

# TMC | PULSE

NEWS OF THE TEXAS MEDICAL CENTER — VOL. 7 / NO. 2 — MARCH 2020

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## Baylor St. Luke's Medical Center



Baylor  
Medicine







Mark Mulligan/Houston Chronicle. Used with permission.

### **WILLIAM F. McKEON**

*President and Chief Executive Officer, Texas Medical Center*

In 1872, Scotland and England competed in the first international football tournament in Glasgow. Nearly 60 years later, the sport Americans know as soccer had grown so popular around the world that its governing body, the Fédération Internationale de Football Association, established the FIFA World Cup.

Today, more than 200 teams from around the world compete for spots at the FIFA World Cup and countries bid to host the tournament, which occurs every four years. The next tournament, in 2022, will be held in Qatar.

In 2026, the FIFA World Cup will come to the United States, Canada and Mexico, the first time ever that the tournament will be hosted by three nations. Ten U.S. cities will be selected to host matches. Houston is one of 17 cities vying for the opportunity to host.

One might ask how the FIFA World Cup relates to the Texas Medical Center, apart from the world-class care we provide to our professional, collegiate and adolescent athletes.

When any city bids on a major sporting event, city leaders look carefully at the key assets within their metropolis and devise strategies to integrate these strengths into a comprehensive, highly differentiated offering.

The Texas Medical Center played a

significant role in hosting the 2017 Super Bowl. We ran a global competition for startup companies to create unique solutions to protect football players from injury or improve their performance. The event was a major success for the TMC's Innovation Institute and demonstrated our ability to attract the best technologies from around the world.

TMC will join Houston's bid team to host the 2026 FIFA World Cup, led by philanthropist and Arnold Ventures co-founder, John Arnold. Our medical city will provide a unique set of offerings to bolster Houston's chances of being selected for this exciting opportunity.

TMC has now established the largest life sciences center for startup companies in the world. We also possess some of the most talented experts in sports medicine. Together, we are developing an exciting, integrated program to address the broad set of challenges that athletes face every day.

Time is of the essence, as the FIFA World Cup host cities for 2026 may be chosen later this year. This is just another example of how Houstonians, working together, can demonstrate to the world that Houston is the most diverse and amazing city in America and fully deserves to host one of the most popular sports events around the globe.

A handwritten signature in black ink that reads "William F. McKeon". The signature is fluid and cursive, with a large, stylized 'M'.

## TMC | PULSE

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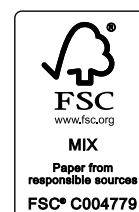
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# NEW ERA IN CRITICAL CARE BEGINS IN HOUSTON

Nearly twice the size of a traditional OR, our custom-designed Hybrid Trauma OR revolutionizes critical care delivery by including the technology of an image-guided interventional suite to accommodate highly complex, advanced surgical life-saving procedures in a single setting, so bleeding can be stopped while other injuries are diagnosed simultaneously.

High overhead in the Houston sky, a distinctive red helicopter roars into view. Aboard is a critically ill patient and the Memorial Hermann Life Flight® crew. Soon, the helicopter will be landing atop a distinctive new landmark: The new Sarofim Pavilion at Memorial Hermann-Texas Medical Center.

A testament to Memorial Hermann's legacy of care and innovation, the new state-of-the-art medical tower provides an additional 1.34 million square feet, allowing for the expansion of trauma, critical care, neuroscience and heart and vascular services—for today and tomorrow. When Memorial Hermann-TMC embarked on a \$700 million renovation and expansion campaign, \$70 million was earmarked for the 17-story tower along with \$30 million in trauma care improvements.

Trauma continues to be the leading cause of death in the U.S. for people age 45 and under. Sarofim Pavilion will be the new home of the Red Duke Trauma Institute at Memorial Hermann-Texas Medical Center. Although the Red Duke Trauma Institute is one of the nation's busiest Level I trauma centers, it has one of the lowest mortality indices. These outstanding patient outcomes and survival rates can be attributed in part to the multidisciplinary approach to trauma care, made possible through the Institute's longtime collaboration

with McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth) and a culture of continuous improvement. By bringing trauma and critical care services under one roof in Sarofim Pavilion, Memorial Hermann aspires to continue to improve patient outcomes and offer a continuum of care unmatched in the region.

Sarofim Pavilion features a direct pathway from the helipad to OR, allowing the Life Flight team to continue their expedited care to definitive treatment in the Level I trauma center. Life Flight patients can be rushed directly to one of dozens of treatment bays or to an OR. Sarofim Pavilion features 24 new ORs, including 3 hybrid ORs that combine a traditional OR with an image-guided interventional suite.

"Most trauma patients have polytrauma, multiple injuries that need to be assessed and treated quickly," says Dr. Michelle McNutt, Chief of Trauma at Red Duke Trauma Institute and associate professor of acute surgery at McGovern Medical School. "Our custom-designed Hybrid Trauma OR allows CT scan-like imaging from head to toe while performing any operation (open chest and abdomen procedures, vascular procedures, orthopedic fixation, X-ray and interventional radiology procedures). This patient-centric

approach to care lets us do everything we need to save the patient's life at one time, in one room."

Internationally recognized for treating the highest acuity patients, Memorial Hermann-TMC is home to the most advanced and comprehensive intensive care units in the Greater Houston area. Sarofim Pavilion holds the John S. Dunn Burn Center, the only comprehensive burn center in Houston. Sarofim Pavilion's patient floors feature 36 to 38 patient rooms, each equipped and licensed to operate as ICU beds, if needed. Certain units contain advanced imaging technology to expedite interventions.

For nearly a century, the staff and affiliated physicians of Memorial Hermann-TMC have set new standards of care in Texas and the nation through revolutionary advances in medicine and surgery. "What's remarkable about Sarofim Pavilion is our clinicians on day 1 worked with the designers and planners to create this new facility—built on our legacy and leadership in delivering critical care. It's been designed to allow us to care for Houstonians for decades to come," says Lance Ferguson, Vice President of Hospital Operations, Memorial Hermann-TMC.

Sarofim Pavilion will allow Memorial Hermann to continue to meet the needs of Houston's most critically ill



## Inside Sarofim Pavilion

-  17 Stories
-  186 Patient Beds
-  24 New ORs, including 3 Hybrid ORs
-  137% Larger Emergency Center
-  10,000 sq. ft Larger Life Flight John S. Dunn Helistop
-  335-seat Arboretum Cafe

and injured patients by staying ahead of medical advances and keeping pace with our community's growth.

"As the first hospital built in the Texas Medical Center, we have a proud legacy of caring for Houstonians," says Greg Haralson, CEO, Memorial Hermann-TMC. "Looking forward, we have moved into the future, into a state-of-the-art space that will allow us to continue to provide the outstanding care that our community deserves."

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[memorialhermann.org/SarofimPavilion](http://memorialhermann.org/SarofimPavilion)

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**ON THE COVER:** Zebrafish in the Gorelick Lab at Baylor College of Medicine are helping biomedical researchers study human organ function and development.

# NEXT MED

New technology and techniques

By Alexandra Becker

## LabReady aims to revolutionize the diagnosis of infectious diseases

Diagnosing infections is both costly and rife with opportunities for human error. Poorly managed lab samples can lead to inaccurate test results, which could mean sickness and additional medical costs. Vax-Immune Diagnostics, a member of the 2018 TMCx medical device cohort and a JLABS @ TMC resident, has created LabReady, a hand-held, portable, disposable device designed to maintain an ideal environment for samples as they are transported from the patient to the lab for testing.

The “lab in a bottle” collects, protects, processes and prepares samples so that when they arrive in the lab, potential infections are ready to be diagnosed. Using the current transport system—which has been in place for the last 85 years—samples are handed off between multiple parties and require continuous preservation on ice. With LabReady, as soon as the sample is inserted into the device, an incubation period begins.

“With our device, the enrichment process that currently doesn’t happen until the sample gets to the lab happens during transport. All the lab has to do is open it up and do the test,” said Leonard E. Weisman, M.D., president and CTO of Vax-Immune and a neonatal physician who worked for Texas Children’s Hospital. “You get less false negatives. You’re not testing samples where the bugs are dead or where there’s such a small amount they weren’t found.”

LabReady is wrapping up a clinical trial analyzing results from group B streptococcus (GBS) lab tests of pregnant women. GBS can be transmitted to newborns during birth and can cause complications, which could lead to death or long-term neurological issues. But with accurate diagnostic tests, Weisman said, “it’s a totally preventable disease.”

In a second generation of the device, Vax-Immune is working on an at-home product that would allow patients to diagnose their infections—including the flu or strep throat—without visiting a doctor. ■





# Participating in Census 2020 is Vital to Public Health

*Complete counts influence resources for the next decade*

BY CINDY GEORGE



April 1 is acknowledged as an annual day of foolishness, but it's a serious date every decennial.

For 2020, April 1 is Census Day. And for the first time, households will be able to submit responses online.

The constitutionally mandated census is a count of every person living in the United States regardless of citizenship or immigration status. Responses are confidential.

A complete count ensures every household, city, county and state

receives its fair share and avoids a decade-long loss of resources and representation. The census impacts access to health care, housing, education, transportation and nutritional assistance—all elements of public health.

It doesn't matter who you are, how old you are, where you live or why you're here, you should be counted.

"All of the resources that we get for the community and for all of the public programs—Medicaid,

Medicare, Social Security—and for infrastructure such as public transportation, parks, schools and hospitals all depends on who we count," said demographer Maria Perez-Patron, Ph.D., a research assistant professor at the Texas A&M University School of Public Health. "If we are undercounted, then we are underfunded. We are worse off all around. We get fewer resources, less money for our communities, less money for our services and we get fewer representatives in Congress."

In mid-March, individual households across the country will receive invitations to complete the 2020 Census. Later, a reminder postcard will arrive, followed by a paper questionnaire. Census forms will be available in English and 12 other languages that will cover 99 percent of the population. Language support online and by phone for 59 languages other than English will also be available.

A census response—by mail, by phone or online—should include





where you live and everyone who is living in your household on April 1. Starting in May, census workers, called enumerators, will visit those who do not respond.

### Data drives government funding

Census data determines how \$675 billion in federal funds (the figure in fiscal year 2015) are distributed annually. U.S. residents have been tallied every 10 years since 1790.

Texas, which has more people than any other state besides California, added 4 million residents between 2000 and 2010 and gained four Congressional seats. Estimates since the last census show a state population increase of 3.5 million residents. That means Texas could gain two more seats in the 435-member U.S. House after 2020.

Health economist Vivian Ho, Ph.D., who holds professorships at Rice University and Baylor College of Medicine, said the numbers

influence every calculation and projection over the next decade for safety-net initiatives including Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP) and the Children's Health Insurance Program (CHIP).

"The amount that each state receives for Medicaid from the federal government is dependent on something called the Federal Medical Assistance Percentage, which is based on the state's per capita income," Ho said. "If your per capita income is lower, you're going to get more money from the federal government. It's calculated by total income divided by the number of people, so if you undercount the number of people, the income ends up looking higher, which means you're going to get less Medicaid money."

An undercount holds grave consequences for public health.

"For every 1 percent that we fail to count for the City of Houston, that is a loss of about \$250 million," Houston Mayor Sylvester Turner said. "Ten years ago, Houston counted about 70 percent—and that was an improvement from 10 years before. So, 30 percent of Houstonians were not counted. You take that and multiply it by \$250 million. Roughly speaking, it's about \$1,500 per person, per year. All of those dollars are critically important to improving health and providing a much more accessible

and affordable health care delivery system. The more federal dollars we are able to pull down, the better it is for everyone."

In Houston, children under age 5 were significantly undercounted in 2010, the mayor added.

Infants, toddlers and preschoolers are among those the Census Bureau identifies as "hard to count" or populations at risk of being missed at disproportionately high rates. Other groups considered difficult to count include highly mobile people (such as seasonal agricultural workers or campers), racial and ethnic minorities, non-English speakers, low-income people, those experiencing homelessness, undocumented immigrants, people who distrust government, LGBTQ persons, people with mental or physical disabilities and people who do not live in traditional housing.

An inaccurate census count poses four major threats to public health by hindering planning efforts for standard population health needs, such as safety net health services; impeding work to monitor and reduce social disparities in health; challenging the identification and response to novel public health challenges, namely viruses; and compromising efforts to track and manage public health threats such as natural disasters, according to a Census 2020 editorial in the August 2019 issue of the *American Journal of Public Health*. ➡

Rice University professor of sociology Stephen Klineberg, Ph.D., founding director of the Kinder Institute for Urban Research and leader of the annual Kinder Houston Area Survey, said he relies “tremendously” on census data.

