after stroke,” she says.

The association between post-stroke anxiety and unmarried status supports other research that shows isolation and loneliness negatively impact psychological and physical health, according to Beauchamp. Biological factors, such as the location of a stroke lesion and psychological response to stroke may also play a role in the development of post-stroke anxiety.

Jennifer E. S. Beauchamp, PhD, RN

Nancy B. Willerson Distinguished Professor
Associate Professor, Department of Research
Cizik School of Nursing at UTHealth

“We were not surprised to find that stroke survivors with moderate to severe symptoms of anxiety also reported a greater number of sleep apnea symptoms, specifically fatigue, which can also lead to depression and worsen existing symptoms of anxiety,” she says. “Therefore, managing sleep apnea in stroke survivors may also decrease symptoms of anxiety and depression, ultimately improving their quality of life.”

Beauchamp notes that the COVID-19 pandemic presents additional challenges to the psychological well-being of these patients. “Stroke survivors, particularly unmarried individuals, are already at risk for post-stroke anxiety, depression, and isolation, and the forced isolation because of the pandemic only increases their risk.”

Health care providers will be able to use the results of this study to develop screening measures to identify stroke survivors who may be at risk for experiencing symptoms of post-stroke anxiety. They may also consider developing multifaceted, personalized interventions to target post-stroke anxiety and associated factors, such as depression and fatigue.

Philanthropic support can help provide the spark to illuminate pressing brain and behavioral health issues. “As we look toward the future, the generosity of donors will enable my team to expand on this work to improve the psychological health of stroke survivors and their loved ones,” says Beauchamp.



Anjail Z. Sharrief, MD

Associate Professor, Department of Neurology
McGovern Medical School at UTHealth

DEEP SPACE AND BEYOND

APPLYING MACHINE LEARNING TO MEET BRAIN CHALLENGES NEAR AND FAR

When you have a stroke, experts say time is brain. The longer you wait for treatment, the more brain cells you lose, and the worse the outcomes will be. But what happens when the closest hospital is hours away, or in the case of astronauts on the Space Station, two full days away?



Researchers at UTHealth School of Biomedical Informatics combine data science, machine learning, and artificial intelligence to develop innovative solutions that tackle health challenges to improve health and well-being in our communities. Luca Giancardo, PhD, is leading efforts to speed up the diagnosis and treatment of stroke. His team was awarded one of six 2020 grants focused on advancing biomedical and health research in deep space from Baylor College of Medicine's Translational Research Institute for Space Health.

Further complicating survival and recovery, the type of stroke—ischemic or hemorrhagic—dictates different courses of treatment. Hemorrhagic strokes occur when a blood vessel breaks and leaks blood into the brain, and ischemic strokes are caused by a clot blocking blood flow in the brain.

“If we can determine if a stroke is ischemic or hemorrhagic, then we can start the right treatment earlier. But if you administer the wrong treatment before determining what the type of stroke is, the outcomes can be very bad,” says Giancardo.

Typically, an MRI or CT scan is used to determine the type, but this equipment is not readily available except in hospitals, which may be miles away from the patient. Giancardo's team set out to find an alternative that can be placed in ambulances and virtually anywhere else.

Retinal cameras—small, low-power microscopes commonly found in eye doctor offices—use high-resolution imaging to take pictures of the inside of the eye. “Because the retina is directly connected to the brain, we think we can use this as a proxy to see what's happening in the brain,” explains Giancardo. The team's goal is to develop an algorithm that examines three different types of images to evaluate what is happening to the vasculature of the retina.

