# TMC PULSE

NEWS OF THE TEXAS MEDICAL CENTER — VOL. 6 / NO. 11, DEC. 2019 — JAN. 2020

# Shooting for Gold

An elite athlete sets her sights on the Paralympics, p. 20

A HUNTINGTON'S WARRIOR, p. 10

BRINGING AUTISM TO MAINSTREAM MEDIA, p. 14 TMC HEADLINES OF 2019, p. 28



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ou may have read in the local news recently that a major insurance company (a.k.a. "payer") is proposing to remove one of the Texas Medical Center's most prestigious institutions from its insurance plan. It is remarkable that a longstanding partnership between a payer and a provider would suddenly be abandoned. Sadly, this move may become more commonplace in the future and will surely limit the number of physicians and hospitals that patients can choose from when seeking care.

As we are all health care consumers, it is important to understand the interdependencies of all of the entities that participate in the economics of the health care system.

The "payer," as the name indicates, is the entity that pays the providers (doctors, nurses and other medical professionals) and the facilities (clinics, hospitals, etc.) for delivering care. The largest payer in the United States is the U.S. government, which administers the Medicare and Medicaid programs.

The largest private health insurance companies in the country include familiar names, such as UnitedHealthcare, Anthem, Aetna and Cigna. These insurance companies increasingly wield more power and influence as the market consolidates and their respective membership grows.

As the CEO of a company, I believe one of the most important annual decisions I make with my executive team is the selection of our health insurance plan. We carefully choose our plan based on our access to the top providers in our area and the costs of the plan to our company, our employees and their families. Payers, in turn, consider the health care services utilization rates of our employees and their families over the past year. If we are relatively "high utilizers," our rates

will increase; if our utilization was on par or below expectations, our rates may remain the same.

The cost of health care is one of the most serious issues facing our country. Health care spending, as a percentage of the U.S. gross domestic product, has tripled since 1960 and now comprises nearly 18 percent of the GDP. This will continue to create tension between payers, providers and consumers. In addition, the number of people without health care continues to grow and places additional financial pressure on the system.

TMC institutions have long been recognized as top performers in the United States and around the world. Each year, they work diligently to reduce costs while maintaining and enhancing care, but this is becoming increasingly difficult as payers are also reducing the amount of money they are willing to pay for certain services.

As health care consumers, it is important to recognize that the quality of health care is directly related to the training and expertise of the clinicians, the investments an institution makes in research, technology and facilities, and the organizational commitment to all levels of service. In short, not all health care providers are capable of delivering the same quality of care.

At the beginning of each year, all individuals with health insurance should dedicate time to reviewing their health plans. They should fully understand their coverage and the providers they are able to utilize. Finally, every person should schedule an annual physical, which is typically covered by most plans. Nothing in the world is more important than the health of you and your family.

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### TMC PULSE

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t's nap time in the neonatal intensive care unit (NICU) at Texas Children's tiny patient, is resting comfortably in his crib, his red hair the same color as the

Hospital. Dane Scott, a dinosaurs on his onesie.

On this day, Texas Children's music therapist Alix Brickley is recording Dane's heartbeat to create an original song for his family.

"The heartbeat recording is something that is really unique," Brickley said. "To be able to give that to families, especially families that don't get to go home with their kids, to give them that little bit of their child back is something special."

The heartbeat recording program was founded in 2016 by music therapist Marial Biard to give families of critically ill children a lasting gift.

It hasn't been an easy few months for Dane and his family. Delivered at 34 weeks, Dane was born with a large omphalocele, a congenital abnormality that causes the abdominal organs to protrude out of the belly through an opening around the umbilical cord.

"He had surgery every other day for the first two weeks of his life to try and get all of his organs inside," said Sarah Scott, Dane's mother.

# CURATED

The Intersection of ARTS and MEDICINE

By Britni R. McAshan

Music therapy has become a positive force for the Scotts during Dane's stay in the NICU.

"The first month of his life ... everything was very negative around him, but once the music therapy came it was something positive for him and he loved it," Sarah said. "I wanted to get the recording for something for him to remember and to show the babies how much they have been through and how far they have come."

Sarah chose the song "Hey Look Ma, I Made It," by Panic! at the Disco, for Dane's recording. Brickley captured Dane's heartbeat with a digital stethoscope connected to an iPad and took the recording to the Texas Children's recording studio to create an original song.

"The heartbeat is like a drum beat ... It just keeps going and I build the song on top of it," Brickley said. "We make the music from scratch and sing the lyrics to the songs and I play the guitar and keyboard to individualize each song as much as possible."

While Brickley is usually asked to record songs like "Twinkle, Twinkle, Little Star" and "You are my Sunshine" for her NICU patients, she's happy to accommodate any

song request and adapt the words to fit each situation.

"It's the best part of my job. ... Getting to provide something tangible ... something that these families can have forever," Brickley said. "Even when it is a really sad situation, they are still getting that moment to share with the family. It is something that will last well beyond my time with them."

Since Dane was born. Sarah and her husband, Drace, who live near The Woodlands, have been splitting their days to be with Dane around the clock. Dane's condition at birth should not affect his health as he gets older.

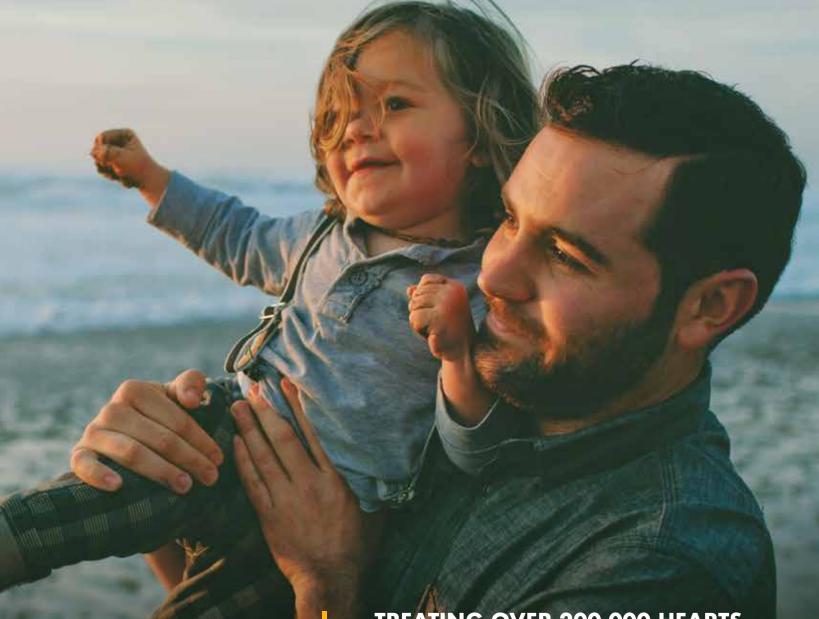
"Some of his organs are in the wrong place, but it shouldn't matter as long as they are in," Sarah said. "He also may or may not have a belly button, but it will all be part of his story."

Although Dane's doctors expect he will have to stay in the NICU for a few more months, Sarah and Drace are thankful their baby will be home soon.

Below: Dane Scott snoozes while his heartbeat is recorded at Texas Children's Hospital.



# WEDINA BEAT



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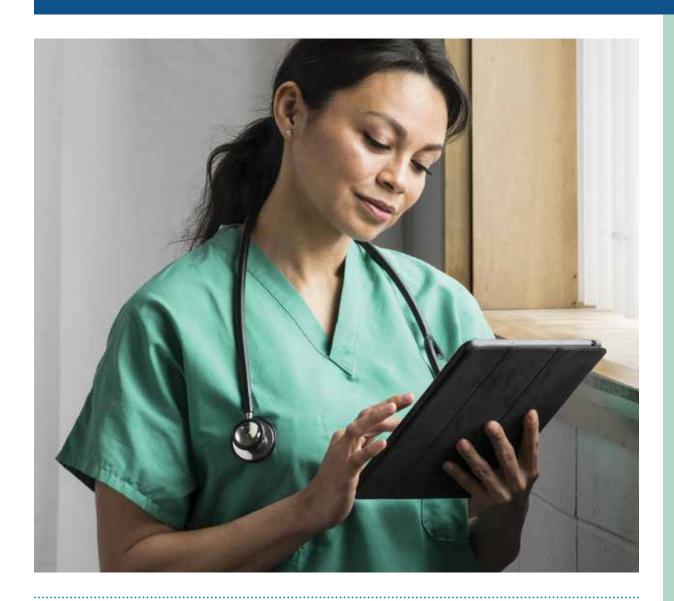
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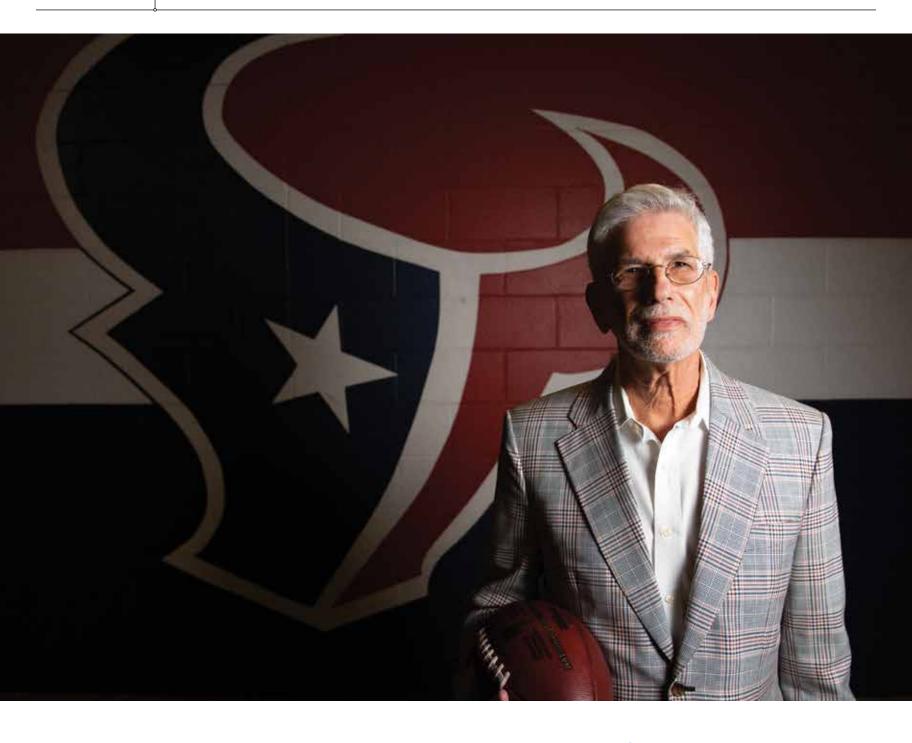
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Over the past 30 years, internist JAMES MUNTZ, M.D., has worked as a team physician for nearly every professional sports team in Houston, collecting championship rings from the Houston Rockets, the Houston Astros and former WNBA team the Houston Comets. A native of Tyler, Texas, Muntz attended Baylor College of Medicine in the 1970s and got his start in sports medicine in 1984 working with the Houston Gamblers of the now-defunct United States Football League. Today, he is the team physician for the Rockets, the Astros and the Houston Texans, in addition to running his own busy practice. Muntz is also a professor of internal medicine and orthopedics at The University of Texas Health Science Center at Houston.

# Q What was it like spending time with the Astros during the 2019 World Series?

A The players are pretty calm. They're positive. To be down 0-2, and then to go out of town to Washington, D.C., it was incredible for them to win three in a row. Everybody was at the top of their game, and it was two really good teams.

After the Game 7 loss, it's such a change in emotion. As a spectator watching it, you're feeling pretty confident. I thought people were getting ready to celebrate. When you go seven games, you realize how close you were to winning. But ultimately there was no celebration. The champagne gets put back away. All the plans made for the victory, the parties—all of a sudden they're not there anymore. But we had a great season, and we'll be ready to come back.

# O Do you ever wear those championship rings?

A Only a couple of times, just to show them off. I have them locked up.

