

MISSION

The journey to healing

Reimagining
how space, compassion and
innovation converge to support
health and healing



UT Health
San Antonio

The University of Texas
at San Antonio



Elevating our mission

This past year has marked a defining chapter in the evolution of UT Health San Antonio, shaped by growth, momentum and an unwavering commitment to making lives better.

On Dec. 10, we celebrated the first anniversary of the UT Health San Antonio Multispecialty and Research Hospital, a destination for specialized surgery and comprehensive cancer care, where the highest-quality clinical care is thoughtfully integrated with discovery and innovation. That same day, we opened our new Center for Brain Health, bringing world-class neurological care, research and therapy together under one roof. These milestones reflect the future we are building, where discovery and care converge to solve health challenges and expand access to excellence.

Every day, our clinicians, scientists and care team members advance what is possible across medicine, dentistry, nursing, public health and the full spectrum of health professions focused on making lives better. From breakthrough therapies extending survival for patients with glioblastoma, to innovative technologies improving quality of life for individuals with movement disorders, to reimagining how treatments are delivered, including complex life-saving surgical procedures, and how chronic diseases are detected earlier — this is our daily work. Solving complex health challenges is not an aspiration; it is our mission. Through clinical trials and translational research, we are uncovering new insights into disease while improving lives today through novel therapies and care approaches.

Much of this progress is fueled by our nationally recognized centers, including Mays Cancer Center, Barshop Institute for Longevity and Aging Studies, Biggs Institute for Alzheimer’s and Neurodegenerative Diseases, Greehey Children’s Cancer Research Institute and the Be Well Institute on Substance Use and Related Disorders — each advancing discovery that is transforming care locally and nationally. It is also made possible by the trust of our community, reflected most recently in a transformative \$30 million gift from the Kate Marmion Charitable Foundation to establish the Kate Marmion School of Public Health, a generational investment in improving health across South Texas.

As a young boy in the late 1960s, I stood beside my father as the ribbon was cut on the first building of what would become UT Health San Antonio. None of us could have imagined how that moment would ripple forward, transforming not only a piece of farmland, but the future of healthcare for generations. Over the decades, I have witnessed UT Health San Antonio grow from a single medical school into a leading health science center of national stature. On Sept. 1, that journey reached another milestone as we joined with The University of Texas at San Antonio to become the third-largest research university in Texas.

Through every era, four words have guided us: We make lives better. Today, that promise is more real than ever. Together, we are shaping a university that honors its legacy, expands access and excellence and leads with purpose toward a healthier, more hopeful future, grounded in the belief that education is the greatest health initiative of our time.

Francisco G. Cigarroa, MD

Francisco G. Cigarroa, MD
Senior Executive Vice President for Health Affairs and Health System
The University of Texas at San Antonio
UT Health San Antonio



The story of our merger

President Taylor Eighmy, PhD, and Francisco G. Cigarroa, MD, discuss the transformative impact the new university will have on San Antonio, South Texas and beyond.

IN THIS ISSUE

- 4 University in motion
- 6 Expanding care
- 11 Breakthrough research
- 46 Parting shot

20 Changing the Type 2 trajectory

Reversing the rise in child and adolescent diabetes

28 The gift of more time

Research shows promise for extending brain cancer survival

32 A matter of mind and body

Managing diabetes and serious mental illness

36 Practice-ready from day one

Highly trained nursing students help fill a hiring demand

39 Building public health proficiency

Students seek to shape the leadership pipeline

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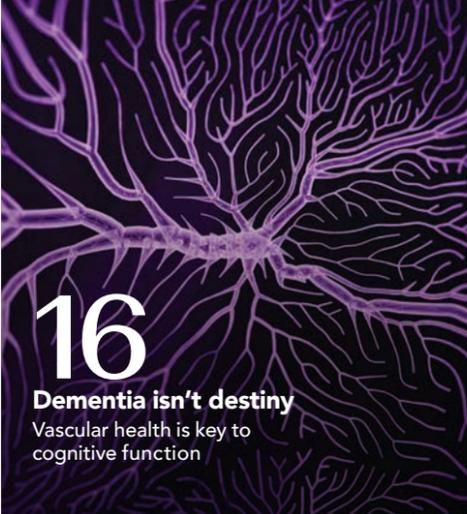
 **ON THE COVER**
The multicolor illuminated Tom C. Frost Skybridge — suspended between the UT Health San Antonio Multispecialty and Research Hospital

and Mays Cancer Center — is one of many patient care spaces designed to nurture the human spirit and support health and healing.

14
A sound solution to tremors
Focused ultrasound provides patients the stillness they seek



16
Dementia isn't destiny
Vascular health is key to cognitive function



24
The pattern beneath the pain
Addressing root causes of orofacial pain



42
The piano that still plays
The Biggs family donates a beloved heirloom



44
Designed to heal
How art and architecture contribute to patient healing



Kate Marmion School of Public Health announced

A transformational investment is made in the future of public health



Former Texas Governor Dolph Briscoe Jr. and his granddaughter, Kate Marmion.

The University of Texas at San Antonio received a transformational \$30 million gift from the Kate Marmion Charitable Foundation to support the mission of the School of Public Health and improve the health of communities across South Texas.

This gift to the university and its academic health center, UT Health San Antonio, meaningfully advances the mission of this initiative and strengthens the university's commitment to improving the health of South Texas. In recognition of the foundation's generosity and partnership, the UT System Board of Regents approved the naming of the Kate Marmion School of Public Health in honor of Kate Marmion, the daughter of Janey Briscoe Marmion and granddaughter of former Gov. Dolph Briscoe Jr. and Janey Slaughter Briscoe.

The \$30 million commitment will exponentially improve health outcomes for individuals and families across South Texas, especially in rural communities where access to quality healthcare remains limited. The gift also reflects the Kate Marmion Charitable

Foundation's focus on improving the health of rural Texans. By establishing far-reaching endowments to support the community outreach work of the school, along with new fellowships and scholarships to advance the development of a public health workforce, the gift will serve Texas in perpetuity.

"This profound investment from the Kate Marmion Charitable Foundation is a powerful testament to its enduring commitment to education, healthcare innovation and the well-being of Texans," UT San Antonio President Taylor Eighmy, PhD, said.

South Texas faces significant health challenges, including higher rates of obesity, diabetes, heart disease and other chronic conditions that place a substantial burden on individuals and communities. These issues are compounded by limited access to healthcare and other community-level challenges that affect overall health and well-being.

"The Kate Marmion Charitable Foundation is privileged to make this gift to The University of Texas at San Antonio School of Public Health," said Dolph Briscoe IV, president of the Kate Marmion Charitable Foundation. "A tremendous healthcare need exists in South Texas, and we are humbled by the opportunity to support the amazing faculty, staff and students at UT San Antonio in this critical effort."

"This remarkable gift transcends far beyond a name. It honors Kate Marmion's memory and love of South Texas, strengthens our mission and charts a path of hope and opportunity for generations," said Francisco Cigarroa, MD, senior executive vice president for health affairs and health system at UT San Antonio.

Vasan Ramachandran, MD, FACC, FAHA, serves as dean of the Marmion School of Public Health.

"We are profoundly grateful for this transformational gift, which allows us to confront the underlying factors that drive persistent health disparities in South Texas," Ramachandran said.

This gift will position the school to continue providing state health improvement initiatives, including rural health, chronic disease prevention and child health. It will also augment workforce pipelines that prepare and deploy health professionals to serve underserved regions across Texas.

Health professional schools are a proven workforce pipeline



At the end of the 2025 academic year, more than 1,100 graduates from the university's health professional schools joined the ranks of over 45,000 alumni advancing health and discovery across Texas and beyond its borders. Collectively, they represent the state's largest producer of health professionals — physicians, nurses, dentists, biomedical scientists and allied health experts committed to meeting the growing demand for care.

On Sept. 1, The University of Texas Health Science Center at San Antonio and The University of Texas at San Antonio merged to become UT San Antonio. Both of the independently designated Research 1 institutions are now united in advancing a shared vision for discovery, education and care. The highlights that follow detail recent achievements of the university's six health professional schools.

Building momentum

The first Master of Public Health student cohort of the **Kate Marmion School of Public Health** is progressing toward graduation in 2026 — a milestone for the region's newest public health graduate school. In summer 2025, the school began co-administering the Doctor of Medicine/Master of Public Health dual degree with the Long School of Medicine. The school will also launch two new programs in fall 2026: a Graduate Public Health Certificate for non-degree-seeking working professionals, and an epidemiology concentration for master's students.

Fostering excellence

The **School of Nursing** now ranks in the top 11% of Bachelor of Science in Nursing programs nationwide in *U.S. News & World Report's* 2026 Best Colleges listing. The school was also named one of the National League for Nursing's 2025 Centers of Excellence in Nursing Education, becoming San Antonio's only nursing school with this distinction, which recognizes exceptional innovation and commitment to preparing skilled, compassionate nurses.

Filling critical gaps

The **School of Health Professions** celebrated two milestones in 2025: the graduation of its first Master of Science in Imaging Sciences class and the program's initial accreditation by the Joint Review Committee on Education in Radiologic Technology. The program is the only entry-to-the-profession master's in the nation offering eligibility for three American Registry of Radiologic Technologists certifications.

Addressing community needs

In Spring 2025, the **Joe R. and Teresa Lozano Long School of Medicine's** Doctor of Medicine/Master of Public Health program officially came under one roof. The dual degree prepares physicians to connect patient care with population health sciences, blending training in epidemiology, policy and prevention. The school's Addiction Medicine Fellowship likewise responds to community needs. Open to physicians from any specialty, the Accreditation Council for Graduate Medical Education-accredited program trains fellows at UT San Antonio's Be Well Institute on Substance Use and Related Disorders and the South Texas Veterans Health Care System to diagnose and treat substance use disorders.

Expanding pathways

The **Graduate School of Biomedical Sciences** is broadening opportunities for students to pursue innovation and strengthen the region's biomedical workforce. The new Master of Science in Drug Discovery and Development trains students across all stages of drug creation, preparing them for roles in biotechnology and pharmaceutical research. The Graduate Certificate in Medical Physics offers doctoral-level scientists and engineers a pathway into clinical practice and prepares graduates for accredited residencies and board certification.

Leading interdisciplinary discovery

Ranked No. 1 in Texas and 30th worldwide in dentistry and oral sciences by the Academic Ranking of World Universities' 2024 Global Ranking of Academic Subjects, the **School of Dentistry** continues to strengthen its global reputation through innovative research and education. The school's Center for Pain Therapeutics and Addiction Research recently secured its first National Institutes of Health grants to advance studies in non-opioid pain management, offering students new avenues for research and interdisciplinary training.

Where care and discovery come together

New Center for Brain Health pairs advanced research with clinical care of individuals facing neurological conditions



UT Health San Antonio's Center for Brain Health, which opened Dec. 10, brings clinical care, innovative research and caregiver support together under one roof to revolutionize how diseases of the brain are understood and treated.

The \$100 million, 103,000-square-foot center is designed to provide a comprehensive and hopeful experience for individuals facing neurological diseases while advancing the science behind diagnosis and treatment.

The idea for the new building began more than seven years ago, sparked by a vision to create a dedicated space for patient care and research. That vision resonated across the San Antonio community, prompting more than \$40 million in philanthropic support to help make that dream a reality. And in November, Texas voters approved a state constitutional amendment establishing a \$3 billion state fund to accelerate research, treatment and prevention of Alzheimer's disease and related dementias.

"This center is the culmination of years of effort to build a space that not only meets the care needs of patients and families, but also expands our research capacity," said Sudha Seshadri, MD, DM, neurology professor and founding director of the Glenn Biggs Institute for Alzheimer's



University and community leaders and guests marked a new era of hope, healing and discovery for neurology patients and their families at a ribbon-cutting ceremony for the UT Health San Antonio Center for Brain Health, which unites patient care, advanced imaging, research and therapy under one roof.

and Neurodegenerative Diseases at UT Health San Antonio.

"It's deeply meaningful to me, both personally and professionally, to offer not just treatment, but respect for each person's uniqueness. A diagnosis doesn't define a person, and it certainly doesn't stop their story."

A new model for neurological care

The Center for Brain Health is set to redefine the treatment of conditions like Alzheimer's, dementia, stroke, amyotrophic lateral sclerosis (ALS) and Parkinson's. Multispecialty care teams include neurologists, therapists, counselors and support staff in one location, reducing the need for multiple appointments. The center features 75 exam rooms, 12 infusion chairs for newly approved and investigational treatments, and specialty spaces for therapy, diagnostics and wellness.

Other services include geriatric psychiatry, nutrition, neuropsychology, genetic counseling, physical therapy and mental health support for patients and caregivers.

Community spaces are available to host support groups and educational events, reinforcing the center's role as a hub for families and anyone affected by neurological conditions.

"This is more than a building, it's a new model for neurological care," said Carlyne Jackson, MD, FAAN, chair of the Department of Neurology. "Our patients need comprehensive assessments, imaging, neuropsychology testing, family services and more. All of that is available here in a single, coordinated location."

