TMC PULSE

THE OFFICIAL NEWS OF THE TEXAS MEDICAL CENTER — VOL. 2 / NO. 11 — DECEMBER 2015

2015 IN REVIEW

YEAR END INCENTIVES

BOTTOM LINE PRICE

CALL FOR NEW PRICE

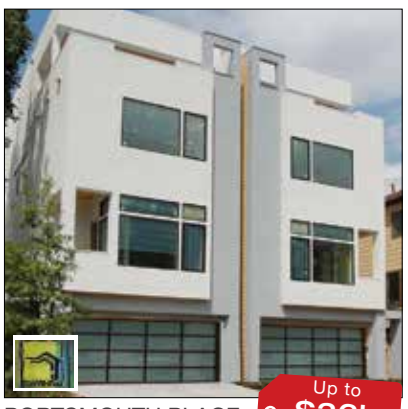
WEST U COURT
West University Place
Up to $26k OFF

DETERING SQUARE
Rice Military
Up to $22k OFF

EMERALDS at DORRINGTON
University Place
Up to $26k OFF

LARKIN VILLAGES
Cottage Grove
Up to $19k OFF

PETTY STREET GROVE
Cottage Grove
Up to $17k OFF



PORTSMOUTH PLACE
Upper Kirby
Up to $36k OFF

MIDTOWN PARK PLACE
Midtown
Up to $25k OFF

WINSOME PARK
Galleria
Up to $25k OFF

BLVD ON DIAN
Heights
Up to $18k OFF

DOLORES PLACE
Galleria
Up to $23k OFF

MANORS AT WEST 21st
Shady Acres
Up to $18k OFF

OVID STREET GARDENS
Sawyer Heights
Up to $18k OFF

URBAN LIVING

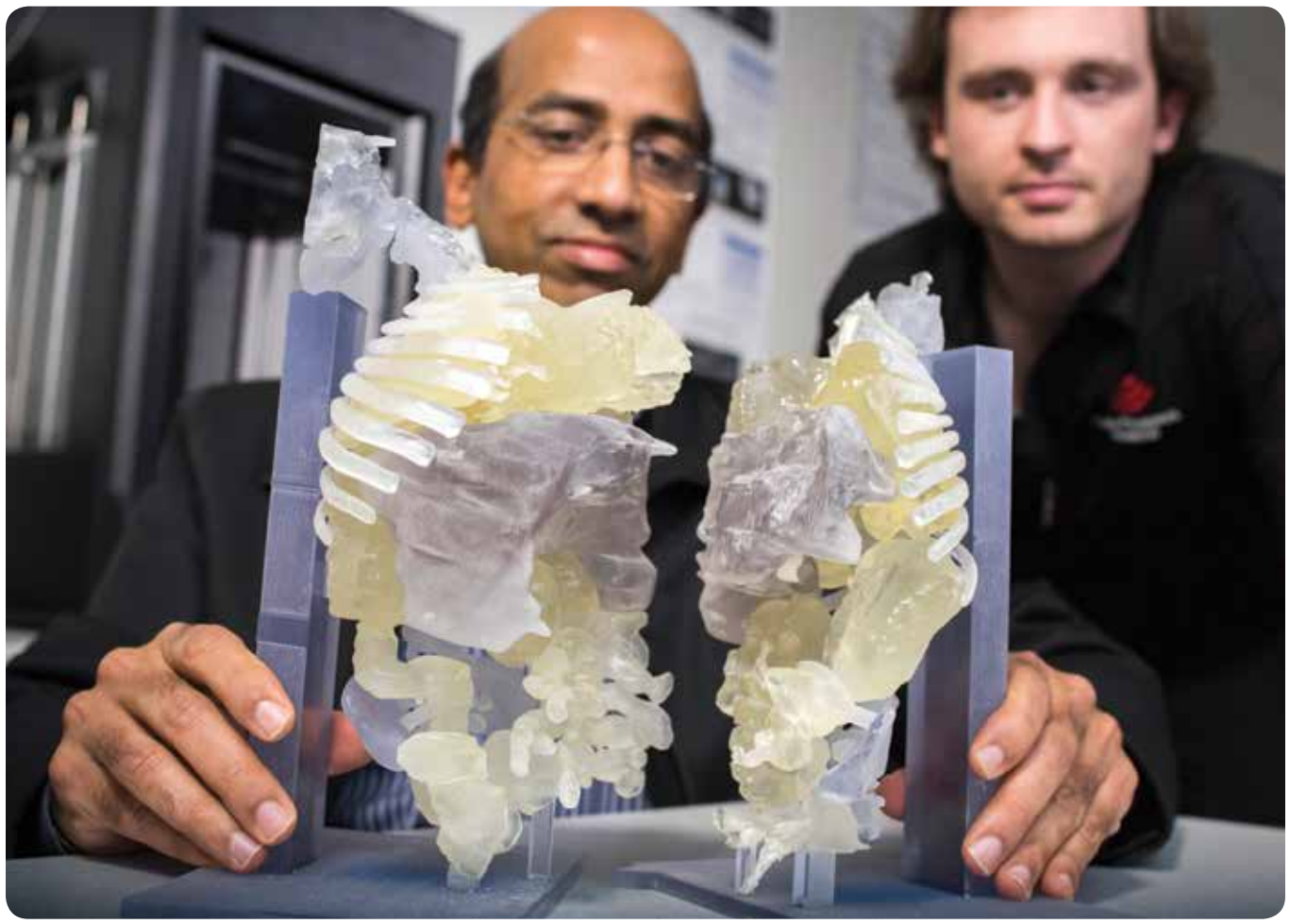
713-868-7226

5023 Washington Avenue

www.UrbanLiving.com

ASPIRE LENDING

Current price may already reflect the bottom line price drop on some developments.