“We need the information—especially about the most underserved members of the community who have the most precarious connection to health programs,” Klineberg said. “You’re talking about folks with immigration issues, those with less education, folks with lower incomes and minorities ... and that has enormous implications for telling the health providers about the needs out there.”

### Reaching the people

Granular, grassroots efforts are necessary to connect trusted communicators with diverse communities—particularly after a citizenship question was considered for the 2020 census form, but ultimately omitted.

“Several months ago, when the federal government was instituting the mass deportations, we were telling the immigrant-refugee community that you don’t have to answer your door,” Turner said. “Now, we are telling people that if you don’t go online, if you don’t mail it, please answer your door. There is a lot of fear and apprehension and distrust. We take every available opportunity to encourage people to please respond to the census.”

Perez-Patron also noted the challenges in 2020 for people in marginalized communities regarding the confidentiality of the information shared on census forms.

“We are in a very difficult environment right now and people are wary of everything,” she said. “They don’t want to trust. It’s very important for them to know that any information that they give to the census is safe.”

The Hogg Foundation for Mental Health awarded \$2.1 million

to the Texas Communities Count initiative, which supports complete count efforts statewide and helps find new ways to capture hard-to-count populations.

The UTHealth School of Public Health in El Paso was one of 28 Texas organizations to receive a grant to support census participation.

Louis Brown, Ph.D., an associate professor at the El Paso school, is leading an effort targeting El Paso and rural areas along the border in neighboring Hudspeth County.

“We are focused on different hard-to-count populations, with immigrants along the U.S.-Mexico border being the most prominent,” he said. “We are working with food pantries and promoting census participation among people who are highly mobile and low income, but also trying to address misconceptions about not being able to complete the census if you don’t have proper documentation and allaying

fears about the confidentiality and how the data will get used.”

Bilingual community health workers and census ambassadors who speak English and Spanish are working now to educate people about the census. After forms are delivered, there will be additional efforts to help people respond.

“We will work with community agencies—reaching out to the people that they serve—to help them complete the census on the spot via internet-connected laptops and cell phones,” Brown said.

Leaders and public health experts believe that’s the kind of effort that will increase response rates and ensure the most accurate count possible.

“I don’t care whether you are 1 month old or you are 110—it doesn’t matter whether you’re a citizen or not a citizen—if you are breathing, we have to count you,” Turner said. ■



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# Processing Grief, in Public and Private

*Recovering from loss takes time*

BY BRITNI R. McASHAN



Gianna and Kobe Bryant, who died in a helicopter crash on Jan. 26, 2020, appear on a memorial mural in Los Angeles, California, created by street artist Thierry Guetta, aka Mr. Brainwash.

The deaths of Kobe Bryant and his 13-year-old daughter, Gianna, who perished alongside seven others in a Jan. 26 helicopter crash in Calabasas, California, stunned the world.

In the days following the crash, purple and gold mementos—Los Angeles Lakers colors, in honor of Kobe Bryant's 20-season career as a shooting guard with the NBA team—flooded the sidewalks surrounding the Staples Center. Millions of people around the globe who did not know Kobe Bryant personally took to social media to collectively grieve the loss of the 41-year-old basketball icon.

You don't have to know people to mourn their loss, said both Tiffany Meyer, a senior social work counselor at The University of Texas MD Anderson Cancer Center, and Stacy Auld, director of spiritual care and education at Houston Methodist Hospital.

"Grief is a normal process that everyone experiences after some kind of loss, whether it is a personal loss, like a cancer diagnosis, or the loss of a loved one or a tragic event that happens out in the community—like what happened with Kobe Bryant," Meyer said. "The death of Kobe Bryant—at that age, so sudden and unexpected—makes you reflect on how fleeting a precious life can be and it puts you up against your own mortality."

Social media also played a significant role in the intense grief the public has felt following his death, Auld added.

"Because of how the media and social media are, we have so many more ways to feel connected to people we don't even know," she said. "When something tragic like this happens, it touches so many more people because, in some almost false reality, we feel more connected to each other." ■

## 7 Tips for Managing Grief

- 1. FIND SOMEONE TO TALK TO.** "Talk to someone that you feel is a trusted person ... who is going to be kind and nurturing," Meyer said.
- 2. IDENTIFY WHAT YOU ARE FEELING.** "People are unique and so our experience of grief is going to be unique and different from person to person," Meyer explained.
- 3. ALLOW YOURSELF TO FEEL.** "If we can show up for ourselves in a loving way ... we're going to be able to move through [our feelings] much quicker," Meyer said.
- 4. COME TOGETHER AS A COMMUNITY.** "By lighting a candle together or saying a prayer together, you are reminded that you are not the only person who feels this way," Auld said. "You are not the only one who is scared for their child going to school ... you are not the only one who is worried about their loved one taking a flight."

**5. SAY WHAT YOU NEED TO SAY.** "Take time to think about the people who really mean something to you," Auld said. "Call them or write them a letter ... By doing this, you are able to take control over your feelings and release them."

**6. BE PATIENT WITH YOURSELF.** There is no timetable for grief, Meyer said.

**7. STAY CONNECTED AND TRY VOLUNTEERING.** "After ... people have had time to cope with grief, they have found volunteering for a cause that is near and dear to them a good way to channel their [feelings]," Meyer said.

Credit: Kirby Lee via Associated Press

**RASHID MOSAVIN, R.PH., PH.D., MBA**, became dean of Texas Southern University's College of Pharmacy and Health Sciences in June 2019. He came from California, where he was executive associate dean for the School of Pharmacy at Loma Linda University, but he has lived in many other places—both in the United States and abroad. An immigrant who speaks three languages, Mosavin is also a Buddhist who practices mindful meditation.

**Q | Why did you decide to study pharmacy?**

**A |** When I was in high school, I had this intense love for chemistry and biology. My parents said, if you love these two subjects and if you want to have a good career at the same time, go to pharmacy school. I tell my students that studying pharmacy is studying the actions and interactions of chemicals in biological systems. Think of your body. A tree. A dog. Each biological system works in harmony until something goes wrong and we have a disease—but when you add the right chemical, it alters what is happening and the issue is resolved.

**Q | You received a bachelor's degree in pharmacy from the University of Kansas, a Ph.D. in molecular pharmacology from the University of Wisconsin-Madison and an MBA from the University of Chicago. Is it safe to say your career took a few twists and turns before landing in academia?**

**A |** After pharmacy school in Kansas, I worked for a few years and became very interested in pharmacology, with how drugs really work. I decided to study molecular pharmacology, which asks, *Where does this drug actually go? Does it go inside of a cell? In the cytoplasm? The nucleus? What kind of receptors does it interact with?* After my Ph.D., I did two years of postdoctoral research at the University of Michigan in gene therapy. I learned that gene therapy wasn't really for me; I wasn't happy doing all the laboratory research. Then I became interested in the economic side of health care, so I moved to Chicago to get my MBA

and started my academic career. After Chicago, I saw an ad for a position in California—a brand new pharmacy school that had just opened at Loma Linda University. It was a blank page and just 200 miles from my parents, who had retired in Las Vegas. I was getting so sick of the winters in Chicago.

**Q | You were born in Iran and you were a teenager during the turbulent lead-up to the Iranian Revolution in 1979. How did the deposition of the Shah and the rise of Ayatollah Khomeini, who became Iran's top religious and political figure, impact you and your family?**

**A |** I was a teenager when the tanks rolled onto the streets of Isfahan, the city in the middle of Iran where I was born. My mother, who to this day I thank, says, 'Look. You're a smart kid and you're going to die here. There are tanks on the street. So this is what we're going to do: You go to Paris to live with your aunt and your cousins. When the situation gets better, you come back. Go learn French. Go to high school.'

So that's what I did. And after a few years, in April 1981, I moved to the United States. I was 19 and I did not speak English.

**Q | So you never returned to Iran?**

**A |** Never. Several years later, my parents left Iran and brought my younger brother, Ashkan, to the U.S. We all stayed here. My brother now does community pharmacy. I became an American citizen, I think, in 1992. ➡

THE



A full-length portrait of a middle-aged man with grey hair and glasses, wearing a dark suit, a striped shirt, and a colorful patterned tie. He is standing in a hallway with rows of blue lockers behind him. The lockers have silver handles and some have small plaques at the top. The floor is made of light-colored square tiles. The man is leaning slightly against the lockers with his hands in his pockets.

E BRIDGE

BUILDER

**Q | When did you become a Buddhist?**

**A |** I was raised as a Muslim, although mom and dad are very sort of liberal Muslims. Buddhism enters my life when I'm living in France. Buddhism is about, at the very fundamental level, using this instrument called mindful meditation to eventually become in control of your feelings. Instead of your feelings controlling you, you control them. That urge to honk the horn and get upset with the guy who just cut you off on the highway? You control that feeling.

**Q | At this point, you're a citizen of the world who has made a home in three countries on three continents. What are your essential survivor skills?**

**A |** When you're an immigrant, there are a couple of things you've got to do. The first thing is, you've got to integrate, which means you've got to speak the language. The second thing is, when you go to your new home, learn the traditions—respect them and do not criticize them. Just immerse yourself. Learn and appreciate. Don't judge.

**Q | Although you had other job offers, you decided to take the position at TSU as dean of the College of Pharmacy and Health Sciences. Why?**

**A |** Part of the mission of TSU is to educate underrepresented minorities. I realized that if TSU offered me the position, I wanted to be here because the student population shares so much with the immigrant population. Most of our students fall into the category of not having parents who were able to put them through private schools or get them tutors. These students don't have people who can financially support them, so many of them have part-time jobs while studying pharmacy. Some of them have full-time jobs.

**Q | Did you work while you were in school?**

**A |** I did. I had an afternoon job as a dishwasher and, on the weekends, I was a janitor when I was at pharmacy school in Kansas. It's the same story.

**Q | How does TSU's pharmacy school rank nationally?**

**A |** When it comes to students passing board exams and getting placed in residencies, we do well, but we're not in the Top 10. So in coming here, I'm thinking, this is Houston. This is the Texas Medical Center. The vision for this school is in five years, TSU's College of Pharmacy and Health Sciences is going to be one of the Top 10 pharmacy schools in the country. The fourth year

of pharmacy school is all clinical training, and if you have the facilities you have here, bridges can be built.

**Q | Are you the designated bridge builder?**

**A |** Yes, I am. The national average pass rate for pharmacist licensure exams is about 90 percent. TSU's rate is nearly the same, but our pass rate should be 100 percent. That's what I tell the faculty. That's what I tell the students. There are no excuses. You have the greatest community pharmacies in the medical center. A lot of our students go into community pharmacy, which is divided into big chain stores and independent ones. I love the independent ones because they're owned and operated by pharmacists and the level of attention and care that you get is very different. But the main point is that we need to build serious relationships with all the hospitals around us. Everything we need is right here.

In the next three to five years, we also need to be able to build a brand new building for the College of Pharmacy and Health Sciences, which currently operates out of two old buildings on opposite sides of our campus. We need a new building where we can all benefit from being housed together.

**Q | By your estimation, who's to blame for the opioid epidemic?**

**A |** Everybody. Pharmaceutical companies. The physicians and pharmacists who are licensed professionals and are supposed to protect the public. I know the pharmaceutical companies pushed and pushed these drugs, but let's not forget that the Board of Pharmacy in each state gives licenses to PharmD grads. The mission of all Boards of Pharmacy is to protect the public—that's why you have to pass a test to make sure you are competent. When presented with a patient who is clearly in trouble, a pharmacist should say, just like my brother says in Nevada, 'I'm sorry. You're addicted. I'm not filling this prescription.' And if the patient says, 'I'm going to sue you,' the pharmacist should say, 'Go ahead and sue me. I refuse to fill this prescription.' Pharmacists have the right to do that.

We had a tooth extraction, where I worked before, and the dentist wrote a prescription for 90 Vicodin—90 painkillers! I'm thinking, the American health system is broken. It's not even a system; it's a bunch of fragmented little silos that want to maximize profit. If this dentist had a real system, he would write for five Vicodin only. Your pharmacist would evaluate, give you the five and then he would call you in two days. But the dentist

doesn't want to see you and the pharmacist doesn't want to see you. If I do an oil change at the Honda dealership, I get a call the next day asking, 'How was the service?' But if I fill a prescription in a drugstore, no one ever calls me.