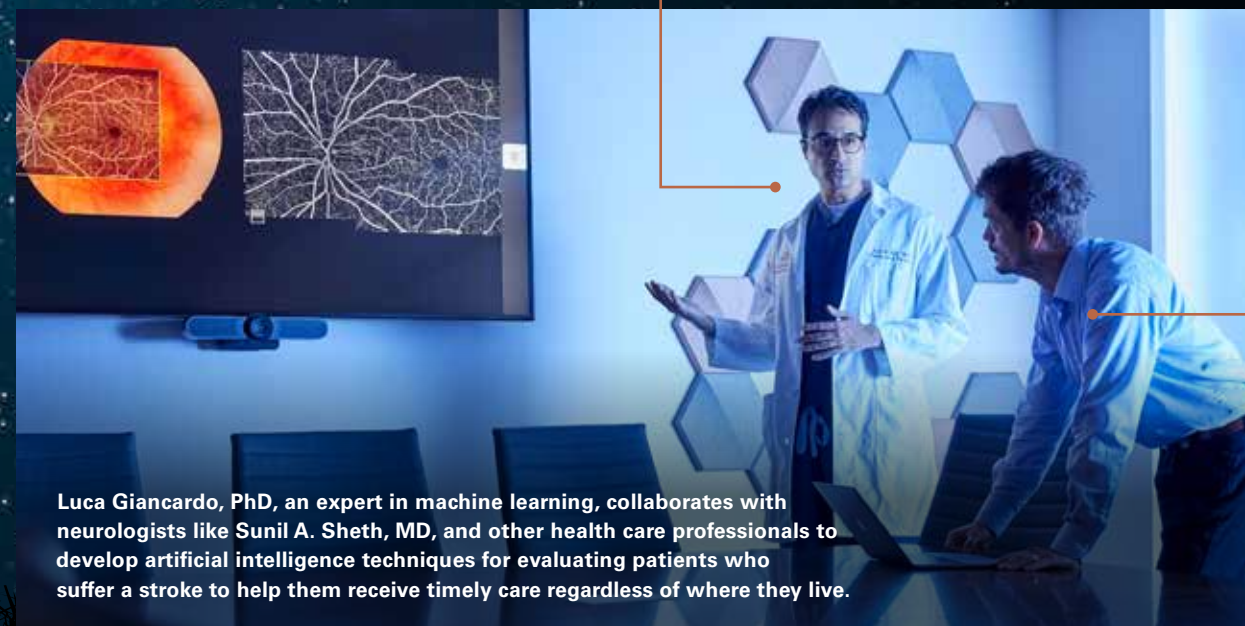
“This could have a significant impact on morbidity and mortality,” he says. “And we have the expertise in stroke, ophthalmology, and machine learning to do this.”

Sunil A. Sheth, MD

Assistant Professor, Department of Neurology
McGovern Medical School at UTHealth

Luca Giancardo, PhD

Assistant Professor
UTHealth School of Biomedical Informatics



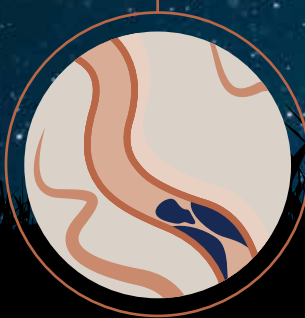
Luca Giancardo, PhD, an expert in machine learning, collaborates with neurologists like Sunil A. Sheth, MD, and other health care professionals to develop artificial intelligence techniques for evaluating patients who suffer a stroke to help them receive timely care regardless of where they live.

HEMORRHAGIC STROKE



A blood vessel breaks and leaks blood into the brain

ISCHEMIC STROKE



A clot blocks blood flow in the brain

The project is a collaboration between Giancardo; Sunil A. Sheth, MD, vascular and interventional neurologist at UTHealth Neurosciences and McGovern Medical School; Charles Green, PhD, Associate Professor in the Department of Pediatrics at McGovern Medical School; and Roomasa Chana, MD, an ophthalmologist at Baylor College of Medicine. The team garners additional support from UTHealth Institute for Stroke and Cerebrovascular Disease, which fosters collaborations in stroke research among the schools of UTHealth. This includes Sean I. Savitz, MD, and Amanda Jagolino-Cole, MD, who provide care through UTHealth Neurosciences.