# O Do you see the athletes at their facilities?

A I I have a clinic with the Texans. During the season, I go over to NRG Stadium. I go to the training room every Thursday. Some people are under concussion protocol. Some have sinus infections. And I'm there on game day. For a game at noon, I go over at 9 a.m. and I get home at 5 or 6. Those are on my weekends off.

# What's game day like? What are you doing to prepare?

A Somebody may be sick with a cold, or they're short of breath. They might have a boil or a MRSA infection. They see us for anything before the game. We'd know before Sunday if they were coming out of the concussion protocol. During the game, I'm watching for medical issues like dehydration, blood pressure, headache, concussion and migraine.

### What's the difference, for you, between treating an elite, professional athlete and a regular patient? Do you carry yourself in a different way?

A With a regular patient who comes in—I probably see 120 per week—we try to be prompt, thorough and use state-of-the-art treatment. Half my patients are young and half are older and on Medicare. Younger athletes—you deal with the parent, with the school. It's easy to tell a young athlete's parents 'this child shouldn't play.' A professional athlete, you have to talk to the player. You might have to talk to an agent. They may get a second opinion. But there's probably not a lot of illnesses that keep these people out of football.

# How difficult is it to tell athletes they're going to miss serious game time?

... we watch every play from the ground and from the press box. There are other doctors on the sidelines. We have a neurosurgeon, a back surgeon, a hand surgeon. There's a radiologist and an airway expert—all on the sidelines. Everyone helps each other.

A These guys are young players—mostly 20 to 30—and it's tough for them. It's what they live to do, train to do. The orthopedic people probably have to do this more. But we have players with lingering symptoms who can be out one to three months. We're aware of the illness, the time they can be out, what it can do in terms of anxiety and depression, and we try to address all of that.

The NFL has initiated a thing this year to specifically address mental health and stress. It's very confidential. I'm on the team with psychologists and psychiatrists, so we can address any kind of issue, whether it's family, marriage, the stress of playing—whatever it may be.

### Q | Can you tell me about the race to save former Astros coach Rich Dauer, who collapsed during the 2017 World Series victory parade?

A | Everyone was at the parade celebrating. I wasn't there. I live 2 miles from the med center. It was an incredible chain of events. He was brought in a roundabout way to the hospital at Methodist. They told me on the way he had collapsed at the parade. I immediately came in. The concern was he had fallen. We got emergency scans of his head.

I called two neurosurgeons. I told the first person if you can't get here in 5 minutes, I'm calling someone else. He got here in 4 minutes. The other happened to be here doing paperwork, so he was over immediately. Rich went for surgery. The surgeon said he had a 2 to 3 percent chance to live.

About 10 or 15 days later, Rich sent me a picture of him vacuuming the house. He wrote

me a text a week or so later that he had worked out 45 minutes, then ate a seven-layer burrito. I told him if the subdural hematoma didn't kill him, the burrito would.

That was 2017, and the next season he threw out the first pitch at the opening game. It was a pretty wild case.

### As a doctor, I imagine it's hard to see patients continue to injure themselves. But for these athletes, that comes with the job. How do you manage that?

A First and foremost, we want to protect the player. We err on the side of whatever is safe for the player. If you, for example, had a broken rib, we'd say 'take it easy.' Maybe work four hours instead of eight. But a player might play with a broken rib. They know the risk and you tell them. They deal with aches and pains. Can you imagine a lineman hitting someone 70 times during a game and coming back the next day and running in the heat? It's glamorous, but it's tough.

### Q | You've been doing this for 30 years. How has the role of the team physician changed?

A Technology has changed it. There's more awareness of concussions and injuries. It was a little bit more laid back before. Now, we watch every play from the ground and from the press box.

There are other doctors on the sidelines. We have a neurosurgeon, a back surgeon, a hand surgeon. There's a radiologist and an airway expert—all on the sidelines. Everyone helps each other. Before, there'd be two orthopedists and a medical doctor. There's more people, more technology, better equipment, better training and better eyes.

We have coaches that report stuff to us. Players report things about other players. The refs will stop a game and say, 'This guy doesn't look right.' That would have been unusual 25 years ago.

James Muntz, M.D., was interviewed by former TMC Communications Director Ryan Holeywell. The conversation was edited for clarity and length.

The NFL has initiated a thing this year to specifically address mental health and stress. It's very confidential. I'm on the team with psychologists and psychiatrists, so we can address any kind of issue, whether it's family, marriage, the stress of playing—whatever it may be.



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## The Trial of a Huntington's Warrior

UTHealth is participating in an international trial for a new drug to treat the disease

By Britni R. McAshan



JY Reynolds, who is living with Huntington's disease, volunteers at Bread of Life, a Houston nonprofit that aims to end homelessness.

epression and twitching, two hallmarks of Huntington's disease, began to overtake J Y Reynolds' life nearly a decade ago.

"At first, I was hiding my disease. My now ex-wife thought I was having an affair," Reynolds said. "You always live in the back of your mind saying you don't have it—and I wanted to believe I didn't have it."

Huntington's is an inherited, progressive neurodegenerative disease that typically strikes patients in the prime of their lives. There is no cure. The disease unleashes a devastating host of symptoms in most patients—including abrupt, involuntary movements (known as chorea), cognitive decline, irritability and psychosis.

Researchers discovered the gene that causes Huntington's in 1993. Each child of an affected parent has a 50 percent chance of developing the disease, but if the child does not develop the disease, he or she cannot

pass it on to the next generation.

"My grandfather got [Huntington's disease] and he shot himself—my mom's dad," Reynolds said. "He had 11 kids and seven of them had Huntington's."

Reynolds' mother inherited the disease from her father; Reynolds and his older brother inherited it from her.

"My mom had it and passed away at 52 from pneumonia. My older brother had it and he passed away at 46. My younger brother died in a car accident at 17, so we don't know if he would have had it," said Reynolds, who is 44. "I have two children and neither one of them has been tested—they are 21 and 7 years old."

Although Reynolds knew about Huntington's disease before his mother became symptomatic, he said it is a totally different experience to actually witness its progression. "I never really saw my grandpa,"
Reynolds said. "He shot himself
before I saw the signs or movements
and actions, and we never visited
my aunts and uncles who had it, so I
didn't really understand what it was.
As my mom went through it, then
I started seeing the signs. She had
had breast cancer before and a lot of
the side effects were similar."

Before Reynolds was diagnosed with Huntington's, he attended college at Stephen F. Austin State University, enlisted in the military and became a boomer—an in-flight fueler.

"My mom being sick, she would call me and say things and it would make me want to go and be with her because she was crying and so upset," he explained. "So, a lot of times, you drop things to go home and be with your family."

Reynolds was diagnosed with Huntington's several years ago. It hasn't been easy, particularly since he watched his mother and older brother suffer.

"You will be a little bit suicidal and things like that," Reynolds said.

After joining a support group that helps patients manage their symptoms, Reynolds learned of a clinical trial that aims to treat the actual disease. The Generation HD1 trial is the first in-human gene modifying Phase 3 clinical trial of a drug, known as RG6042, to treat Huntington's. Phase 1 has already been completed in the United Kingdom, Germany and Canada.

"It is a groundbreaking trial," said Erin Furr-Stimming, M.D., director of the Huntington's Disease Society of America Center of Excellence at McGovern Medical School at The University of Texas Health Science Center at Houston

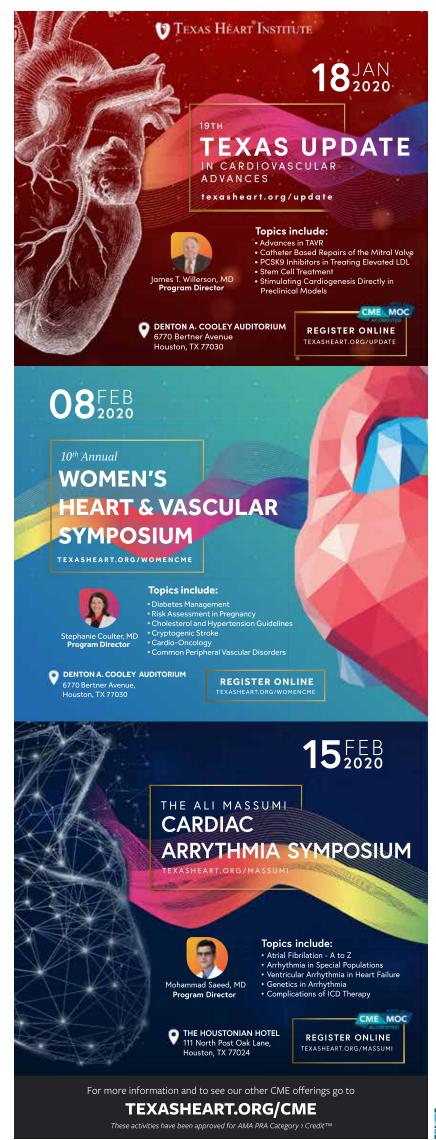
(UTHealth), one of more than a dozen sites in the United States participating in the international trial. "Phase 1 that was not done in the states was a positive trial. ... They proved safety and were able to show that they effectively lowered the mutant Huntington's protein levels. This trial will hopefully answer what that means. ... Does lowering the mutant Huntington's protein level actually translate into efficacy? Can we slow or halt disease progression? Can we improve symptoms?"

The 25-month study separates participants into three different groups. One group receives 120mg of RG6042 every two months, another receives 120mg of the drug every four months and the other receives a placebo every two months.

"The individuals who are participating in these clinical trials are our heroes," said Furr-Stimming, who sees patients at UT Physicians, the clinical practice of McGovern Medical School and Memorial Hermann-Texas Medical Center. "Any time you participate in a clinical trial, there are risks. It's a science experiment so there is no guarantee that you're getting the study drug and that the study drug will work and be safe for you. The ones who are participating are so brave and really carrying the load for the rest of the Huntington's community."

Although he has only been participating in the study for a few months, it has given Reynolds hope.

"It was overwhelming knowing what Huntington's does to you," he said. "I didn't want my kids to see me go through it. But the trial has given me a lot of hope and I'm doing it for my kids."



Furr-Stimming is optimistic that the trial will give the nearly 200,000 people in the United States who are at risk of Huntington's a reason to get tested.

"Because we currently have no curative therapy, there is really no right or wrong answer when it comes to getting tested," she said. "If and when we have an effective disease-modifying therapy ... it will make more sense to get tested early because we will have an effective intervention."

Because researchers have identified the gene that causes Huntington's, a simple blood test can determine whether or not a person has it. Reynolds has some advice for people at risk who have not yet been tested.

"It's a 50/50 chance, so I would go ahead and get tested because there is a 50 percent chance that there is really good stuff ahead in your life and a 50 percent chance that it is really bad and you've got to face the bad now," he said.

Before Furr-Stimming provides testing for individuals who think they have Huntington's, the patients must meet and consult with her multidisciplinary team at UTHealth.

"Because of the high risk of suicide in patients with HD [Huntington's], we really want to make sure our patients or individuals who want to get predictive and confirmatory testing are well educated and protected," she said. "Once they have that information, they will always have that information."

Before blood is drawn for the test, Furr-Stimming said, each individual will meet with a genetic counselor, a social worker and a psychiatrist. Individuals must return in person to get the results and meet again with the team.

Leslie Dunnington, the genetic counselor on Furr-Stimming's team, said most people become interested in predictive testing as they approach major life milestones, such as getting married or planning a family.

"A lot of people who contact me have some sort of a suspicion that they have HD, but we can't know until we do the genetic testing,"
Dunnington said. "The most important thing that I do as a genetic counselor is make sure people are as prepared as possible to receive that test result one way or another.
A lot of my work is on the front end to make sure we are doing the right thing for the patient at the right time in their life."

Furr-Stimming was inspired to work with neurological disorders by her uncle, who had Parkinson's disease.

"As a care provider, it is heartbreaking to know what our patients will likely experience and to navigate the waters with their families, children and grandchildren that are at risk," she said. "I think it is an honor to work with these patients and their families. It is such a tough journey, but our goal is to walk along that journey with our patients and their families to support and educate them, to make them feel empowered and less afraid of what they are going to encounter."