**Q | As you look toward the future of prescription drugs, what do you worry about?**

**A |** I think a lot about infectious diseases. We use so many antibiotics—both in humans and in animals. Thousands of antibiotics are mixed into the feed of cows and chickens; we are setting the stage for multidrug-resistant bacteria. There will be a day, I think, when people get infected and we'll have nothing to treat them with. Nothing. Because we did this to ourselves. I tell my students, this is like a fast-paced evolution right in front of your face.

**Q | You like to tell pharmacy students that they should practice pharmacy the same way B.B. King and Carlos Santana play the blues. Can you unpack that comparison?**

**A |** I met both of them at different times. [B.B. King died in 2015.] What I mean when I say that is I want students to give 100 percent effort. When you see these people play the guitar, you understand they're not just there to play because they're going to get paid at the end of the night. Their entire heart and soul is in it. I'm saying, immerse yourself in the study of pharmacy. Immerse yourself in taking care of patients, because this is who you are. It's kind of like when I immersed myself in French and then English. Don't just do pharmacy halfway. Don't do it for money. Do it deeply from your heart.

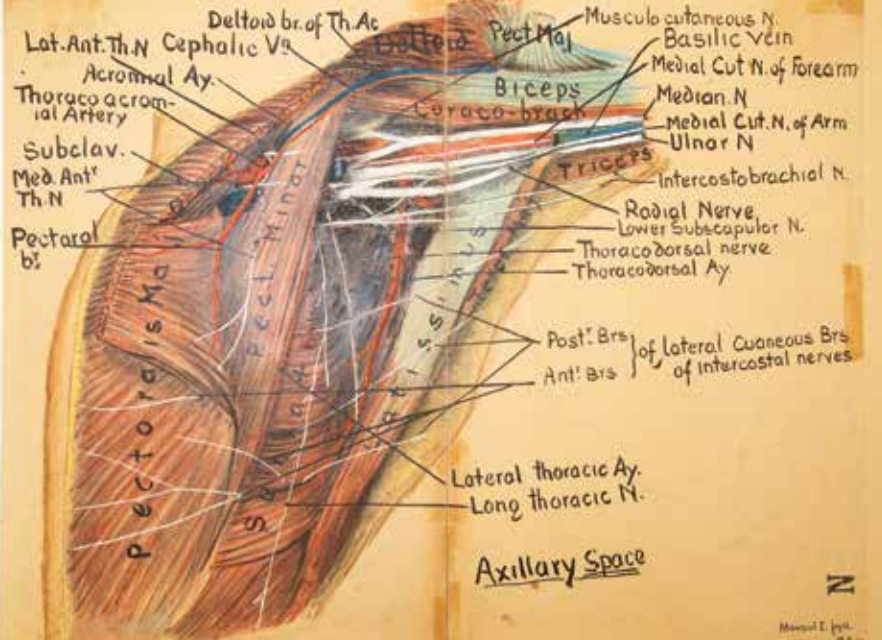
**Q | What do you and your wife, Darlene, do for fun in Houston?**

**A |** We like to go to Memorial Park with our dogs. I'm an avid red wine drinker and we like to go to Cru. When I go to Cru, it's like the old "Cheers" show on TV. 'Hey dean,' they say. 'What are you drinking tonight?' They know who I am and who my wife is.

In California, we lived 67 miles east of Los Angeles. Over 15 years, we went to only two shows at the LA Philharmonic—to get into L.A. and back is a nightmare. We've been in Houston seven months and we've already been to the Houston Symphony four times. It's two miles from where we live; the Uber to Jones Hall is \$9. ■

*Rashid Mosavin, R.Ph., Ph.D., MBA, was interviewed by Pulse Editor Maggie Galehouse. The interview has been edited for clarity and length.*

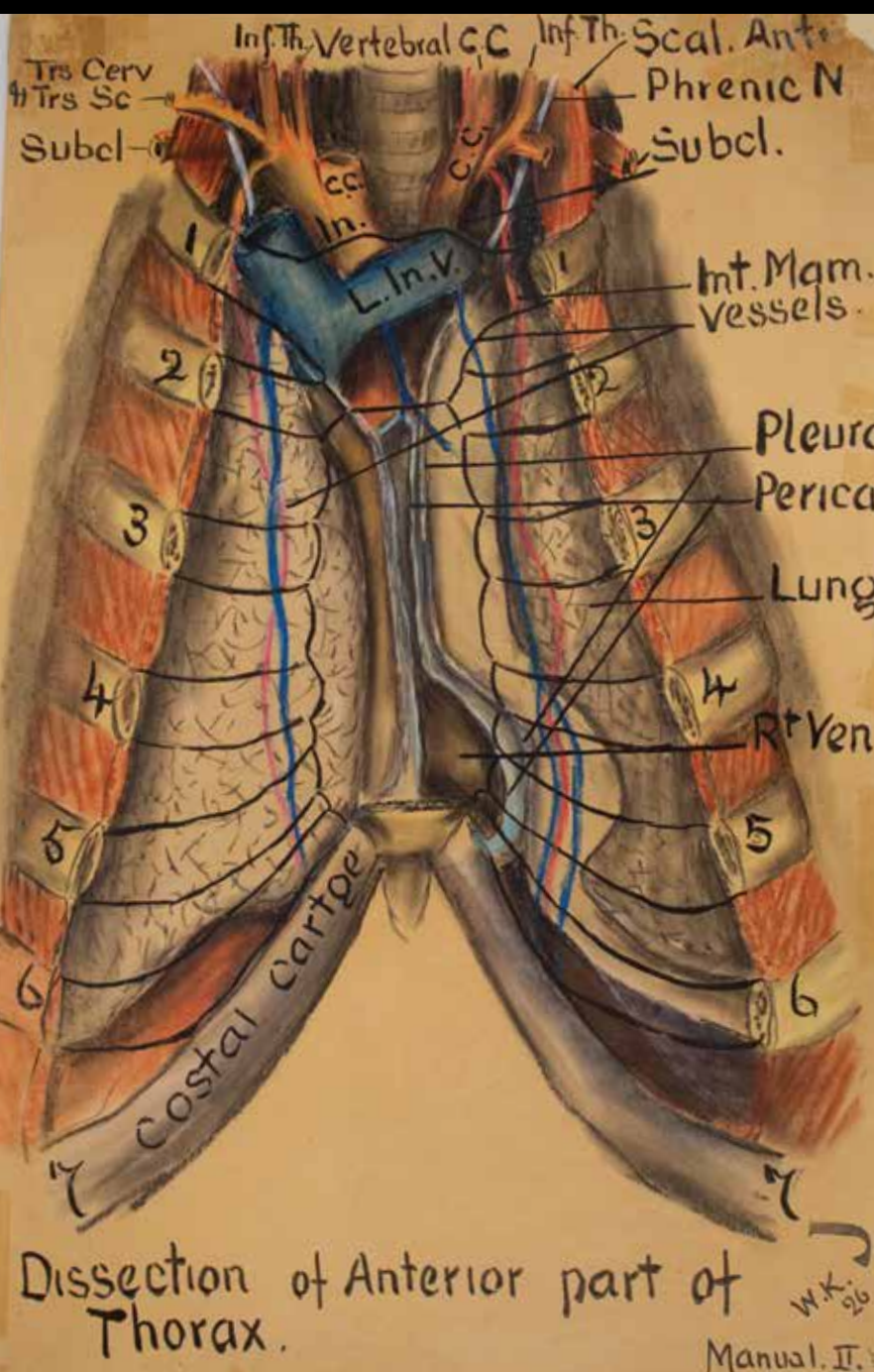




# CURATED

The Intersection of ARTS and MEDICINE

By Britni R. McAshan



Muscles, veins, bones and brain matter become art in William Keiller's large-scale anatomical drawings, some of which were created more than a century ago.

Before X-rays and MRIs could capture images inside the body, medical professionals relied on detailed sketches to learn about the structure and inner workings of humans. Today, thousands of intricate and colorful anatomical drawings by Keiller and others are available for viewing at the Moody Medical Library at The University of Texas Medical Branch (UTMB) at Galveston.

"Keiller was an artist before he came to Galveston as a professor of anatomy," said Paula Summerly, Ph.D., research project manager at the John P. McGovern Academy of Oslerian Medicine at UTMB. "Drawing was an integral part of the curriculum, because there is no better way to learn than through close observation."

Originally from Edinburgh, Scotland, Keiller left the United Kingdom to become the first professor of anatomy at UTMB, the first medical school in the state of Texas. He responded to an advertisement that promised a fully-equipped medical school with labs and equipment, but when he arrived in Galveston, the school was empty.

"They started everything from scratch—specimen collections and all of these drawings to build up an inventory," Summerly said. "At the time, it was just Old Red and the John Sealy Hospital, so he had the whole run of the beautiful building."

John Sealy Hospital opened in 1890 and Old Red, the first UTMB building, opened the following year.

Because UTMB leaders did not have a large budget, Keiller's talent for creating medical drawings—or wall diagrams, as he called them—helped the school immensely. Many of the drawings measure 2 feet by 3 feet and were used for teaching, in lieu of expensive textbooks. Many also show marks on the corners where they were hung on classroom walls.

"Keiller would use his skilled eye to plan out what was important for the students to learn and he used the drawings as a companion to dissection in the lab, as well," Summerly said. "In Keiller's day, students studied anatomy three hours per day, five days per week, so these are the remnants of a former curriculum."

Keiller studied cadavers, observed live surgeries and even traced from textbooks to create his drawings, which not only provided an intricate look at the human anatomy, but also highlighted abnormalities. He was creative about his use of materials, too.

"He used pastels, pencil, charcoal and all different kinds of media," Summerly said.

Keiller's drawings make up about 10 percent of UTMB's collection.

"We have at least 250 drawings that Keiller did with his name signed on them, but the collection is over 2,500 pieces, so other professors and students were doing these drawings," said Kelly Caldwell, an archivist of the Truman G. Blocker, Jr. History of Medicine Collections. "They start in 1891 when Dr. Keiller gets here and the latest one that has a date on it is 1981." ■

The Keiller Collection can be viewed online at [library.utmb.edu](http://library.utmb.edu) or in person at the Moody Medical Library, 914 Market St., Galveston. Information: 409-772-2397.

# Managing Early-Onset Parkinson's with Exercise

Matt Kintzele, diagnosed five years ago, is training for triathlons

BY ALEXANDRA BECKER

Matt Kintzele could feel that the air had chilled overnight, but he got up anyway. He pulled on his clothes, ate a quick breakfast, then drove to the local YMCA in Katy, a large suburb on the westward end of Houston's sprawl. He was tired, but he had laps to swim. By the time he entered the pool, his hands were shaking uncontrollably. But that wasn't going to stop him—nothing, he told himself, would.

Five years ago, the 51-year-old was diagnosed with early-onset Parkinson's disease, a progressive disorder of the central nervous system caused by a loss of dopamine in the brain. The condition affects movement and often leads to tremors and rigidity in the muscles. Kintzele had first noticed a tremor in his left thumb, which eventually progressed to his entire hand. After seeking answers from a host of doctors and specialists, he visited Baylor College of Medicine for a second opinion. There, he met with Joseph Jankovic, M.D., director of the Parkinson's Disease Center and Movement Disorders Clinic.

"One of the things Dr. Jankovic said when I got my diagnosis was how important exercise is," Kintzele said. "I took that very seriously. I wasn't working out that much at the

time, but I started working out basically every other day, three to four times a week, to try to battle it."

Jankovic gives the same advice to all his patients, calling on dozens of studies concluding that aerobic exercise has a direct influence on brain function and can even slow the progression of neurodegenerative diseases like Parkinson's.

"There have been many, many studies that show that patients with Parkinson's disease who exercise do much better in the long run than those who don't exercise," Jankovic said.

He cited research focusing on an increase in the production of certain proteins, including BDNF (brain-derived neurotrophic factor) and GDNF (glial cell line-derived neurotrophic factor), which are critical for healthy brain function and provide support and nutrition for neurons and nerve cells.

"Animals who exercise have much higher production of these neurotrophic factors," Jankovic said. "There's also evidence that animals that exercise actually have increased brain volume, and there have been studies in humans that showed that long-term exercise can result in greater volume of the cerebral cortex and the hippocampus.