While the research grant specifically focuses on strokes in space—where zero gravity and prolonged space radiation increase the risk of cardiovascular disease and stroke in even the healthiest individuals—it has implications for rural areas of the United States and any place that lacks immediate access to diagnostic brain imaging equipment.

But the team's research doesn't stop there. Giancardo and Sheth recently helped create an algorithm that identifies large vessel occlusions, a specific type of ischemic stroke that blocks blood flow of one of the main arteries in the brain and may account for up to one-third of ischemic strokes. Using a dye injected into the body and CT imaging—instead of CT perfusion imaging, which evaluates blood flow—the algorithm can determine within a minute if a patient is

suffering from a large vessel occlusion and notify the patient's health care team. The algorithm even helps determine if the patient is eligible for endovascular thrombectomy, a minimally invasive treatment where a tiny catheter is threaded through the blood vessel to remove the clot.

"When physicians see that someone has a large vessel occlusion, they send them to a large hospital for CT perfusion imaging to determine this," explains Giancardo. When this happens, precious time is lost. "We wanted to see if we could create a proxy for CT perfusion using just CT imaging, which is readily available at smaller hospitals.

Giancardo's team at the Center for Precision Health at the School of Biomedical Informatics has established a pipeline to translate research at UTHealth into something that can benefit the patients immediately. Philanthropy can accelerate discoveries like this by providing seed funding to initiate high-risk, high-reward projects and garner the data necessary to apply for larger funding sources.

"For most federal funding agencies, the turnaround time is six months if you are lucky," says Giancardo. "That is a very long time, especially in my world where developments happen super quickly."

And like the experts say: Time is brain.



P. Roc Chen, MD

Associate Professor, Vivian L. Smith
Department of Neurosurgery
McGovern Medical School at UTHealth



Sean I. Savitz, MD

Frank M. Yatsu, MD, Chair in Neurology
Professor, Department of Neurology
McGovern Medical School at UTHealth

Associate Member, MD Anderson
UTHealth Graduate School

Director, UTHealth Institute for Stroke
and Cerebrovascular Disease



Amanda Jagolino-Cole, MD

Assistant Professor, Department of Neurology
McGovern Medical School at UTHealth

BUSTING THE CLOT

BREAKTHROUGHS IN STROKE AND TREATMENT

During a thrombectomy, a tiny catheter is threaded through the arteries to physically remove the clot and restore blood flow. Although lifesaving in many cases, the standard treatment for an ischemic stroke caused by a large vessel occlusion may provide no benefit for more than a third of patients - a statistic that does not sit well with P. Roc Chen, MD, a physician-scientist at UTHealth Neurosciences.

"We have a significant opportunity to improve acute stroke treatment," Chen says.

A substantial debate among stroke treatment physicians involves whether patients have better outcomes under general anesthesia or conscious sedation. While some retrospective studies favor conscious sedation, they suffer from a research shortfall known as selection bias: Because doctors tend to place the most gravely ill stroke patients—who are less likely to have positive outcomes—under general anesthesia, this method may falsely appear to lead to poorer results.

Working with the UTHealth Institutional Review Board to swiftly enroll patients when they arrive at hospitals, Chen launched a multi-center randomized study funded by philanthropy and industry grants to seek a clearer answer for the future standard of care.

"This could be a milestone for other stroke studies," he says. "I hope it will help resolve the debate."

Chen has also set his sights on cerebral vasospasm induced by ruptured brain aneurysms, weak spots in brain blood vessels that balloon and burst. Nearly half of patients with ruptures will die, but many not from the rupture itself; when the leaked blood breaks down, it irritates nearby blood vessels, causing cerebral vasospasm leading to stroke. By analyzing data from past rupture treatments, Chen found that a combination of three medications helped improve patient outcomes, so he launched a multicenter clinical trial to evaluate this method's effectiveness.