Jackson said what excites her most about the center is the integration of patient care and research. "Being able to manage patients in the same space where research and clinical trials are happening is something we've never had before," said Jackson.

The center includes a bridge to the institution's Medical Arts and Research Center, is near the UT Health San Antonio Multispecialty and Research Hospital and is across the street from the Sam and Ann Barshop Institute for Longevity and Aging Studies, enhancing collaboration across research and clinical care teams.

"The Center for Brain Health represents hope — a place where care and discovery come together to preserve brain health, ensure early diagnosis and help people keep doing what they love for as long as possible," Seshadri said.



Advanced imaging technology

UT San Antonio's 7-Tesla Terra.X magnetic resonance imaging (MRI) scanner — Texas' first — housed within the Center for Brain Health, is one of the most powerful imaging technologies available. This system provides ultra-high-resolution brain scans to guide early diagnosis and novel research to aid the study of conditions like Alzheimer's, Parkinson's and other brain diseases.

Compared to standard MRI, the 7T offers dramatically improved resolution, especially in deep or complex regions such as the brain stem and temporal lobes. In clinical use, this can help distinguish between minute differences that are not visible with lower-powered scans. For example, the 7T can more accurately distinguish between a benign blood vessel and an aneurysm, potentially sparing a patient from unnecessary surgery. The level of detail provided, even without contrast, can reveal deep structures like the brain stem, where many diseases begin, and veins where amyloid is cleared.

By offering this cutting-edge MRI locally, UT Health San Antonio can reduce the burden of travel for patients and expand access to high-resolution imaging that might change the course of their diagnosis or treatment.

An anchor for healthcare expertise

UT Health San Antonio's first inpatient hospital expands mission to serve South Texas



1st in San Antonio to restore control and confidence using focused ultrasound for Essential Tremor and Parkinson's

TOP 1%

for patient recommendations
*Press Ganey "Likelihood to Recommend"

In the year since the UT Health San Antonio Multispecialty and Research Hospital opened its doors in December 2024, expansion of the institution's healthcare expertise and services and its delivery of quality patient care for the community have only gained momentum.

Among the hospital's many milestone accomplishments:

- ▶ Earned The Joint Commission's Gold Seal of Approval — a top national symbol of credibility and trust that reflects the hospital's excellence in safety, rigorous performance standards and high-quality patient care.
- ▶ Opened a dedicated oncology unit, staffed by a specialized cancer care team providing inpatient chemotherapy and full-spectrum cancer care.
- ▶ Established a Stem Cell Transplant and Cellular Therapy program, a critical community need and region-defining service that will deliver advanced

immunotherapies and specialized care for patients with blood cancers and blood disorders.

- ▶ Launched UT Health San Antonio's first Blood Donor Center ensuring lifesaving blood availability for surgeries, blood disorders and cancer care.
- ▶ Expanded access to an Advanced Care Clinic for UT Health San Antonio primary care patients and patients with cancer who need immediate advanced evaluation or hospital-level care.
- ▶ Performed procedures spanning multiple specialties, including orthopaedic total joint replacement and complex spine surgery, as well as advanced oncologic procedures such as robotic lymph node dissection for testicular cancer.
- ▶ Became the first hospital in Texas to advance safer, multimodal pain management by deploying a new FDA-approved non-opioid pain medication following orthopaedic and podiatric surgeries.
- ▶ Opened recruitment for the hospital's first inpatient phase 2 cancer clinical trial, expanding access to promising new therapies and advancing cancer research and treatment in South Texas.

The hospital is part of a comprehensive network of inpatient and outpatient care locations across the region that comprise UT Health San Antonio, the clinical care and clinical research health system of The University of Texas at San Antonio. Collectively, UT Health San Antonio medical, dental, nursing and allied health professionals conduct more than 2.5 million patient visits annually.

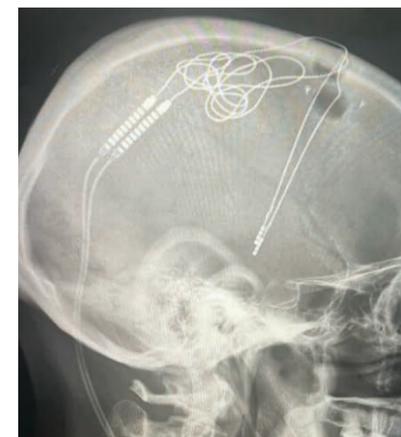
17,978

patients received precise, research-driven care in UT Health San Antonio's first in-patient hospital during its first year of operation



Modeling high-tech service

The UT Health San Antonio Multispecialty and Research Hospital incorporates innovative pharmacy technologies, including robotic couriers, personalized automated dispensing cabinets and pneumatic tube systems for faster delivery of medications. Among other operational efficiency efforts, clinical lab services across all UT Health San Antonio patient care locations are now consolidated at the hospital's 24/7 laboratory to support inpatient and high-volume outpatient care and provide faster diagnoses to improve patient outcomes.



Pioneering new treatments

UT Health San Antonio neurologists are among the nation's first to use technology enabling deep brain stimulation that adapts as symptoms change. Known as DBS, deep brain stimulation is the placement of electrodes in the brain connected to a battery-operated generator in the chest similar to a cardiac pacemaker. A small impulse of electricity moves from the generator to the electrodes to stimulate a specific area of the brain, relieving some symptoms and side effects for those with Parkinson's disease, dystonia, epilepsy and essential tremor conditions. Until now, those electrical impulses had to be manually adjusted with doctor visits for those with implanted sensing DBS generators. The new adaptive DBS technology essentially is a software update that sets the generator battery to continually adjust stimulation based on the patient's symptoms, using a tablet like an iPad that connects through Bluetooth.



Leading recovery support for opioid use disorder

Be Well Texas, an initiative of the Be Well Institute on Substance Use and Related Disorders at UT San Antonio, has been selected by the Texas Health and Human Services Commission to lead a major expansion of opioid use disorder recovery support services across the state. The initiative is part of a broader strategy aimed at reducing overdose deaths and building a lasting recovery infrastructure. The funding enables Be Well Texas and its partners across the state to expand treatment access, improve continuity of care and reach both rural and urban communities most in need with lifesaving services.

As the lead agency, Be Well Texas will provide technical expertise, oversight and implementation support through a comprehensive network of treatment, recovery and provider engagement programs backed by the Be Well Institute's clinical and public health experience. Since 2021, the Be Well Texas initiative has served as a trusted partner in the state's overdose prevention efforts.

Additionally, the Be Well Clinic, a flagship program of the Be Well Institute, delivers compassionate, evidence-based care for individuals starting or continuing their recovery journey through both in-person and statewide telehealth services. The clinic recently expanded to include comprehensive care for adolescents and young adults as young as 11, ensuring youth and families have early access to high-quality, integrated treatment.

Separately, the Be Well Institute has launched Naloxone Texas, which distributes free, lifesaving opioid overdose medication and training to individuals and organizations throughout the state. Recently, Naloxone Texas has increased partnerships with colleges and universities to share resources and training with students, faculty and staff. Naloxone, known commercially as Narcan, is a fast-acting medication that reverses an opioid overdose and has saved countless lives.

These initiatives are supported with funding from the Texas Health and Human Services Commission, the Department of State Health Services and the state legislature.



Powering athletic performance

UT Health San Antonio is the official sports medicine partner of the San Antonio Missions, marking the latest in a series of partnerships that support athletes at every level. The partnership with UT Health San Antonio's nationally recognized sports medicine program builds on similar collaborations with the San Antonio Spurs and UTSA Athletics and gives Missions players access to the institution's full network of specialists and services, including advanced diagnostics and imaging and rehabilitation services.



Advancing life-saving cancer care

UT Health San Antonio's Mays Cancer Center, the only National Cancer Institute-designated cancer center serving South Texas, is also the only provider in South Texas offering a novel targeted molecular therapy using a radioactive drug to fight metastatic prostate cancer. Whereas chemotherapy kills both cancer cells and good cells throughout the entire body, this new treatment binds to and kills only prostate cancer cells.

The new treatment is a game changer for men who have failed multiple other types of treatment including chemotherapy. In 2025, Mays Cancer Center was named among the nation's leading hospitals and health systems for excellence in oncology programs by *Becker's Hospital Review*. This list highlights cancer centers led by world-renowned experts who are driving innovation, ensuring patient safety and pushing the boundaries of what's possible in cancer treatment and research.

A top-ranked world leader in health research

Global rankings underscore the commitment of university investigators to improve health through discovery



The recent integration of The University of Texas Health Science Center at San Antonio and The University of Texas at San Antonio joined two Carnegie R1 universities — the highest designation for research activity reserved for the top 5% of research institutions in the United States. The new UT San Antonio merges deep expertise in biomedical and health professional education, research and clinical care with excellence in engineering, artificial intelligence, cybersecurity, business, education and the liberal arts.

The combined university also brings together more than \$486 million in annual research expenditures, which helps to drive San Antonio's \$44.1 billion healthcare and biosciences industry. These research investments translate into new medications, treatments and therapies that directly benefit patients and families.

UT San Antonio's Health Science Center, the region's only academic health center, ranked in the top 2.4% of universities worldwide in the 2025 Center for World University Rankings, reaffirming its position as a global leader in biomedical discovery and innovation. It ranked 84th out of 5,868 healthcare

institutions worldwide and 38th in the United States in the 2025 Nature Index of healthcare institutions for research output. This places the institution among the top 2% of healthcare institutions globally.

In the past five years, the university's academic health center has conducted more than 600 clinical research projects leading to advancements in the treatment of cancer, aging-related diseases, Alzheimer's and other neurodegenerative diseases, infectious diseases, mental health, substance use disorders, cardiovascular disease and metabolic diseases including diabetes.

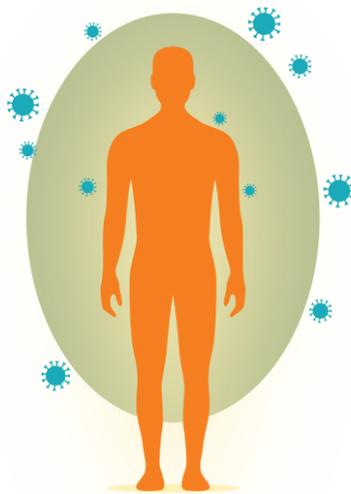
The highlights that follow provide a glimpse of the broad and impactful work of investigators from across the institution to discover and test new therapies, prevent and treat disease and preserve and improve health across the lifespan.



For more stories about research being conducted at the UT San Antonio Health Science Center campus, visit [Newsroom](#).

Immune resilience may increase lifespan

A study from the Long School of Medicine identifies immune resilience — how the body counters disease drivers — as a measurable, adaptable trait that supports healthy aging. Analyzing data from more than 17,500 people, researchers found that individuals with high immune resilience at age 40 lived an average of 15.5 years longer than those with low



resilience. This advantage disappeared by age 70, suggesting the trait may be modifiable until that point. The team pinpointed a key marker of resilience linked to better health, stronger vaccine responses and lower disease risk. The findings highlight a shift from treating disease to strengthening the body's inherent capacity for health through lifestyle, medications or future immunotherapies.



Targeted drug offers hope for treatment of liver disease

San Antonio and South Texas have among the nation's highest rates of obesity and diabetes, which is a major risk factor for metabolic dysfunction-associated steatotic liver disease, or MASLD, a chronic condition in which fat that builds up in the liver can lead to inflammation and damage. A study

co-led by university researchers identifies a promising new drug candidate that could slow MASLD progression and prevent cirrhosis and liver cancer. The novel drug is a senolytic, a therapy that targets and eliminates senescent, or "zombie," cells that drive inflammation and tissue damage. The drug works by degrading two proteins that help these harmful cells survive without the toxic side effects of previous senolytics. This discovery could represent a major step toward effective treatment for MASLD, addressing a critical unmet medical need in liver health.

Tai chi meets scientific rigor to transform health

University researchers are using reflective markers to analyze how tai chi affects balance, coordination and joint load. For older adults or those with knee osteoarthritis, certain movements enhance mobility while others may increase joint stress. This work contributes to the growing field of integrative medicine, which combines conventional care with evidence-based complementary therapies to improve health and reduce reliance on medication. One promising focus explores tai chi's potential to reduce fall risk in older adults with dementia by targeting both mobility and cognition. The team is also developing AI tools that use motion and health data to create personalized tai chi regimens, tailoring treatment for each patient's needs.



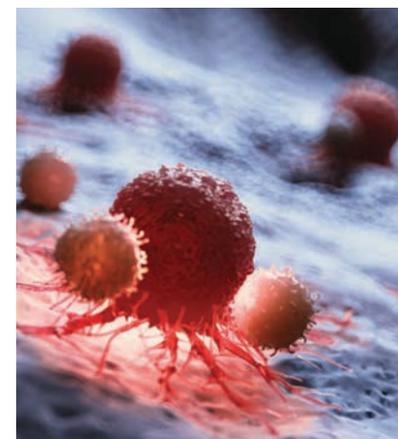
New criteria could provide early warning of Type 2 diabetes

A first-of-its-kind study challenges conventional thinking about the onset of Type 2 diabetes, identifying a risk category before prediabetes called "pre-prediabetes." The study suggests that changes in the body that lead to Type 2 diabetes occur long before current diagnostic thresholds for prediabetes are met and found that one measurement — one-hour glucose levels during an oral glucose tolerance test — is far better at predicting future disease than the current two-hour glucose test. The researchers believe that, especially for high-risk patients and those with family histories of diabetes or cardiovascular disease, early screening and treatment could dramatically reduce rates of progression to prediabetes and Type 2 diabetes.