People who exercise also have increased connectivity within the brain and they have less age-related degeneration of the brain. All of these factors support a notion that the brain benefits from long-term exercise, and this has been specifically shown in patients with Parkinson's disease."

Jankovic had no problem convincing Kintzele of the benefits of exercise, but, for Kintzele, acting on the doctor's advice would prove easier said than done.

"That first year when I was diagnosed, I wasn't taking any meds for [Parkinson's] yet. And over the course of about six months, I began to not be able to walk fast," Kintzele said. "In my left leg, when I tried to run, my toes wouldn't push off. I just couldn't do it, and so I walked, but then I became unable to walk really fast. That was frustrating because I was a runner earlier in life."

He shifted to weight-lifting, boxing and some cycling, but was eventually advised to take medication to help control his symptoms. The medication worked wonders.

"I suddenly didn't have problems writing, and suddenly my leg was working so I could run again," Kintzele said. ➡

*Facing page: Matt Kintzele swims laps at his local YMCA in Katy, Texas, on Feb. 1, 2020.*









*Kintzele works out at the Memorial Hermann IRONMAN Sports Medicine Institute, where he underwent physical therapy for a hamstring injury.*

Everything went smoothly for about a year, until he was told he needed to increase his dosage. That led to a common side-effect: dyskinesia, an involuntary movement of his muscles that Kintzele described as more circular—different from the tremors to which he had grown accustomed. Kintzele was prescribed different medication to address those side effects, but three days later, he developed a serious allergic reaction.

“I had hives over 50 percent of my body and I said, ‘I can’t take this anymore. I’m done,’” Kintzele said.

He called his doctors, assuming there would be an alternative prescription, but, none existed. He had to rely solely on Jankovic’s original advice.

“I did a lot of praying, I did a lot of thinking, a lot of reading, and I said, ‘You know what, I’m going to exercise every day, because if every other day was good, every day has got to be better,’” Kintzele said. “For that first year after, I probably missed three days, total.”

Not only has aerobic exercise been shown to slow the progression of Parkinson’s disease, Jankovic said, but it also helps manage common symptoms experienced as a result of Parkinson’s medication. Kintzele’s symptoms—those involuntary, circular movements—all but disappeared after he started his daily regimen. And something unexpected happened, too: he regained much of the energy his Parkinson’s had zapped.

“It’s amazing. I was struggling when I was first diagnosed because I was so tired,” Kintzele said. “But now I have energy. I still work. I’m an engineer and, at times, I’ve worked 10-, 12-, 14-hour days, and I don’t have a problem with it. I couldn’t have done that before.”

The benefits don’t stop there, Jankovic said.

“Exercise improves flexibility of the muscles and it improves rigidity issues, which is one of the cardinal symptoms of Parkinson’s disease, so patients who have stiffness of muscles and joints, when they exercise,

that improves, too,” the doctor said.

Empowered by his daily routine, Kintzele began setting goals. First, he trained for a half-marathon, overcoming setbacks and injuries to complete one in San Antonio under his goal of two hours.

“I ended that race at 1 hour, 53 minutes. I was so fast getting to the line that my wife wasn’t ready to take pictures of me,” Kintzele said.

Since then, he’s tried to run at least one half-marathon every year and has pushed himself toward an even more daunting goal: an IRONMAN triathlon, which includes a 2.4-mile swim, a 112-mile bicycle ride and a 26.2-mile marathon run. It’s something he’s wanted to do since he was kid.

But then, another setback. During a long training run, Kintzele pulled his hamstring. Exercising with Parkinson’s can be a double-edged sword, since the condition can also make people more susceptible to injuries. Ultimately, Kintzele was diagnosed with proximal hamstring tendinopathy and referred



to Memorial Hermann IRONMAN Sports Medicine Institute, where he began working with physical therapist Taylor Cole.

“Tendinopathy is when there is a non-normal healing response of the tendon—where it tries to heal itself but it can’t,” Cole explained. “That’s why Matt couldn’t run anymore.”

Kintzele’s therapy was a balancing act, Cole explained. In order to get better, the tendon had to get stronger, but he couldn’t experience too much pain because that would mean prolonging the injury. For months she worked with him, slowly increasing weight. Now, Kintzele is almost 100 percent back to his training.

“I feel so much stronger now, and the pain has gone away,” Kintzele said. “Hamstring tendinopathy, in many cases, is a career-ender for runners. But I was like, ‘I need this. I need this.’”

Although Kintzele had originally set his sights on an IRONMAN in Hawaii, he’s had to push back his goal due to his injury. Now, he’s training for the half-IRONMAN in October, held in Waco, Texas. He believes his work with Cole at Memorial Hermann has set him up for success so he’s less likely to get injured in the future, and although he knows his Parkinson’s disease won’t disappear, he remains focused and determined.

“It’s a progressive disease, so it will progress—you’re not going to stop it—but it’s nice to be able to battle it, and it’s maybe the only way I can battle it,” said Kintzele, who credits his wife, Kelly, with keeping him grounded and motivated. “I think about it like this: I wasn’t a triathlete that got Parkinson’s. I was an everyday guy that got Parkinson’s that decided to become a triathlete to help do this battle every day.” ■



Kintzele cycles regularly as he trains for an upcoming IRONMAN triathlon.



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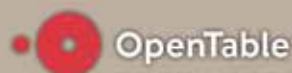
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# ZEBRAFISH:

## Advancing Genetics & Molecular Biology

BY SHANLEY PIERCE



***Facing page:** Tanks filled with zebrafish are integral to research in the Gorelick Lab at Baylor College of Medicine. **Above:** Daniel Gorelick, Ph.D., assistant professor in the department of cellular and molecular biology, checks on one of the tanks.*

Iridescent blue-striped zebrafish dart back and forth in tiny tanks stacked floor-to-ceiling in the basement of Baylor College of Medicine. The freshwater minnows—some 13,000 strong in their watery studio apartments—play an integral role in innovative biomedical research.

They are part of the Gorelick Lab, one of more than 3,250 sites in 100 different countries using zebrafish to advance medicine and better understand human diseases. Led by Daniel Gorelick, Ph.D., assistant professor in the department of cellular and molecular biology at Baylor, the lab studies zebrafish to learn how certain hormones and chemicals affect the development and function of the human heart and brain, as well as other tissues.

Although science and technology are constantly evolving, zebrafish have remained relevant research tools for almost 50 years. Today, scientists are harnessing the power of CRISPR-Cas9 technology—which can edit segments of the genome by deleting, inserting or altering sections of the DNA—to generate specific mutations in zebrafish.

“This has been a huge advance because it allows us to create mutant strains of zebrafish that have the same mutations as are found in a human disease,” said Gorelick, whose lab is housed in Baylor’s Center for Precision Environmental Health and is currently undergoing an expansion to accommodate as many as 30,000 fish. ➡

In addition, scientists have long sought to map the cell-by-cell progression of animals, in pursuit of understanding how a single cell develops into trillions of cells that make up an intricate biological system of organs. With single-cell RNA sequencing, a technology named *Science* magazine's 2018 Breakthrough of the Year, scientists are able to track the different, intricate stages of embryo development in unprecedented detail, allowing researchers like Gorelick to study the cascading effects at the cellular level.

"There's just so much evidence now that a lot of the drugs that are effective in humans are also effective in [zebrafish], so people are now starting to use fish to discover drugs," Gorelick said. "You want to know, if you're taking a drug or you're exposed to some pollutant, does that cause birth defects? How does that affect the life of humans? ... We can use [zebrafish] as research tools to understand how the chemicals normally work in a normal embryo."

## Regenerative heart

Zebrafish are named for the colorful horizontal stripes on their bodies, and can grow from 1.5 to 2 inches in length. The tropical fish are native to South Asia.

On the surface, zebrafish appear nothing like humans, but 70 percent of the genes in humans are found in zebrafish and 84 percent of human genes associated with human disease have a zebrafish counterpart, studies show.

George Streisinger, an American molecular biologist and aquarium enthusiast, pioneered the use of zebrafish in biomedicine at the University of Oregon in 1972. His breadth of knowledge about zebrafish laid the groundwork for research methodologies, including developing breeding and care standards and creating tools for genetic engineering and analysis. He performed one of the first genetic screens of zebrafish by using gamma rays to randomly mutate the DNA of certain zebrafish and identify offspring that had notable phenotypes, such as pigmentation defects.

"That caused a big explosion in the field and then that's when things really took off," Gorelick said.

Zebrafish are now used as a genetic model for the development of human diseases, including cancer, cardiovascular diseases, infectious diseases and neurodegenerative diseases—to name a few. Housed down the street from Gorelick's lab, John Cooke, M.D., Ph.D., is using zebrafish to study atherosclerosis, the major cause of heart disease in the country. Although zebrafish have only one ventricle to pump blood to the heart, whereas humans have two (a left and a right ventricle), their vasculature is very similar to humans.

"The zebrafish can help us in understanding the cardiovascular system, in achieving those basic insights, and in translating those basic insights towards something that's potentially useful for people," said Cooke, director of the Center for Cardiovascular Regeneration at Houston Methodist Research Institute.

Cooke hopes that studying the regenerative capabilities of the zebrafish heart will lead to new discoveries that help human patients.

"You can remove 20 percent of their heart, and they can regenerate it," Cooke explained. "Why is that? We want to know. There are groups that are studying that amazing regenerative capacity of the

[zebrafish] heart, and those insights obtained from that work may lead us to new therapies for people to regenerate the human heart or, at least, improve the healing after a heart attack."

## Watching cells migrate

Although mice are genetically closer to humans than zebrafish, sharing 85 percent of the same genomes, zebrafish have a few key advantages for researchers.

On average, zebrafish produce between 50 to 300 eggs, all at once, every 10 days. Their rapid breeding allows scientists to quickly test the effects of genetic modifications (such as gene knockouts and gene knock-ins) on current fish, as well as ensuing generations.

In addition, zebrafish are fertilized and developed externally, meaning the sperm meets the egg in the water. This allows scientists to access the embryos more easily, as opposed to mouse embryos that develop inside the womb. In one of his research projects, Gorelick simply adds drugs to the water to see how the zebrafish are affected.

"Most drugs in the water will get taken up by the embryo," Gorelick said. "We add it into the water and it gets taken up the next day when they're just one day old. ... All of that discovery happened in zebrafish because you can literally watch it live."

Not only do zebrafish embryos develop quickly, they are also transparent. Within two to four days, a zebrafish will develop all its major organs—including eyes, heart, liver, stomach, skin and fins.

"We can literally watch these cells migrate from different parts of the embryo, form the tube, constrict, form the hourglass, loop on itself, beat regularly and see blood flow all at the same time," Gorelick said. "When there's a belly and a uterus, you don't have access. You can use things like ultrasound, like we do with humans, but ... you can't get down to single-cell resolution like we can with the fish."

Ultimately, zebrafish have proven to be a powerful resource for researchers. Although all zebrafish studies are confirmed in rats and mice, followed by human tissue, they constitute a significant stepping stone.

"You wouldn't want to build a house only using a hammer and a screwdriver. I want a power drill and I want a band saw," Gorelick said. "Fish are part of that. ... They're not a cure-all. They're not the only tool, but they're an important tool." ■





# VITALS

Trending topics in health, science and medicine

By Shanley Pierce

## Responding to the novel coronavirus

The highly contagious respiratory illness caused by a novel coronavirus originating in Wuhan, China, has infected more than 80,350 people and killed more than 2,700 as of late February, according to the World Health Organization (WHO). At this point, the continued spread of the coronavirus seems inevitable.

This virus “shares some similarities with other known viruses, but it’s new to science,” said James Le Duc, Ph.D., director of the Galveston National Laboratory at The University of Texas Medical Branch at Galveston (UTMB), one of the country’s largest active biocontainment centers on an academic campus.

Scientists currently know of seven types of coronaviruses, including the 2003 Severe Acute Respiratory Syndrome (SARS-CoV), the 2012 Middle East Respiratory Syndrome (MERS-CoV) and, now, the 2019 Novel Coronavirus (COVID-19).

The novel coronavirus and the SARS coronavirus are the most similar, sharing 80 percent of the same genes, said Peter Hotez, M.D., Ph.D., dean of the National School of Tropical Medicine at Baylor College of Medicine and co-director of the Texas Children’s Hospital Center for Vaccine Development.