Even after successful treatment, however, patients who suffer an aneurysm must follow up with physicians for periodical angiograms—an invasive procedure that many patients skip because of the high costs—to check for reoccurrence. Chen is working on a project funded by the National Institutes of Health to determine if computer algorithms can analyze simple x-ray images to determine the risk of an aneurysm striking again.

"If patients only need to have an x-ray, this could significantly improve follow-up rates," he says. "The easier we can make the process, the more lives we can save."

A STEP FORWARD

INVESTIGATING STEM CELLS TO HELP SLOW THE PROGRESSION
OF PARKINSON'S DISEASE



Following the completion of Phase I in 2019, Mya C. Schiess, MD, and her team began the next phase of the first clinical trial using mesenchymal stem cells to slow the progression of Parkinson's disease in fall 2020.

The symptoms of Parkinson's disease begin slowly. Movement changes like tremors and stiffness can develop over years, often accompanied by subtle signs like difficulty sleeping and loss of smell. Symptoms progress over time, turning everyday activities like walking, speaking, and eating into challenges that are difficult without assistance. A chronic condition, Parkinson's disease affects over one million individuals and their families in the United States. And while that number increases every year, there is still no proven therapy to stop the disease.

"We have therapies that effectively treat the symptoms of Parkinson's disease, but we don't have anything that stops the rate of progression, and we certainly don't have a cure," says Mya C. Schiess, MD, a movement disorder specialist at UTHealth Neurosciences. "We are trying to change that."

Inflammation, a normal part of the immune system response, usually helps protect the body from foreign substances like infections. But for people with Parkinson's disease, an inflammatory condition prevents the brain from functioning normally and eventually causes neurons to die.

In an effort to slow the progression of Parkinson's disease, Schiess is leading the first US Food and Drug Administration-approved clinical trial using mesenchymal stem cells to "switch off" this inflammation in the brain.

"Mesenchymal stem cells, which are derived from the bone marrow of healthy adult volunteers, may help lock down the molecules causing inflammation in the brain. In doing so, they may reestablish the normal brain environment, potentially restoring neurons," Schiess says.

Schiess and her team conducted Phase I of the clinical trial, which concluded in September 2019, to evaluate the safety of the treatment. During this phase, none of the patients experienced negative immune reactions to the infusions.

"We found that patients safely tolerated the mesenchymal stem cell treatment," Schiess reports. "The highest dose was also effective in reducing markers of inflammation, and it may have improved some symptoms of the disease."

Building on this success, Schiess and her team began Phase II of the trial in 2020 to determine the ideal mesenchymal stem cell dose. Every three months, patients will receive either mesenchymal stem cells or a placebo. After the third and final treatment, Schiess will follow patients for a year to evaluate their progress.

"We hope to show that repeated doses of mesenchymal stem cell treatments can reduce the symptoms of Parkinson's disease," Schiess says. "If we can demonstrate this, then we will know we are working with a therapy that could protect the brain and can slow down the disease, bringing much needed relief to patients and their families."