Outside of the trial, Reynolds spends his time volunteering at Bread of Life, a nonprofit that aims to end homelessness, and the Michael E. DeBakey Veterans Affairs Medical Center in Houston. He enjoys walking and watching sports and movies. He recently took a DNA test to learn more about his family ancestry and found it was similar to the heritage depicted in his favorite movie, "Braveheart."

It is Reynolds' warrior mentality that has kept him going.

"I have a lot of Irish, Scottish, English and German, so ... many of my ancestors have fought in wars and are Scottish royalty," Reynolds said. "Any disease or challenge in your life, you have to face and conquer."





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## Highlights of the TMC Health Policy Institute Survey

Consumers and physicians weigh in

By Ryan Holeywell

very year, the Texas Medical Center
Health Policy Institute conducts a major
national survey of consumers and physicians
to get a better understanding of how both
groups feel about key health policy issues
facing the nation.

This year's survey—which had 2,750 participants—comes at a time when health care is top of mind for voters across the country.

Here are five key takeaways from the 2019 survey.

### CONSUMERS EXPECT HEALTH CARE REFORM WILL HAPPEN VERY SOON.

Consumers are incredibly optimistic that the health care system is poised for positive change. About two-thirds of consumers—including the majority of both Democrats and Republicans—say

People taking better care of their health

Reducing the price of prescription drugs

Requiring doctor's offices/ hospitals to function more efficiently

Allowing people to have online visits

All Americans having health insurance

\*\*AGREE: Physician Consumer & Physician Surveys\*\*

Source: The Nation's Pulse: The Texas Medical Center's 2019 Consumer & Physician Surveys\*\*

How much do you agree that each of the following could

that everyone in the United States will eventually have health care coverage. Many believe this change is imminent. About 45 percent of consumers believe everyone in the U.S. will have health care coverage within five years. Notably, doctors are a bit more skeptical. Just 28 percent of physicians believe health reform will occur that quickly.

- 2. THERE MIGHT NOT BE A PHYSICIAN SHORTAGE AFTER ALL. In recent years, there has been much discussion about a looming doctor shortage in the U.S. But right now, that doesn't seem to be the case. TMC asked consumers if they had trouble getting new patient appointments. Only 1 in 5 had trouble getting a new patient visit with a primary care physician and just 1 in 6 had trouble getting an appointment with a specialist.
- 3. IF THERE'S A PHYSICIAN SHORTAGE IN THE FUTURE, WE CAN SOLVE IT BY KEEPING DOCTORS FROM RETIRING. Most physicians believe there will be a doctor shortage in the future. The American Association of Medical Colleges predicts a national shortage of 46,900 to 121,900 physicians by 2032. One way to address that problem is to keep doctors who are poised to retire on the job a little longer. Of physicians planning to retire soon, about one-third say they'd delay their plans if they could spend more time with patients.
- 4. MEDICAID COULD BE A BIG ISSUE FOR VOTERS. The public seems to value Medicaid and would respond negatively to proposals from lawmakers who may seek to cut funding for the program, which serves low-income residents. Nearly half of respondents say if a candidate running for office proposed reducing Medicaid, they would not vote for that candidate. Interestingly, about 16 percent of voters who currently plan to vote for Donald Trump in 2020 say they wouldn't vote for him if he supported such a proposal.
- 5. AS WE TALK ABOUT COSTS, DON'T FORGET PERSONAL RESPONSIBILITY. Candidates from both parties have proposed myriad ways of reducing health care costs for families. But consumers and physicians alike agree: the best way to reduce the cost of health care is for patients to take better care of themselves.

# Bringing Autism to Mainstream Media

A recent PSA featuring Julia from "Sesame Street" has created a rift in the autism community

By Alexandra Becker

ulia is 4 years old, yellow, and wears her red hair cut short in a bob. When Big Bird first introduced himself to her on the April 10, 2017, episode of "Sesame Street," the newest Muppet did not look up from the paper she was painting. Big Bird seemed confused, but Alan—a "Sesame Street" regular who owns the fictional Hooper's Store—explained that Julia was just busy concentrating.

Julia, Alan told Big Bird, has autism.

"Autism. What's autism?" Big Bird asked.

"Well, for Julia, it means that she may not answer you right away ... and she may not do what you expect, like give you a high-five," Alan replied.

The groundbreaking episode focused on inclusion and explained, in a clear and understated way, the differences between autistic and non-autistic individuals. Julia was heralded as a breakthrough for how autism is portrayed in the media.

"Julia is an autistic character who is consistently shown to be fully included in her community, as being a part of a loving family, being a good friend to other members of her community and standing up for others. That's really revolutionary. That's not usually how autistic people are depicted in the media—as having these ordinary lives and these valuable social roles and being a positive addition to the community around them," explained Julia Bascom, executive director of the Autistic Self Advocacy Network (ASAN), a nonprofit run by and for autistic people. Bascom and ASAN, along with other autism organizations, were consulted for the creation of Julia's character. Notably, the puppeteer who plays Julia has a son with autism.

But this summer, ASAN felt compelled to cut ties with "Sesame Street" after a partnership between the long-running television series, Autism Speaks (the largest autism advocacy organization in the country) and the Ad Council promoted resource materials that ASAN strongly opposes. The materials are attached to public service announcements (PSAs) that aim to lower the age of autism diagnosis by teaching parents how to identify signs of autism.

"Our goal is that we want to help as many people with autism as we can, and this public service announcement was about having children screened, learning the signs of autism, and, if necessary, to get the treatment and support that they may need to live their best possible life," said Lisa Goring, the strategic initiatives and innovation officer for Autism Speaks, which also had a hand in the creation of Julia's character.

It isn't the PSAs, per se, that ASAN members disagree with—it's the messaging in some of the resource materials offered by Autism Speaks, specifically the "100 Day Kit," which contains information geared towards families of children under the age of 4 who have recently received an autism diagnosis.

Bascom said members of ASAN feel the 100 Day Kit in particular reflects much of the stigma and misinformation parents often encounter and that "Sesame Street" has been changing with the addition of Julia.

"Basically, [the kit] tells parents to grieve for their autistic child, as though that child had died. It actively discourages parents from accepting that their child is autistic, even though we know that parental acceptance is one of the most important things for a young autistic child," Bascom said. ASAN also disagrees with the kit's messaging about helping kids "get better" and the encouragement of certain intensive behavioral therapies, she added.

"It's just focused on creating this mask for an autistic person," Bascom said.

### Validating each family's feelings

Rachel Fein, Ph.D., a licensed psychologist who works within the Autism Center at Texas Children's Hospital, said she understands why self-advocates may be offended by the messaging in the kit. She added, however, that her responsibility as a provider is to offer as much evidence-based information as possible while also validating a family's feelings.

"I don't tell families how they should feel after they learn that their child has autism, but I certainly validate those feelings, whatever those might be," said Fein, an assistant professor of psychology in the department of pediatrics at Baylor College of Medicine. "There are some families that, their journey to finally getting their child evaluated or finally getting the services that they need—for some it's not a surprise for them, in fact, it's almost a relief, because they have a name to describe some of the things that they've been seeing all along."

But, Fein added, other families struggle with hearing the information.

"Some families, they describe it as grief," Fein said. "Other families, they just describe it as, 'I want the best for my kid; I want them to have the best life that they can possibly have.' And I think that can be really challenging, especially for some of the self-advocates. They hear that and it can be saddening to hear, and it can be offensive, but I also think it's coming from a place of a parent who never wants their child to experience any sort of struggle or pain."

Fein said that she believes both Autism Speaks and ASAN serve important purposes and that their messaging isn't mutually exclusive. She recommends resources from both organizations to families she counsels.



"I always tell my families ... please consider your own individual family and your own values when exploring the resources available. It's similar to how we describe autism as a spectrum—there's a spectrum of opinions and ways of thinking about the diagnosis of autism, and I think that we've really come a long way with how individuals with autism or autistic individuals are portrayed in the media," Fein said. "But we have a really long road ahead of us, so I'm really happy that folks are having these difficult and important conversations, and I really just hope they don't end here."

Goring, of Autism Speaks, echoed that sentiment.

"Julia really was developed by bringing the community together, and we would hope that maybe that would continue as this campaign continues to reach more families," she said.

### Normalizing autism

Despite the recent controversy, Julia's character has been welcomed with open arms by advocates and individuals with autism.

"I think one of the best things that 'Sesame Street' has done in consultation with autism organizations is that they don't just bring awareness, but they promote inclusion," Fein said.

The show, which celebrated its 50th anniversary in November, explores how Julia's difficulty

with social interactions and sensitivity to sensory aspects of her environment affect the individuals around her.

"They show how children and adults around her really have so much empathy and aren't just aware of her difficulties, but make a point of taking the time to get to know her and put forth the effort to include her in everything that they do," Fein said.

Goring stressed the importance of those interactions.

"Children watching at home can actually see the modeling of the characters on the show and how they accept Julia and some of her challenges, and that they support her in a very natural way," she said.

Bascom said that every detail about Julia's character was intentional and meant to promote acceptance, including the fact that she is female, an underdiagnosed group in the autism community. In addition, Julia uses an AAC (augmentative and alternative communication) device and often wears noise-canceling headphones.

"She's normalizing a lot of the accommodations that a lot of autistic kids, especially young kids, are going to need," Bascom said, adding that she's heard stories of parents who have used Julia to explain their own child's diagnosis to them, as well as speech therapists who have created handmade "talkers" just like Julia's, so their patients who use AAC devices could have Julia dolls who also use an AAC device.

### One person with autism

Expanding the conversation around autism has been an ongoing struggle for advocates, in part because autism exists on such a wide spectrum.

"When talking about autism, I think it's really important to remember the entire phrase, which is autism spectrum disorder, meaning that each person with autism really has a distinct set of strengths and challenges," Fein said. "I always think about a quote from Dr. Stephen Shore, who's a famous autism advocate who also happens to be on the spectrum, and he always says that if you met one person with autism, then you've met one person with autism."

On Julia's debut "Sesame Street" episode, Alan embraced this truth perfectly when he spoke to Big Bird about what autism meant "for Julia."

When it comes to individuals with autism, Fein added, one of the best ways to make sure people feel included and understood is to simply ask them about their preferences. For example, some people

prefer to be referred to as autistic individuals, she said, while others prefer to be known as individuals with autism.

"I think that the main takeaway is to be respectful and to be inclusive, and how you go about that means asking the person," Fein said. "Don't make assumptions, but find out: how do you want to be talked about?"

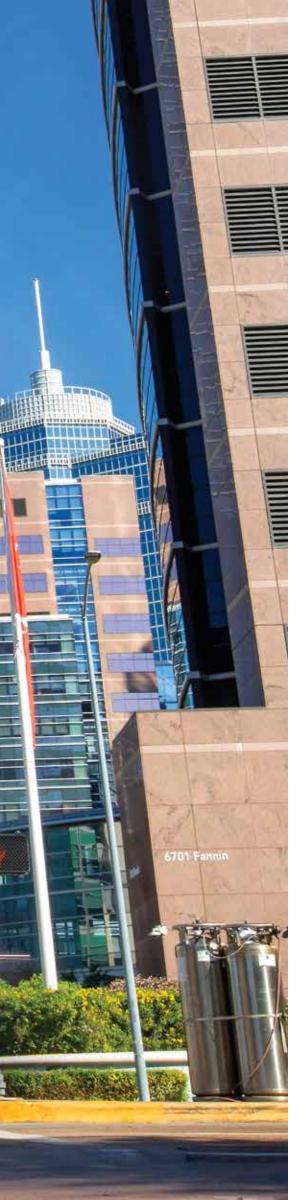
ASAN has made giant strides in helping the media and general public talk about autism. The group's tag line, "Nothing About Us, Without Us," reinforces its mission to empower autistic individuals and to ensure they have a seat at the table. Bascom said this is especially significant when it comes to depicting autism in the media, as Julia does.