(Credit: Allen Kramer/Texas Children's Hospital)

THE 3-D FUTURE OF MEDICINE // p. 5

DOCTORS AT THE TEXAS MEDICAL CENTER ARE HARNESSING THE POWER OF 3-D PRINTING TECHNOLOGY TO CREATE PRECISE, PATIENT-SPECIFIC MODELS OF INTERNAL STRUCTURES BEFORE THEY EVEN PICK UP THE SCALPEL.

Connect with Us

TMCNews.org

TMC News online brings together, in one place, the incredible and inspiring ***stories from all 56 member institutions.***

TMC Today

No time to peruse TMC News online? Let us deliver the highlights directly to your inbox. Sign up at TMCNews.org to receive the digital TMC Today ***weekly email update on campus happenings.***

TMC Pulse

Look for the latest issue of TMC Pulse each month, ***available on newsstands*** across the medical center.

Social Media

There are so many ways to stay in touch! Follow us on Twitter ***@TXMedCenter*** and Instagram ***@thetexasmedicalcenter,*** like us on Facebook, and check out ***TexasMedCenter*** on YouTube to stay up to date on the latest TMC news and events.

TMC | PULSE

Vol. 2 No. 11

December 2015

Robert C. Robbins, M.D.
President and Chief Executive Officer

Amanda D. Stein
Editor
astein@tmc.edu

Shea Connelly
Associate Editor
sconnelly@tmc.edu

Staff Writers
Alex Orlando
Alexandra Becker
Britni Riley
Shanley Chien

Meagan McCullough
Advertising Coordinator

Contributing Photographers
Kenzie delaTorre
Michael Stravato

NEWSROOM
713-791-8812
news@tmc.edu

ADVERTISING
713-791-8894
newsads@tmc.edu

DISTRIBUTION
713-791-6130
distribution@tmc.edu

TMC Pulse is a monthly publication of the Texas Medical Center, in Houston, Texas. Permission from the editor is required to reprint any material. Editorial/advertising information available on request.

Texas Medical Center News is a member of: Houston Press Club, American Medical Writers Association, Association of Healthcare Journalists, and American Advertising Federation

WHR in the TMC:

Advancing the science of orthopedics through the art of design.

WHR Architects designs facilities that enable greater flexibility, adaptability and productivity. Thinking beyond tomorrow, WHR Architects makes it possible to produce better patient outcomes and advance the science of orthopedics in the world's largest medical center.

WHR ARCHITECTS

Architecture with People in Mind®

THE LEADING HEALTHCARE DESIGN FIRM IN THE WORLD'S LEADING MEDICAL CENTER

Shaping the Future of Patient Care

How 3-D printing is changing the way doctors approach pre-operative care

By Shanley Chien

> “We’re using imaging techniques to see images we’ve never really seen before. We’re planning a surgery we’ve never done before. That’s where this stuff is really valuable in terms of the frontiers in medicine.”
>
> — STEPHEN LITTLE, M.D.
> *Director of the Valve Clinic at Houston Methodist DeBakey Heart and Vascular Center*

In this day and age, 3-D printing seems to be the trend that doesn’t show any indication of losing steam. In fact, the technology is quickly advancing and new applications for it are being discovered every day.

For the maker community and hobbyists, 3-D printing represents a democratization of manufacturing, marking a new wave of mass personalization and offering the layman the opportunity to return to the age of working with their hands, a zeitgeist reminiscent of the Industrial Revolution.

With all the well-deserved hype and acclaim 3-D printers are receiving these days from the general public and large industries, it only makes sense that the technology has already made inroads in the medical industry, as well.

Rajesh Krishnamurthy, M.D., section chief of radiology research at Texas Children’s Hospital, has been using 3-D printing in his department since early 2011. Over the past four years, the hospital has created a total of approximately 200 models, averaging 50 models per year.

“[3-D printing] was literally the cool thing on the block. We didn’t really feel this was going to give us a huge amount of incremental value over advanced 3-D modeling, but we started seeing the impact on cases, and that’s when we realized this is going to be helpful,” Krishnamurthy said. “Now we’re focused on convincing the rest of the world that’s the case.”

What started out as a curiosity, printing musculoskeletal structures, quickly burgeoned into a relatively in-demand practice, with Krishnamurthy currently juggling five requests for 3-D printed models. Now, equipped with two in-house 3-D printers, creating model bones at Texas Children’s is child’s play.

"Skeletal structures practically print themselves," Krishnamurthy said. "They're very easy to extract from the CT data set, to separate from the surrounding anatomy, and to create a model out of it. It's like printing on paper with an inkjet printer."

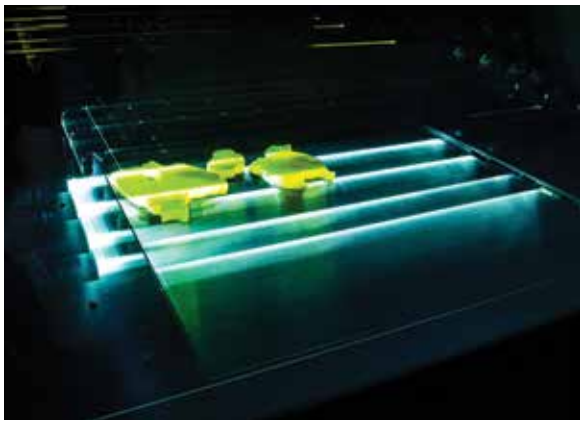
Orthopedic surgeons at Texas Children's initially wanted to experiment with different techniques to approach operating on patients with hip dysplasia, so Krishnamurthy and his team printed out a model of the pelvis and femur to physically test what angles to cut the bone to change its alignment for a better fit.