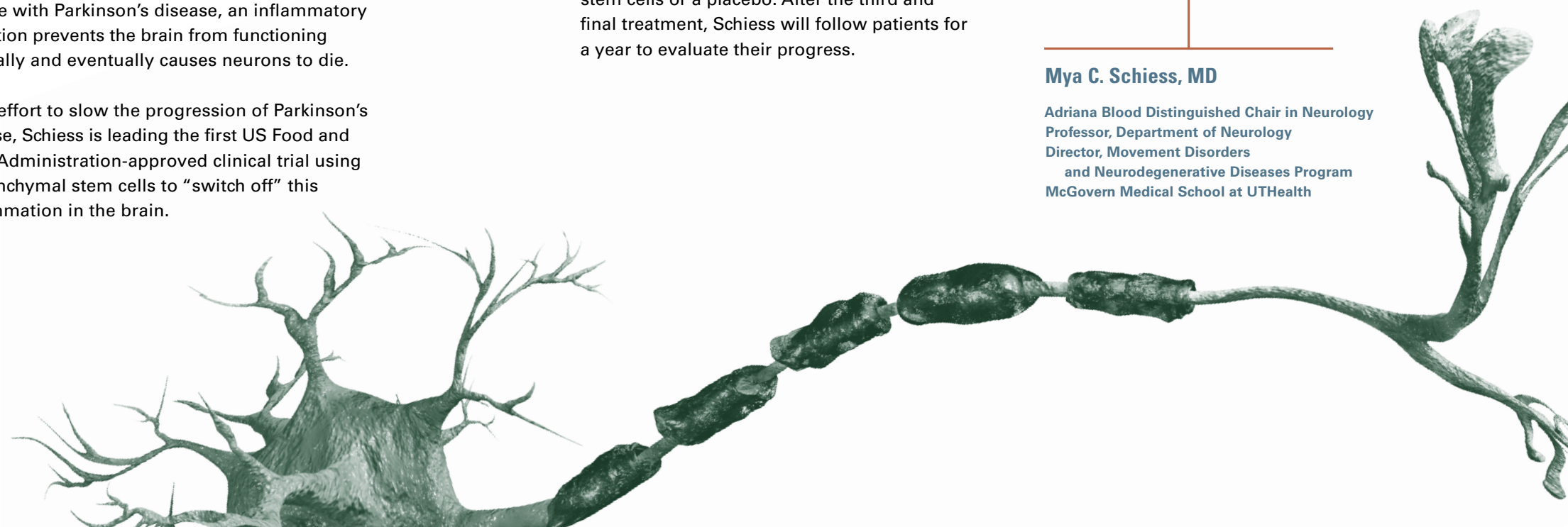
Philanthropic support enables Schiess and her team to solve challenging neurological disorders like Parkinson's disease. "This research would not be possible without philanthropy," she says. "I am very grateful to John and Kyle Kirksey, The Michael J. Fox Foundation, the John S. Dunn Foundation, and all our partners for providing the resources to help change the lives of people with Parkinson's disease."

Over the next three years, Schiess and her team will work on the Phase II trial, hopefully leading to a life-changing therapy that slows symptom progression and changes how we treat this debilitating condition. This groundbreaking research could bring us one step closer to a world without Parkinson's disease.



Mya C. Schiess, MD

Adriana Blood Distinguished Chair in Neurology
Professor, Department of Neurology
Director, Movement Disorders
and Neurodegenerative Diseases Program
McGovern Medical School at UTHealth



MEMORIES INTACT

TAKING A COMPREHENSIVE APPROACH TO
ALZHEIMER'S DISEASE TREATMENT



It only takes a little at first—a few short-term memories. But over time, Alzheimer's disease takes them all, robbing a person of their identity. This is the reality for more than 5.8 million people living in the United States today. To help preserve their memories and identities, researchers across UTHealth are working together to transform how we understand and treat Alzheimer's disease.



Using mini brain models to understand a big disease

Growing human brain cells in a laboratory may sound like something from a science fiction movie. But that is exactly what Claudio Soto, PhD, is doing to understand how and why Alzheimer's disease and other neurodegenerative conditions develop and how to treat them.

Cerebral organoids are tiny 3D aggregates of brain cells made in the lab from adult cells that have been reprogrammed to become induced pluripotent stem cells. These stem cells can develop into any type of cell and when exposed to specific conditions, generate neurons organized like a microscopic piece of human brain tissue.

"These organoids are ideal models to study brain diseases because you can easily see which proteins or cells are important, what's going wrong, and what treatments you can apply to prevent that from happening," Soto explains.

Using cells from patients with familial Alzheimer's disease, an inherited form of the disease, Soto and his team at UTHealth Neurosciences created cerebral organoids that quickly developed the same abnormalities as those seen in the brains of Alzheimer's patients. This has allowed Soto and his team to directly see how the disease progresses in a way that is impossible in a living person.

"The challenge in treating Alzheimer's disease is that by the time people have clinical symptoms, parts of the brain are already damaged," Soto says. "These cerebral organoids allow us to better understand the disease process and possibly find regenerative treatments for patients affected by it."