A psychedelic drug may help treat military members with PTSD

UT San Antonio researchers, in collaboration with Emory University, received a \$4.9 million grant to test whether combining MDMA, also known as ecstasy, with therapy can improve recovery rates for post-traumatic stress disorder. Clinical trial participants will receive either a single dose of MDMA or a placebo early in treatment alongside intensive Prolonged Exposure therapy, which helps patients safely process traumatic memories. Researchers hope the drug's properties will enhance therapy effectiveness, leading to greater symptom relief, reduced depression and suicidal ideation and improved readiness and relationships. If successful, the approach could revolutionize PTSD treatment in military and veteran health systems, where Prolonged Exposure therapy is already a standard of care.

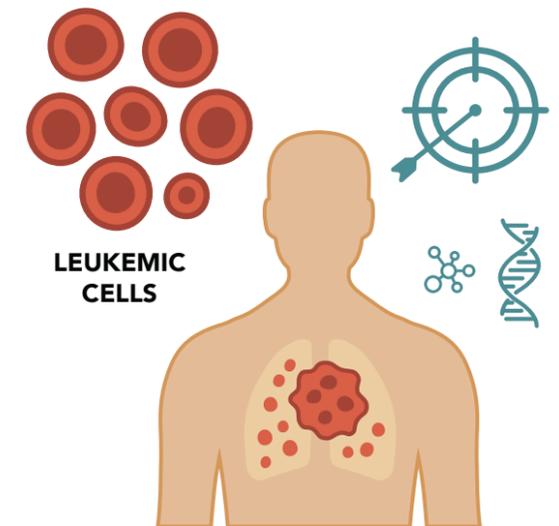


Compound derived from chili peppers has anticancer effects

Researchers from the School of Dentistry and UT Health San Antonio's Center for Innovative Drug Discovery have discovered a promising compound called CIDD99 to treat human papillomavirus-negative oral squamous cell carcinoma, a form of oral cancer that is notoriously aggressive, painful and difficult to treat. The five-year survival rate hovers around 50%, and treatments have changed little in the past half-century. Derived from capsaicin, the spicy compound found in chili peppers selectively blocks calcium signaling in cancer cells by targeting a protein that is overexpressed in tumor cells but not in healthy tissue. Early tests in animal models showed that CIDD99 reduced tumor volumes fivefold, with no observable side effects. Early results also suggest this compound may have broad applicability in multiple cancer types, including lung, breast, prostate, brain and endometrial cancers.

Researchers identify novel drug target for AML

Despite advances in treatment, acute myeloid leukemia, or AML, still has a five-year survival rate of only about 30%. Researchers from the Long School of Medicine and Mays Cancer Center have identified a key driver of the disease, a protein called paraspeckle component 1 that is not needed for normal blood cell development but is essential for AML progression. When this protein was suppressed in human AML cells and mouse models, cancer cell growth decreased, and normal blood cell production was unaffected. Because this protein is overexpressed in AML and in 21 other cancer types, this finding could pave the way for new targeted therapies with broad applications across oncology.





High-frequency, focused ultrasound treatment gives a South Texas couple the stillness they've been seeking

BY KRISTEN ZAPATA

A SOUND SOLUTION TO TREMORS

Searching for answers

A few years ago, the couple began looking for options beyond medications because Deeann Hall wasn't seeing any improvement. One evening, while scrolling online, she came across information about a new therapy called focused ultrasound, described as an incisionless brain procedure that could reduce tremors without surgery.

"Nonsurgical is the word that caught my attention," she said. "It claimed they wouldn't have to cut anything."

The Halls were pleasantly surprised when their neurologist informed them that UT Health San Antonio would soon launch the region's first focused ultrasound program under the direction of Alex Papanastassiou, MD, a neurosurgeon and director of stereotactic, functional and epilepsy neurosurgery.

Within a few months of first meeting Papanastassiou, Deeann Hall became the second patient the program scheduled after its launch.

"Deeann had essential tremor affecting both sides of her body," Papanastassiou said. "Because she's right-hand dominant, we knew we needed to first treat the left side of her brain, which controls the right hand. The tremor made everyday tasks nearly impossible — writing, eating, even carrying a cup or a plate."

In preparation for the procedure, Deeann Hall was informed she would have her hair shaved to prevent air bubbles from interfering with the ultrasound treatment. The night before surgery, her husband showed his support in an unforgettable way by shaving his own head.

"She told me I didn't have to, but I told her I did. We're in this together," he said.

A procedure of precision

On Aug. 5, the team began before sunrise, shaving Deeann Hall's head and fitting her with a head frame to keep her still during the MRI-guided procedure.

"Patients stay awake and aware during the procedure," Papanastassiou said. "This is so we can test for tremor reduction, side effects and adjust the target if needed before making a permanent lesion."

Once on the MRI table, cold water circulated through a specialized cap secured to the head frame to protect Hall's scalp and allow the ultrasound waves to travel from the transducers to her brain.

Papanastassiou aimed for a tiny target in the thalamus called the ventral intermediate nucleus, or VIM, for delivery of focused high-frequency sound waves. The soundwaves converged to generate enough heat in the VIM to create a small lesion disrupting the abnormal electrical activity that caused the tremor.

"We can test the patient as we go, adjusting by fractions of a millimeter, if needed, to achieve tremor control, all without any incision or implant," Papanastassiou explained.

Everything changed

When Rick Hall walked into recovery, he saw his wife crying, but for the best possible reason.

"She held up her hands and said, 'Look!'" he recalled. "Later, she picked up a cup of coffee without a lid, took a drink and set it back down. No shaking. It was like watching a miracle."

The tremor in her right hand had quieted — 95% gone within minutes. Even her head and voice tremors, which improve in about half of patients, disappeared.

"Before treatment, she couldn't even draw a spiral; it was just scribbles," Papanastassiou said. "By the end, she was tracing it smoothly with almost no tremor. To watch her reaction in real time, right before our eyes, was incredibly rewarding."

By lunchtime, Deeann Hall was eating with ease. That evening, she felt something far greater: freedom.



Alex Papanastassiou, MD, (far left) celebrates a successful focused ultrasound treatment with patient Deeann Hall (center) and her husband, Rick Hall. Such procedures exemplify the advanced, precision-based care now available in South Texas at UT Health San Antonio.

Life after tremors

According to Papanastassiou, unsteady walking may occur in about half of patients and typically resolves in two to four weeks, as it did for Deeann Hall.

"They told me I might be a little wobbly afterward," Deeann Hall said, laughing. "I didn't realize how true that was. I was so used to compensating for the tremor that when it was gone, I'd bump into walls because my body wasn't used to being steady."

In May, Deanne Hall will return for her second treatment to address the right side of her brain. Until then, she's savoring all the activities she can now do.

"I can trim my plants again without breaking them," she said. "I can drink my coffee, write my name and just do normal things."

For her husband, the joy was doubled.

"She's happy," he said. "Seeing her do what she loves — it just brings so much joy to me." Their family was equally moved.

"Our children cried," Deeann Hall said. "They'd never known me without the shaking."

'A modern miracle'

Today, the Halls call the focused ultrasound procedure "a modern miracle," and they have become unofficial ambassadors for the treatment, telling everyone they meet who might benefit.

"This kind of success is only possible because of the multidisciplinary team here at UT Health San Antonio's Multispecialty and Research Hospital," Papanastassiou said. "Everyone on our team, including nursing, neurology, radiology, anesthesia, ENT, PMR, physical and speech therapy as well as our support staff, all play a role in helping patients feel safe and cared for throughout the process," he added.

"When you see a patient's hand become still after years of tremor, you know you've changed a life. That's what keeps us motivated — the chance to give people back their confidence, their independence and their joy." ■

DEMENTIA ISN'T DESTINY

Why vascular health may hold the key to cognitive function

BY JESSICA BINKLEY

When most people think about vascular health, the heart typically comes to mind. Controlling blood pressure, managing cholesterol and staying active are often seen as ways to stave off heart disease. But maintaining a healthy vascular system is also critical for another essential organ: the brain.

"Vascular contributions to cognitive impairment and dementia are very common," said Sudha Seshadri, MD, DM, founding director of the Glenn Biggs Institute for Alzheimer's and Neurodegenerative Diseases at UT Health San Antonio. "Over a lifetime, nine out of 10 people in the U.S. will develop hypertension, so the risk of developing damage to the brain because of injury to the blood supply is extremely high."

Vascular cognitive impairment and dementia, or VCID, is the second-most-common cause of dementia after Alzheimer's disease, often overlapping with it. According to the Centers for Disease Control and Prevention, it accounts for 5% to 10% of dementia cases on its own, but experts say that in mixed cases, vascular injury plays a role far more often.

"The most common form of dementia isn't just one type — it's a mixture. It's what we call multiple etiology dementia, and vascular injury is the most frequent contributor to that mix," Seshadri said.

"Even when someone has Alzheimer's disease, we still need to ask: Are there vascular contributions that we can manage? Because treating those may slow progression more than any single drug we have right now."

Signs of vascular injury to the brain

Symptoms of VCID differ from those of other dementias, like Alzheimer's disease, and they present in a number of ways depending on what part of the brain is affected by the vascular injury.

"Someone who suffers a big stroke could have critical regions like the thalamus knocked out. That area controls motivation and planning," Seshadri explained. "Or, someone could have a series of smaller strokes that collectively impair function. You might see signs like slowed thinking, trouble with language and executive function and physical symptoms like difficulty walking — features that differ from the typical early symptoms of memory impairment seen in Alzheimer's disease."

Other signs include emotional changes, such as inappropriate laughing or crying, known as pseudobulbar affect, and a higher prevalence of depression.

"These clinical features can give doctors clues that vascular issues are involved," Seshadri said.

Advancing care through AI

In addition to how clinical symptoms present, advanced imaging can help clinicians diagnose and detect brain changes earlier and more precisely.

An artificial intelligence tool developed at UT Health San Antonio can accurately count brain lesions on MRI scans within seconds, helping neuroradiologists evaluate patients' brain diseases at earlier stages. With this technology, doctors are able to not only see the signs of vascular injury like microbleeds or enlarged perivascular spaces with the imaging, but also quantify the imaging.

"We can quantify changes to the brain, the number, the intensity and the location of

the changes in the brain,” Seshadri said. “All this information is crucial to helping our understanding of what’s causing them, which can lead to developing better treatments.”

Small vessels, large damage

While a large stroke can cause devastating damage, the more common contributor to vascular injury is not from the large arteries, but from cerebral small vessel disease, which affects the tiny vessels deep in the brain, Seshadri explained.

When these small vessels become obstructed, they can impair oxygen flow, causing numerous small, silent strokes. Obstructed small vessels can also burst, causing small hemorrhages, or microbleeds.

Common causes for cerebral small vessel disease are hardened arteries, or arteriosclerosis, and cerebral amyloid angiopathy, which is when amyloid protein — the same found in Alzheimer’s disease — deposits in blood vessel walls, causing them to leak or rupture.

While injury to small vessels doesn’t present as dramatically as having a large stroke, over time it can lead to widespread structural damage.

“Some people can have hundreds of microbleeds in their brain,” Seshadri said. “And as you can imagine, it causes a lot of disruptions to a person’s daily tasks and functioning.”

Findings from the Nun Study, a landmark study analyzing more than 30 years of aging and

dementia patterns of 678 nuns from the School Sisters of Notre Dame — now housed at the Biggs Institute — discovered the integral role of damage to the small vessels of the brain in developing dementia.

Researchers found that among elderly nuns whose brains had equal levels of amyloid plaques and tau tangles — the key features of Alzheimer’s disease — those who had a large stroke were five times more likely to have dementia. But those with the small, silent strokes caused by cerebral small vessel disease were 20 times more likely to have dementia.

“Because of this finding, today there is a lot of emphasis on what is causing this small vessel disease and how to treat and prevent it,” Seshadri said.

Prevention begins with awareness

Fortunately, there are many lifestyle factors that, when managed, can greatly reduce a person’s risk of developing VCID.

“The same risk factors that lead to heart disease, like high blood pressure, diabetes and inflammation, are heavily involved in brain injury, too,” Seshadri said. “So, managing blood pressure, staying physically active and avoiding smoking can all reduce your risk.”

Seshadri emphasized that maintaining good vascular health is always a good idea, no matter the condition.

“Even if someone has Alzheimer’s or a different type of dementia, hypertension adds to more risk and more injury,” she said. “So, regardless of whatever type of dementia someone may have, it’s important to remember that there could be vascular factors that have the potential to be managed, which can slow down that disease.”

A new era of dementia care

In South Texas, where dementia rates are higher than the national average, specialty care and focused research efforts are critical for the health of the community.