"I think it's important that creators are really coming from a place that is thoughtful and respectful and that really understands and emphasizes that autistic people are full, rich, complex people," Bascom said. "It's important to understand that you're telling a story about a person; you're not telling a story about a problem."

Julia was created in 2015 as part of a Sesame Workshop initiative called Sesame Street and Autism: See Amazing in All Children, which supports families with free bilingual resources, available online at sesamestreet.org/autism. Sesame Workshop is the global nonprofit behind "Sesame Street."

Julia colors on an episode of "Sesame Street."





# What's in a Name?

THE PEOPLE BEHIND THE STREETS
AND BUILDINGS OF THE TMC

By CINDY GEORGE

Most everyone knows that LBJ refers to Texas-born
President Lyndon Baines Johnson. In Houston, though,
LBJ is also the name of a Harris Health System hospital,
part of the vast network of 60-plus institutions that comprise
the Texas Medical Center. Of course, there are many other
names on the streets and buildings of the TMC—names
that belong to the physicians, families and visionaries
who have influenced Houston's medical city.

MD Anderson | Monroe Dunaway Anderson, a cotton magnate, left his fortune to a foundation that partnered with the state to build the first cancer hospital in Texas. The entity was created by the Texas Legislature in 1941 as part of The University of Texas System. The institution is known today as The University of Texas MD Anderson Cancer Center.

Bertner | Ernst William Bertner, M.D., was a founder of the Texas Medical Center and its first president. He was also the first director of MD Anderson. In his work as a gynecologist, Bertner delivered a baby boy who grew up to become pioneering Houston heart surgeon Denton Cooley, M.D.

Cullen | In 1945, oilman-philanthropist Hugh Roy Cullen bestowed \$1 million to several hospitals in Houston—a suite known as the Cullen Gifts—that helped build landmarks of the TMC. Hermann Hospital, the forerunner to Memorial Hermann, was able to construct a new hospital. Houston Methodist also had the resources to build a new hospital in the TMC. In addition, a gift to the Episcopalians enabled that denomination to establish its first hospital in Houston, St. Luke's, the predecessor to Baylor St. Luke's Medical Center. An \$800,000 gift from Hugh and Lillie Cullen helped Baylor College of Medicine complete its initial building. The family's Cullen Foundation, established in 1947, continues to support health and medical causes in Houston. The Cullen name endures through a pavilion at Memorial Hermann, a memorial chapel at Baylor St. Luke's, an eye institute at Baylor College of Medicine as well as a main thoroughfare and auditorium at the University of Houston.

Holcombe Boulevard is named for Oscar Fitzallen Holcombe, a construction entrepreneur and former Houston mayor.

DeBakey Michael E. DeBakey, M.D., was a pioneering cardiac surgeon and innovator who invented the Dacron graft, performed the first successful coronary artery bypass and spent decades as a leader in the developing field of heart transplantation. After volunteering for military service in World War II, his work led to the development of mobile army surgical hospitals (MASH units). DeBakey also served as president, chancellor and chancellor emeritus of Baylor College of Medicine. The Houston Independent School District's Michael E. DeBakey High School for Health Professions and the sprawling Michael E. DeBakey VA Medical Center, both in the TMC, are named for the famous surgeon. DeBakey died in 2008 at age 99.

DePelchin | Kezia Payne DePelchin was a social worker, nurse and teacher who worked as head nurse at Houston's first city charity hospital, ran an orphanage for boys and founded Houston's first day care center to support mothers employed outside the home. After her death in 1893, the DePelchin Faith Home was organized and opened as a safe haven for children. For its centennial, the name was changed to DePelchin Children's

Center. The organization became a TMC institution in 2012.

Spurgeon Gray | Spurgeon Nathaniel

finished pharmacy school in Kansas during

Gray was a pioneering black pharmacist who

Reconstruction and provided health care to blacks

in Southeast Texas during the first half of the 20th century. He was an early supporter and funder of the Texas Southern University (TSU) College of Pharmacy and Health Sciences, a TMC member since 2002. The pharmacy school's main building, Gray Hall, was named in his honor in 1964. In 2019, the TSU board of regents voted to rename the building for Chicago pharmacist Joan Marie Lafleur, who died in 2016 and willed \$3.1 million to TSU-the largest single gift to the university by an alumnus.

Hermann | George Henry Hermann, an oilman, philanthropist and Civil War veteran, used his fortune for public good. Before his death, he donated the land that became Hermann Park

and his estate was willed to the city for the erection and maintenance of Hermann Hospital, a public charity hospital that opened in 1925. Today, the institution is part of the vast Memorial Hermann Health System.

Holcombe | Oscar Fitzallen Holcombe, a construction entrepreneur, served as Houston mayor for a total of 22 years, on and off between 1921 and 1958. Holcombe Boulevard, a main

> thoroughfare of the TMC formerly known as Marlboro Drive, was renamed for Holcombe and extends through the adjacent municipality of West University Place.

McGovern John P. "Jack" McGovern, M.D., was an allergist and scholar noted for his philanthropy and business acumen. The John

George H. Hermann P. McGovern Foundation has supported innumerable health causes and medical interests for decades. John P. McGovern is the name of the TMC campus at Almeda and Holcombe, a former Nabisco cookie factory, that is home to the TMC Innovation Institute. The John P. McGovern



Museum of Health and Medical Sciences has been a TMC member since 1995, and the John P. McGovern Historical Collections and Research Center is housed at the Texas Medical Center Library, a TMC affiliate since 1949. The University of Texas Health Science Center at Houston (UTHealth) medical school became the John P. and Kathrine G. McGovern Medical School to honor the physician and his wife following a \$75 million gift in 2015—the largest contribution in the institution's history to that date. John P. McGovern died in 2007 at age 85.

Quentin Mease | Quentin Ronald Mease. a social worker, was instrumental in desegregating public spaces in Houston including the YMCA and the Astrodome. He had an important role in creating Harris Health System and served on its board of managers. The system named a community hospital after him. Quentin Mease Hospital, now a rehabilitation facility on North MacGregor Way, is facing another transformation. The building is now being renovated to become an outpatient care center. Mease died in 2009 at 100.

### Menninger |

Menninger is the last name of a family of Kansas psychiatrists, a father and two sons, who opened their first clinic for inpatient care in 1925, had the nation's first group psychiatric practice and established a school of psychiatry in 1946 that

became the country's largest at the time-fueled by returning World War II veterans. A partnership with Baylor College of Medicine and Houston Methodist moved The Menninger Clinic from Topeka, Kansas, to Houston in 2003.

Nora's Home | When Nora Gaber, 7, died in a 1998 automobile accident, her donated organs saved and impacted many lives. Her parents, Houston physicians Osama and Lillian Gaber, worked to support organ donor research through a foundation and to provide organ transplant patients free lodging while in Houston for care. Nora's Home on El Rio St. expanded to 32 rooms in 2018.



Ben Taub and Michael E. DeBakey, M.D.

Ben Taub | The medical benefactor was instrumental in convincing Baylor College of Medicine officials to move the medical school from Dallas to the Texas Medical Center in 1943 and in establishing its connection with Houston's hospital system providing health care for the indigent. Taub is a former director of the Texas Medical

Center. In 1963, Harris Health System named its new charity hospital in his honor. Taub also helped run DePelchin Children's Center when it was known as DePelchin Faith Home and was a popular visitor with the children because of his peppermint candies.

Zayed His Highness Sheikh Khalifa Bin Zayed Al Nahyan is the president of the United Arab Emirates. His name graces MD Anderson's Zayed Institute for Personalized Cancer Therapy after a 2011 gift of \$150 million, the largest donation to the cancer research hospital at the time.

Inset photo credits: Hermann, courtesy of McGovern Historical Center, Texas Medical Center Library; Ben Taub, courtesy of Harris Health System



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An elite athlete sets her sights on the Tokyo 2020 Paralympic Games

By Britni R. McAshan



The 2020 Tokyo Paralympic Games are just months away, but native Houstonian and competitive wheelchair basketball player Kaitlyn Eaton has been chasing her Olympic dreams for nearly a decade.

Eaton was born with sacral agenesis, a rare birth defect in which the bones of the lower spine are missing or misshapen, impairing development in the bottom half of the body. She has never had functional legs.

"To me, my disability was always really normalized," Eaton said. "When I was born, one of

the things the doctor told my mom was that she should just raise me as one of her other children. I have an older brother and a twin sister, so I didn't get any special treatment growing up because of the disability."

Eaton, now 25, describes her twin sister, Kelsey, as a built-in best friend, even though the two could not be more different.

"Growing up, we would make fun of the fact that all of our friends still got us confused because we have different facial features, we are not alike and, obviously, one of us is in a wheelchair," Eaton said.

Although she wasn't very interested in sports as a child, Eaton joined the TIRR Memorial Hermann Junior Hotwheels Team in Houston during her sophomore year at Jersey Village High School. That's when her passion for basketball was ignited.

"I had a pretty late start when it comes to playing wheelchair basketball in general, especially having a disability since birth," Eaton said. "It is a very difficult sport to get the hang of, especially with the ball. When I first started, I was horrible. I was not good at basketball at all."

Growing up, Eaton underwent roughly 10 surgeries at Shriners Hospitals for Children - Houston to give her body more flexibility and, later, to help her fit more easily into her basketball wheelchair. ➡

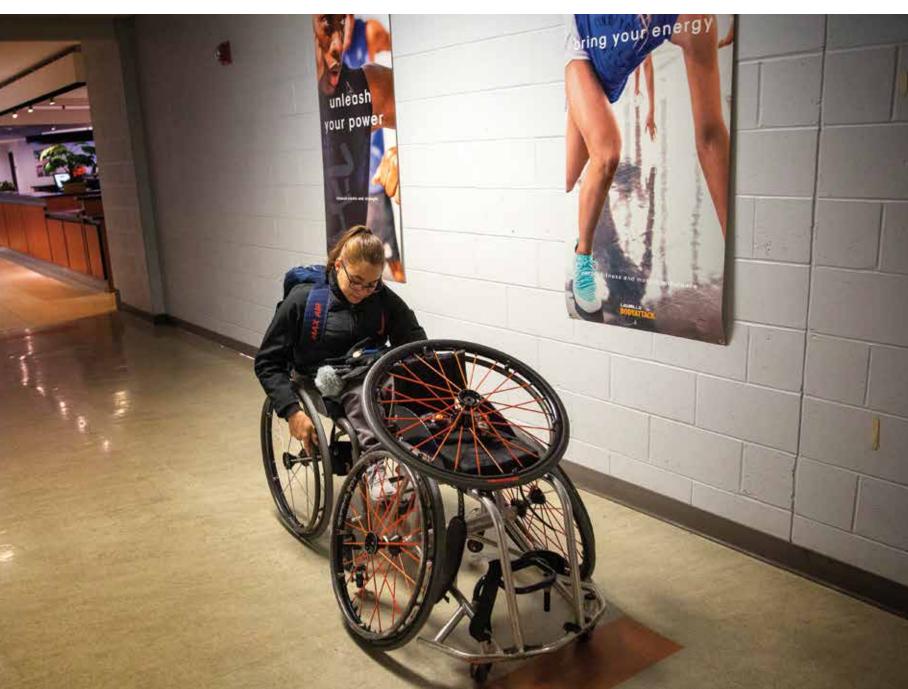
Kaitlyn Eaton practices shooting at the University of Illinois at Urbana-Champaign.



Top left: Eaton shows off her silver medal from the Parapan American Games in Lima, Peru. Right: Eaton works out at the university's Disability Resources and Educational Services center. Bottom: Eaton makes her way to the court pushing her game wheelchair.







"People with sacral agenesis, their muscles don't really work so their bodies often are contracted," said Allison C. Scott, M.D., an orthopedic surgeon at Shriners Hospitals for Children - Houston. "Kaitlyn's knees were straight; they didn't bend. It was fine when she was a little kid, but when she got to an adult size, it was pretty hard to do things. We had to do a big surgery to bend her knees and then another surgery to reposition her foot."