They eventually became sophisticated enough to explore printing more complicated anatomy, such as a model of a baby's heart that did not have any arteries going to the lungs, and even a case of conjoined twins with complete fusion of the chest, abdomen and pelvis. According to Krishnamurthy, having the heart models that show the internal anatomy benefits the surgeons by helping them visualize the area they're operating on and simulate the procedure before the patient arrives at the hospital.

"You can argue that if you're a talented cardiac surgeon or somebody who has been doing this for a while, [you] can look at the raw data and know exactly what is going on," Krishnamurthy said. "But when you're dealing with such a complex situation where there are different organ systems that are abnormal, and each one needing its own specialist team, with real-time decision-making at the time of surgery, then it becomes very difficult—the coordination, the planning, the decision-making."

The time it takes to create the models can range anywhere from one day to a week, depending on the complexity of the model.

Stephen Little, M.D., director of the Valve Clinic at Houston Methodist DeBakey Heart and Vascular Center, agreed that 3-D printing plays a valuable role in surgical planning.



Left: A range of colors and materials are used to create 3-D printed models, making them as lifelike as possible. Right: 3-D Print Texas partners with Houston Methodist to create 3-D models with varying textures and materials. After printing, the models are bathed in a water-solution tank that dissolves support material and leaves the final product intact.

Rajesh Krishnamurthy, M.D., right, examines a 3-D printed model from a pair of conjoined twins. His team studied the model during surgical planning to get a more accurate understanding of the physiological structures and relationship of the organs. Credit: Allen Kramer/ Texas Children's Hospital

"As good as our imaging is, whether it's MRI or CT or even echo, they tend to present complicated data with a 2-D slice," said Little, who has been working with 3-D printing at Houston Methodist for several years now. He added that their surgical procedures are becoming increasingly complex and the technology they use needs to be just as advanced. "I really see this as on the crest of the wave, where the new stuff is hitting the ground and it's brand new. We're using imaging techniques to see images we've never really seen before. We're planning a surgery we've never done before. That's where this stuff is really valuable in terms of the frontiers in medicine."

Little's colleague, C. Huie Lin, M.D., Ph.D., an adult congenital and interventional cardiologist at Houston Methodist, recently had a case in which a young Jehovah's Witness patient was born with a heart defect. After her first successful surgery, she was left with a wide open, leaking pulmonary valve and needed another operation, but two centers had already turned her down because she could not take blood transfusions and they were concerned she would not make it through the surgery. When Lin was presented with her case, he had her undergo a CT scan in her hometown of South Carolina and then created a 3-D printed model based off the data.

"I didn't want her to drive all the way out here and not be able to do anything for her," said Lin, who used the model to more accurately study her condition, experiment with different approaches and devise a plan that was minimally invasive and required very little blood loss—all before she even stepped foot in the hospital.

"Without the 3-D printed models, we wouldn't have been able to figure this out. We wouldn't have been able to come up with a way to actually do the procedure in advance," Lin said, echoing the same sentiments as Krishnamurthy and Little.

Another benefit of 3-D printed models is for the people sitting on the other side of the doctor's desk.

"It's great for teaching the [patient's] parents. It's probably the biggest value," Krishnamurthy said. "A surgeon can basically hold the heart in their hands and tell them, 'This is exactly what I'm going to do and these are the risks of the procedure.'"

"Before [3-D printed models], we would just use our hands like puppet motions to explain what's happening," Little said.

Krishnamurthy added that the parents' understanding of their child's case and surgical operation is dramatically altered when they see the model.

"We've had parents come in and say, 'This is the first time I've really understood what they're planning to do to my child,'" he said. "We should be doing this on every single case, just for one reason: parental comprehension. If we really take the phrases 'informed consent' and 'informed decision-making' seriously, and if we have this useful tool that can significantly enhance that, then why are we not doing it for every case?"

The reason this is not happening? Cost. Little, Krishnamurthy and other doctors agree that printing out 3-D models is simply too expensive, ranging anywhere from $400 to $3,000 per print, based on complexity, and is not covered by insurance. Both Texas Children's and Houston Methodist are selective with which cases are approved to spend the time, effort and financial resources on 3-D printing, but it's not difficult to see that the benefits will eventually eclipse the cost, especially as models become more inexpensive to produce.

"[Providing 3-D printing] is an important thing that's going to reduce complications of the surgery, lower your length of hospital stay and improve your outcome," Little said. "In the long run, it's much better to pay $1,500 for a model and be in the hospital for four days less." ■

"If we really take the phrases 'informed consent' and 'informed decision-making' seriously, and if we have this useful tool that can significantly enhance that, then why are we not doing it for every case?"

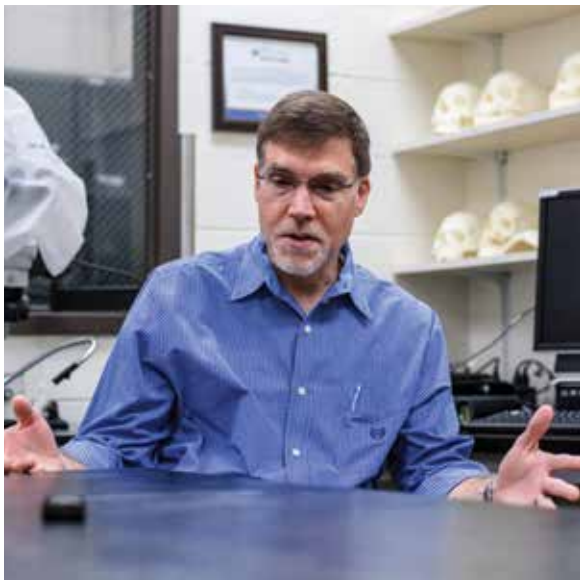
— RAJESH KRISHNAMURTHY, M.D.
Section Chief of Radiology Research at Texas Children's Hospital

Stephen Little, M.D., director of the Valve Clinic at Houston Methodist DeBakey Heart and Vascular Center.