“While we don’t fully understand why South Texans are at greater risk, we do know that this region has higher rates of vascular risk factors like diabetes and obesity, which contribute to vascular dementia,” Seshadri said.

At the Biggs Institute, vascular cognitive impairment and dementia are a key focus for clinical care, community outreach and major research initiatives. In addition, UT San Antonio’s Biggs Institute, in collaboration with UT Rio Grande Valley, holds the premier designation by the National Institute on Aging (NIA) as an Alzheimer’s Disease Research Center (ADRC). The South Texas ADRC is one of 33 funded by NIA at major medical centers across the United States and is the first one in Texas.

The recent opening of UT Health San Antonio’s Center for Brain Health in December 2025, which houses the Biggs Institute, will further bolster the university’s efforts to serve the community. The new facility advances comprehensive brain health research and provides innovative expert care for patients with a wide variety of neurodegenerative diseases, movement disorders and complex neurologic conditions.

The center’s current and future research efforts will benefit from significant recruitment of South Texans into clinical trials, helping to expand the nation’s understanding of how brain-related diseases affect populations in this region. The center also serves as a training venue for medical residents and postgraduate trainees, ensuring the future of sustained neurological care for the community. ■



“Even when someone has Alzheimer’s disease, we still need to ask: Are there vascular contributions that we can manage? Because treating those may slow progression more than any single drug we have right now.”

— SUDHA SESHADRI, MD, DM

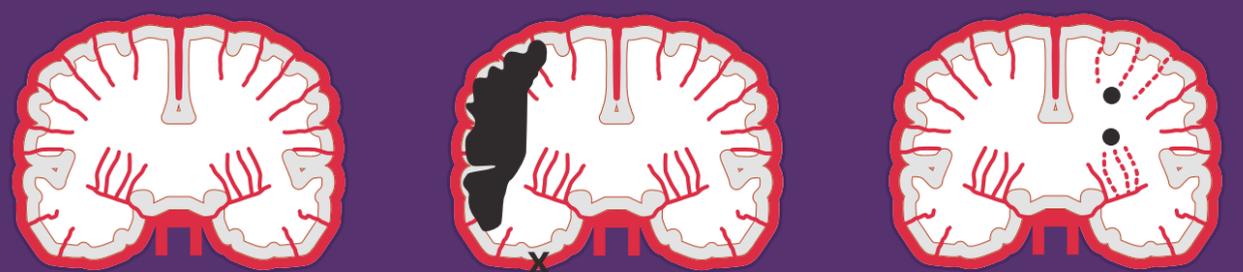


Illustration of a healthy brain showing the large and small vessels depicting no obstructions to the large arteries (thick, red outer line) or the small vessels (thin, red interior lines).

In a major stroke, large artery obstruction (black X) occurs suddenly and results in a large lesion (black area) that can cause devastating damage in that region.

Small vessel obstruction (dotted red lines) can cause numerous “silent strokes” over time, resulting in multiple lesions (black dots) deep in the brain, causing widespread damage.

Source: The illustrations above are an adaptation of large- and small-vessel lesion illustrations included in “Progress to Clarify How NOTCH3 Mutations Lead to CADASIL, a Hereditary Cerebral Small Vessel Disease” published in *Biomolecules*, January 2024.

CHANGING THE TYPE 2 TRAJECTORY

Researchers are racing to turn around troubling trends in the rise of child and adolescent diabetes

BY ORITH FARAGO

South Texas has become an epicenter for obesity and Type 2 diabetes, with about 16% of San Antonians — or one in six — living with Type 2 diabetes. And experts are seeing a disturbing trend of this disease among young people.

“The rates of Type 2 diabetes over the last 20 years have dramatically risen in children,” said Jane Lynch, MD, FAAP, pediatric endocrinologist and interim chief of the Division of Endocrinology in the Joe R. and Teresa Lozano Long School of Medicine. “In fact, of all our new onset children with diabetes, 50% are over the age of 10 and can present very sick.” Five years ago, a child as young as five years old was diagnosed with Type 2 diabetes, Lynch added.

The growing rate of diabetes and prediabetes is a major public health issue, said Marzieh Salehi, MD, MS, FACP, an endocrinologist and a professor of medicine in the Long School of Medicine.

“If a child went to the emergency room 20 years ago and they had high glucose numbers, most definitely the diagnosis was Type 1 diabetes, meaning that the pancreas cannot produce the insulin,” Salehi said.

Now, particularly in adolescents with high glucose numbers, the diagnosis is just as likely to be Type 2 diabetes, Lynch said. While the initial intervention for adolescents is always to make lifestyle changes, the use of approved medications is sometimes appropriate to lower insulin resistance and appetite, added Lynch.

As experts in their fields — Lynch in pediatric endocrinology and Salehi in adult endocrinology — these two investigators are paving the way for

improvements in the treatment of Type 2 diabetes through landmark research into medications that could help stem the tide of this growing epidemic.

The rise in Type 2 among youth

A number of factors have contributed to the rise in childhood Type 2 diabetes, including more sedentary lifestyles and increasing rates of obesity, said Lynch. With the hot summers, social deserts in which children may be disconnected from larger social networks and limited outdoor activities, the rate of obesity in South Texas continues to outpace the national average, she added.

“Obesity continues to rise in children,” Lynch said, adding that, nationally, from 2017 to 2020, it was estimated that 20% of adolescents in the United States were obese, with similar trends in other countries.

“For obesity, one of our biggest worries now is the high rates of hypertension, fatty liver and sleep apnea that go along with the weight gain and lead to adult complications at an earlier age,” Lynch said. “In the U.S., the prediction is that about 60% of children will become obese by age 35, and if you’re a teenager, you have a 90% chance of staying obese in adulthood,” Lynch said.

Obesity, particularly when associated with increased stomach fat distribution and increased fat in the liver and skeletal muscle, is a major risk factor for prediabetes and Type 2 diabetes.

Developing Type 2 diabetes depends not only on body mass index and obesity, but also on one’s predisposition to insulin resistance, and this can be impacted by one’s ethnic and genetic background, Lynch said.

“You might have two kids with the same body mass index, but one who comes from a family with a high rate of Type 2 diabetes will be much more predisposed to having the disease than the other child,” Lynch said.

Puberty is a high-risk time

Type 2 diabetes is rooted in two disorders: The body can’t produce enough of the hormone insulin to lower blood sugar, and at the same time, the body is resistant to the action of insulin. Insulin resistance hinders the body’s ability to lower blood sugar levels and can increase the risk of developing Type 2 diabetes.

“We know that children who are obese by the age of 10 have become much more insulin resistant with pubertal hormones. Thus puberty, similar to pregnancy, creates a high-risk time for diabetes

“For obesity, one of our biggest worries now is the high rates of hypertension, fatty liver and sleep apnea that go along with the weight gain and lead to adult complications at an earlier age.”

— JANE LYNCH, MD, FAAP

development in susceptible individuals,” Lynch said, adding that the first sign of insulin resistance is acanthosis, or darkening and thickening of the skin around the neck.

Interestingly, girls are more insulin resistant than boys, with two girls for every one boy diagnosed with Type 2 diabetes before the age of 18, Lynch said. Girls with insulin resistance are also at high risk for developing polycystic ovary syndrome — an endocrine disorder marked by a hormonal imbalance. Boys with insulin resistance are at high risk for fatty liver, Lynch added.

Lifestyle changes and bariatric surgery

Because obesity is a risk factor for developing Type 2 diabetes, the American Academy of Pediatrics recommends that children age 6 and over in the overweight or obese categories begin lifestyle treatments to limit sweet drinks and portion sizes and set activity goals. However, multiple studies have shown that lifestyle changes have been fairly ineffective, Lynch said, and many pediatricians may not have the time needed to devote to counseling.

Another treatment option for children with Type 2 diabetes is bariatric surgery, which changes the





16%

OF SAN ANTONIANS ARE LIVING WITH TYPE 2 DIABETES



60%

OF CHILDREN ARE LIKELY TO BECOME OBESE BY AGE 35

internal workings of the stomach to reduce food intake. However, this highly intensive surgery in children is considered only under strict criteria, and the decision process is more complex than for adults, Salehi said.

"The selection of candidates in this age group involves more stringent requirements and extensive multidisciplinary support," Salehi said. "Parental involvement and commitment to the child's long-term care and lifestyle changes are essential. Additionally, insurance coverage can vary and is often more limited for pediatric cases, which may further influence decision-making."

As such, these surgeries remain relatively uncommon in children and are typically reserved for severe cases, Salehi said.

While bariatric surgery may not be the most-utilized option for children, the effectiveness of this surgery on both children and adults has played a role in the development of medications that have become increasingly popular not only for their anti-diabetic and anti-obesity applications, but for their cardiovascular, cognitive, kidney and sleep apnea benefits. And researchers like Lynch and Salehi are at the forefront of this breakthrough research.

Game-changing medications

The diabetes and weight loss medications now sweeping the nation are made to mimic the action of two naturally made gut hormones: glucagon-like peptide 1, or GLP-1, and glucose-dependent insulinotropic polypeptide, or GIP. These gut hormones are released after eating and regulate blood sugar by stimulating insulin release.

Interestingly, the very first GLP-1 receptor agonist was discovered in the mid-1990s in the venom of a Gila monster, a lizard native to the southwestern

United States and Mexico. According to the U.S. Department of Veterans Affairs, researchers found that the hormone in the Gila monster venom — called exendin-4 — stimulates the body's insulin production and works like the GLP-1 hormone found in the digestive tract in humans. The discovery was licensed to a pharmaceutical company to develop into a drug, and a synthetic version of exendin-4 was approved for medical use by the U.S. Food and Drug Administration in 2005 and sold commercially.

Clinical trials leading up to the drug's approval demonstrated improvements in glycemic control accompanied by weight loss and no risk of hypoglycemia, Salehi said. Since then, multiple GLP-1 and GIP-based medications have been developed not only for diabetes and obesity, but also for related complications such as cardiovascular disease, kidney disease, sleep apnea and neurodegenerative conditions like Alzheimer's disease. Ongoing trials are underway to explore the metabolic benefits of molecules that mimic the action of other hormones involved in weight loss and liver metabolism in addition to those for GLP-1 and GIP medications.

"This is a new horizon for targeted treatment of various metabolic conditions and reduction of metabolic-related mortality," Salehi said. In fact, Salehi is leading the first-of-its-kind clinical trial on the impact of a GLP-1 medication on the regulation of blood sugar in people with spinal cord injuries and Type 2 diabetes. This population has a two- to three-times higher rate of Type 2 diabetes, more metabolic conditions and much higher rates of fatty liver.

"The immediate impact would be that we are confirming the safety of this drug in this population," Salehi said.

From research to new treatments

Researchers are now starting to mix GLP-1 medications with other gut hormones to enhance their effectiveness or reduce side effects for these drugs, Lynch said.

"That's the future. These newer 'cocktails' of GLP-1 drugs mixed with other gut hormones — which also regulate insulin secretion and appetite — are also being studied for youth but not yet approved for those under 18," Lynch said. She has been at the forefront of studies on the effectiveness and safety of GLP-1 medications to treat Type 2 diabetes and obesity in kids.

Lynch and collaborators initiated a study on treatment options for Type 2 diabetes in adolescents and youth, or TODAY. The university's Health Science

Center was one of 13 sites for this landmark National Institutes of Health study spanning over a decade, with an initial study from 2004 to 2011 to evaluate the effects of one of three treatments: the use of the frontline Type 2 diabetes medication metformin to reduce blood sugar levels, the use of metformin plus the antidiabetic drug rosiglitazone, or metformin plus an intensive lifestyle intervention. The initial study included 699 adolescent participants ages 10 to 17 with youth-onset Type 2 diabetes.

A follow-up, observational study was then conducted with 500 participants from 2011 to 2020. The multiyear study, published in the *New England Journal of Medicine*, highlighted the devastating outcomes for youth with the onset of Type 2 diabetes before reaching the age of 18 and brought awareness to the uniquely high risks and rapid progression of complications seen in youth from this age group, Lynch said.

"With this study, we realized the two-to-one ratio of girls to boys having Type 2 diabetes was national," Lynch said. "We realized the complication rates for young-onset Type 2 youth were very accelerated. Due to pubertal hormones and insulin resistance, the onset of hypertension, fatty liver, eye disease, kidney disease and heart disease were very accelerated," Lynch said.

Furthermore, "The pregnancy outcomes for girls were especially scary, with unexpectedly high rates of miscarriages and fetal anomalies, so we are very motivated to be aggressive in managing Type 2 diabetes," Lynch added.

The next frontier: Prevention

Previously, Lynch participated in a study that led to the first FDA approval of a GLP-1 therapy for youth ages 10 to 18 and has been involved in studies of five categories of adult medications for kids, enabling the university to be on the frontlines of this research. Currently, she is participating in three studies involving GLP-1 medications in youth and continues to be on the forefront of the GLP-1 research among youth with Type 2 diabetes.

Because of her participation in these landmark studies, Lynch likewise sits on multiple international committees to monitor safety in these types of trials for children. She credits these accomplishments and her participation in these groundbreaking studies to the expertise and skill of her research colleagues and the close collaboration between the pediatric endocrinologists and the adult diabetes unit at the university.