After the SARS outbreak, several Texas Medical Center institutions collaborated with centers in New York and China to develop and manufacture a SARS vaccine, with funding from the National Institutes of Health (NIH). The team included Baylor College of Medicine’s National School of Tropical Medicine, Texas Children’s Hospital Center for Vaccine Development, Galveston National Laboratory at UTMB, New York Blood Center and Fudan University in China.

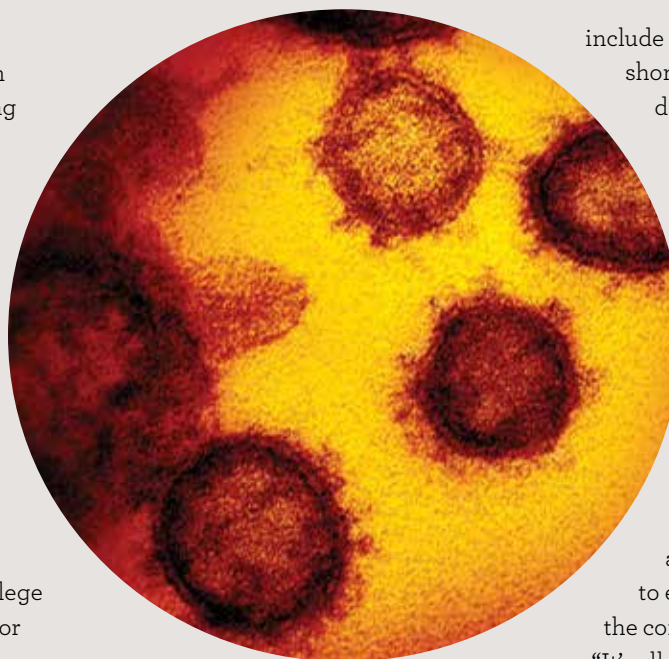
“When this new epidemic came out, we quickly learned from Chinese scientists that both viruses bind to the same receptor,” Hotez said. “We think there’s a good possibility that the vaccine that we were funded by the NIH to develop here in the Texas Medical Center may actually work against the epidemic.”

### What is a coronavirus?

The first cases of the novel coronavirus were reported to WHO on Dec. 31, 2019. The virus has since spread to countries outside of China, including Thailand, Vietnam, South Korea, Malaysia, Japan, Australia, France, Germany, Cambodia, Sri Lanka and the United States—prompting major cities in China to be placed under partial or full lockdown and airports across the world to screen for possibly infected passengers.

Coronavirus is an umbrella term for a large category of zoonotic viruses transmitted between animals and people, causing respiratory illnesses that range from the common cold to severe disease. Named for their resemblance to the outer atmosphere of the sun, coronaviruses have crown-shaped spikes protruding from their surface.

Coronaviruses enter the respiratory tract through the nose and have an incubation period of approximately three days. Common symptoms



include fever, cough, shortness of breath and difficulty breathing; however, patients with more severe conditions can experience pneumonia, severe acute respiratory syndrome, kidney failure and death.

Currently, there is no antiviral drug to effectively treat the coronavirus.

“It’s all supportive care today,” Le Duc said. “Once we get access to the live virus, we can then test in animal models if antiviral drugs or other therapeutic interventions would help reduce the disease burden. I think that’s a critical next step.”

### How have we prepared for this outbreak?

After the 2003 SARS outbreak that infected more than 8,000 people and killed 774, the WHO worked with nearly 200 countries to implement the International Health Regulations 2005, measures designed to bolster disease detection and surveillance of international ports, airports and ground crossings.

In addition, the Obama Administration signed an executive order in 2016 to advance the Global Health Security Agenda, an international initiative to protect against infectious disease threats.

As a result, the government established a “strategic national stockpile” of preparedness, Le Duc said.

“The country as a whole has invested heavily in preparedness for all sorts of disasters—natural disasters, as well as infectious disease outbreaks,” Le Duc added. “The government has on hand a lot of resources that could be used to help respond to an outbreak.”

At this stage, though, focusing on developing therapeutics to treat the coronavirus as opposed to a vaccine will probably have the greatest immediate impact, Le Duc said.

“We’re too reactive,” Hotez added. “We wait for the crisis to happen and then we scramble and try to put Humpty Dumpty back together again, but vaccines don’t work that way. Vaccines require weeks or months of safety testing. That’s the problem by staying in reactive mode.” ■



# MERGING SHRINERS HOSPITALS

Plans for Shriners Hospitals for Children – Texas have begun

BY MAGGIE GALEHOUSE

When two hospitals merge into one location, divvying up space for existing and incoming staff rises to the top of the to-do list. Department heads from both sites confer with planners, hospital administrators and architects to make sure everyone is properly equipped to treat patients.

In early January, Shriners Hospitals for Children – Houston confirmed that it would close in 2021 and consolidate with Shriners – Galveston. Shriners aims to complete the merger by the fourth quarter of 2020, but the full remodel in Galveston could seep into the following year.

“We have the space in our facility,” said Gary Martin, chairman of the Board of Governors for Shriners Hospitals for Children – Galveston. “We are now in the process of stage-planning the different phases we are going through to remodel, because we still have to be open while we’re remodeling. ... I was just on a teleconference call for an hour-and-a-half with architects.”

Operating two Shriners hospitals just 55 miles apart has been inefficient, said David Ashley, chairman emeritus of the Board

of Governors for Shriners – Houston. Still, closing the Houston hospital was a tough decision to make.

“Obviously, some people who work in the Houston facility don’t want to go to Galveston,” Ashley said. “But, we are hoping to keep as much of our staff as absolutely possible.”

## A bigger footprint

The decision to combine hospitals was actually made last fall, said Mel Bower, national spokesperson for Shriners Hospitals for Children, a nonprofit network of 22 hospitals across North America that cares for children up to age 18 regardless of their families’ ability to pay.

“It really comes from a place of best serving our patients,” Bower said. “We are now going to be able to combine our service lines in one facility.”

Shriners – Houston cares for children with orthopedic and neuromusculoskeletal disorders and diseases as well as cleft lip and palate abnormalities, while Shriners – Galveston treats children with burns and other soft tissue conditions. Almost every burn patient will need orthopedic



rehabilitation, Bower said, and the pending merger will allow those patients to receive care at one location.

“Shriners as a whole is seeing more patients than before, but the majority are in an outpatient setting,” Bower said. “That’s a trend in health care and pediatrics.”

The merger aims to create a stronger facility with a bigger footprint.

“It’s going to be Shriners Hospitals for Children – Texas,” Ashley said.

With a single Texas facility, the Houston chairman emeritus added, Shriners also intends to devote more time to researching some of the conditions it treats.

“Cleft lip and palate? They still don’t really know what causes it,” Ashley said. “If we could figure out the genetic cause and find a fix for it, what kind of impact would that have on humanity?”

## 100 years in Houston

Shriners – Houston, in one form or another, has existed for a century. The Houston facility traces its origins to the Arabia Temple Crippled Children’s Clinic that was housed inside the Baptist Sanitarium in downtown Houston between 1920 and 1932. After moving several times and sharing space with other hospitals, the current hospital in the Texas Medical Center—located near Main Street and Holcombe Boulevard—opened in 1996.

In 2018, Shriners – Houston provided care for more than 450 inpatients and more than 10,000 outpatients, according to the hospital’s 2018 annual report.

When asked what will happen to the Houston building, which the Shriners own, Bower said: “We’re looking at a timeline so elongated that the building conversation is

secondary. ... Part of it is using our Galveston facility more efficiently.”

## A different mindset

Shriners Hospitals are funded through donations and an endowment that the hospitals draw from each year. Shriners International, the fraternal arm of the organization, also donates money to the hospitals, including transportation fees, Martin said.

To bring a pediatric patient from South America to Galveston on an emergency medical flight costs \$15,000 to \$20,000, Martin said, adding that Shriners – Galveston cared for some of the children who were injured after the Volcán de Fuego, or Volcano of Fire, erupted in Guatemala in June 2018.

“Especially with a burn patient, the quicker we get them here, the better the outcome,” Martin said.

Over the past decade, Shriners Hospitals started accepting medical insurance, including Medicaid and Medicare.

“Prior to 2008, we were able to survive without having to touch the principal capital on our investments—we could run the hospital system on the interest of our investments,” Martin said. “But then everyone’s 401Ks and stock investments went in the tank. ... We had money in stocks and bonds—a lot of the same investments that a lot of Fortune 500 companies had—that went down in value, just like everyone else’s. That forced us into a different mindset.”

Shriners – Galveston has a current operating budget of \$30 million, Martin said, but that will need to increase when Houston is brought into the fold.

“We’re not sure where we’re going to be,” he said. “It’s a work in progress. We don’t want to do

anything to hurt anyone who currently works for us. We want to save as many employees as we can.”

Ten or 15 years down the road, Shriners Hospitals may look very different, Martin added.

Generally speaking, you could walk into a non-Shriner’s hospital someday and find one floor dedicated to Shriners patients and services, he said.

“To have a hospital takes, for the basics, more than 100 employees,” Martin said. “We are more interested in treating kids than having more facilities. We could have many touch points around the country and treat many more kids than we’re treating now.”

## Patients and families face adjustment

Latonia Jenkins was surprised to learn that Shriners – Houston would be merging with Shriners – Galveston.

Her 10-year-old daughter, Madilyn, has cerebral palsy and has benefited for more than three years from surgeries at Shriners – Houston as well as therapy in its esteemed motion analysis center. Before that, the family traveled to the Shriners hospital in Shreveport, Louisiana for treatments.

Over the years with Shriners, Madilyn’s mobility has improved.

“We were driving all the way to Shreveport. The medical center is right there—it’s closer,” Jenkins said. “Galveston is a little ways. It’s another drive.”

Still, the determined mother plans to continue treatments for her daughter with Shriners.

“I don’t know what the next step will be, but I’m going to try to stick with them,” Jenkins said. ■

*Cindy George contributed to this report.*

# The Narrative Practice Project

Emergency department staffers at Memorial Hermann Northeast Hospital are keeping personal journals

BY MAGGIE GALEHOUSE

A young man with a gunshot wound to the face walked himself into the emergency room at Memorial Hermann Northeast Hospital. The injury, which had shredded the tissue on one side of his jaw, left him unable to talk. But his eyes spoke volumes.

“He looked like he had costume makeup on—it was straight out of a movie,” said emergency department unit clerk Brittany Graves, who registers walk-ins, coordinates EMS traffic and initiates transfers. “He couldn’t say a word, but his eyes said, ‘Please, help me.’”

Emergency physicians did, indeed, help the young man, who survived his wound. But Graves couldn’t shake his expression and ghastly pallor. First chance she got, she drew a picture of him in her journal, pasting a printout of the four rules of firearm safety on the opposite page.

“I like my journal entries to feel like a completed art piece,” Graves said.

Graves and other emergency department (ED) employees at Memorial Hermann Northeast are part of a narrative practice project launched by Stacy Nigliazzo, a nurse and poet whose most recent poetry collection, *Sky the Oar*, was published by Press 53.

“The emergency department is intense and fast-paced. You’re seeing people, a lot of times, on the worst day of their life,” said Nigliazzo, clinical coordinator of emergency services at the hospital. “I know what that does to me, how when I go home I carry it with me.

Writing and art have always been my outlet, especially creative writing. And I see my staff get burned out; I see them suffering from compassion fatigue.”

Research shows that arts and humanities are essential to a robust medical education, because both disciplines encourage compassion and empathy, traits often lost within the crush and churn of medical care. Nigliazzo shared some of this research with her chief nursing officer, who gave her permission to launch an arts task force at the hospital. After a few individual projects, Nigliazzo passed out blank journals to staff members who expressed an interest.

“A journal entry can be one word,” she said. “It can be a picture. It can be a sketch. It can be something you cut out and pasted in. It’s intended to be something so you can remember what was important to you on this day—what you’ve endured, what you’ve earned.”

## Cultivating empathy

Because the journals are whatever their owners want them to be, they can be wildly variable, from person to person and even from entry to entry within the same journal.

“I’m a reluctant journaler, so mine is not a daily thing,” said Lesa Thornton, an ED pharmacist at the hospital. “Over Christmas, I drew the symbol for a handicapped sign in my journal. I was arguing with my husband’s best friend, who had a massive stroke in September. ➡➡





## THE 4 RULES OF FIREARM SAFETY

ALWAYS TREAT FIREARMS AS  
IF THEY ARE LOADED  
AT ALL TIMES

NEVER POINT A FIREARM AT  
SOMETHING YOU'RE NOT  
WILLING TO DESTROY

KEEP YOUR FINGER OFF THE  
TRIGGER UNTIL YOUR SIGHTS  
ARE ON TARGET

ALWAYS BE SURE OF YOUR  
TARGET & WHAT IS IN FRONT  
OF & BEYOND IT



"He looked like  
a zombie!"