Identifying the Unknown

A team of anthropologists lend scientific expertise to Harris County law enforcement

By Shea Connelly



Left: Forensic anthropologists Christian Crowder, Ph.D., and Sharon Derrick, Ph.D., help Harris County law enforcement determine cause of death, identify unknown persons and more. Right: Dwayne Wolf, M.D., Ph.D., deputy chief medical examiner for Harris County

> "It's very gratifying to be able to use my training to provide a name and a face to a person."
>
> — SHARON DERRICK, PH.D.
> *Forensic Anthropologist and Identification Manager for Harris County Institute of Forensic Sciences' Forensic Anthropology Division*

When a sudden death occurs in a metropolitan area the size of Harris County—over four million people living within 1,778 square miles—a diverse team of experts is essential to determine the cause and assist law enforcement in solving the case. The Harris County Institute of Forensic Sciences' Forensic Anthropology Division is a vital branch of that team. When a call for assistance comes from the Institute's forensic investigators or medical examiner, these experts answer the call to action. They assist with everything from recovering skeletal remains at a crime scene and identifying unknown individuals to providing support to the medical examiner at autopsy. Through in-depth scientific analysis, they seek facts pertaining to the death and provide a name to the unknown.

Harris County's forensic anthropology team consists of four Ph.D.-level anthropologists, as well as a rotating cast of post-doctorate fellows who generally work in the department for a year, and a grant-funded student research anthropologist. As a small team serving a vast community, the forensic anthropologists see many busy days.

"There is a great need for anthropology work in Harris County; our office and county officials are very progressive in the sense that they recognize the need for this forensic sub-specialty and the type of casework where we can add value," said Christian Crowder, Ph.D., director of forensic anthropology.

A typical day for the forensic anthropology team begins with a meeting during which cases are assigned to Harris County forensic pathologists. If one of the cases requires an anthropological analysis, an anthropologist is also assigned to the case.

"We have a rotating on-call schedule," said Sharon Derrick, Ph.D., a forensic anthropologist and identification manager. "If, during the day or night, there is a death scene that requires an anthropologist, our investigators will call the anthropologist on call to assist with recovery."

Derrick noted that the anthropologist who helps with recovery at the scene is not necessarily assigned to that same case going forward. This ensures that whoever works on the case will be blind to the circumstances and any information that could influence

the findings. The anthropologist assigned will get to work gathering whatever helpful information they can share with the pathologist.

"There are many things an anthropologist can tell us that go beyond what a pathologist is trained to do—how old the injuries were, how many episodes of injury there were and also a little bit more about mechanism of injury, what type of force was directed and from where to cause that kind of bone injury or fracture," said Dwayne Wolf, M.D., Ph.D., deputy chief medical examiner for Harris County.

Often, the casework the anthropologists handle involves trauma analysis specific to bones, as Wolf described. In the past month, about 60 percent of the anthropologists' workload has been bone-trauma analysis.

The team also may determine whether a bone is of legal significance, as not all remains that are discovered are necessarily forensic cases, or whether the bone is even human at all. For example, someone digging in his yard may uncover an old bone that has historical significance, but is not related to a crime, or a bone that turns out to be from an animal. Sometimes the anthropologists can use a simple photo to make the determination before the area has to be declared a crime scene.

Another major part of the forensic anthropologists' work is helping to identify remains that aren't easily identifiable either by fingerprints, contextual evidence or other means. They do this by developing biological profiles, which involves evaluating the remains to determine attributes like age, sex, ancestry or race, and stature. As the identification manager, Derrick facilitates that process, maintaining ongoing lists of unknown remains and inputting data into various national databases used to find and identify missing persons.

"It's very gratifying to be able to use my training to provide a name and a face to a person," Derrick said. "To me, it's the ultimate thing you can do for someone, to make sure people know who they are."

Forensic anthropology is a relatively young field, but it has become increasingly vital to solving crimes and identifying unknown persons. As a result of its growing importance, in 2009 experts in the field began to suggest the need for standardization and quality assurance.

"There was a report issued from the National Academy of Sciences that caused a shockwave in the field because it specifically pointed out some issues within the forensic science disciplines nationwide," said Crowder. "It questioned how we, as forensic scientists, know that the types of analyses and the type of work we're doing is quality work and is valid science."

These questions paved the way for the Institute's Forensic Anthropology Division to seek accreditation for quality and competence in their particular field of expertise through the ANSI-ASQ National Accreditation Board, which incorporates International Standards/ISO into their accreditation program requirements. ISO has become commonplace in various business segments as it ensures that common standards are used between nations in a host of different fields, from manufacturing and agriculture to, now, forensic anthropology. Meaning that, once accreditation was granted, the quality of the Institute's forensic anthropology work would be recognized at the international level.

"Until now, there was no program for an anthropology laboratory to be assessed and provided with accreditation," said Crowder. "So, we engaged our internal quality division and worked closely with them and the ANSI-ASQ National Accreditation Board to establish this accreditation for us and for others. In August, we became the first anthropology laboratory in the nation to be accredited under the ISO/IEC 17020 program."