Jane Lynch, MD, FAAP, a pediatric endocrinologist, has seen the rates of Type 2 diabetes among children and adolescents rise dramatically during the past 20 years.

With the now widespread use of GLP-1 medications, researchers continue to modify and mix GLP-1 hormones with other related gut hormones to further enhance the effectiveness of Type 2 diabetes medications, Lynch said.

"While we realize there may be challenges in helping families to afford approved GLP-1 medications for youth, the ability to treat kids who have Type 2 diabetes with these approved medications has been a huge game changer," Lynch said. "We now have begun to explore how to safely use these medications to prevent Type 2 diabetes and obesity-related complications, which has a lot of potential." ■



Read more in *Mission* online about Salehi's clinical trial research studying the correlation between Type 2 diabetes and individuals with traumatic spinal cord injuries.



THE PATTERN BENEATH THE

One orofacial pain specialist is helping patients and students connect what others miss — that chronic pain, like a tangled thread, requires time, skill and compassion to unravel

BY KRISTEN ZAPATA

PAIN

When Linda Bonnet first met Sovna Shivani Mishra, BDS, MDS, a clinical assistant professor at the School of Dentistry, she felt something she hadn't in years: She felt understood.

For more than a decade, Bonnet has lived with persistent pain from a temporomandibular disorder, or TMD, a condition that affects the jaw joint and surrounding muscles.

"It's not only my jaw," she said. "The pain radiates up my neck, across the upper back, into terrible headaches — it affects the whole upper part of my body."

Her journey to relief has been long and often frustrating. She had seen more than 20 healthcare providers since 2014. Many recommended surgery to break and reconstruct her jaw.

"Then came Dr. Mishra," Bonnet said.

Between dentistry and medicine

Mishra is a rising leader in the emerging specialties of orofacial pain and dental sleep medicine. Since joining the school last fall, where she also provides care at UT Dentistry's Oral Medicine Clinic, Mishra has worked to elevate both dental education and patient care while demonstrating that dental health extends far past teeth and gums.

"TMD and sleep-related disorders not only cause discomfort, but also disrupt lives," Mishra said. "These are chronic pain conditions. They require empathy, education and a treatment plan that addresses the whole person."

Orofacial pain refers to pain felt in the mouth, jaw, face, head and neck. It can stem from the jaw joint itself, surrounding muscles, nerves or even referred pain from other parts of the body. Conditions like TMD, certain types of headaches and nerve pain and stress-related pain often fall under this category — and they are frequently misunderstood or misdiagnosed, noted Mishra.

Dental sleep medicine focuses on the dental treatment of sleep-disordered breathing, including obstructive sleep apnea and sleep bruxism, or the act of teeth grinding and clenching during sleep. Dentists trained in this area look for physical issues that can make breathing harder during sleep — such as enlarged tonsils, a narrow airway or jaw alignment issues — and offer non-surgical treatments, including custom-fitted dental appliances designed to move the jaw in a position that keeps the airway open and reduces nighttime symptoms.

"These are areas where dentistry and medicine intersect," Mishra said. "A dentist may be the first to recognize signs of a serious sleep issue during a

“[Patients] might not think to mention sleep disturbances, headaches or a history of anxiety. But all of those factors could be connected to the pain they’re experiencing.”

— SOVNA SHIVANI MISHRA, BDS, MDS

Shivani Mishra, BDS, MS, evaluates patient Linda Bonnet during a visit focused on assessing and treating her orofacial pain.



routine exam. They can educate their patients and refer them to a physician. That’s why awareness, screening and interdisciplinary collaboration are so critical.”

Unlike more routine dental conditions, TMD and other sleep-related disorders often overlap with other health concerns, including neck tension, migraines, anxiety, insomnia and even cardiovascular issues.

Mishra trains dental students to recognize these broader health indicators, teaching them to ask about sleep quality, jaw clenching and pain patterns during patient visits. It’s a shift from reactive to proactive care and from siloed specialties to collaborative solutions.

“The field is young,” Mishra said. “Orofacial pain only became a recognized dental specialty five years ago. And dental sleep medicine is still growing. But these are essential areas where dentists and physicians must work together.”

Mishra is laying the groundwork to build just that kind of integrated care at UT Health San Antonio — offering patients a more comprehensive, thoughtful and empathetic path to pain relief.

Finding relief

From Bonnet’s first appointment with Mishra, the difference was immediate.

“It was phenomenal,” Bonnet shared. “It was the first time in years I felt someone truly understood what I was going through — the trauma, the chronic pain, the reality of living with something that doesn’t have a permanent fix.”

What struck her most was the way Mishra approached care: not as a clinical checklist, but as a relationship rooted in respect, compassion and whole-body understanding.

“She goes above and beyond the standard protocol,” Bonnet said. “She tailors treatment to the person in front of her. That’s what makes her care so exceptional. It’s focused, individualized and deeply personal.”

Mishra recommended a new, better-fitting and balanced bite guard for Bonnet and provided gentle jaw exercises to help her manage flare-ups. Bonnet continues to use these conservative strategies and physical therapy techniques to cope with her pain. But according to her, the biggest difference isn’t physical.

“I don’t feel lost anymore,” Bonnet said. “I’m seen. I feel less fear knowing that if I get into trouble, I have someone I can call.”

The next generation

Mishra brings that same philosophy to her students. She teaches first-year dental students the foundational anatomy of the jaw, head and neck, often expanding their understanding beyond traditional textbooks.

“I show them what normal anatomy looks like, so they can better spot abnormalities,” she said.

By their third year, students are applying that knowledge to real-world patient scenarios. Mishra creates mock case studies to help them practice clinical reasoning, encouraging them to recognize

subtle symptoms and ask the right questions — questions most patients don’t expect from a dentist.

“As a component of the comprehensive evaluation, we screen for patients who may have underlying disorders. We’ll ask if they frequently wake at night, experience choking or gasping episodes, feel drowsy during the day or have ever fallen asleep during a meeting,” Mishra said.

This extensive medical history questionnaire is central to her clinical teaching and something she uses with every new patient. Questions cover more than sleep quality; Mishra inquires about recent stressors, past trauma, other coexisting chronic pain conditions, psychosocial status of the patient, pain coping mechanisms, impact of pain on daily activities and more. These questions are essential, she said, because pain is rarely isolated — especially in chronic cases.

“Patients don’t always know what’s relevant to tell their dentist,” she explained. “They might not think to mention sleep disturbances, headaches or a history of anxiety. But all of those factors could be connected to the pain they’re experiencing.”

Mishra teaches students to view this history as a window into the patient’s lived experience. The goal is not only to identify symptoms, but also to build trust, validate the patient’s story and design treatment with a clear understanding of the person in front of them.

“Every dentist will encounter a patient with orofacial pain,” Mishra said. “My goal is to make sure they’re ready to recognize it and equipped to respond with skill and empathy.”

A better path forward

As the School of Dentistry continues to grow in recognition — including being ranked the No. 1 dental school in Texas and consistently ranked among the top in the nation for National Institutes of Health funding — Mishra’s presence is helping expand the definition of what modern dentistry can offer.

She envisions a future where orofacial pain education and research are embedded into the core of dental training, including her dream of creating a formal residency program in the specialty at the university. Such a program would serve as a pipeline for future experts and help establish the institution as a national leader in the diagnosis and management of complex pain conditions through dentistry.

Mishra’s vision aligns with the institution’s evolving culture of medical–dental collaboration. At the clinic level, she’s already building bridges to work closely with sleep physicians, physical therapists,

psychologists, and ear, nose and throat specialists and primary care teams to deliver comprehensive care. And university-wide, she is part of a broader movement to integrate health professions education across disciplines.

Her efforts are also supported by Kenneth Hargreaves, DDS, PhD, a globally recognized expert in pain research who was named dean of the School of Dentistry in May 2025. As director of the school’s Center for Pain Therapeutics and Addiction Research, Hargreaves champions a research culture focused on translational breakthroughs in pain relief and human health. He notes the need for empathy and a holistic approach to treating patients for pain and sleep disorders and suggests that progress is already visible in the kind of care being delivered — care that listens, adapts and affirms.

“Our dental school has decades of expertise in unraveling the mechanisms of acute and chronic pain and in developing novel therapeutic approaches to treat it. With the critical arrival of Dr. Mishra, we now are expanding our clinical expertise to fulfill our mission to make lives, and smiles, better,” said Hargreaves.

For Bonnet, her trust as a patient is about being seen and heard.

“Dr. Mishra is a rare kind of provider. She doesn’t see symptoms — she sees the person behind it all, and that changes everything.” ■

MYTH VS FACT

What that jaw pain really means

True or false? Temporomandibular disorders are a dental problem, not a medical one.

Fact: TMD exists at the intersection of dentistry and medicine. Collaborative care — involving dentists, physical therapists, psychologists and physicians — is often essential.



To test your knowledge of other TMD myths and facts, visit *Mission* online.



THE GIFT OF MORE TIME

New research is advancing promising treatments to double the survival time for patients with brain cancer and to block tumor recurrence

BY STEVEN LEE

If you are not familiar with glioblastoma, you might know some names of those it's killed.

This most aggressive of brain cancers crosses political aisles, spans musical genres and touches sports, activism, media and beyond. U.S. Sens. John McCain and Ted Kennedy, Delaware Attorney General Beau Biden and U.S. Rep. Mia Love. Canadian rocker Neil Peart and Southern rocker Brit Turner. Major leaguers Gary Carter and Tug McGraw, reproductive rights advocate Cecile Richards and National Public Radio's Neal Conan.

But university researchers are at the forefront of seeing that the insidious disease becomes less familiar, less deadly.

In just the last year, they have discovered a drug that could more than double survival time for glioblastoma patients, as well as a class of experimental drugs that could block the disease's recurrence, a major clinical problem. Before that, they found that a drug effective in treating breast cancer showed promise in addressing brain metastases or recurrent glioblastoma that progress from breast cancer.

"As a disease with a pattern of recurrence, resistance to chemotherapies and [that is difficult] to treat, glioblastoma has needed durable treatments

that can directly target the tumor while sparing healthy tissue," said Andrew J. Brenner, MD, PhD, professor and chair of neuro-oncology research with Mays Cancer Center at UT Health San Antonio.

The median overall survival time for patients with glioblastoma after standard treatment with surgery, radiation and chemotherapy is only about eight months, Brenner said. And more than 90% of patients have a recurrence of the disease at its original location.

Brenner, who also is clinical investigator for the Mays Cancer Center's Institute for Drug Development and co-leader of its Experimental and Developmental Therapeutics Program, said that new trials and research are providing new hope for a disease that is the most common primary brain tumor in adults and that can recur quickly and even more aggressively.

Extending survival time

One such trial revealed that a unique investigational drug formulation called Rhenium Obisbameda more than doubled median survival and progression-free time — the duration from the start of a treatment to when a disease progresses or worsens — compared with standard median survival and progression rates. The drug also had no evident side effects serious enough to prevent increasing the dose.

Brenner was lead author of the trial's study, published in March 2025 in *Nature Communications*. In this trial, scientists set out to determine the maximum tolerated dose of the drug, as well as safety, overall response rate, disease progression-free survival and overall survival.

patients who were enrolled in the study between March 5, 2015, and April 22, 2021, were treated with the drug administered directly to the tumors using neuro-navigation, a computer-assistance guidance technology, and a specialized device called a convection catheter.

The researchers observed a significant improvement in survival compared with historical controls, especially in patients with the highest absorbed doses. The study patients had a median survival and progression-free time of 17 months and six months, respectively, for doses greater than 100 gray, which refers to the units of radiation.

Importantly, the researchers did not observe any dose-limiting toxic effects, with most adverse effects deemed unrelated to the study treatment. A phase 2 trial is underway.

Blocking recurrence

Brenner's study came on the heels of another that discovered a way to delay or even block recurrence of glioblastoma, bringing new hope for survival. It came with a note of irony.

Scientists found that the customary treatment for the disease — ionizing radiation — can also cause tumors to recur by generating senescent, or aged, cells that secrete molecules that can spur growth of neighboring cancer cells.

When a tumor is radiated, a cancer cell can either die or remain alive but be permanently unable to divide further, a state called senescence, with both outcomes controlling tumor growth. However, researchers in this study discovered that senescent glioblastoma cells secrete large amounts of growth factors and other molecules that can act on persisting cancer cells and encourage them to re-proliferate.

But these researchers also discovered that a new class of experimental "senolytic" drugs given after radiation can kill those senescent cells while sparing normal ones, thereby stemming recurrence.

Senolytic gets its name from the words "senescence" and "lytic," or destroying. A senolytic refers to a novel class of small molecules thought to selectively induce death of senescent cells.

"These findings lend credence to the 'one-two punch' approach to radiation therapy, where radiation or other agents are first used to induce senescence in a tumor, and then the senescent cells are removed by a senolytic," said Sandeep



"As a disease with a pattern of recurrence ... glioblastoma has needed durable treatments that can directly target the tumor while sparing healthy tissue."