Looking to the future, Soto and his team are expanding their use of the technology to investigate other neurodegenerative disorders like Parkinson's disease. "Philanthropy is absolutely essential for this kind of research that seems a little futuristic," Soto says. "Traditional sources of funding are more conservative and don't always allow us to make the big innovative leaps."

A common link

While Parkinson's disease and Alzheimer's disease differ dramatically, they share a common element: inflammation. In both conditions, specific types of abnormal proteins accumulate in the brain, leading to an inflammatory state that destroys neurons.

"Mesenchymal stem cells have shown promising preliminary results in reducing inflammation in people with Parkinson's disease, in preclinical trials," says Paul E. Schulz, MD, a neurologist at UTHealth Neurosciences. "However, there hasn't been much research to investigate whether these stem cells might also help people with Alzheimer's disease."

To fill this knowledge gap, Schulz and Soto have been conducting laboratory tests to determine if mesenchymal stem cells can slow the progression of Alzheimer's disease. Now, they are initiating a clinical study to determine the safety and efficacy of the infusions in people.

"There's no shortage of good ideas to try to stop Alzheimer's disease," Schulz says. "The challenge lies in translating ideas into real solutions for patients and their families."

Paul E. Schulz, MD

Rick McCord Professor in Neurology
Umpfrey Family Professor
in Neurodegenerative Disorders
Professor, Department of Neurology
McGovern Medical School at UTHealth

Neuroscience Program
MD Anderson UTHealth Graduate School

Claudio Soto, PhD

Huffington Foundation Distinguished
Chair in Neurology
Professor, Department of Neurology
Director, The George and Cynthia
Mitchell Center for Alzheimer's
Disease and Related Brain Disorders
McGovern Medical School at UTHealth

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

THE TAKEDOWN

MARTIAL ARTS ENTHUSIAST AND UTHEALTH TACKLE BRAIN TUMOR



Marcus Weaver had an immediate question after his diagnosis of a brain tumor: When could he get back to jiu jitsu, the hobby he is so passionate about?

"It didn't even enter my mind that things might not turn out all right," he says. "I just decided this was temporary, and I was going to get through it."

What began in January 2017 as an excruciating headache wound up with Marcus at Memorial Hermann-Texas Medical Center, where an MRI traced fluid buildup on his brain to a tumor blocking part of his brain stem. Although benign, the tumor had to come out—a potentially hazardous surgery given its location. His family rushed to his side as he considered what would come next.



Yoshua Esquenazi Levy, MD

Assistant Professor, Vivian L. Smith
Department of Neurosurgery
McGovern Medical School at UTHealth

Marcus' neurosurgeon at UTHealth Neurosciences, Yoshua Esquenazi Levy, MD, explained that he would perform two procedures: one to drain the fluid from around Marcus' brain—relieving the pain and pressure—and a second to actually remove the tumor.

"One of the things I loved about Dr. Esquenazi was his absolute confidence in his ability," Marcus remembers.

"It reassured me a great deal. When you have a brain tumor, you want a surgeon who clearly knows what he's doing and has that kind of confidence."

On January 25, a simple 45-minute procedure drained the fluid, providing Marcus immediate relief. A few weeks later came the major surgery. After carefully moving muscles and nerves out of the way, Esquenazi temporarily removed a section of skull to remove as much of the tumor as possible.

"The surgery went very well, and I felt confident that Marcus would make a full recovery," Esquenazi says.

Marcus spent the next two months at home. Throughout the process, Marcus' family, church community, jiu jitsu gym, and employer gave him unwavering support. His wife, Whitney, cared for him every day during the recovery, and the two grew even closer as they spent two months virtually inseparable.

"The brain tumor was the best thing that ever happened to us," Marcus says. "It changes your perspective on what is important."