Becoming accredited was a rigorous process that went far beyond simply checking a few boxes. The reviewers looked at how evidence is handled and stored, file management and organizational systems, methods and techniques used during investigations, and much more.

"Because the accrediting board had never accredited a forensic anthropology laboratory before, they needed to have a good understanding of the types of analyses we were doing so they could reach out to the proper experts to put on the accreditation review team," Crowder said. "They provide subject-matter experts specific to what you do."

"There were more than 300 standards reviewed, and it wasn't all anthropology related," Derrick said. "Some of it was relative to internal quality management oversight and some to the administrative management of the division." She noted that the review team even had her run through techniques and methods on a skeleton while they observed.

"It was very time consuming for us, but it's certainly worth it for our office and for the field," Derrick said.

The accreditation does not last forever—after three years, the office will need to be reassessed.

"Anthropology is not a static field—the accreditation organization wants to make sure that once you receive that initial accreditation your team is moving in the right direction; that you're continuously improving techniques," Crowder said. "They provide recommendations and want to see what you have done to address their recommendations. You have to keep striving to improve yourself."

Crowder and Derrick both emphasized that in an increasingly globalized world, it is important to have an internationally recognized set of standards to provide assurance regarding the quality of the work being done in the forensic anthropology field. Each anthropologist testifies in court a few times a year, and they want judges and juries to have the highest degree of confidence possible in their work.

"We can show the work we do is very scientific, is very rigorous, and the product we are providing our customer—which might be the pathologist but is ultimately the community—is quality work," Crowder said. "Now when we go in the courtroom, not only can we be on the stand and say we're certified anthropologists, but also our entire laboratory is an accredited lab. Now we have two standards we can provide to the court, so they can have confidence this is a valid scientific product." ■

> "Now when we go in the courtroom, not only can we be on the stand and say we're certified anthropologists, but also our entire laboratory is an accredited lab."
>
> — CHRISTIAN CROWDER, PH.D.
> *Director of Forensic Anthropology for Harris County Institute of Forensic Sciences' Forensic Anthropology Division*

C. EDWARD COFFEY, M.D., *UNDERSTANDS HOW INVALUABLE SUPPORT IS TO PATIENTS STRUGGLING WITH MENTAL HEALTH CHALLENGES. HE HAS SEEN THE IMPACT FIRSTHAND IN SOME OF THE COUNTRY'S MOST SUCCESSFUL TREATMENT PROGRAMS, AND NOW LENDS HIS EXPERTISE AS PRESIDENT AND CHIEF EXECUTIVE OFFICER OF THE MENNINGER CLINIC. COFFEY SAT DOWN WITH TEXAS MEDICAL CENTER EXECUTIVE VICE PRESIDENT AND CHIEF STRATEGY AND OPERATING OFFICER WILLIAM F. McKEON TO DISCUSS THE PERFECT CARE MODEL, AND HOW HIS TEAM AT MENNINGER—FROM NURSES AND PHYSICIANS TO HOUSEKEEPERS AND ADMINISTRATIVE STAFF—RALLIES AROUND PATIENTS IN NEED.*

Q | *Tell us about your childhood in South Carolina and your formative years?*

A | I grew up in a small South Carolina fishing village called Little River. My stepfather ran a small fishing boat and I was the mate on the boat. It was sport fishing in the summer so we typically took parties of six out on the weekends for day trips. We also did Gulf Stream trips where we go about 80 miles off the Carolina coast. It's an eight-hour trek, so you go all night and then you start fishing at about two in the morning because you need to wrap up by eight or nine in the morning to get back. It is hard work. In the winter we would take the chairs off of the boat and attach traps for catching snapper, grouper and red snapper. It's really back-breaking work. I lived in a trailer growing up and we ate what we caught that day. The good news was that we ate fresh fish five nights a week. The bad news is my mother deep-fried everything. But it was great. We had a very loving, very close family.

Q | *What was it like at Oxford University?*

A | Unbelievable. I was sitting in a room with a kid from Uganda who was the president of the student body at the university when Idi Amin Dada came into power; he was describing his escape from Uganda. Amin was trying to kill him because students were opposed to the regime. Those experiences weren't commonplace in South Carolina. So it was just unbelievable to be at Oxford.

After completing additional bachelor's degrees at Oxford, I went on to Duke medical school. Because I was now two years behind in school, I didn't take any summer breaks and completed medical school in three years. Duke was great. Looking back on it, that was such an incredible time to be in medical school. I rounded with my professors on Friday afternoons and then went back to his or her office and talked about how 'this is what you've got to do and this is how you respond to this kind of situation.' That is where the learning took place, because all of the stuff you learned from the book is going to be incorrect next year anyway. It was an amazing place, and those were the most important experiences.

Q | *What led you to Detroit?*

A | I am board certified in both neurology and psychology because I am interested in brain behavior relations. That is the sweet spot for me. Professionally, my interest has been neuropsychiatry, and there are many definitions of that, but in general, it is

taking care of patients with a psychiatric disturbance that is somehow related to an underlying neurological problem. It might be a person with a stroke who is now depressed. It might be a person with a head injury who now has a personality change. It could be a person with Alzheimer's disease who is now hearing voices.