In addition to the numerous surgeries Eaton endured, she had other health challenges growing up, mostly involving her bladder and kidneys. This is not uncommon for individuals with sacral agenesis.

"It was pretty hard, especially when I started getting involved in different groups in school," Eaton said. "You don't want to be that kid that is always missing classes, for whatever reason. My sister is never sick, rarely goes to the doctor, and then I was in the doctor's office all the time. That made it a little bit harder, too, seeing what life could be like not having to go to the doctor so much."

But she has made up for lost time. After high school, Eaton accepted a scholarship to play basketball for the University of Illinois at Urbana-Champaign (UIUC), where she earned her undergraduate degree in community health in 2017. Currently, she is working on a graduate degree in social work at UIUC and training for Paralympic tryouts.

"I love the competitive part of basketball and I have always been competitive," Eaton said. "But the reason I play is for the friendships

and connections that I have built, whether it is in the Houston community, my collegiate community, or now on the international level."

Wheelchair basketball is played on the same size court as traditional basketball and players use regulation basketballs.

"I think the striking thing is that there are not that many differences between wheelchair basketball and regular basketball, other than factoring in the wheelchair," Eaton said. "In wheelchair basketball, there is no double-dribble rule, but at the competitive level I'm playing at now, most people aren't going to do that. It's just practicing to get used to that movement and understanding how your body works."

Wheelchair basketball also uses a classification system to rank players and their functional mobility ranges. Each team has five players, Eaton explained, and the total classification score for the team cannot surpass 14. Eaton is a 1.5 on the scale.

"The scale ranges from 1.0 to 4.5 and those are assigned to individual players based on ability. ... A 5 is an able-bodied athlete," she said. "The scale is based on what you do and do not have ... an amputee, a wheelchair, lacks ab function."

The special wheelchairs used for competitive play differ significantly from ordinary wheelchairs, Eaton said.

"On my basketball chair, the wheels are angled outward," she explained. "It provides more stability and helps with speed and makes your chair more aerodynamic and it helps with turning. Another difference is, on my everyday chair, I only have four wheels; I have the two big ones and then the two front casters. On my basketball chair I have two big wheels and, technically, four casters—two front and two back casters. This helps with stability and prevents you from falling over backwards."

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The other big difference? Eaton's regular wheelchair has no strapping or seatbelt, but her basketball chair has multiple straps.

"In my basketball chair, I actually have three different straps—a waist strap, a leg strap that goes over the top of my legs and a Velcro strap that goes over my feet," she said. "We use those, obviously, to keep us in the chair, because people are falling down left and right, so it keeps you tight in your chair. We explain it like, you want to fit in your chair like a shoe would fit on your foot. ... Any sort of movement that I make with my body, my chair will follow."

In 2019, Eaton competed in the Parapan American Games in Lima, Peru with the rest of the U.S. Women's National Wheelchair Basketball Team. She spent four years trying out for the team before making the official squad in 2017. Even then, she almost didn't make it. Eaton was not part of the initial roster and had pretty much given up on making the team.

"I didn't think I was going to come back. ... I didn't think I would play again. ... I was pretty much over it at that point," Eaton said. "Fortunately, a couple of months into the season, one of the girls on the roster, she had to pull out and so Trooper Johnson, the head coach, called me and offered me the spot right then and there."

Eaton credits the initial setback for her success today.

"It was a mixture of emotions," she recalled. "I went from the lowest of lows to, obviously, pretty high, but it was a blessing that I got cut. I kind of went into the 2017 tryout thinking that I deserved to be on that team and that I didn't have to work as hard as everyone else because I thought I belonged there. But then getting cut really showed me that I had to put 100 percent effort into it if I wanted to continue."

To prepare for Paralympic tryouts, Eaton is following a rigorous

training schedule in addition to her already-busy life attending classes and serving as the assistant coach for the women's wheelchair basketball team at the University of Illinois.

"I'm doing three strength training workouts per week, three cardio workouts per week and three shooting workouts per week," Eaton said. "Each shooting workout is 500 shots. I also jump in the scrimmages with my team to get practice in."

Although Eaton was part of the U.S. Women's National Wheelchair Basketball Team that qualified for the 2020 Paralympic Games in Tokyo, she and her teammates did not automatically qualify as individuals. In January, she will travel to the Olympic Training Facility in Colorado Springs, Colorado, to try out for a spot on the 12-woman team once again.

"Going into a tryout in a Paralympic year is nerve-racking, especially with it being my first one," Eaton said. "But I'm feeling confident and I'm putting the work in so, hopefully, it all goes well. The good news is with Paralympic tryouts, they keep the teams as similar as possible just because you have team chemistry. ... So it does give you a bit of a leg up that you have been on previous teams, but it is by no means qualifying you to stay on the team."

Off the court, Eaton is excited about completing her graduate degree in social work and, hopefully, returning to Houston.

"I chose social work because I love working with people in any way that I can," she said. "I want to work with older adults who are in the hospital and help them through that transition period, or to work at TIRR and give back to an organization that gave so much to me and help other kids find their way through their disability and what is going to bring them to reach their goals."





# Artificial Intelligence will improve imaging-driven diagnoses and treatment

hen the X-ray was discovered at the end of the 19th century, a new medical discipline was born. Radiology became a way to study, diagnose and treat disease. Today, expertise among radiologists, radiation oncologists, nuclear medicine physicians, medical physicists and technicians includes many forms of medical imaging—from diagnostic and cancer imaging to mammography, radiation therapy, ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI).

As we move into the third decade of the 21st century, radiology—perhaps more than any other medical specialty—is poised for transformation. Thanks to artificial intelligence (AI), radiologists foresee a future in which machines enhance patient outcomes and avoid misdiagnosis.

"In the old days, X-rays were very shadowy, very difficult to interpret. They required a lot of expertise. Nowadays, with MRIs, you can see the anatomy really, really well. So now, the next step from that—which

is a big jump—is artificial intelligence," said Eric Walser, M.D., chairman of radiology at The University of Texas Medical Branch (UTMB) at Galveston.

Early machine learning used information from a few cases to teach computers basic tasks, like identifying the human anatomy. Today, AI can distinguish patterns and irregularities in large collections of data, which makes radiology an ideal application. Software can draw from millions of images and make diagnoses with speed and accuracy.

"Ultimately, what you would want out of an AI algorithm is value," said Eric M. Rohren, M.D., Ph.D., professor and chair of radiology at Baylor College of Medicine and radiology service line chief for Baylor St. Luke's Medical Center. "It's pretty clear that the algorithms can do some pretty amazing things. They can detect abnormalities with a high degree of precision. They can see what, perhaps, the human eye cannot see. What's not known is: What is the value of that in a

health care system? Are you truly improving patient outcomes and patient care by introducing a particular algorithm into your practice? Does it have measurable impact in terms of better patient experience, hospital stay and better outcomes following surgery?"

To that end, Baylor College of Medicine has created an internal library of all imaging data from the last decade.

"It's being put into a research archive so that investigators can come in, pull that data, be able to research that data, develop their own algorithms and link it with the electronic medical records to see pathology and laboratory values and outcomes for those patients," Rohren said. "Computers, since they don't have the level of intuition that we have as humans, they really need to be trained in a systematic fashion off a data set that's been developed specifically for them to learn. That data set can be tens of thousands of examinations in order for the algorithm to be able to determine prospectively and predictively what

it's going to do when it's faced with a scan it's never seen before."

The American College of Radiology joined the AI revolution by creating its Data Science Institute that aims to "develop an AI ecosystem beyond single institutions," according to the institute's 2019 annual report.

### Houston as a hub

The region dubbed "Silicon Bayou" for its innovation ecosystem is becoming a hot spot for artificial intelligence ventures.

Houston was ranked among the world's top large cities prepared for artificial intelligence, according to the Global Cities' AI Readiness Index released in September 2019. The city ranked No. 9 among places with metro area populations of 5 million to 10 million residents.

The report was based on a survey conducted by the Oliver Wyman Forum, part of the Oliver Wyman management consulting firm that tracks how well major cities are prepared to "adapt and thrive in the coming age of AI."

Researchers at The University of Texas Health Science Center at Houston (UTHealth) have demonstrated that distinction by building an AI platform called DeepSymNet that has been trained to evaluate data from patients who suffered strokes or had similar symptoms.

A team including Sunil Sheth, M.D., an assistant professor of neurology at UTHealth's McGovern Medical School, and Luca Giancardo, Ph.D., an assistant professor at UTHealth's School of Biomedical Informatics, created an algorithm to assist doctors outside of major stroke treatment facilities with diagnoses. The work was published online in September in the journal Stroke.

The project started because of difficulties identifying patients who could benefit from an endovascular procedure that opens blocked blood vessels in the brain, a common cause of stroke.

"It's one of the most effective treatments we can render to patients. It takes them from having severe disability to sometimes almost completely back to normal," said Sheth, who practices as a vascular neurologist with Memorial Hermann Health System. "The challenge is that we don't know who will benefit from the treatment."

Finding out depends on advanced imaging techniques that are not available at most community hospitals, the first stop for the vast majority of stroke patients.

"What we are trying to do, in using Dr. Giancardo's software, is to see if we could generate the same type of results that we get with advanced imaging techniques but with the type of imaging that we already do routinely in stroke in the less-advanced centers," Sheth said. "The purpose of this software is that—no matter what hospital you show up at—you can get the same type of advanced evaluation and all of the information you need to make a treatment decision."

At Memorial Hermann-Texas Medical Center, patients have access to advanced technology and

undergo standard imaging called a CT angiogram along with a CT perfusion, which is used to decide if someone would benefit from an endovascular procedure to remove a blood clot.

"We took patients who had both—the CT angiogram, which can be done at any hospital, and the CT perfusion imaging—and then we sent that into Dr. Giancardo's software. What that essentially did is trained the algorithm to take the CT images and to generate the type of output that the CT perfusion was telling us," Sheth said. "Then we tested it. Here are a bunch of patients that you've never seen before. How good are you at predicting what the CT perfusion is going to say? And that's what we did in our paper and showed that it did a very good job."

The study included more than 200 images from a single hospital. The technology hasn't been implemented clinically.

"The main benefit to a patient is that a lot of hospitals from other nations have the basic imaging, but not more advanced capabilities. So, the approach is that they could get the same information with the infrastructure that is already there," Giancardo said.

### Replacing the radiologist?

The AI disruption in radiology may be predictive of what's to come in other areas of medicine. But does AI mean that the demand for radiologists will decline?

Walser, UTMB's radiology chairman, thinks so.

"There will be fewer of us probably needed," he said. "Radiologists are going to become more the managers of the data rather than the creators of the diagnoses."

Sheth, the UTHealth neurologist, views AI and radiology as "decision support" for the specialists.

"I don't think we will ever be at the point where we can say 'Do x, y and z to this patient because Dr. Giancardo's software told us to.' This is going to be something that will help all of the physicians taking



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For onsite assessment and a personal tour, please contact the site of your interest above. care of the patients—the ER doc, the neurologist, the radiologist—make treatment decisions with better data," he said.

Rohren, the Baylor radiology chair, agrees that AI will improve decision-making without replacing the physicians who interpret imaging.

"It will make our jobs and roles a little different than they are now, but it will absolutely not put radiologists out of business," he said. "Machines and machine learning are very good at information handling, but they are very poor at making judgments based on that information. ... The radiologist will continue to be critical."

Yet Rohren anticipates a transformed discipline.

"I think radiology in the future will be a different profession than it is today," he said. "The radiologist has the potential to be the curator and the purveyor of a large amount of data and information that, given the limitations of human brain power and information systems,

we just don't have access to today. But with AI working alongside the radiologist, I think the radiologist is in the position to be at the hub of a lot of health care."

### Innovation in the TMC

Optellum, a United Kingdom-based company, brought its AI software for lung cancer diagnosis and treatment to the TMC Innovation Institute this year and spent several months in the TMCx accelerator. The product identifies patients at risk for lung cancer, expedites optimal therapy for those with cancer and reduces intervention for millions who do not need treatment.