**Above:** Brittany Graves, emergency department unit clerk at Memorial Hermann Northeast Hospital, recorded her impressions of a patient with a gunshot wound. **Facing page:** Emergency department pharmacist Lesa Thornton copied a poem and drew a sketch in her journal.

Because he is so young—50—he has recovered extremely well, but that is not how he sees it. He said to me, ‘I guess life goes on even when you’re completely broken.’ And I said, ‘You are not completely broken. Completely broken people do not know they are broken.’”

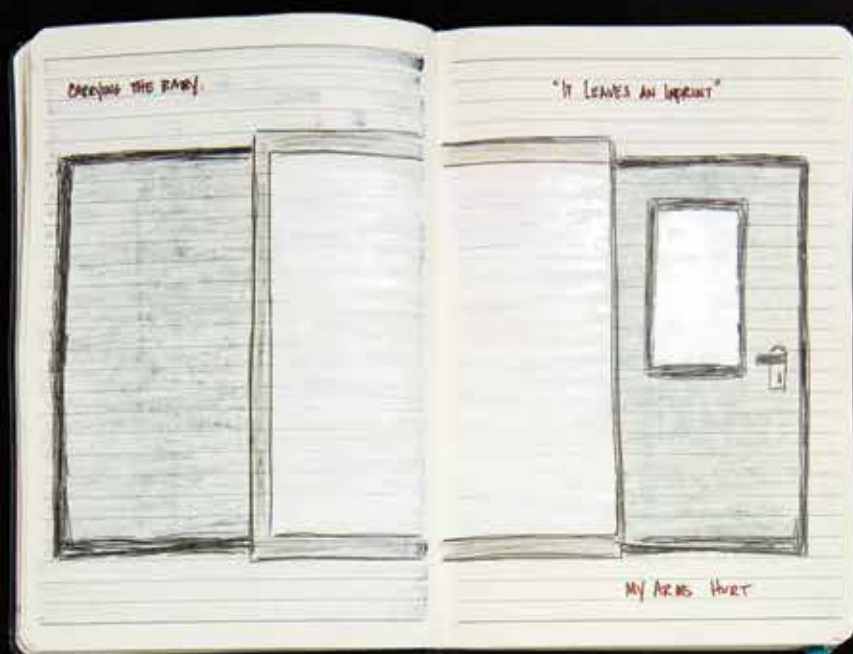
That last phrase made it into her journal, on the same page as her drawing of the handicapped logo. On the opposite page, Thornton copied a poem longhand by writer and stroke survivor Jon Obermeyer that leans toward the positive: *New brain cells sprout/ like green seedlings on the forest floor/ the first responders.*

Another journaler has kept to a specific theme. D’Ann Bailey’s journal is devoted entirely to her own health story, which took a dramatic turn more than a year ago when she was diagnosed with breast cancer.

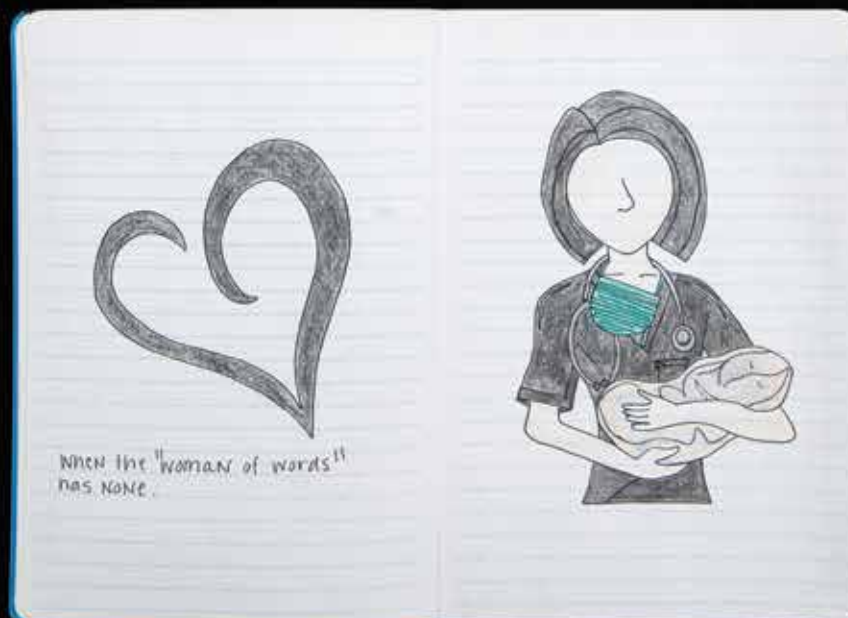
“I decided to write down the journey, not only for me to kind of get it down on paper, but for my children to look back,” said Bailey, a patient experience nurse navigator who works

bedside with patients and meets with staff to ensure that patients’ needs are being met. “This morning, I grabbed the journal on my way out the door and started flipping through. In here is not only the journey, but lists of the people who brought food, the people who sent cards and gifts. The time I cried for two days straight. ... I’m so grateful I can go back and remember.”

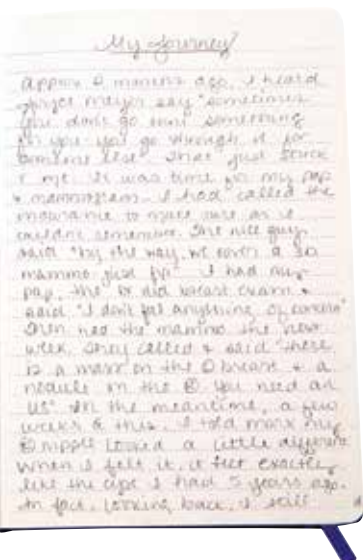
Nigliazzo’s journaling project springs from a broader movement in medicine that took formal shape a few decades ago, when universities and medical institutions began to launch narrative medicine degrees and programs. Narrative medicine emphasizes storytelling skills—listening, observing, interpreting, reporting, writing—to improve care and provide



**Top of page:** The journal of patient experience nurse navigator D’Ann Bailey is devoted to her personal journey with breast cancer. **Left:** Clinical coordinator of emergency services Stacy Nigliazzo drew morgue doors in her journal after carrying a baby to the morgue. **Below:** Brittany Graves drew a picture of Nigliazzo on her way to the morgue with the baby.







a necessary outlet to both patients and caregivers.

The mission of the famed narrative medicine program at Columbia University, a mother to all others, is to “fortify clinical practice with the narrative competence to recognize, absorb, metabolize, interpret, and be moved by the stories of illness.” Columbia offers a Master of Science in narrative medicine.

In Houston, Baylor College of Medicine’s narrative medicine program brings together faculty from diverse disciplines across the Texas Medical Center and

hosts reading and writing events.

### ‘It leaves an imprint’

At Memorial Hermann Northeast, the journals have become a way for employees to reflect on their most difficult moments. The journalers agree that once you stand over death with a co-worker, something in your relationship changes. Those are the types of situations often captured in the journals.

Nigliazzo and Graves created separate journal entries about the same poignant incident.

“There was a situation where an infant had died,” Nigliazzo began, “and when an infant dies in the hospital, the nurse wraps them in a blanket—completely covering everything—and carries that child to the morgue. They have a cart for adults, but for babies, they don’t. The nurse carries them. I can never bring anyone else on my staff to do that, so I always do it. And every time I go, after I’ve taken a baby there, my arms always hurt, even though these babies weigh practically nothing. On that day, I took a picture of the morgue doors and made a note that my arms hurt. I also wrote down something the security guard said when she unlatched the morgue doors for me. She looked at me and said, “It leaves an imprint.”

Graves was clerk that day. When Nigliazzo shared her journal entry—a pencil drawing of the morgue doors and the quote from the security guard—Graves immediately recalled that baby, that day. And Nigliazzo’s silence.

“I remembered what Stacy looked like when she walked out of the room on the way to the morgue,” Graves said. “She had no face. No expression.”

Graves drew a picture of her co-worker in her journal, holding the baby who was fully swaddled in a hospital blanket. In the sketch, Nigliazzo’s face is almost blank. Graves wrote: “When the ‘woman of words’ has none.”

Nigliazzo hopes to expand narrative medicine at Memorial Hermann by launching a formal narrative practice curriculum within the nursing residency program. So many nurses, she said, struggle early on and even quit because of burnout.

“I’m trying to get them at the beginning of their careers—to get them a wellness tool early,” Nigliazzo said. “It helps with empathy, observation, to engender curiosity and appreciate ambiguity. We want nurses and other people to be curious about what’s going on and to be comfortable asking questions.” ■



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 SAN JOSÉ CLINIC

# Detecting Alzheimer's Before Symptoms Arise

*A new blood test boasts more than 90 percent accuracy when combined with other risk factors*

BY ALEXANDRA BECKER

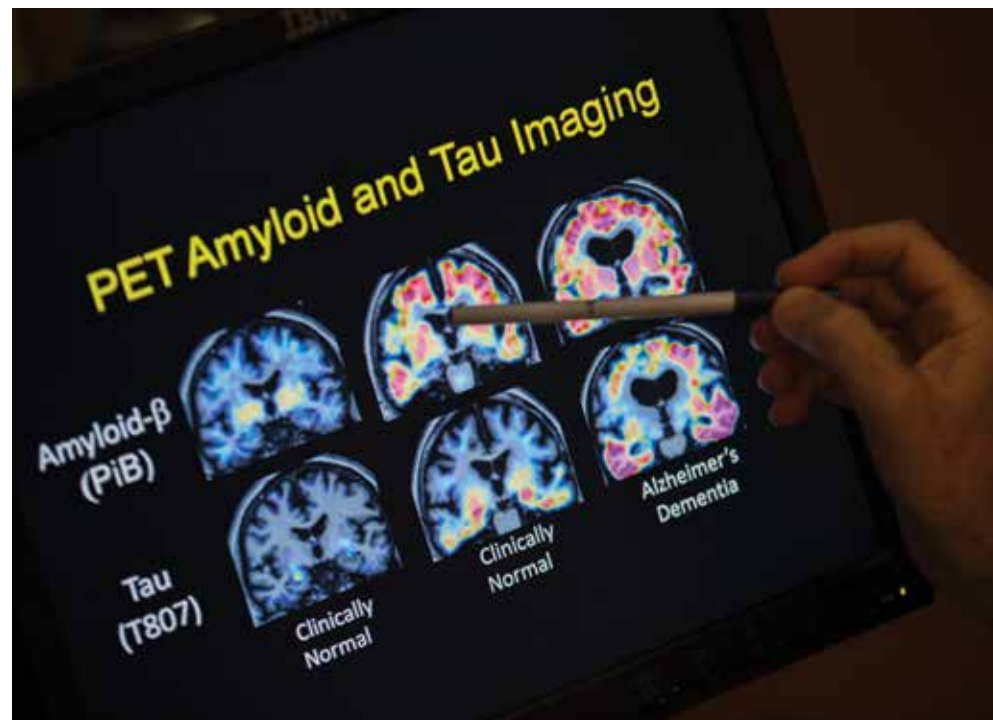
When it comes to breakthroughs in research on Alzheimer's disease—a debilitating and progressive neurological disorder that will affect an estimated 14 million Americans by 2060—scientists are focused on three pillars: prevention, early detection and treatment. But Alzheimer's is notoriously complex, and answers about the nature of the condition and how to best treat it remain elusive.

Still, there is progress, and recent research conducted at Washington University School of Medicine in Missouri may advance the mission for early detection through a surprisingly simple technique: a blood test.

"It's really exciting," said Suzanne Schindler, M.D., Ph.D., assistant professor of neurology at the Knight Alzheimer Disease Research Center at Washington University School of Medicine and lead author of the study. "I think it really has the potential to speed up finding drugs that work."

The research, published in the journal *Neurology*, claims that by measuring levels of amyloid beta protein in the bloodstream, researchers could estimate whether there is a buildup of that protein in the brain—a hallmark of Alzheimer's disease. Combined with two other risk factors, including age and the presence of the APOE4 gene, a genetic variant that has been associated with developing Alzheimer's disease, the amyloid blood test is up to 94 percent accurate, the researchers concluded.