At Duke, I became director of the neuropsychiatry/electroconvulsive therapy program before being recruited to the Allegheny System in Pittsburgh by Dr. Stuart Yudofsky, who is now at Baylor. Dr. Yudofsky convinced the leadership at Allegheny to buy a free-standing, 94-bed, neuropsychiatry facility and then hired me to run it. After being in Philadelphia for six years, the Henry Ford Health System in Detroit had a position open and I knew many, many people there, including the former chair who had risen to the dean's position. The leaders were and are phenomenal—Henry Ford is an incredible, world-class health care system. I thought I would only be there five years, but my family and I fell in love with Detroit and there were plenty of great learning opportunities there. We created an integrated mental health service line for the system—it was a $4 billion system and we had the opportunity to create this notion of Perfect Depression Care and Zero Suicide.

Q | *I know the Perfect Depression Care and Zero Suicide program was a Malcolm Bladridge Award-winning program. What was the standard of care before and after the program?*

A | A couple years after I arrived in Detroit, health care financing underwent a major change. Our system, like many others, was struggling. We had to recalibrate after a round of layoffs that sank morale. At the same time, the Institute of Medicine convened a committee to evaluate the American health care system. What resulted was an Institute of Medicine Report called Crossing the Quality Chasm. I was tasked with studying the report and presenting findings that were applicable to Henry Ford. The report revealed that despite the great people in the American health care system, despite the advances in knowledge in this country, the care that people are getting at bedside is mediocre. The gap that exists between what is possible with health care professionals and what is happening at bedside is the chasm.

The report also yielded a model of how to fix the chasm. When this was published, the Robert Wood Johnson Foundation got behind the report and partnered with Don Berwick at the Institute for Healthcare Improvement to launch the 'pursuing perfect initiative.' The idea was, if you can take this document as a road map to transform your system, they would give you a few million dollars to get started.

I spearheaded Henry Ford Health System's application to the 'pursuing perfection initiative.' There were about 3,000 applications downloaded, 25 semifinalists and eventually 12 finalists. We were one of the 12 finalists and the only mental health application in the group. Our application was Perfect Depression Care. Each applicant was required to outline six dimensions of care—safe, effective, patient-centered, timely, efficient and equitable—and define how to achieve perfection in all six dimensions. We had five of the six nailed, but we couldn't get something around effective care. We initially thought we'd do the same thing that the FDA does to approve drugs and say effective care is lowering depression scores by 50 percent with our treatment. While this was good enough for the FDA, it did not meet the standards for this initiative.

We regrouped around a conference table, and a nurse raised her hand to suggest that doing perfect depression care would mean that people wouldn't kill themselves. The room went still and no one said anything for what seemed like an hour. Her idea was met with resistance as some clinicians were under the impression that we couldn't stop people from killing themselves if that's what they wanted to do. To be honest, that was kind of the attitude back then in psychiatry—suicide is inevitable and you can't do anything about it. That nurse's suggestion, however, transformed our department. We went back and forth among our team, asking ourselves if zero isn't the right number for our goal, what is? Is it 12 suicides a year? Does that include my sister? Your mother? What does our billboard say? 'Come to Henry Ford, only 12 of you will commit suicide this year.' No, it has to be zero. You would think that is common sense, but even today, this is still very difficult for people to embrace. That is how we got into Perfect Depression Care. We drove the suicide rate down in two years

> "The tagline: 'Advancing treatment and transforming lives.' That isn't just talk. It really is what goes on here. It's incredible."

and maintained it for over a decade. It was unprecedented. People around the world told me that we were crazy for doing this, and that I was going to embarrass myself and ruin my career. As my senior leadership team at Menninger now knows, I am stubborn and hardheaded and so I said, 'We're going to do it.' What is neat about this notion of perfection is that it is absolutely galvanizing. Most people don't want to get up in the morning, go to work and be average. Most people have the notion of doing something spectacular, but it is not for everybody. You have to adjust an organization's culture. Now others have signed on to this movement—Great Britain, Northern Ireland and other states here in the U.S.

Q | *In the perfect care model, what was the difference? Was there more intense communication with the patient? Was it the focus on the patient to not let them wander off alone and feel lost within the spiral of depression that leads to suicide?*

A | You are absolutely right. There are two evidence-based approaches to reducing suicide: rapid access to definitive diagnosis and treatment of the underlying disorder—depression, anxiety disorder, substance abuse, etc. The other is 'means restriction'—you make it hard for the person to carry out the act. Patients who have survived suicide attempts will tell you that it is purely impulsive. The thought is maybe always there, but most of the time it is in the background. But when the person is experiencing stress or maybe when they are drinking, the impulse bubbles to the top. If it is easy to do it right then—if you have a gun that is loaded in your car's glove box and it doesn't take any thought or planning to do it, then it happens. Means restriction means getting rid of that stuff.

We had very intentional conversations every time we interacted with the patient, not just in person, but on the phone, email whatever and every interaction began and ended with, 'What is the status of your gun at home? Your plan?' If it wasn't a gun, but hanging, 'Tell me about how you have thought this would happen? What do you imagine is the means?' If the patient told us they were planning to hang themselves in the garage using a ladder and a cord, we would tell them to go home and get rid of the ladder and the cord. The most incredible thing we learned from doing this is that the patient will not go buy a new ladder. Another fascinating thing is people who have chosen the ladder and cord in their suicide plan don't typically go and replace those with a gun after they've gotten rid of them. The goal here is to put some time between the impulse, so that the impulse will subside. Michigan is a big gun state like Texas, so we negotiated with patients to have them put the ammunition in one safe on one side of the house and the gun in another safe on the other side of the house. We also got the gun clubs in Michigan to get on board with this. A lot of patients didn't want to give up their guns, so the gun clubs said, 'We'll hold it for you. Whenever you want to come practice you can, but we will keep it here.' We got really good at means restriction.