Company founder and CEO Vaclav Potesil, Ph.D., said he decided to focus on lung cancer after losing an aunt within a year of her Stage 4 diagnosis. She never smoked.

"I've seen firsthand how very healthy people can be killed and it's still the most common and deadliest cancer worldwide," he said. "We are really focused on enabling cancer patients to be diagnosed at the earliest possible stage and be cured. It's not just the modeled data on the computer. It's addressing the right clinical problems to add value to doctors."

Potesil noted that two cancerous growths on the left lung of U.S. Supreme Court Associate Justice Ruth Bader Ginsburg were discovered early because of tests on her broken ribs, which were examined after she fell in 2018.

UTMB is starting a new AI radiology project soon, Walser said, that also aides in early detection.

"The computer scans every X-ray from the ICU and if they see something that looks like it might be a problem, they pop it up to the top of my list, so I look at that one first," he said. "In other words, if there are 200 chest X-rays from Jennie [Sealy Hospital] and there's one that's a pneumothorax [collapsed lung] that could kill a patient and it's all the way down on the bottom of my stack because the last name is Zimmerman, the computer will push it up to the top for me. That's our

first foray into AI."

Baylor College of Medicine and Baylor St. Luke's Medical Center researchers have explored using algorithms to interpret breast lesions on mammograms, improve cancer detection with breast MRIs and predict which sinusitis patients might benefit most from surgery, Rohren said.

He hopes for an AI collaboration among institutions in Houston's medical city.

"I personally believe the Texas Medical Center could become the international hub of AI—not only for radiology, but for any aspect of medicine," Rohren said. "We have so many elite health care institutions sitting right here right next door to each other. We have outstanding undergraduate universities right here in the city with data scientists and engineers. We have all the components to be able to develop a program. What it will require is for us all to work together."





### Top Texas Medical Center News Stories of the Year

# **BAYLOR COLLEGE OF MEDICINE**Restored sight with a prosthesis

Researchers at Baylor College of Medicine brought partial sight to a handful of study participants who have been blind for years using Orion, a visual cortical prosthesis surgically implanted in the brain. The researchers bypass broken optical nerves and input visual information—seen by a camera that is part of the Orion device—directly into the brain. Patients who were previously unable to see no change in light or shades are able to identify white boxes shown on a monitor. Orion is being tested at Baylor as part of a collaboration with Second Sight Medical Products. Daniel Yoshor, M.D., chair and professor of neurosurgery at Baylor, is using the prosthesis to support research he has been working on for more than a decade, along

with neuroscientists William Bosking, Ph.D.,

and Michael Beauchamp, Ph.D.

# BAYLOR ST. LUKE'S MEDICAL CENTER Elevated rankings

U.S. News and World Report's 2019-2020 Best Hospital rankings ranked Baylor St. Luke's Medical Center in four adult specialties. For neurology and neurosurgery, Baylor St. Luke's was ranked 18th in the nation and at the top in Houston. Baylor St. Luke's ranked 21st in cardiology and heart surgery and 22nd in gastroenterology and gastrointestinal surgery. The Dan L Duncan Comprehensive Cancer Center was ranked 36th for cancer care. CHI St. Luke's Health is driven by its faith-based mission and strong alliance with its academic and community partners—Texas Heart Institute and Baylor College of Medicine—to improve the health of communities in Houston and across Texas.

# THE CENTER FOR HEARING AND SPEECH

### Broke ground on a new campus

The Center for Hearing and Speech broke ground on a new, 42,000-square-foot campus in the Texas Medical Center in 2019. The new facility, located near State Highway 288 and MacGregor Way, will dramatically increase the number of children the organization can serve. "It's really exciting that we will finally have a facility that starts to match the passion and expertise that we have within our walls right now," said Kyle Swift, CEO of The Center for Hearing and Speech. The new facility will offer innovative services and support for children with hearing loss.

# GULF COAST REGIONAL BLOOD CENTER

# Expanded cellular therapy services

Gulf Coast Regional Blood Center launched Cellular Life Solutions, a division of the organization dedicated to biotherapies. One of the challenges facing cell therapy companies is procuring a quality starting product. Cellular Life Solutions aims to help make the dream of new, cutting-edge blood and cell therapies a standard of care. Cellular Life Solutions' highly trained nursing and medical personnel work with organizations worldwide to help provide autologous and allogeneic therapies for patients. The organization collects mononuclear cells, and these immune system cells are used for existing clinical trials, research and development, and/or protocol validation and training.



The food "farmacy" at Strawberry Health Center in Pasadena is part of Harris Health System.

# HARRIS COUNTY INSTITUTE OF FORENSIC SCIENCES

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Launched new disaster assistance strategy

The Texas Mass Fatality Operations Response Team, or TMORT, began as an idea at Harris County Institute of Forensic Sciences (HCIFS) and has matured into a statewide strategy for providing medicolegal assistance to jurisdictions overwhelmed by disaster circumstances. TMORT deployed for the first time to assist in the response to the mass shooting in El Paso, Texas, on Aug. 3, 2019. Three HCIFS staff members helped examine and identify the deceased and manage associated evidence. TMORT is part of the broader Texas Emergency Medical Task Force, a group capable of providing scalable responses to medical disasters by rapidly activating members from unaffected EMS and fire departments, public and private health care organizations, universities, regional coalitions and state and local government-including private and county medical examiners' offices.

### HARRIS HEALTH SYSTEM

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Tackled food insecurity and diabetes with new program

A new program at Harris Health System called Population Health Transformation addresses the social and economic needs of patientsaside from providing medical care—through direct and collaborative intervention. Harris Health expanded its flourishing community farm at Lyndon B. Johnson Hospital this year; by next spring, the 1-acre farm should yield 500 pounds of produce for patients every week. Additionally, a food "farmacy" (mini grocery store) at Strawberry Health Center opened its aisles for patients with food insecurity and uncontrolled diabetes, a first-of-its-kind effort in partnership with Houston Food Bank. Patients are given a prescription for 30 pounds of food every two weeks to help them eat healthfully and manage disease. The successful program may be replicated at other Harris Health locations.

# HOUSTON HOSPICE Presented Community Spirit Award

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Nina Wickman received the 2019 Laura Lee Blanton Community Spirit Award at Houston Hospice's annual Spirit Award Dinner on October 15, one of the organization's most successful fundraising events. A former fundraiser for Houston Ballet, Wickman directed a \$14 million capital campaign that financed the building of Houston Hospice's current inpatient care center and chapel, and the renovation of offices located in Holcombe House.

### HOUSTON METHODIST HOSPITAL Served oldest living

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Served oldest living kidney donor in United States

An 84-year-old Texas man became the oldest living kidney donor in the U.S. after donating to his 72-year-old neighbor at Houston Methodist Hospital. Frank Dewhurst knew Linda Nall's kidneys were failing, but it wasn't until he saw a sign in her front yard that he took action.



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The sign read 'I am type O and I need a kidney transplant. Please help me.' "So after talking it over with my wife," Dewhurst said, "I told her she could have mine." Nall was stunned when Dewhurst told her the news. "When he told me he wanted to give me his kidney, I was shocked," Nall said. "I am going to make the most of Frank's gift and live life to the fullest." All patients receive a full work-up to make sure they are strong enough to donate, according to Houston Methodist nephrologist, Hassan Ibrahim, M.D. If everything checks out, there is no reason an older person cannot save someone's life.

# AND HEALTH

. . .

# Launched mind-body medicine degree programs

To meet the growing demand for integrative health and mind-body practices, the Institute for Spirituality and Health (ISH), in collaboration with Saybrook University, launched the first post-graduate programs in mind-body medicine in the Texas Medical Center. The inaugural cohort includes fifteen students, and registration has begun for 2020. The M.Sc. and Ph.D. degree programs prepare scholarpractitioners for a range of careers by exposing them to rigorous and cutting-edge research and mind-body modalities. The Institute has also established programs to disseminate mind-body practices to the general public. In the wake of Hurricane Harvey, ISH helped form and lead the Greater Houston Healing Collaborative, a psychosocial disaster response that has equipped 120 individuals to offer mind-body workshops to reduce posttraumatic stress. To date, these interventions have reached more than 10,000 individuals across Harris and surrounding counties.

### JOHN P. McGOVERN MUSEUM OF HEALTH AND MEDICAL SCIENCE Celebrated 50th anniversary

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The Health Museum celebrated its first five decades as the only health museum of its kind in the United States. In 1962, the Harris County Medical Society (HCMS) and the Junior Chamber of Commerce sponsored the successful "Victory Over Polio" immunization campaign. Thanks to public donations from the campaign and from local physicians, along with support from Houston Endowment and HCMS, The Health Museum was launched on Nov. 16, 1969, as part of the Houston Museum of Natural Science. On March 16, 1996, after the successful completion of a \$9.6 million capital campaign, the museum opened at its current location,



The Institute for Spirituality and Health offers a range of classes focused on mind-body medicine.

1515 Hermann Drive, in the Houston Museum District. The Health Museum is one of two Smithsonian Affiliate institutions in Houston.

### LIFEGIFT Offered HIV-positive patients HOPE

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LifeGift was one of the first organ procurement organizations to participate in the HOPE (HIV Organ Policy Equity) Act research program in 2018, which allows HIV-positive people to donate their organs for research or transplantation into HIV-positive recipients. Under the HOPE Act, LifeGift has facilitated donations from 29 HIV-positive donors, 22 of whom donated organs for research. Twelve HIV-positive recipients received organs from seven donors, including eight kidney recipients, three liver recipients and one double lung recipient.

### MEMORIAL HERMANN HEALTH SYSTEM

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### Named new president and CEO

Following a nationwide search, Memorial Hermann Health System selected David L. Callender, M.D., as its new president and CEO. An accomplished physician executive with significant experience leading academic health systems, Callender has vowed to preserve and strengthen Memorial Hermann's 113-year legacy of serving Greater Houston. "I have been inspired by Memorial Hermann's efforts

to bring value-based, more personalized care to our communities," Callender said, "and I'm excited and honored to now help lead the way as we work to extend those efforts by delivering exceptional patient experiences and improving outcomes for all." Callender succeeds Chuck Stokes, who will officially retire December 31 after a successful tenure in which he established a culture of high reliability, innovation and transformation across the system.

# THE MENNINGER CLINIC Named new president and CEO

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Armando E. Colombo, who was recently named president and CEO of The Menninger Clinic, will lead the nationally ranked psychiatric hospital toward its 100th anniversary. With 30 years of experience in health care operations, Colombo is eager to build upon Menninger's patient care services to create a true continuum of mental health care. His extensive national marketplace knowledge includes expertise in diversifying financially affordable options for people who have psychiatric and addictive disorders. "I am looking forward to maintaining and building upon Menninger's prominence in mental health and increasing the services to serve a broader range of people," Colombo said. Since arriving in September, Colombo has met with nonprofit leaders, business executives and other community stakeholders to assess how Menninger can enrich the mental health landscape in the Greater Houston area.

# MICHAEL E. DeBAKEY VA MEDICAL CENTER Expanded mental health services

A new mental health care center at the Michael E. DeBakey VA Medical Center expanded much-needed services for Houston-area veterans, including same-day appointments. The facility houses a variety of mental health services, including a post-traumatic stress disorder program, neuropsychology, veterans justice outreach and behavioral health, along with marriage and family counseling.

# NORA'S HOME Raised nearly \$1 million at annual gala

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The annual Nora's Home gala offered a 1970's-inspired "We Are Family" theme and was hosted by co-chairs Nick and Vicki Massad.

As a kidney recipient, Nick spoke about his connection to the Houston transplant community and to the mission of Nora's Home—to be a home away from home for transplant patients and their families. Following Nick to the

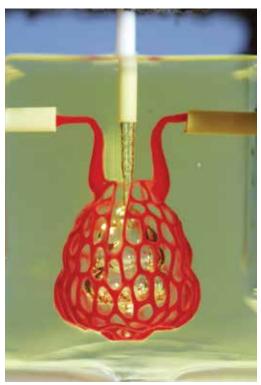
podium was his living donor—his own daughter, Taylor Tritt. Their story helped raise more than \$950,000.