— ANDREW J. BRENNER, MD, PHD

Burma, PhD, professor and vice chair, research, of neurosurgery and co-leader of the Cancer Development and Progression Program of the Mays Cancer Center.

Burma and Bipasha Mukherjee, PhD, associate professor of neurosurgery at the university, were lead authors of this study, published in February 2025 in *EMBO Molecular Medicine*.

A double-edged sword

Burma's lab has focused on understanding the forces driving recurrence and strategies to block the process. Specifically, they set out to understand whether senescence of cancer cells after radiation therapy — also called therapy-induced senescence — might counterintuitively be driving recurrence.

Burma said that ionizing radiation, which is routinely and, in many cases, effectively used to treat cancer, is a double-edged sword since radiation also is a powerful carcinogen.

For glioblastoma, radiation is still the most effective therapy. But radiation exposure also is the only known risk factor for its development and could perhaps also drive recurrence. What to do?

End of senescence

The researchers found that senescent glioblastoma cells rely on an anti-apoptotic protein, or one that

slows or prevents cell death, known as cIAP2, for survival. They also found that targeting cIAP2 with a senolytic drug called birinapant in mouse tumor models after radiation could kill senescent cells while sparing normal cells.

They tested their approach in multiple mouse models of glioblastoma and found that, while the drug was not effective on its own, it was very effective at delaying or even preventing recurrence if given as an "adjuvant," a secondary treatment after the primary treatment of radiotherapy.

"These pre-clinical results highlighting a novel senolytic approach for glioblastoma are very exciting from a clinical standpoint as they clearly indicate that significant improvement in patient survival may become possible by eliminating senescent cells arising after radiotherapy," Burma concluded.

Nexus of breast and brain cancers

The year before, UT Health San Antonio researchers found that the drug sacituzumab govitecan, effective in treating breast cancer, was well-tolerated and showed signs of effectiveness for those whose breast cancers had metastasized to the brain. The scientists made the discovery from a "window trial," or one in which patients agree to be treated with a novel drug before undergoing surgery.

About half of all women with the aggressive and advanced triple-negative form of breast cancer will be diagnosed with brain metastases, and the prognosis is poor, with a median overall survival of just more than seven months.

Brenner was lead author of the trial's study, published in August 2024 in *Nature Communications*.

"We knew that the drug has been effective in the treatment of breast cancer, but its usefulness in treatment of resulting brain tumors has been unclear," he said. "Our trial, however, revealed that it could achieve concentrations of inhibitors inside the tumors sufficient to benefit patients, and with minimal side effects, which is very promising for new therapy."

Addressing an unmet need

Treatment for tumors originating from breast cancer typically involve surgery, radiotherapy and systemic therapies that target the entire body, though these measures are often unsuccessful. Aggressive glioblastoma represents about half of those brain malignancies.

This unmet need to address breast cancer with

brain metastasis and recurrent glioblastoma has been limited by many factors. Unlike chemotherapy, sacituzumab govitecan is intended to target and kill tumor cells while sparing healthy cells.

The trial at UT Health San Antonio enrolled 25 patients, ages 18 or older, who had been diagnosed with breast cancer with brain metastases or recurrent glioblastoma. Each received a single intravenous dose of the drug one day before tumor-tissue removal and then again on days 1 and 8 of 21-day cycles following recovery. The timeframes were eight months for patients with breast cancer with brain metastases and two months for those with recurrent glioblastoma.

The researchers discovered significant penetration of SN-38, a potent anti-cancer agent, inside the tumors that was delivered by the drug to fight their development, and without unexpected adverse effects on the patients. The data would support investigation in a phase 2 clinical trial of the drug in recurrent glioblastoma.

Continuing research, trials

As the academic health center of The University of Texas at San Antonio, UT Health San Antonio conducts and participates in hundreds of clinical trials at any time across the spectrum of chronic disease and human health conditions. Within this broad context, the institution's physician-scientists have helped improve brain tumor treatments in significant ways. And through continued research, they offer emerging therapies to eligible patients affected by early and advanced diseases, including glioblastoma.

"Our research can have a profound impact on families facing a brain cancer diagnosis," Brenner said. "Just knowing that what we do can potentially extend lives and allow patients to have more time with their families makes all this worthwhile. It is why we do what we do."

"Glioblastoma has claimed the lives of countless individuals, famous and otherwise. Our patients aren't famous, but our goal is for them not to become known or defined by this disease — and to cure or give them a new lease on life." ■



Learn more about the cancer clinical trials and research at Mays Cancer Center.



A MATTER OF MIND AND BODY

Envisioning a future where individuals with serious mental illness and other chronic health conditions can gain the skills and support they need

BY KATE HUNGER

Just over 3% of occupational therapists in the U.S. specialize in behavioral health. Associate Professor Chinyu Wu, PhD, OTR, is one of them.

Occupational therapists work with people of all ages to help them achieve the activities, or occupations, of daily living that are important to them. When a person is living with serious mental illness, carrying out such everyday activities can be problematic. And that makes managing other chronic diseases even more challenging.

“We have heard from clinicians as well when one condition is not addressed it is going to impact the other,” Wu said.

Wu believes occupational therapy is the best-kept secret in behavioral health services today and noted that many people with serious mental illness who would benefit from occupational therapy services do not have access to them.

“We see every client as [a unique individual] who has interests, who has values, who has preferences,” Wu said. “For people with mental illness, their challenge is not related to mobility but to the impact of the mental illness that may make it not as easy to remember or to learn tasks. So, we have to consider the cognitive challenges that they acquire along with the illness.”

Wu envisions a future in which people with both serious mental illness and another major health condition are able to gain the skills and support they need to manage both. To help make that vision a reality, she is leading an interdisciplinary project to create Lifestyle MIND, or mental illness and diabetes — an evidence-based lifestyle intervention for people with Type 2 diabetes and a diagnosis of serious mental illness, such as major depression, bipolar disorder and schizophrenia.

Type 2 diabetes has more than twice the prevalence in people with serious mental illness as in the general population, and people with serious mental health diagnoses are rarely included in research studies on diabetes — two reasons why Wu selected diabetes as the comorbid health condition on which to build the intervention.

Wu wants to create an intervention that eventually can be adapted to work with serious mental illness and other chronic health conditions. Then she wants to make it available to occupational therapists near and far.



“For people with mental illness ... we have to consider the cognitive challenges that they acquire along with the illness.”

— CHINYU WU, PHD, OTR

The main reason Wu is working on Lifestyle MIND is that people with mental illness generally have a life expectancy from 10 to 20 years shorter than other people, and it's not because of their mental illness, Wu said.

“It's because of their chronic diseases, including diabetes,” she said. “And that is not right.”

Lifestyle interventions

Research shows that people with diabetes need physical activity and lifestyle change, but the comorbidity of serious mental illness adds layers of complexity.

Lifestyle MIND is a 10-week, interdisciplinary in-person program featuring a weekly occupational therapy lifestyle class and a physical activity class designed to help participants build healthy habits. It incorporates trauma-informed care, motivational interviewing and cognitive adaptation training approaches so that clients are empowered to actively collaborate with occupational therapists and physical therapists to change their behaviors.

With initial funding through a 2023 Community Service Learning grant from the institution's Center for Medical Humanities and Ethics, Lifestyle MIND grew out of a collaboration with Bexar County's Center for Health Care Services, which operates an integrated care clinic at Haven for Hope, a campus

that offers services and care to homeless people in San Antonio.

According to 2024 data from the U.S. Department of Housing and Urban Development, about 18% of people who are homeless have serious mental illness. Navigating the healthcare system as a person with mental illness — and also as a person who is homeless — can be traumatic, explained Wu.

“It requires highly skilled professionals to provide the services,” said Wu. Trained professionals understand how to deliver trauma-informed care without passing judgment, she added.

To date, the Lifestyle MIND program has been piloted with two cohorts of participants, all of whom have serious mental illness and diabetes and were receiving care at the integrated clinic.

Wu and her research collaborators, including Department of Physical Therapy Chair and Associate Professor Bradley Tragord, PT, DPT, DSc, are currently developing a Lifestyle MIND training manual for clinicians based on what they learned in the pilot testing of the Lifestyle MIND concept and from a mock training conducted in March 2025 led by occupational and physical therapy students from the School of Health Professions.

Photovoice: A special lens

To learn more about what this population experiences and how standard diabetes education is not working for them, Wu and former student Laura Pavitt, now a Doctor of Occupational Therapy 2025 graduate, gave cameras to 10 participants with serious mental illness and Type 2 diabetes and asked them to take photos that represent their

Pre-plated meals like the one below, which are often provided in a shelter setting, make it difficult to follow a healthy diet for managing diabetes.



lived experience. Called photovoice, this qualitative research technique empowers participants to communicate feelings and experiences through images.

The group set about completing three photo assignments. After each assignment, they shared and discussed their photos. Their insights informed the design of Lifestyle MIND.

“One thing we learned from the participants was the social determinants of health, like the pre-plated meals that they encounter on a daily basis,” Wu said. She explained that pre-plated meals make it harder to stick to an ideal diet for managing diabetes.

“Another thing we learned was that many of them could not afford a glucometer to monitor their blood glucose,” said Wu. “If they are not monitoring, the control is not good.”

How it works

Occupational therapists are trained to understand the challenges people with serious mental illness face, said Wu. The weekly occupational therapy classes in the Lifestyle MIND curriculum focus on health education, health literacy and understanding how diabetes and serious mental illness impact each other. The classes emphasize strategies for developing healthy lifestyle habits, including reading nutrition labels to inform better food choices.

“During Lifestyle MIND we worked with our clients to problem solve,” Wu said. “We collaborate with our clients, [asking] ‘What do you think would be a possible solution to the situation?’”

One example of that problem-solving approach leads back to the plate method for diet. Wu noted that the standard diabetes education method of describing how to build a healthy plate of food doesn’t work for people receiving pre-plated meals from a shelter or other organization.

“We have to do a translation,” Wu said. “How does the plate method work when the person is homeless and doesn’t have a choice? One solution is swap [food] with someone else.”

Another craft project for photovoice study participants represented the intersectionality of mental health and diabetes management. In addition to the likelihood of experiencing homelessness, this patient population is also likely to have a dual diagnosis of substance use disorder, resulting from



The craft project of one study participant expressed the importance of staying sober in order to maintain mental wellness and manage their diabetes.

attempts to self-medicate or counteract serious mental illness symptoms such as hallucinations.

When they experienced a mental health crisis, study participants could not perform tasks for diabetes management. Similarly, the intersectionality could go the other way. When their diabetes was out of control, study participants experienced high levels of anxiety.

The benefits of exercise

For the physical activity piece of the program, Tragord and former student Kimberly Bristow, now a Doctor of Physical Therapy 2025 graduate, adapted guidelines from the American College of Sports Medicine to create 90-minute physical activity sessions tailored for a small group. Participants received a guidebook with illustrated exercises and a fitness tracker log to help monitor activities outside of class.

“Participants reflected on how each week went,” Tragord said of the classes. “Our team of clinicians facilitated conversations highlighting successes and also some hurdles or challenges people faced.”

In a small group setting, individuals were able to share stories about how they would complete activities based on their environment or their own physical limitations. In class, the group worked on strength training for the upper and lower body, core exercises for the abdomen and back, balance and flexibility training and high-intensity interval training.

“Some of the most exciting things we looked at were not just step counts,” Tragord said. “We have technology that measured the intensity of movement

— so not just how many steps, but the overall vigor of that activity.”

The team was able to see changes in balance and speed of movement and assess other functional outcomes.

“The neatest thing was to look at how much these individuals changed the amount of movement they were doing in terms of quantity and intensity,” he said.

The physical activity was intentionally designed to be achievable to avoid discouraging participants.

“When talking about doing exercise, that can scare away a lot of patients, including this target population of comorbid serious mental illness,” Wu said. “Our physical therapy faculty and students did a great job adapting and making the physical activity not as challenging, not as scary to our target population so that they are willing to come. And the physical activity portion turned out to be a component of Lifestyle MIND that our participants enjoyed so much.”

Looking forward

With good attendance and retention rates among participants, Lifestyle MIND appears to be a good fit for the target population, Wu said. She, Tragord and the rest of the interdisciplinary research team, including an endocrinologist, trial scientist and statistician, are seeking additional funding to support the next phase of research, which will focus on gathering data to demonstrate the intervention’s feasibility.

A major focus of the next phase will be obtaining data using research-grade continuous glucose monitors, which would provide better data than the A1C readings used in the initial pilot cohorts. The continuous glucose monitors would remove one cognitive challenge faced by people with serious mental illness — remembering to test blood sugar and record readings on a regular schedule.

“My vision is that people with mental illness would be able to manage their health just like other people,” Wu said. “When most people encounter a chronic disease, such as diabetes, [they] go about finding out information [and] getting to classes to learn how to manage diabetes. I’m hoping people with mental illness can do exactly the same.” ■

PRACTICE-READY FROM DAY ONE

With academic excellence, immersive training and strong local hiring demand, the School of Nursing is preparing graduates to meet the moment — and the future

BY KRISTEN ZAPATA



The need for skilled nurses in Texas is urgent — and growing. As health systems contend with rising chronic conditions, aging patients and workforce turnover, employers are looking for more than a nursing license. They need nurses who are ready to step in, contribute, grow and lead.