Q | *What was the driving force behind you taking the CEO position at Menninger?*

A | There are several factors. My family is from the South, so there was an appeal to get back to our cultural roots. I've since learned that there's the South and then there's Texas, and those aren't identical. I'm not saying there's anything negative here. I'm just saying they're different, and I didn't fully appreciate that. And we love Texas. Additionally, there is no brand in mental health like Menninger. It is just an amazing brand. That's, of course, due to leaders here in Houston and people like Dr. Yudofsky who were so keen on bringing Menninger here over a decade ago. They knew it had the potential to be the MD Anderson of mental health. In fact, I think that analogy has been used by many here in the Texas Medical Center.

Q | *The Menninger program is very unique and has changed over time. How would you define Menninger?*

A | I would say the essence, part of the secret sauce, is the unbelievable commitment on the part of the entire team here at Menninger. I don't mean just the nurse, just the therapist and just the doctor, but everyone, including the housekeeping staff, facilities, security, finance, etc. There is an incredible commitment to patients' welfare and their healing. The idea of restoring hope is not just lip service. It's real. I take no credit for that. That culture was here when I got here. I think it's been here for decades.

These patients have some of the most difficult illnesses in all of general medicine, not just psychiatry. The mortality rates are higher than cancer or heart disease for these people. It's not just suicide; it's also death from certain general medical illnesses that's elevated in this population. In addition, there's a long history and a culture of studying and learning from what we do. This notion of learning has been my theme in life. As long as I'm learning, I'm happy. When that curve levels off, I get restless. We've created a culture of learning and improving here at Menninger. We're now formally studying patients not just through the course of hospitalization, but for up to a year after they've left. This is unique to Menninger for a couple of reasons. One, it takes time to create relationships with patients and families, such that they'd be willing to stay in touch with you and let you know how it's going, good or bad, post-treatment. Another reason is we're the only organization in the world that I know of that is doing these types of outcomes studies because we have the philanthropic resources needed to support such intense research. In fact, the bulk of Menninger's research is supported through Houston's generous philanthropic-minded community.

Q | *What excites you most about what happens here every day?*

A | It's the care we provide. The tagline: 'Advancing treatment and transforming lives.' That isn't just talk. It really is what goes on here. It's incredible.

Q | *What would be the typical team you'd assign to a patient?*

A | Menninger patients are fortunate to receive care from some of the best mental health professionals in the world, including many who are also affiliated with Baylor College of Medicine. The expertise level here is very high. The clinical team is often comprised of multiple physicians—many of whom are double- and triple-boarded. Then you have nursing, social work, psychology and other specialties as needed. The exact mix depends on the nature of the patient's issues. If those are heavy on the medical side, then the team will include more psychiatry and nursing expertise. Menninger also offers rehabilitation services through our outpatient services division and our adult clubhouse, The Gathering Place.

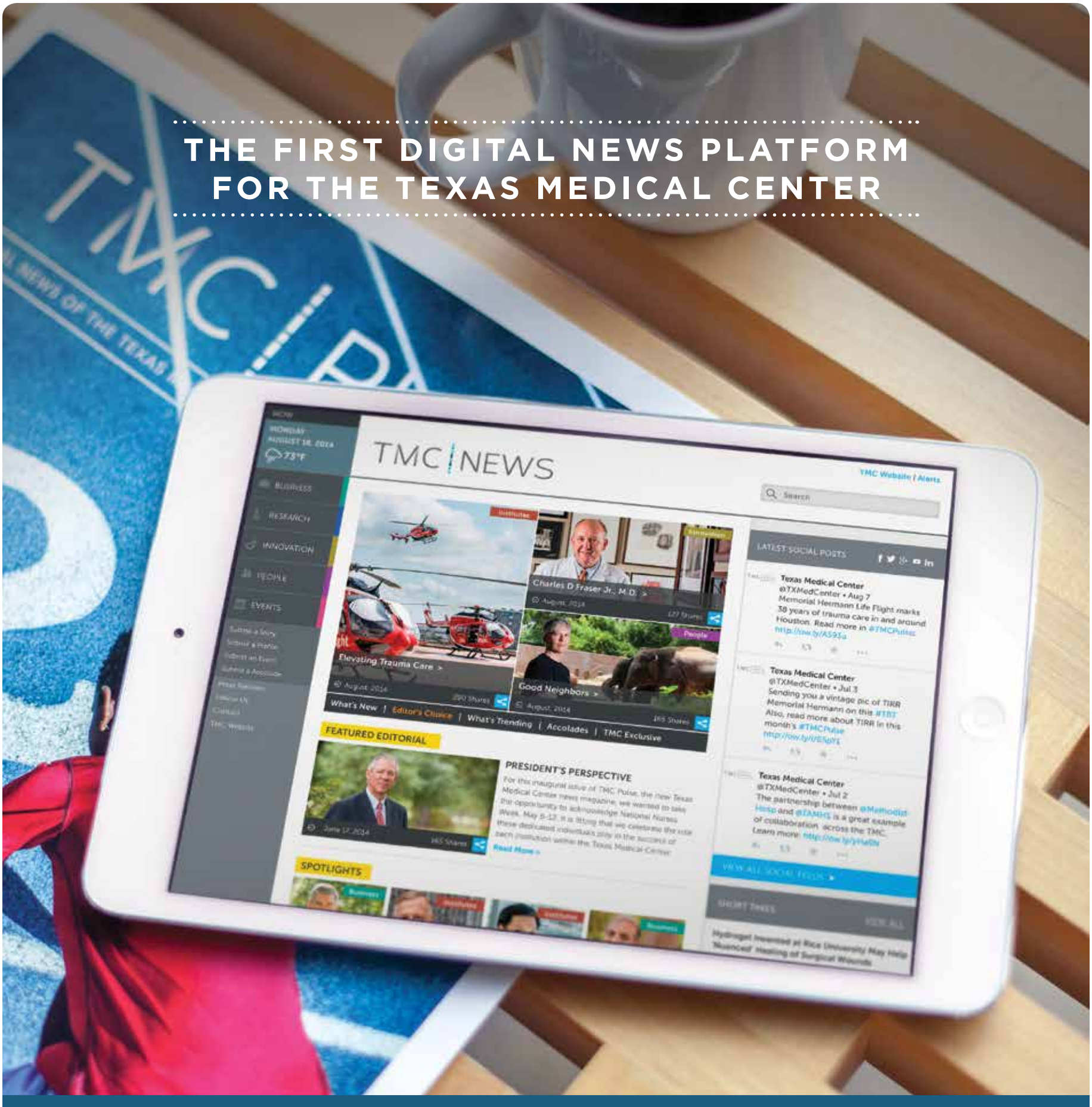
Q | *How far have we come with social opinion toward mental illness?*