### **RICE UNIVERSITY**

# Made breakthrough in 3D printing replacement organs

Rice University bioengineers cleared a major obstacle to 3D printing replacement organs in 2019. In a paper featured on the May 3 cover of Science, Rice assistant professor Jordan Miller, Ph.D., and 15 collaborators from the University of Washington and elsewhere demonstrated a technique for printing living tissues with exquisitely entangled vascular networks. The technique allows engineers to mimic the branching structure of the intricate passageways that transport blood, air, lymph and other vital fluids. Printing these is a challenge because the passages for different fluids are intricate and intertwined, so Miller and colleagues created a new open-source bioprinting technology dubbed the "stereolithography apparatus for tissue engineering," or SLATE, which makes soft hydrogels one layer at a time. SLATE uses a digital light processing projector and liquids that become solid when exposed to light. A key breakthrough was the addition of light

absorbing food dyes that confine solidification to a very fine layer. ■



Rice University researchers helped develop a breakthrough bioprinting technique.





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The Walt Disney Company launched the Disney Team of Heroes initiative at Texas Children's Hospital.

# ST. DOMINIC VILLAGE Elevated standard of care

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St. Dominic Village offers the full range of senior care—independent and assisted living, as well as a Rehabilitation and Nursing Center for both short- and long-term nursing needs. The senior care community is in the early phases of capital improvements to its campus. Over the past year, the Rehabilitation and Nursing Center has gone from a 1-star to a 5-star facility, as rated by the Centers for Medicare & Medicaid Services. In addition, St. Dominic Village received a deficiency-free annual survey by the Texas Department of Health and Human Services. This is a testament to the facility's mission, 'Caring for Our Elders with the Compassion of Christ.'

### TEXAS CHILDREN'S HOSPITAL Launched Disney Team of Heroes pilot

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The Walt Disney Company celebrated the official launch of the Disney Team of Heroes pilot at Texas Children's Hospital in April. Texas Children's is the first hospital to work

with Disney on the comprehensive new initiative, which will enhance the patient and family experience at children's hospitals around the globe through the delivery of comfort and inspiration. Disney's beloved characters and themes are featured in reimagined spaces, personalized moments and engaging content throughout Texas Children's. The hospital's relationship with The Walt Disney Company dates back to 1952, when Walt Disney himself gifted the hospital with an illustration depicting his vision for the hospital's campus at the time.

# TEXAS HEART INSTITUTE Advanced arrhythmia research

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Texas Heart Institute (THI) is helping translate promising discoveries into clinical practice in collaboration with many members of the Texas Medical Center, industry and other leading institutions. THI teams are testing the first practical total artificial heart, new imaging modalities to detect atherosclerotic vascular disease and developing several heart pacing technologies for treating arrhythmias. This year, the THI electrophysiology clinical research and innovations team, led by Mehdi Razavi, M.D., confirmed that conductive carbon

threads made at Rice University could serve as an electrical bypass or bridge to repair the function of the heart. Also, the National Heart, Lung, and Blood Institute—part of the National Institutes of Health—awarded THI's electrophysiology research team critical funding to pursue the development of wireless, leadless, battery-less pacemakers that will be built with machine learning capabilities to deliver personalized treatments to patients with heart rhythm conditions.

# TEXAS MEDICAL CENTER Expanded BioBridge program

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BioBridges are major partnerships that align the startup ecosystems of other nations with that of the Texas Medical Center (TMC), accelerating the pace of clinical research by encouraging collaboration between academic researchers here and abroad. In 2016, the TMC established its first BioBridge with Australia. Two years later, a United Kingdom BioBridge was launched. In October 2019, TMC leadership traveled to Copenhagen to announce a third BioBridge partnership—with Denmark. Also in October, the TMC welcomed ABB Robotics, the world's largest industrial robotics manufacturer, to the TMC Innovation Institute.

# THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON

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Received third NIH renewal grant for TMC translational science center

Taking a scientific discovery from bench to bedside is a long, expensive journey. In 2019, the Center for Clinical and Translational Sciences received \$37 million in renewed funding from the National Institutes of Health (NIH). Established in 2006 with one of NIH's inaugural Clinical and Translational Science Awards, the center's priorities involve improving medical outcomes for all populations, including children, older adults, Hispanics, African Americans and LGBTQ people, all of whom have been historically underrepresented in research. Headquartered at The University of Texas Health Science Center at Houston (UTHealth), the center's partners include The University of Texas MD Anderson Cancer Center and Rice University in the Texas Medical Center, along with The University of Texas Health Science Center in Tyler, Texas, and The University of Texas Rio Grande Valley.



The University of Houston College of Medicine, shown in a rendering, will admit 30 students to its inaugural class.

### UNIVERSITY OF HOUSTON COLLEGE OF MEDICINE Recognized in state statute

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In 2019, Gov. Greg Abbott signed House Bill 826 to recognize The University of Houston College of Medicine in state statute. In addition, architectural renderings of the \$80 million medical school building—to be built on the UH campus, across from MacGregor Park—were revealed. The approximately 150,000-square-foot building will include state-of-the-art classroom and meeting spaces, a robust anatomy suite, a full continuum-of-care simulation suite and more. In June, the inaugural group of 39 residents was welcomed to the newly estab-

lished HCA Houston Healthcare/University

of Houston College of Medicine residency program during a white coat ceremony. The partnership aims to bring 155 resident positions to Houston by 2020, with plans for 460 total resident positions by 2025. The UH College of Medicine will admit 30 students to its inaugural class, pending accreditation by the Liaison Committee on Medical Education.

### UNIVERSITY OF ST. THOMAS Created new positions to emphasize innovation

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In 2019, the University of St. Thomas named Beena George, Ph.D., its first chief innovation officer. Even before the appointment, George's creativity had led to new initiatives, including the Master in Clinical Translation Management (MCTM), a graduate program for business students focused on commercializing biotechnology and collaborating with incubators and accelerators. Co-creator of the MCTM program is Mauro Ferrari, Ph.D., a nanoscience pioneer who joined the university part-time in March as executive vice president of strategic partnerships. A new medical humanities program is under consideration to prepare students for successful medical careers while ultimately improving health care for generations of patients.

FOURTH ANNUAL SYSTEM PATIENT SAFETY SYMPOSIUM

### Patient Safety Communication and Teamwork

### **KEYNOTE SPEAKERS**



**Dr. Brent James** is known internationally for his work in clinical quality improvement, patient safety and the

infrastructure that underlies successful improvement efforts, such as culture change, data systems, payment methods and management roles.



Ridley Barron is an internationally known speaker, author and tireless advocate for patient safety. He is also rand president of Ridley Barron

the founder and president of Ridley Barron Ministries in Thompson Station, Tennessee.

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# THE UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER

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Boosted survival rates with breast cancer drug

A targeted therapy, when added to hormone therapy, significantly increases survival rates of younger women diagnosed with an advanced stage of the most common type of breast cancer, according to findings from a 2019 MD Anderson Cancer Center study. The study focused on a type of breast cancer fueled by estrogen, which accounts for two-thirds of all cases among women who have not yet gone through menopause. Typically, this type of cancer is treated by therapies that block estrogen's production. The international clinical trial, called MONALEESA-7, found that adding the drug ribociclib on top of hormone-blocking therapy lowered the risk of death by 29 percent. After three-and-a-half years, 70 percent of women were still alive, compared to 46 percent of those who took the hormone treatment only. "This data provides clear evidence that ribociclib offers a significant survival advantage," said Debu Tripathy, M.D., chair of breast



Serena Auñón-Chancellor, M.D., is an astronaut and physician who completed internal medicine and aerospace medicine residencies at UTMB.

medical oncology and the study's senior author. "Breast cancer in younger women is known to be more aggressive, so this provides a muchneeded treatment option for these patients."

# THE UNIVERSITY OF TEXAS MEDICAL BRANCH AT GALVESTON

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Identified biomarkers to predict muscle decline in deep space

Prolonged space travel can wreak havoc on the human body, including loss of muscle mass and strength, and no two bodies react the same way to reduced gravity. To help future deep space travelers—headed to Mars and beyond—researchers at The University of Texas Medical Branch at Galveston (UTMB) learned to identify biomarkers that can help predict how susceptible each individual will be to muscle decline and how to combat it. An extended bed rest study allowed scientists to see how the human body would react to different exercise and supplement regimens. With that knowledge, NASA could tailor treatments for individual space travelers before they leave Earth.

# CHRISTMAS AT PALMER

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December 11 at 12:00 PM

Advent Lessons & Carols
December 15 at 5:00 PM



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# VITALS

Trending topics in health, science and medicine

By Shanley Pierce

# Why are some regions more susceptible to Legionnaires' disease?

n September 2019, an outbreak of Legionnaires' disease at a hot tub state fair display in North Carolina infected 141 people and resulted in four deaths. That same month, health officials from Tyler, Texas, confirmed seven cases and five suspected cases of Legionnaires' associated with the East Texas State Fair.

Legionnaires' disease is a severe form of pneumonia marked by coughing, shortness of breath, fever, muscle aches and pains, and headaches.

Since 2000, the United States has seen an 800 percent spike in the disease, according to the Centers for Disease Control and Prevention (CDC), with a reported 9,933 cases of legionellosis in 2018. Legionellosis is the umbrella term for both Legionnaires' disease and Pontiac fever, a milder form of the infection caused by exposure to a waterborne bacterium called Legionella pneumophila, often found in moist environments. Hot tubs and large buildings, such as hotels and hospitals, are common breeding grounds for the bacterium to grow and spread.

But outbreaks of legionellosis represent only a small fraction of all cases, said Xiang Y. Han, M.D., a pathologist and microbiologist at The University of Texas MD Anderson Cancer Center.

"For all the cases, only 20 percent of those are outbreak-related," Han said. "Of the 80 percent of the cases, how did those patients get exposed?



Xiang Y. Han, M.D., a pathologist and microbiologist at The University of Texas MD Anderson Cancer Center, advises people to drive with their car windows closed to eliminate the spread of Legionnaires' disease.

We don't know."

In his recent study published in the American Society for Microbiology's journal, Applied and Environmental Microbiology, Han identified four factors—long-term precipitation, temperature, solar ultraviolet (UV) radiation and sunshine hours—that correlate with incidences of Legionnaires' disease in the U.S.

Because climate and environment vary dramatically across the country, Han's findings offer an explanation as to why some regions are more susceptible to the disease than others. Warm temperatures and wet environments have long been known to promote bacterial growth, but Han's study identified sunshine hours and UV light as two new factors that curb bacterial growth. Prolonged sunshine increases temperatures, but it also increases UV exposure, which kills bacteria.

Based on these four parameters, Han was able to pinpoint the area surrounding the Great Lakes region as having the highest incidence rates in the country, with Ohio and New York as the top two states with the most cases of Legionnaires' disease.

"The temperature's getting higher, but the sunlight's getting stronger, too. That means the UV gets stronger. Past the Ohio river, the further south you go, the lower the incidence of Legionnaires' disease," Han explained. "For example, in Houston, we have 2,900 sunshine hours every year. Whereas in Ohio, there are 2,200 hours ... 700 hours less."

Han's theory for non-outbreakrelated exposure to the bacterium relates to the time people spend on the road.

"The true significance [of the study] is that it gives us insights about exposure," Han said.

The waterborne bacterium can accumulate in dust, mist and mud on the road, entering vehicles through ventilation systems, air conditioning and open windows. Heavy rainfall only compounds the problem.

"There's a lot of opportunity for exposure," Han said. "But in that regard, a lot of these cases are probably preventable." Han advises people to drive with their windows closed, change cabin air filters and have their vehicles maintained regularly to eliminate any growth and spread of Legionnaires' disease.

Some national experts insist that incidence rates of Legionnaires' disease are much higher than the CDC claims. A recent report published by the National Academies of Sciences, Engineering, and Medicine found that the rate of legionellosis is approximately 10 times greater than the total number of reported cases, with as many as 70,000 cases each year.