The blood test employs a technique known as mass spectrometry to measure two forms of amyloid beta in the bloodstream, amyloid beta 42 (A $\beta$ 42) and amyloid beta 40 (A $\beta$ 40). According to Schindler,



A PET scan from Georgetown University Hospital in Washington, D.C., shows results from a study on Alzheimer's disease and biological changes in the brain.

A $\beta$ 42—the longer of the two, comprised of 42 amino acids rather than 40—is “stickier” and much more likely to accumulate in the brain when plaques are present. Every person makes both forms, Schindler explained, and while the amount of A $\beta$ 42 and A $\beta$ 40 varies from person to person, the ratio of their quantities does not—unless an individual has developed plaques in their brain.

“We know that most of the amyloid that is deposited in the brain, in the plaques, is the longer form—the A $\beta$ 42. And we have long known that ... as amyloid accumulates in the brain, A $\beta$ 42 goes down in the cerebral spinal fluid, which is kind of the opposite of what you’d think. Usually when something goes up in the brain, you’d expect it to go up in the fluid that is around the brain,” she said.

In this case, however, Schindler said it is likely that the plaques are clinging to the A $\beta$ 42, so the

ratio changes in the bloodstream: A $\beta$ 42 goes down because it is getting stuck in the brain, and A $\beta$ 40 remains more or less constant.

“When that ratio gets low, there’s very, very commonly a reason for it, which is the plaques,” Schindler said.

Since the study’s publication, the researchers have further validated their results and are working on optimizing and scaling the test. One of the study’s co-authors, Randall J. Bateman, M.D., the Charles F. and Joanne Knight Distinguished Professor of Neurology at Washington University School of Medicine, was awarded a grant to pursue a clinical trial to further test the accuracy of the process. Notably, Bateman co-founded a company with another colleague and co-author, David M. Holtzman, M.D., chair of neurology and scientific director of the Hope Center for Neurological Disorders at Washington University School of Medicine, that has

if, instead of having to use a PET scan—which is expensive—we could simply measure something in the blood and have the same amount of certainty as we do with the PET scan,” said Joseph Masdeu, M.D., Ph.D., director of the Nantz National Alzheimer Center at Houston Methodist, which was not involved in this particular study.

Today, physicians utilize the positron emission tomography (PET) scan, which uses a radioactive tracer to reveal detailed images of tissues and organs, to detect abnormalities in the brain, including presence of the amyloid beta plaques or abnormal levels of tau protein—another marker for Alzheimer’s. But as Masdeu pointed out, a cheaper, easier test—with just as much accuracy—could lead to earlier detection in more patients.

“This will help propel the field, certainly, because any time you can do something less expensively, you

been granted breakthrough device status from the U.S. Food and Drug Administration to commercialize the test.

## A cheaper, easier test

The test is still a long way from regular use in a doctor’s office, but if it does find its way into the clinic, it could revolutionize current methods for early detection of Alzheimer’s.

“It would be a lot easier

Credit: AP Photo/Evan Vucci, File



are going to get far more interested,” Masdeu said. “People will want to know the prognosis, and therefore the diagnosis.”

Although there are currently no treatments to stop the progression of Alzheimer’s disease, he noted, enrolling more people in clinical trials would mean more opportunities for answers, more breakthroughs in research, and hopefully future therapies.

“Probably the next thing that’s going to happen is the test will be used for clinical trials,” Schindler said. “Ten or 20 years ago when they did drug studies for Alzheimer’s disease, they just enrolled people who had dementia—cognitive symptoms. And later, when they went back and looked at some of these people, they found out that about one-third of them didn’t actually have Alzheimer’s disease—they had cognitive impairment from other causes, but they didn’t have plaques in their brain, which is really the key feature of Alzheimer’s disease. And that was very problematic, because they were testing a drug for a condition that people didn’t have, so it wasn’t going to work regardless.”

Plaques can build up decades before any symptoms of cognitive decline, so detecting their presence early is key for earlier diagnosis and furthering the field of research.

“We’ve done a lot of drug trials for Alzheimer’s disease that haven’t worked, and we think that a big reason for that is that we treated people too late,” Schindler said. “We think that by the time people have symptoms of Alzheimer’s disease, they’ve already had some significant damage, and it’s much harder to try to slow down or reverse the damage than to try to prevent it in the first place. ... In the next couple of years, I think the main utility of this blood test will be for these drug trials.”

### ‘We are very close’

The latest research from Washington University isn’t the only test currently being developed for early detection of Alzheimer’s. In 2018, researchers in Japan published a paper in the journal *Nature* describing their study measuring

amyloid protein buildup in the blood. And a clinical trial sponsored by the University of Rhode Island is using eye exams, specifically retinal screening tests, to detect the buildup of amyloid plaques ahead of symptoms.

“I think we are very close to having a test that is going to be effective,” Masdeu said. “Whether it is exactly the same one that was used for the study at Washington University, or variations on it, I think we’re almost there.”

Masdeu himself is working on a comprehensive study to increase global understanding of Alzheimer’s disease, which he hopes will correspond with these breakthroughs in early detection. His team at Houston Methodist, in collaboration with researchers at Baylor College of Medicine, is working on a methodology using precision medicine for Alzheimer’s disease.

“We are going to be looking at all the imaging markers that allow us to know what is going on in the brain of these patients—whether they have tau deposits in the brain or amyloid,” Masdeu said. “That is a huge amount of information per patient, but one of the things we are learning about Alzheimer’s is that it is anything but uniform.”

The teams are also looking at inflammation, Masdeu said, because that condition is emerging as an important piece of the puzzle. Ultimately, he said, all of the work is helping inch the field forward.

Schindler said she could see a future in which a drug exists that would prevent or slow the onset of symptoms—making an early-detection blood test critical for the general population.

“The idea would be that you would go into your doctor’s office for your annual exam, and maybe every few years you’d get this blood test done, and if it comes back abnormal, then you would start on some kind of therapy that would prevent you from ever getting Alzheimer’s disease,” Schindler said. “We’re a ways from that, but I think it could happen.” ■

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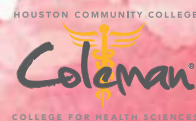
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# Josie Roberts: Saving Methodist Hospital

*The administrator carried the institution through the Great Depression*

BY BRITNI R. McASHAN



Marc Boom, M.D., president and CEO of Houston Methodist Hospital, stands next to a display featuring Josie Roberts.

Nearly a century ago, Josie Roberts rose from the clerical ranks of Methodist Hospital to become the institution's fearless leader, saving it from closure at the height of the Great Depression.

It was an era in which few women ran businesses.

"I never had the benefit of knowing [Roberts], but I think she had great resiliency and fortitude," said Marc Boom, M.D., president and CEO of Houston Methodist

Hospital, who presided over the opening of an administration building named in Roberts' honor in February. "Without her ... there would be no Houston Methodist. This is 1932 and this is a woman we are talking about and, back then, that was not the norm. She functioned in a man's world and succeeded."

Born to a Methodist minister in 1892, Roberts, the eldest of 10 children, was raised in Grimes County, Texas, near College Station. She

married at 17 and was widowed at 25 when her husband died from tuberculosis. Left with a young daughter, Roberts went to work to support her family. After being employed at a telephone company, she took a job as an assistant bookkeeper to Sam Hay Jr., the administrator of Methodist Hospital.

Roberts joined Methodist just as it was expanding from the original 30 beds at Norsworthy Hospital—which the Methodist church had



acquired at the end of 1919—to an adjacent wing that included 72 additional beds.

“The hospital was in dire straits when Josie came along in 1924,” said Bryant Boutwell, DrPH, a Texas Medical Center historian. “They were a great hospital, had great physicians and were respected for the care they gave and they even had a nursing school, but the finances were terrible. ... They were just not making ends meet.”

With no formal education beyond high school, Roberts relied on her can-do attitude, wit and natural aptitude for business. Known for her squeaky voice and thick Southeastern Texas accent, she wasn’t afraid to go toe-to-toe with male colleagues, board members, patrons and religious leaders.

“The first administrator was the son of the Methodist bishop at the time and he always said his greatest accomplishment was hiring Josie Roberts,” Boom said. “He left because every time a patient died, it was too tough for him. After that, a Methodist minister came along to be the second administrator and [Roberts] was his chief clerk—kind of second in command, an expanded secretarial role, almost, but she did a lot of the nuts and bolts of management.”

Around 1930, a letter from independent auditors said that Roberts really knew what she was doing and recommended the hospital give her more authority.

“By then, we’re already in the midst of the Great Depression. In the latter part of 1931, all of the banks in Houston were on the verge of closing and Jesse Jones [famed Houston politician and entrepreneur, who served as U.S. Secretary of Commerce from 1940

to 1945] brought them all together to do what they needed to do to stay afloat,” Boom said. “Towards the end of 1931, the hospital is broke. ... It had been losing money throughout its history and was essentially making do on donations. ... In 1931, the minister decides the hospital is going to fail and he leaves.”

Left without a leader, the hospital teetered on the verge of collapse. On Jan. 1, 1932, the board named Roberts the superintendent of Methodist Hospital.

“I give the board the credit for doing that, but ... she was basically running the hospital behind the scenes anyway,” Boom said. “The board was smart enough to give her a shot. ... Once she got the shot, boy she ran with it and she led the hospital for 22 years.”

### A tough decision

In 1932, many women working outside the home in the United States were employed as teachers, seamstresses, domestic servants, and clerical and factory workers, according to the Women’s Bureau of the U.S. Department of Labor.

“It was very unusual to put a woman in charge of a hospital in those days,” said Boutwell, a former professor of Oslerian medicine and faculty member of the McGovern Center at the University of Texas Health Science Center at Houston. “Men were in medicine and ran hospitals for the most part. The only major roles for women might have been to run a nursing school. To elevate [Roberts] to superintendent of Methodist Hospital was quite a statement—maybe a statement of confidence and trust in her and maybe a statement of the Methodist Church in women who could get jobs done.” ➡

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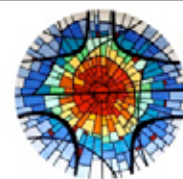
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Roberts had two choices: Shut the hospital down or make the tough decisions required to keep the hospital open and serve the city of Houston during the Great Depression.

“They tell stories of how the hospital had a \$7,000 laundry bill and she basically said, ‘You’re overcharging me. I’m going to put this out to bid,’ and indeed she did. ... She ended up driving down the price of laundry and she did those things throughout the institution,” Boom said. “She had to slash salaries a little bit and she made sure that money that was owed to them was collected. She did things that other people didn’t necessarily want to do. ... Her predecessor didn’t want to ask patients for payments because they were Methodist and he didn’t want to offend them, but she wasn’t afraid to do that.”

Yet Roberts knew no expense should be spared when it came to keeping talent. When a disillusioned Michael E. DeBaakey, M.D.,



*The Josie Roberts Administration Building opened in February 2020.*

was looking for a new place to train Baylor College of Medicine students, Roberts, knowing there was no money in the budget, offered to install air conditioning in the operating room if he would come to work at Methodist Hospital.

“She always said to find people who are passionate about what they do, give them some tools to succeed, give them some goals and get out of their way and let them do great

things. That is one of the many things I have learned from her,” Boom said.

World War II pulled the country out of the Great Depression and Roberts helped Methodist Hospital survive it. When she learned of a bold new local project—a plan to gather medical education and patient care into one physical location called the Texas Medical Center—Roberts saw the future for Methodist Hospital.

“That seems like such an obvious choice today, going to the Texas Medical Center,” Boom said. But [Methodist] had a successful site and hospital at the corner of San Jacinto and Rosalie, and here was this untried, untested, novel idea of the Texas Medical Center. I seriously doubt even she had any inkling of what the Texas Medical Center would become, but she did recognize the right thing to do was to be part of the medical center and, hence, we are one of the founding members.”

Roberts had already formed a close partnership with Ella Fondren, who took her husband’s seat on Methodist’s board in 1939. (Walter Fondren, Sr. co-founded what is now ExxonMobil). The two women ensured Methodist Hospital would have seven acres of land in the heart of the Texas Medical Center on

which to build a 300-bed, state-of-the-art hospital.

“Josie Roberts and Ella Fondren had a vision for what they wanted the hospital to be,” Boutwell said. “They didn’t just care about size. They wanted it to be the best hospital around. They hit the road and toured the best hospitals in the country and they worked those elements into the design.”

Boom recited an anecdote that Roberts liked to repeat.