As he weaned off postsurgical medications, Marcus felt steadily better. Esquenazi released him from all medical restrictions on March 24, just two months after his surgery. He went back to his jiu jitsu gym the same day, and aside from a brief period of numbness on his skull, life returned to normal.

"It was like the whole thing never happened," Marcus says. "It's hard to believe that in the space of two months I had a brain tumor diagnosed and removed, and I recovered like the tumor was never even there. I haven't experienced any pain, loss of motion, or any other effects. They actually did such a good job sewing up my head that nobody sees the scar unless I'm getting a haircut."

Marcus continues to have regular check-ups with Esquenazi. He says his experience during treatment—from the receptionist to the nurses to Esquenazi—was exceptional, and it brought him a new sense of gratitude for living where he does.

"If you're going to have a major medical issue, you want to be close to doctors like Esquenazi," Marcus says. "Houston is the best place you can possibly be."





LOST AND FOUND

STEM CELLS OPEN POSSIBILITIES IN TREATING SPINAL CORD INJURIES

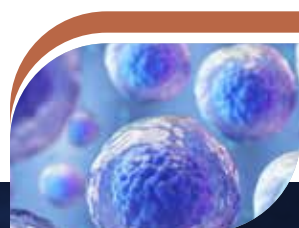
Learning you have a spinal cord injury can elicit a particular sense of dread, evoking thoughts of potentially irretrievable loss of function, feeling, and independence. In recent years, however, researchers at UTHealth have begun to explore the tantalizing possibility that patients with a spinal cord injury can regain what they lost.

“Our initial studies show that stem cells may have the potential to restore function after traumatic spinal cord injury,” says Dong Kim, MD. Stem cells can develop into any type of cell in the body, making them potentially a key to healing damaged organs and tissue.

Kim leads a four-person research team that, with support from The Staman Ogilvie Fund, suggests transferring stem cells to spinal cord injury sites may help with healing. The team has reached several preclinical milestones in this work.

In addition to Kim, the UTHealth Neurosciences team includes Qi Lin Cao, MD; Ying Liu, MD, PhD; and Jiaqian Wu, PhD. Each member brings expertise in a different facet of spinal cord injury to create a collaborative effort.

“We have a talented group of researchers who work well together,” says Kim. “I am optimistic about where we are headed.”



Developed an approach that transforms a patient's skin cells into stem cells, avoiding potential complications from transplanting stem cells from another person.



Demonstrated that implanting cells in the chronic phase of spinal cord injury—when patients have lived with the injury for years—may improve symptoms. This fills an important need because most researchers singularly focus on the first two weeks after an injury.



Monitored complications in preclinical studies for up to two years to determine the safety and long-term consequences of stem cell treatment.



Developed an artificial environment, or matrix, on which stem cells can grow at injury sites.

PRECLINICAL MILESTONES IN TREATMENT



Dong Kim, MD

Nancy, Clive and Pierce Runnells
Distinguished Chair
Professor and Chair, Vivian L. Smith
Department of Neurosurgery
Co-Director, UTHealth Neurosciences
McGovern Medical School at UTHealth



Qi Lin Cao, MD

Professor, Vivian L. Smith
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MD Anderson UTHealth Graduate School



Ying Liu, MD, PhD

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UT Physicians, a 501(c)(3) tax-exempt organization, is the clinical practice of McGovern Medical School at UTHealth. Our faculty offer urgent, highly specialized, or complex care to individuals and families in Houston and across Harris County and surrounding areas. Revenue from UT Physicians provides UTHealth with additional resources to support our faculty and further enhance the education of the health care professionals of tomorrow.



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SUBSPECIALTIES



100+
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UT Health Services is a nationally recognized nurse-managed primary care center through Cizik School of Nursing at UTHealth. Nurse practitioners provide patient care in collaboration with a McGovern Medical School physician.

UTHealth Neurosciences



UTHealth Neurosciences is comprehensive academic and research-based program with more than 150 clinical providers—including nationally recognized leaders—who are committed to improving the quality of life for people with neurological disorders.

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