The School of Nursing has long been known for its rigorous curriculum and deeply immersive clinical education within a complex care environment. Today, it's also a powerful engine for South Texas' nursing workforce, producing graduates who are sought after for their readiness, resilience and professionalism.

"We focus on preparing nurses who are competent and confident from the moment they enter practice," said Sonya R. Hardin, PhD, RN, APRN, FAAN, dean of the School of Nursing. "We've aligned our curriculum to meet the needs of employers — and, more importantly, the needs of patients."

And employers are noticing.

A pipeline with purpose

In San Antonio, few institutions understand the value of a practice-ready nurse better than the South Texas Veterans Health Care System. As one of the region's largest healthcare employers, the Veterans Administration hires dozens of the university's School of Nursing graduates each year, many of whom stay to grow their careers.

Since 2013, 179 School of Nursing graduates have completed the VA's Registered Nurse Transition to Practice Program with a 100% first-year employee retention rate and a 98% retention rate after the second year. That's proof of both the school's rigor and its reputation, said Celida Martinez-Vargas, DNP, MSN, RN, chief nurse of nursing education and research at the VA.

The longstanding partnership between the school and the VA has been nationally recognized with the Exemplary Academic-Practice Partnership Award from the American Association of Colleges of Nursing. Established in 2003, the collaboration centers on elevating veteran care, strengthening nursing education and developing a future-ready workforce.

Faculty appointed jointly by the VA and the university co-developed the national curriculum, an initiative designed to transform how new nurses grow from entry-level to professional competency.

Wesley Richardson, PhD, MSN, RN, CNL, and Vicky Dittmar, MSN, RN, employees of the Audie L. Murphy Memorial Veterans' Hospital and full-time faculty of the School of Nursing, co-authored the original proposal and designed both the clinical and didactic components of the program. Today, they continue to co-lead its national expansion and accreditation efforts.

Other impactful elements of the partnership are the use of dedicated education units and nurse practitioner residency tracks, where students are immersed in clinical training within VA facilities. Under the mentorship of experienced preceptors, students apply didactic knowledge in real time, gaining confidence and clinical judgment in a setting designed for professional growth.

It's a symbiotic relationship, and one rooted with patients top-of-mind.

"Our health system depends on nurses who are ready to lead on day one," Martinez-Vargas said. "And this school delivers. We're getting the best, and the best is what our veterans deserve."

Where education meets readiness

"I still remember my clinical rotations. I felt prepared," said Julissa Hance, BSN, RN, CMSRN, EBP-C, a 2020 graduate of the school's Bachelor of Science in Nursing program. "We were expected to think critically and communicate clearly to our patients. Being able to provide that service and my education to our veterans is why I came back to the VA."

That sense of preparedness became real during a moment that had nothing to do with dispensing medication or charting but had everything to do with patient care. One day, Hance and her classmates stopped to assist a patient in a wheelchair who had reached a section of sidewalk approaching the VA entrance that lacked a ramp.

"It seemed like a small thing at first," Hance recalled, "but it was a barrier — literally and figuratively — to patient safety and accessibility."

The group reported the issue to Richardson, their faculty instructor, who turned the moment into a powerful lesson in advocacy.

"He didn't just say, 'Thanks for letting me know,'" Hance said. "He walked us through the process of reporting the issue properly and explained why it mattered."

Within weeks, the hospital determined that section of sidewalk was not ADA compliant and began construction to fix it.

"That was the moment I understood the power of our voice as nurses," Hance said. "We made a difference for that one patient, but also for every patient after them."

Now working as the nursing excellence and shared governance coordinator at the VA, Hance sees that moment as foundational to how she approaches leadership and systems change.

"The program taught us what to do as nurses and how to think as leaders," she said. "That's what makes a nurse practice-ready. You don't hesitate when a patient's condition changes or when a system needs to be better. You act."



Through high-stakes simulation, complex case studies and a culture of excellence and accountability, Hance and her classmates learned to approach care holistically, never losing sight of the bigger picture.

"We were held to high standards, but we were never alone," she said. "Faculty and clinical instructors made it clear they expected excellence and that they believed we were capable of it."

Education that grows with you

That early lesson in advocacy sparked a deeper calling for Hance.

"After that experience, I realized I wanted to help improve the systems," she said.

Now pursuing her PhD in nursing science while continuing her role at the VA, Hance represents a growing number of nurses advancing their careers beyond the bedside, supported by a school that fosters long-term development.

"Our goal is to prepare nurses who contribute to the profession at every level," Hardin said. "That includes the clinical environment, but also research, policy, education and systems change."

Through faculty mentorship, grant support and dedicated pathways for doctoral education, the school empowers nurses to investigate challenges and design solutions that shape the future of care. Martinez-Vargas has seen the impact firsthand.

"We're seeing more graduates return to us as leaders — unit-based, organizational and academic," she said. "Their education sets them up to practice nursing, but to also guide the evolution of the profession."

Hance's doctoral work reflects that mission. It focuses on improving the nursing practice environment by exploring how frontline nurses perceive their work environment and understanding what contributes to a healthy work environment that drives positive nursing workforce outcomes.

"My research is directly tied to what I do every day," Hance said. "And I wouldn't have that lens without the

foundation I received at the school and through the VA."

That kind of growth is exactly what the school aims to cultivate.

"Our graduates are strengthening the workforce," said Hardin. "Training new nurses, shaping research and leading from every seat at the table."

Meeting the moment and the future

As the nation's healthcare needs continue to evolve, so does the role of the nurse. Nursing faculty are keenly aware they must prepare students to meet today's standards while equipping them to define tomorrow's.

The school's nationally ranked Doctor of Nursing Practice program, new nurse anesthesia program, expanded simulation center and growing research opportunities are already forming a new generation of leaders prepared for the complexities ahead. And that commitment to innovation won't stop as the university enters its next chapter.

"We're preparing nurses to be thinking professionals who can grow and advocate throughout their careers," said Hardin.

As new technologies like artificial intelligence and interdisciplinary approaches with fields such as engineering reshape the future of care, the school is actively exploring ways to integrate those frontiers into nursing education.

That forward-looking mindset resonates with alumni

like Hance, who sees major shifts on the horizon.

"In the next five to 10 years, I believe nurses will take on even more leadership, both at the bedside and at the systems level," she said. "The ability to lead and promote shared governance, interpret research and advocate for change will be critical. It's about being ready for day one — and for everything that comes after." ■

Meeting the need for more nurses

\$8.4M

Grant funding awarded to the School of Nursing for nursing education innovation and workforce readiness

100%

School of Nursing graduates employed within six months of graduation

94%

of School of Nursing BSN graduates who stay and serve in Texas
Source: 2023-2024 School of Nursing student survey

+200,000

Estimated nurse shortage in the U.S. by 2030
Source: U.S. Bureau of Labor Statistics

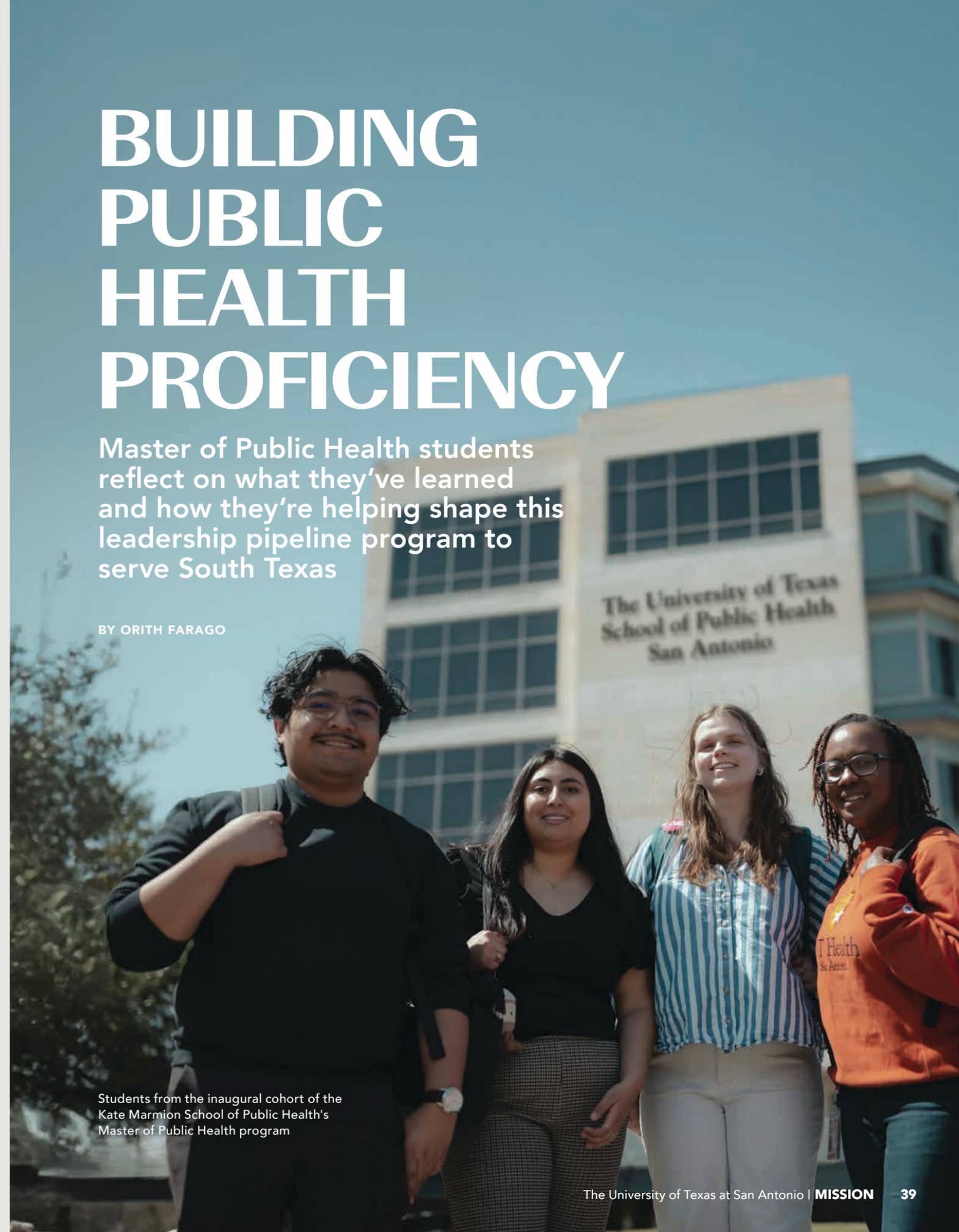


Visit *Mission* online to see additional measures by which the School of Nursing is leading the way in nurse education in Texas.

BUILDING PUBLIC HEALTH PROFICIENCY

Master of Public Health students reflect on what they've learned and how they're helping shape this leadership pipeline program to serve South Texas

BY ORITH FARAGO



Students from the inaugural cohort of the Kate Marmion School of Public Health's Master of Public Health program

Brenda Nieves' passion for public health was years in the making. From a young age, her parents instilled in her a drive to help others. And she has.

Nieves has consistently sought the best outcomes for patients and those in need — from her job as a 911 operator, to her work within a family medicine practice, to her current role as a training specialist at UT Health San Antonio's practice operations, working with the clinical practices to ensure efficient and high-quality operations on behalf of patients.

So, it seemed only natural for Nieves to gravitate toward the Master of Public Health program in the Kate Marmion School of Public Health.

"What drew me into the public health field is being an advocate for the community," Nieves said. "Working with a family medicine doctor for quite some time, you get attached to your patients. Some

don't have insurance and don't know how to navigate getting enrolled into programs. And so being able to guide them and help them is what drew me into public health."

As part of the inaugural cohort of 35 students in the school's master's MPH program, which launched in August 2024, Nieves and her classmates are setting the tone for the future of public health education in Texas and looking to make a difference in a field focused on improving population health outcomes.

Leaning on life experience

For Kelechi Adejo, laying the foundation for future cohorts is an important aspect of being a member of the inaugural class.

"There's that sense you're the one paving the way," Adejo said. The occupational therapy assistant and mother of three moved from Columbia, Missouri, to start the master's program to help impact policies that provide health access.

It was a stint living in rural Tennessee that gave Mary Sanchez a firsthand look at healthcare shortages in rural communities and led to her desire to work in healthcare.

"There was a huge lack of access," she said. "So, for patients who might not have the best caretakers or access to funding to get caretakers, what does their life look like?"

As an operations manager for language services at University Hospital, Sanchez said she has been able to take what she is learning in her classes and apply it to her day-to-day work at the hospital.

"It's been really fulfilling and helpful," Sanchez said.

Like Sanchez, Audrey Cordova, who recently graduated with her bachelor's degree in public health and is now in the MPH program, saw firsthand how the lack of access to healthcare services outside of Brownsville, Texas, had affected her grandparents.