“She told this story of how a man told her, ‘Little lady, I don’t think you know how much seven acres is,’ and she said, ‘I just told Mr. so-and-so that I most certainly understand what seven acres is,’” Boom said. “She is largely responsible for getting us the footprint we have today and it has served us very well. Now we have a 22-story building and 950 beds, so she was tremendously impactful.”

Roberts resigned from Methodist Hospital on Feb. 1, 1953—29 years to the day she started as superintendent, but her legacy lives on.

“I think she knew what was right and what needed to be done and she recognized, like all of us, that health care is a calling,” Boom said. “We are here to help people in happy times, but we are usually here to help people in difficult times—to heal and relieve suffering.”

Today, 70 percent of Houston Methodist Hospital system employees are female, Boom said, and more than half the employees in management are female. Roberts led the way, and now a new Methodist building memorializes her contribution.

“The Josie Roberts Administration Building ... is a great way to recognize her,” Boom said. “Every single new employee will go to that site for orientation, where they will learn about our faith-based system, our values and history.” ●

## EASTER AT PALMER



### Good Friday | April 10

Noon Good Friday Liturgy  
1:30 PM Le Chemin de la Croix  
(Organ Concert)  
7:00 PM Good Friday Liturgy

### Holy Saturday | April 11

7:00 PM The Great Vigil & First  
Eucharist of Easter

### Easter Day | April 12

7:30 AM Spoken Eucharist  
9:00 AM Choral Eucharist  
11:00 AM Choral Eucharist w/ Incense

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# A New Meat Economy?

*The International Livestock Congress examines the impact of plant-produced and cell-based alternatives to meat*

BY CINDY GEORGE

Traditional agriculture, celebrated annually by the Houston Livestock Show and Rodeo, could be altered by a new meat economy.

While carnival goers, fried-food aficionados and concert attendees flock to the rodeo, which runs March 3 through March 22, scholars and industry leaders will meet to discuss the science, policy, business and future of meat.

The International Livestock Congress (ILC) convenes at the Houston Livestock Show and Rodeo every year. This year's meeting, "2020 Meat: A Health Food that is Good for Mankind and the Environment—A Global Perspective," will include sessions on nutrition, international trade, the carbon footprint of cattle and a five-year action plan for beef.

Why does beef need an agenda? Because the meat industry faces increasing competition from plant-produced foods and, now, cell-based products. While it's playing offense on some fronts, the industry needs to play defense for its brand and business, said ILC board member H. Russell Cross, Ph.D., an animal science professor at Texas A&M University.

"We can't lose that word 'meat.' These fake products—plant products—shouldn't be able to use the word," said Cross, referring to veggie-based "meat" products from brands including Impossible Foods and Beyond Meat, makers of the Impossible Burger and the Beyond Burger, respectively.

Cross uses the term "genuine beef" when discussing meat from cows.

"There are some key essential amino acids that you don't find in plants," said the professor, who worked at the U.S. Department of Agriculture in Washington, D.C., as the administrator of the Food Safety and Inspection Service and also served as president of the American Meat Science Association. "Even the cell-based meats can't produce those essential amino acids."

Nutrition scientist Teresa Davis, Ph.D., a professor of pediatrics at Baylor College of Medicine's Children's Nutrition Research Center

and editor-in-chief of *The Journal of Nutrition*, is scheduled to deliver a keynote address at the meeting about the role of meat in the diet. Davis serves on the 2020 U.S. Dietary Guidelines Advisory Committee, which is currently reviewing scientific evidence for the 2020-2025 Dietary Guidelines for Americans.

## Economic and technological transitions

The transition to plant-based and cell-produced "meat" options translates to business opportunities won and lost, said Jan Dutkiewicz, Ph.D., a postdoctoral fellow in political science at Johns Hopkins University.

A veggie burger is a meat facsimile that serves consumers' purposes for taste, texture and culture, but the question of nutrition "is not entirely settled," he said.

In addition, health concerns about plant-products with soy-based ingredients abound, said the political economist, who published a November 2019 essay called "The Modern Meaning of Meat" in *The Wall Street Journal*.

"The meat folks are saying that a product that does not come from the carcass of an animal should not be called meat," Dutkiewicz said. "Historically, we've called all kinds of things meat. We called coconut meat 'meat' and nobody has a problem with that."

The plant-based industry often touts their smaller environmental footprint. Their products require far less water, less arable land and have a lower inherent greenhouse gas emissions profile.

"You don't have cows emitting methane," Dutkiewicz said. "People who make their living producing beef from cows would be concerned about a competitor who is competing for the same market share with a product that they are claiming

is the same, calling it the same and claiming it is nutritionally equivalent. I understand the concern from a business perspective for ranchers and cattle people."

## Cell-based meat?

While plant-based producers have no need for the cattle industry, cellular agriculture creates analogs for animal-sourced foods.

"It's real meat by any biological definition—it's just produced differently," Dutkiewicz said.

Some meat processors are already in the cellular game even though market viability may be years away. A vice president of Memphis Meats, a food technology company that grows meat from animal cells, is scheduled to speak at this year's ILC about how his organization can work with the livestock industry.

"There is a big difference between ranchers and processors," Dutkiewicz said. "If you're a Tyson Foods, which is already investing heavily in plant-based and cellular, I think there is a lot of market opportunity. Whether there is a space for mutually beneficial dialogue between animal producers and these new producers is much more of an open question." ■



**1 | MARGARET GOODELL, PH.D.**, chair of the department of molecular and cellular biology at Baylor College of Medicine, has received the Tobias Lecture Award by the International Society for Stem Cell Research.

**2 | HARDEEP SINGH, M.D., MPH**, chief of the health policy, quality & informatics program at the Center for Innovations in Quality, Effectiveness and Safety at the Michael E. DeBakey VA Medical Center and professor of medicine-health services research at Baylor College of Medicine, has been appointed to the Patient Safety Measures of Hospital Harm Technical Expert Panel for the Centers for Medicare and Medicaid Services.

**3 |** The John S. Dunn Heliport is part of the new Susan and Faye Sarofim Pavilion, a renovation and expansion of **MEMORIAL HERMANN-TEXAS MEDICAL CENTER**. The 17-story tower is the new home of the Red Duke Trauma Institute.

**4 | TIRR MEMORIAL HERMANN** unveiled a new sports court for patients, families and employees. Located on the hospital's Texas Medical Center campus, the court accommodates therapy, recreation and other activities.

**5 | TOM LUBY, PH.D.**, director of Texas Medical Center Innovation, speaks at the Accenture HealthTech Innovation Challenge, held at TMCx in February. Capital Rx, a company that has created a way to simplify drug pricing, won the challenge, which honors new approaches and solutions to health care.

**6 | PETER HOTEZ, M.D., PH.D.**, dean of the National School of Tropical Medicine at Baylor College of Medicine, was awarded the Ronald McDonald House Charities Award of Excellence during a ceremony at the Field Museum of Natural History in Chicago.

**7 | MEHDI RAZAVI, M.D.**, director of electrophysiology clinical research and innovations at Texas Heart Institute, has been elected Fellow of the National Academy of Inventors.

**8 | UT PHYSICIANS**, the clinical practice of McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth), teamed up with Habitat for Humanity to build a home for a local family. UT Physicians is the title sponsor for KPRC's Habitat for Humanity Home Build in 2020.



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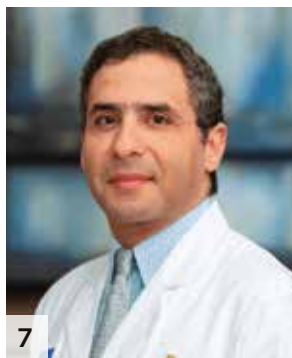
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Credit: Nos. 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14 15, 16 courtesy photos





9

**9 |** Pearl Hospitality unveiled the **WESTIN HOUSTON MEDICAL CENTER**, a historic mid-century modern building that has been transformed into a 382,000 square-foot luxury wellness hotel with a curated art program and a pool terrace and rooftop bar overlooking Rice University and the Texas Medical Center.

**10 |** **KAITLYN EATON**, an elite wheelchair basketball athlete who had several surgeries at Shriners Hospitals for Children – Houston and played on the TIRR Memorial Hermann Junior Hotwheels Team, is one of 12 athletes selected to the 2020 U.S. Paralympic Women's Wheelchair Basketball Team. Eaton and her teammates will compete in the Paralympic Games in Tokyo this summer.

**11 |** **REKHA LAKSHMANAN, MHA**, director of Advocacy and Policy for The Immunization Partnership, has been appointed a contributing expert at Rice University's Baker Institute for Public Policy-Center for Health and Biosciences.

**12 |** **XIANG "SHAWN" ZHANG, PH.D.**, professor in the Lester and Sue Smith Breast Center at Baylor College of Medicine and a McNair Scholar, is one of two clinical investigators to win Stand Up To Cancer's 2020 Laura Ziskin Prize in Translational Research.

**13 |** **TEXAS CHILDREN'S HOSPITAL** hosted a celebration that included a screech owl and a rabbit from the Houston Zoo. The special event for patients, families, hospital staff and invited guests launched the debut of San Diego Zoo Kids, a closed-circuit television adventure channel at Texas Children's Hospital and **RONALD McDONALD HOUSE HOUSTON**.

**14 |** **VINCENT H. TAM, PHARM.D.**, professor at the University of Houston College of Pharmacy, was honored with the 2019 Literature Award for Sustained Contributions by the American Society of Health-System Pharmacists Foundation.

**15 |** **AMY MCGUIRE, J.D., PH.D.**, the Leon Jaworski Professor of Biomedical Ethics and director of the Center for Medical Ethics and Health Policy at Baylor College of Medicine, has been elected as one of 12 new Hastings Center Fellows.

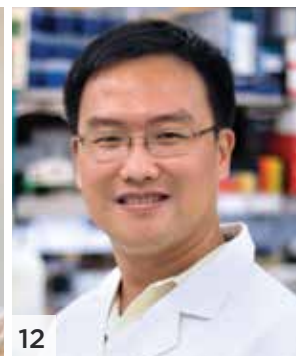
**16 |** **MELODIE FRENCH, PH.D.**, a Rice University geologist and assistant professor of Earth, environmental and planetary sciences, has earned a CAREER Award, a five-year National Science Foundation grant for \$600,000 to support her investigation of the tectonic roots of earthquakes and tsunamis.



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Do you have TMC photos you would like to share with *Pulse*?  
Submit high-resolution images to: [news@tmc.edu](mailto:news@tmc.edu)

# March 2020

## 3/8

**International Women's Day Celebration Concert**

*Texas Medical Center Orchestra*

Sunday, 5 p.m.

[Hobby Center, Zilkha Hall](#)

[800 Bagby St.](#)

\$15 students; \$25 general admission

[tmcorchestra.org/concerts](https://tmcorchestra.org/concerts)

[camachojose@ymail.com](mailto:camachojose@ymail.com)

713-315-2525

## 3/12

**Screening of "Outbreak"**

*Medical disaster film based on*

*Richard Preston's book, The Hot Zone*

Thursday, 6 p.m.

[The Health Museum, McGovern Theater](#)

[1515 Hermann Park Dr.](#)

\$5; the movie is R rated and individuals under age 17

must be accompanied by an adult.

[info@thehealthmuseum.org](mailto:info@thehealthmuseum.org)

713-521-1515

## 3/13 – 17

**Texas Medical Center Innovation at SXSW**

*Join health care innovators for The Health & MedTech Track  
at the conference and festivals*

[Various times and locations around Austin, Texas](#)

[SXSW.com](https://sxsw.com)

512-467-7979

## 3/26

**Author Esmé Wang**

*Reading, discussion and book signing with*

*The Collected Schizophrenias author*

*Hosted by Baylor College of Medicine's Narrative Medicine Program*

Thursday, 7 p.m.

[The Health Museum](#)

[1515 Hermann Park Dr.](#)

[info@thehealthmuseum.org](mailto:info@thehealthmuseum.org)

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Cathy Blum, 713.320.9050



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Nancy Younger Kruka, 713.857.5299



### Brentwood

River Oaks, \$3.5+ mil.  
Colleen Sherlock, 713.858.6699



### S. Judson

West University, \$1.7+ mil.  
Caroline Billipp, 713.670.4214



### Robinhood

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Michele Scheffer, 281.808.8139



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### Amherst

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Elizabeth Smith, 713.477.7895



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Kristin Tillman, 281.785.3566



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