Those with an increased risk of Legionnaires' disease include adults 50 years or older who have a history of smoking, a weak or compromised immune system, chronic lung disease or an underlying health condition such as diabetes.

The disease takes its name from the first outbreak in which the waterborne bacterium was identified as the cause—a 1976 outbreak in a Philadelphia hotel where the Pennsylvania American Legion was holding a convention.

## **New Technology Boosts Brain Imaging**

Scientists at the University of Houston and UTHealth capture a broader view of tissue

By Shanley Pierce

hen a person suffers a blow to the head, the brain becomes a battlefield. The injury initiates a multitude of changes to brain cells, which disrupts normal cognitive and behavioral functions. At the same time, the body launches its own healing mechanisms to repair the damage.

Because there is still so much experts don't fully understand about the brain at a detailed level, brain conditions are notoriously difficult to treat. After all, human brains contain a constellation of some 86 billion neurons, all connected by an estimated 100 trillion synapses.

"People usually just think about neurons, but for every neuron in the brain, there are anywhere from eight to 10 other cells (called glia) that support neurons and their function. There are a bunch of cells that follow the blood vessel network in the brain that feed the glia cells in the brain," said Badri Roysam, D.Sc., department chair of electrical and computer engineering at the University of Houston. "By trying to map out the cell type, what status it is currently inhabiting, we're trying to figure out where the problem is."

Thanks to a new project backed by a five-year, \$3.19 million grant from the National Institutes of Health, Roysam and his team have developed new technology to identify cell types, function and status in hopes of helping scientists devise better treatments for mild brain injuries, such as concussions. Capturing a more extensive and detailed view of brain tissue is the key.

The billions of neurons in the brain communicate with each other through neurotransmitters, but brain injuries disturb the well-orchestrated communication system. With a severe injury, the neurons cannot talk to each other because the cells have died; with a mild injury, however, the neurons are dysfunctional but still alive.

"Mild brain injuries don't typically have big manifestations. It's not like part of the brain is missing, but it's dysfunctional," explained John Redell, Ph.D., assistant professor of neurobiology and anatomy at McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth). "It's more of sand in the gas tank than a blown-up engine; it's not working quite right."

By understanding the changes in the brain due to injury and the side effects from drugs and the body's healing mechanisms, more effective drug treatments could be devised.

"When someone develops a drug, they expect a certain set of changes to happen. They look for those changes, but there could be other changes that are happening that they can miss entirely," Roysam added. "The question is: What if we could reveal a lot more of what's going on so the researcher has an opportunity to observe not only the effects, but side effects?"

Typically, scientists take thin slices of small tissue samples and stain them with a rainbow assortment of dyes—three to five dyes at a time. But, Dragan Maric, Ph.D., a scientist with the National Institute of Neurological Disorders and Stroke, developed a way to use 10 dyes.

By using 10 different dyes, Redell

said, researchers are able to squeeze as much information as possible out of the visible spectrum.

First, Roysam uses a nextgeneration "super microscope" that delivers multi-spectral imaging known as multiplex immunohistochemistry imaging—capable of simultaneously identifying 10 to 100 proteins in a single sample.

"This is important because the brain has long-range connections. Just because the change is happening in one place, doesn't mean that changes aren't starting to happen in more distant areas," Roysam said. "By providing a more extensive and more comprehensive view of the tissue, we make it easier to detect deficiencies of current drugs and can also generate ideas about future drugs based on what we've observed. Because we have a very detailed picture, it's much easier to develop a very focused, much more promising idea for the next round of studies."

Roysam then runs the scans through the UH supercomputer at the Hewlett Packard Enterprise Data Science Institute to analyze the information. He is able to capture a genuinely detailed view of the brain, revealing molecular changes across a larger spatial scope.

"Nowadays, everything in science is bigger than it used to be," Redell said. "Instead of looking at a small part of the brain or at a select group of cells, we are hoping to pan out and look at the entirety of a brain section and the entirety of the cells."

Although this technology doesn't map out the entire brain, it is a critical step in the right direction.

"We're still a long way from a global understanding of what's happening in the brain," Redell said, "but it's orders of magnitude better than what we are currently imaging."



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New technology and techniques

By Cindy George

### Giving poorly prepared colons a clean sweep

poorly prepared colon can delay a colonoscopy because the doctor can't see through the muck.

This is particularly problematic when a patient is in the hospital. About 20 percent of inpatient colonoscopies are delayed, which means increased hospital costs and more stress on individuals who are already experiencing health problems.

Pure-Vu, a new cleansing device for inadequately prepared colons, was approved by the U.S. Food and Drug Administration in June for use during inpatient exams. Manufactured by Florida-based Motus GI, the device is neither a replacement for bowel preparation nor is it approved for outpatient use.

"It allows the hospital to gain control and predictability over these procedures and make sure that they happen when they're scheduled to happen," Motus GI CEO Tim Moran said.

Usually, a colonoscope—the long, thin, flexible tube used during a colonoscopy—holds one water jet and a single suction channel. Pure-Vu hitches a ride with a colonoscope—inside a disposable, single-use sleeve—to provide pulse vortex irrigation with four jets and two suction ports.

It's a "controlled power wash," according to gastroenterologist Sreeram Parupudi, MBBS, a

practicing physician and professor of internal medicine at The University of Texas Medical Branch at Galveston (UTMB), the only organization in Texas currently using Pure-Vu.

"Sometimes, the nature of the stool and mucus is such that it is very sticky. In that case, washing it with one stream is not good enough to see any underlying lesions," Parupudi said. "In some patients, there may be excess stool—which is like a thin liquid—which is hard to suction out with one channel."

These issues can be especially acute with inpatients who are physically disabled.

The Pure-Vu system, composed of a workstation and the washing device, flushes the colon vigorously and efficiently. Parupudi has used the device on about 20 patients and only one could not continue the exam.

"The most important value is completing the procedure," he said. "If the stool is washable, it prevents patients from coming back again ... and going through





1 | JEFF PAINE, president of The Menninger Clinic Board of Directors; ARMANDO COLOMBO, president and CEO of The Menninger Clinic; and STEVEN MAISLIN, president and CEO of the Greater Houston Community Foundation, attended a reception to introduce Colombo to business executives, nonprofit leaders and community stakeholders. Colombo assumed his role at The Menninger Clinic in the fall.

2 | Stephanie and Brandon Baudin attended the RONALD McDONALD HOUSE HOUSTON 2019 Boo Ball at the Hilton Americas-Houston. The gala celebrated the generosity of more than 650 of Ronald McDonald House Houston's biggest supporters, raising more than \$722,000.

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3 | TIRR Memorial Hermann CEO JERRY ASHWORTH, Americans with Disabilities Act co-author LEX FRIEDEN and SUSAN SPENCER TULLY, daughter of TIRR's founder, attended a celebration of TIRR Memorial Hermann's 60th anniversary.

4 | JAMES T. MCDEAVITT, M.D., professor of physical medicine and rehabilitation and senior vice president and dean of clinical affairs at Baylor College of Medicine, recently began his three-year term as chair of the American Board of Physical Medicine and Rehabilitation board of directors.

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5 | Rice University announced the creation of a robust new center in response to increasing interest and expertise in African and African American Studies on campus. ANTHONY PINN, PH.D., the Agnes Cullen Arnold Professor of Humanities and professor of religion, will serve as the founding director of the Center for African and African American Studies.

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3

6 | Beth Wolff, of Beth Wolff Realtors, walks the runway with patients Jackson Caserma and Kaylee Tolleson at the Champions Luncheon and Fashion Show to benefit TEXAS CHILDREN'S CANCER CENTER. More than 350 guests attended the event, which pairs community leaders and cancer champions and raised more than \$270,000

for the Long Term Survivor Program at Texas











Credit: Nos. 4, 5, 8, 9, 10, courtesy photos; No. 1, Michelle Watson; No. 2, Dave Rossman Photography; No. 3, Memorial Hermann/J. Lynch; No. 6, Allen S. Kramer/Texas Children's Hospital; No. 11, Wilson Parish

Children's Cancer Center.



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

7 | William F. "Bill" McKeon, CEO and president of the TEXAS MEDICAL CENTER, brought the future of the TMC to a huge crowd at the State of the Texas Medical Center luncheon, presented by the Greater Houston Partnership. At the end of the presentation, a robot joined McKeon onstage to celebrate ABB, the international robotics company that opened a 5,300-square-foot space in the TMC INNOVATION INSTITUTE in the fall.

8 | At a "Taste America" event at THIRD COAST restaurant in October, Jeff Black of the James Beard Foundation; Third Coast executive chef Jon Buchanan; James Beard Award winner Sue Zemanick, executive chef/owner of Zasu in New Orleans; and James Beard Award winner Hugo Ortega, executive chef/owner of H Town Restaurant Group (which includes Backstreet Café, Hugo's, Caracol and Xochi) posed outside the restaurant. The six-course dinner benefited the James Beard Foundation, raising more than \$11,000.

**9** | MARGARET "PEGGY" GOODELL, PH.D., chair of the department of molecular and cellular biology at Baylor College of Medicine, has been elected to the National Academy of Medicine.

10 | MD Anderson's STEPHEN HAHN, M.D., was nominated by President Trump to lead the U.S. Food and Drug Administration (FDA). If the Senate approves his appointment, Hahn will take over from acting FDA commissioner Norman "Ned" Sharpless, M.D., who has served since April. Hahn is currently chief medical executive at The University of Texas MD Anderson Cancer Center.

11 | Attendees of the 50th anniversary celebration of the JOHN P. McGOVERN MUSEUM OF HEALTH AND MEDICAL SCIENCE danced and mingled at River Oaks Country Club. The gala was chaired by J. Downey Bridgwater and his wife, Kerri, and Brian Strake Parsley, M.D., and his wife, Katherine. J. Downey Bridgwater is president of Comerica Bank's Houston market and chairman of the board of directors of the Texas Medical Center. Brian Parsley is an associate professor of orthopedic surgery at McGovern Medical School at UTHealth.



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# Dec. 2019 & Jan. 2020

### The Joys and Trials of Science Writing

Lecture by Melinda Wenner Moyer, recipient of the 2019 Bricker Award for Science Writing in Medicine

Tuesday, noon – 1 p.m.

Houston Methodist Research Institute

John F. Bookout Auditorium

6670 Bertner Ave.

cherrera2@houstonmethodist.org 713-363-9049

### Houston Methodist Annual Holiday Celebration

Houston Ballet and Houston Symphony perform

Tuesday, 5 p.m.

Houston Methodist Hospital

Crain Garden

6565 Fannin St.

mjgallop@houstonmethodist.org

713-441-4048

### WomenHeart Houston Support Group

Peer-to-peer patient support and education for women with heart disease.

Wednesday, 11:30 a.m. - 1 p.m.

Texas Heart Institute

6770 Bertner Ave.

ksprung@texasheart.org

832-355-9591

### **Grand Rounds**

Vivian Ho, Ph.D., James A. Baker III Institute Chair in Health Economics and professor of economics at Rice University, will speak with students

Friday, noon - 1 p.m.

Texas Heart Institute

Denton A. Cooley Auditorium

6770 Bertner Ave.

morourke@texasheart.org

832-355-9496

For more events, visit TMC.edu/news/tmc-events



To truly improve the health of Harris County residents who need us most, we're reaching out in more personal ways than ever before. Our new population health team is forming strong partnerships with community organizations to help provide nutrition, housing and transportation support.

Our Cancer Resource Centers offer chemotherapy patients education, guidance, even makeup tips, along with referrals to Wig Out, a special nonprofit program offering high-end wigs at no charge.

We've built the Community Farm at LBJ Hospital and opened the Food Farmacy at Strawberry Health Center to help those who struggle with food insecurity. And there's more, much more, on the horizon.

Creating a healthier community is why we're here.

SEE MORE IN ACTION >> harrishealth.life/wigout3













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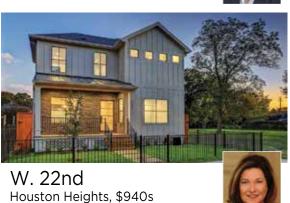
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