"That motivated me to [ask] why is it that rural communities are having this issue? Why aren't there enough doctors? Why aren't there enough clinics? The closest ER to [my grandparents] was 30 minutes away," said Cordova.

Tracey Barnett, founding chair and associate professor of the school's Department of Quantitative and Qualitative Health Sciences, notes that a shortage of primary care physicians serving in rural areas can mean higher rates of preventable illness

A profound rural public health need



According to the Texas Comptroller, as of 2020, 16% of the state's population was living in rural communities.



Across the state's 254 counties, 37 lack a single primary care physician, according to the Texas Department of State Health Services.



Data compiled by the American Public Media Research Lab identified 71 Texas counties without a hospital, and the Texas Organization of Rural and Community Hospitals has calculated that 26 Texas rural hospital closures have occurred in 22 communities since 2010.



According to U.S. Census Bureau data, the Lone Star state has the highest percentage of uninsured individuals under the age of 65, at 18.8% as of 2022.



Learning plus doing: A formula for success

The Master of Public Health applied practice experience, required of all MPH students, provides 180 hours of on-the-job learning and opportunities to build relationships with community partners.



Visit *Mission* online to learn how Luis Gutierrez put his program studies into practice at the Glenn Biggs Institute for Alzheimer's and Neurodegenerative

Diseases, analyzing data to determine how factors like employment, diet, sleep and social support can influence cognitive health.

and a reduction in the quality of life and health in general. By raising awareness about the lack of services in rural communities, the school's MPH program is equipping students to potentially help fill the gaps in these communities, Barnett said.

A unifying bond

Representing a broad spectrum of students — from recent undergraduates, to parents, to working professionals who appreciate the three-hour evening classes held three nights each week — members of the inaugural class share a special bond.

"I think we have that bond as a class to get together and help each other as much as we can and encourage each other," said Nieves, who also serves as treasurer of the school's public health student organization and as a representative of the student government.

The students also feel connected in this shared experience with their professors, appreciating their support and encouragement as the first students of the program.

That mutual respect has "increased our trust relationship with our instructors," said Adejo. "They have been very gracious with their time, with their knowledge, with their mentoring."

Impacts on patient care

The inherent passion to help others is a common attribute among the inaugural MPH cohort. After she graduates, Adejo looks forward to delving deeper into how public health policies affect healthcare access.

As a trauma-informed care advocate, Sanchez said her public health education is providing a broader view of patients' needs.

"I think being a public health student is another [tool] that I have to help the patients get to where they need to go, but also understand where they've come [from]," Sanchez said. "I've learned so much about the resources available in the city. What can I connect them with? What resources can I provide them with to help make their lives easier? That's all because I've been learning so much with our program."

As Nieves looks to her future, she's excited about how her degree will open more opportunities to help others.

"That's my drive — being able to see how we can help others have a healthier future and help their children as well." ■



Ann Biggs (center) celebrates the dedication of her beloved piano to the UT Health San Antonio Center for Brain Health.

The piano that still plays

How the gift of music can soothe heart and head

BY SUSAN ANASAGASTI

The grand piano in Ann Biggs' living room was never just furniture. It was a centerpiece.

For nearly half a century, "Morning Has Broken" drifted through the house — the song her husband, Glenn Biggs, loved most, and the soundtrack of a life they built together. Glenn Biggs was a San Antonio banker, civic leader and philanthropist whose vision helped shape how Texas advances brain health today.

"That was his favorite song," said Ann Biggs, 92. "It was always the first thing he wanted me to play. I still wake up at night and hear it in my mind, even now."

Today, the Biggs' piano — a gleaming Chickering grand — sits inside the UT Health San Antonio Center for Brain Health, a \$100 million facility that opened Dec. 10. It's a place where science, patient care, music and community share the same space.

Glenn Biggs died of Alzheimer's in 2015. When the time felt right, Ann Biggs donated the piano to bring comfort to others. "Music is one of the last things to go," she said. "I saw it firsthand."

When Glenn Biggs was diagnosed with Alzheimer's, she said, the disease advanced faster than either of them expected. Still, the signs were subtle enough that he could disguise them.

As the conversations grew shorter and the silences longer, music endured. In his final months at a San Antonio memory-care center, Ann Biggs often sat at the community piano. What happened next surprised her.

"Patients there who never spoke would sing along with the old hymns," she said. "They remembered the words. It was remarkable."

Scientists now understand what she witnessed. While Alzheimer's can blur names and faces, the neural pathways that process rhythm and melody often remain intact.

"Music activates parts of the brain that connect emotion, memory and movement," said Sudha Seshadri, MD, founding director of the Glenn Biggs Institute for Alzheimer's and Neurodegenerative Diseases at UT Health San Antonio. "Even when language begins to fade, rhythm finds its way through. A familiar song can bring someone back, not just to a memory, but to themselves."

A conversation sparks a movement

In 2014, after learning there were few options for comprehensive Alzheimer's care in South Texas, Glenn Biggs called William L. Henrich, MD, MACP, then president of UT Health San Antonio, and asked to meet.

A few days later, Ann Biggs drove her husband to the university and waited in the car while the two met. When he returned, he told her, "I think I touched a nerve."

That conversation planted the seed for what would become the nationally leading Biggs Institute and, a decade later, the new home for integrated brain-health research, care and teaching at the UT Health San Antonio Center for Brain Health.

When Henrich died in 2024, the impact of his partnership with Glenn Biggs was already evident across South Texas — not in plaques but in programs, research and patients whose lives are changing because of them.

"Dr. Henrich believed, as Glenn did, that if something needs to be done, you don't ask why. You find a way to make it happen," said Seshadri. "That spirit continues to guide every discovery and every patient we reach."

Carrying a legacy forward

Francisco G. Cigarroa, MD, senior executive vice president for health affairs and health system at UT Health San Antonio, said the work ahead reflects not only the promise of science, but the responsibility to the region it serves.

Texas is home to more than 400,000 people living with Alzheimer's disease, a number projected to rise by 22% in the next decade. And San Antonio sits at the heart of one of the state's fastest-growing aging populations.

"In South Texas, we face some of the highest rates of Alzheimer's and dementia in the nation, yet we also stand at the forefront of discovery and progress," Cigarroa said.

"Through the Biggs Institute, the Center for Brain Health and the opportunity to advance research through the Dementia Prevention and Research Institute of Texas (DPRIT), our mission is clear. We strive to transform groundbreaking research into prevention, scientific understanding into compassionate care, and knowledge into hope for the patients and families we serve."



The vision of Glenn and Ann Biggs for comprehensive Alzheimer's care in South Texas, and their generosity to seed that vision, gave rise to the Glenn Biggs Institute for Alzheimer's and Neurodegenerative Diseases at UT Health San Antonio.

DPRIT was approved by Texas voters in November through a state constitutional amendment establishing a \$3 billion state fund to accelerate research, treatment and prevention of Alzheimer's disease and related dementias.

Turning science into hope

Under Seshadri's leadership, the Biggs Institute has become a hub for early-diagnosis research and clinical trials. For her, the Center for Brain Health is more than a milestone. It's a promise realized.

"We want to find cures, but we also want to find opportunities for people to live their best lives, to keep bringing their unique personality, skill and knowledge," she said. "The Center for Brain Health is designed with that same philosophy: that medicine must care for the whole person. Mind. Body. Spirit."

Rising at the corner of Floyd Curl and Charles Katz drives, the center brings together specialists in Alzheimer's, dementia, Parkinson's disease and stroke. The team includes neurologists, psychiatrists, art and music therapists and researchers working side by side.

With 91 rooms for exams, testing and treatment, along with 12 infusion chairs, the center's scientific heart is one of Texas's first Siemens Magnetom 7-Tesla TerraX scanners, capable of capturing the brain in extraordinary detail.

"That MRI lets us see changes we couldn't detect before," Seshadri said. "It means catching the disease earlier, when we can still make a difference."

The Center for Brain Health will also be one of a few sites in Texas offering new disease-modifying therapies.

"Three years ago, the FDA advisory panel voted to approve lecanemab, a new infusion therapy that removes amyloid from the brain, the toxic protein that damages neurons and helps slow the disease," Seshadri said. "I learned of the approval on Glenn's birthday. It felt like a gift. We now have more than 120 patients receiving these infusions." The formal approval followed weeks later, on July 6, 2023.

The therapy, Seshadri explained, is not a cure but a start. It's also a way to buy patients and families precious time.

"We call these medicines disease-modifying, not symptomatic," she said. "Before, we could make memory a little better. Now, we can actually change what's happening in the brain."

For Ann Biggs, whose beloved piano now resides in the center's Ann Biggs Community Room — its keys waiting for anyone moved to play — this moment is deeply personal, a reflection of the life and love that music once carried through her home.

For Seshadri, this generous gift is emblematic of what makes the new center different.

"I imagine someone getting their infusion while a volunteer plays the piano in the next room. It reminds us that if you can bring out joy in a person, you help keep their brain working longer," Seshadri said. "Music and art aren't extras. They're medicine in their own way." ■



DESIGNED TO HEAL

At the UT Health San Antonio Multispecialty and Research Hospital, healing is not a mere treatment plan. It's a thoughtfully designed experience that speaks to the body, mind and spirit.

The hospital, which opened in December 2024, blends access to novel research and the latest advancements in clinical care — interventional radiology, stem cell therapies and integrated imaging suites — with an intentional focus on whole-person healing. That means patients are finding more than cutting-edge treatment. They're finding light-filled hallways, quiet meditation rooms and art that invites reflection.

"Even though we have amazing equipment and groundbreaking technology, the focus is really relationship building — creating a connection and providing compassionate care," said Peniel Martinez, the hospital's senior director of patient experience. "The environment is the cherry on top."

At the heart of UT Health San Antonio patient care is a belief that healing happens best when the whole person is supported

BY KRISTEN ZAPATA



"Hollyhocks," by artist Suzanne Oldham, is part of the Healing Arts Collection displayed throughout the UT Health San Antonio Multispecialty and Research Hospital.

Healing spaces

Designed to promote physical, emotional and spiritual wellness, the hospital includes multiple outdoor patios and indoor lounge spaces, a nature trail and expansive windows offering views of the grounds. These spaces are as relaxing as they are therapeutic.

Research shows that access to nature can reduce stress, lower blood pressure and improve recovery times. The benefits extend to healthcare workers too, offering restorative places to recharge and prevent burnout.

The hospital also features a chapel and meditation room — spaces that invite prayer, stillness or personal reflection. These amenities support the hospital's holistic approach to care, one that recognizes the strong connection between mental and physical health.

"The type of patients we care for are going through difficult experiences," Martinez said. "This space is designed not just for their bodies to heal, but for their whole selves to feel supported."

Art plays a powerful role in that design. The hospital's Healing Arts Program features 34 privately funded installations from 28 artists, many from San Antonio and across Texas. These museum-quality

pieces range from sculptures to paintings to mixed-media and appear throughout the hospital and its skybridge connecting to the UT Health San Antonio Mays Cancer Center.

Emotion-focused care

Arturo Infante Almeida, an art specialist and curator for The University of Texas at San Antonio, offered his perspective on the importance of visual expression in healing environments.

"Even without saying anything, art can make a space feel better," he said. "It's not going to solve a problem, but it can change how you feel in that moment."

Almeida stressed the importance of being thoughtful with art in public spaces — considering tone, scale and subject matter to support the setting's emotional atmosphere.

"A landscape or abstract work might invite calm, while bold or unexpected pieces can lift someone's mood or give them something meaningful to focus on."

Collaborations between healthcare, nature and the arts reflect a shared vision — one that places human-centered design at the heart of academic and clinical excellence.

Martinez believes this holistic model represents the future of care.

"What sets this hospital apart isn't only the technology," he said. "It's the culture we're building — one of trust, teamwork and healing that goes beyond traditional medicine." ■

A growing landscape for hope and healing

UT Health San Antonio's Center for Brain Health opened its doors to patient care on Dec. 10 — one year, to the day, of the launch of the UT Health San Antonio Multispecialty and Research Hospital. Like the hospital, the new center — in the midst of a growing Medical Center hub of clinical research and care facilities — provides comfortable spaces for patients and families to gather and recharge.

From quiet lounges to dedicated meditation, art, and music rooms, to flexible areas for caregiver education and support groups, every space is designed to ease stress, encourage connection and promote healing with dignity.

THE ERA OF PRECISION CARE IS HERE

At UT Health San Antonio, advanced technology and breakthrough medical research combine with the skill and compassion of providers to bring new hope to patients across South Texas. From clinical trials that inform innovative therapies to a broader shift toward noninvasive, precision care, patient health and well-being remain the beating heart of its mission 24/7.

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A pathway to hope

Suspended between the UT Health San Antonio Multispecialty and Research Hospital and Mays Cancer Center, the Tom C. Frost Skybridge is more than a convenient corridor. It's a passageway from diagnosis to treatment, and from uncertainty to hope. The 28-panel "Cactus Garden" installation by Texas artist Carlos Rosales-Silva and funded by the Margery L. Block Charitable Foundation symbolizes regeneration, resilience and beauty in transformation. As patients, caregivers and providers cross this multicolor illuminated space, their journey toward healing continues.