A | There's no question, it's better. It's not where it needs to be because shame still gets in the way. Shame has a double meaning in the area of mental health. There's stigma, and shame related to stigma, but there's also shame related to, 'My life's a mess. I'm the son that just can't get it together.' 'I'm the person that's had four affairs.' 'I'm the CEO that's falling apart.' There's tremendous shame around that. In our work, unconditional acceptance has been shown to be a core of the effectiveness of therapy, whatever kind of therapy is being done. We give it all kinds of labels, but it turns out that there are commonalities to being successful and that's one of them—this unconditional acceptance.

Q | *Anything you would like to add?*

A | I'm so happy to be at Menninger and to be a part of the Texas Medical Center. My wife, Kathy, and I are so happy to be in this city. We have been welcomed with open arms and everything I learn about Texas just makes me smile. It's so different than I imagined and I think Houston is unique within Texas. It's an open, accepting place. I've always valued diversity, and as best I can tell about Houston, if you're just willing to roll up your sleeves and contribute in some way, you're in. ■

THE FIRST DIGITAL NEWS PLATFORM FOR THE TEXAS MEDICAL CENTER



TMC News online features the latest news from across the Texas Medical Center, bringing together, in one place, incredible and inspiring stories from all of the member institutions.

Visit TMCNews.org

TMC | TEXAS MEDICAL CENTER

Startups with Vision

Three superstar startups at TMCx+ are pushing the boundaries of possibility in life sciences

By Alex Orlando

Through their digital platform, Sickbay, Medical Informatics brings patient-specific analytics to a clinician's fingertips.

Within the offices of TMCx+, the Texas Medical Center's coworking space designed to meet the needs of emerging companies, the plausible and the implausible are being brought together. An analytics company builds predictive algorithms to help clinicians improve patient outcomes; a team of neuroscientists and designers craft a vest that allows deaf individuals to perceive auditory information through small vibrations on their torso; and a biotechnology company develops virus-driven immunotherapies for cancer. For these driven entrepreneurs, this is just the beginning.

"We're at a juncture in technology development where science is catching up with science fiction," said Emma Fauss, Ph.D., co-founder and chief executive officer of Medical Informatics. "That's something that we can take for granted in our daily lives, like using a GPS for making turn-by-turn directions. What we're trying to do is get health care up to speed with the rest of the world. The reality is that every other industry uses data technology effectively, and health care doesn't, but health care is the one thing that really matters—it's lives at stake."

From the ICU to the ER, critical care nurses and doctors are required to make crucial, life-altering decisions in the blink of an eye. For health care providers in a stressful environment, singling out high-priority alarms from an ever-present cacophony of patient monitoring devices can seem frustrating and futile. With all that information to sift through, what's important and what isn't?

"There's a severe void in supporting technologies to help providers make those split-second decisions," Fauss said. "In cases where those time-critical decisions need to be made, we're trying to empower care providers by leveraging serious, real-time analytics."

> "When we talk about approaching science fiction, that's really what it is. We're pushing the edges of what is possible in individualized patient care."
>
> — EMMA FAUSS, PH.D.
> *Chief Executive Officer of Medical Informatics*

Those analytics make up the backbone of Medical Informatics' vision for the future. The company's "Sickbay" technology platform collects continuous streams of high-resolution physiological data from an entire spectrum of monitoring equipment—bedside monitors, EMRs and other ancillary devices. Weaving together science, analytics and medicine, Sickbay, has the ability to reduce alarm noise at the source, enable virtual patient monitoring and even predict patient deterioration before it occurs.

"Essentially, we're GPS for doctors," said Craig Rusin, Ph.D., co-founder and chief technology officer of Medical Informatics. "Our goal is to use mathematical tools to extract hidden information from within patient data and present that to doctors in an intuitive way so they can treat their patients more effectively."

The idea of predictive analytics can seem abstract and removed—a data scientist's interpretation of the sci-fi conceit behind the movie Minority Report, where supernatural psychics prevent crimes before they occur—but Medical Informatics isn't looking to some far-flung future. With their system in place at Texas Children's Hospital and the recently demonstrated ability to predict cardiac arrest in single ventricle patients one to two hours beforehand, Medical Informatics is helping span the gap between the bench and bedside. By putting their discoveries into practice, individual patients are already reaping the benefits of their technology.

"A great example of that involves one particular patient who was in respiratory distress for many days," said Fauss. "The problem was that because they weren't deteriorating, the snapshots of the monitor data that you would see next to the bedside didn't accurately reflect the fact that the patient was fighting their own ventilator. By using the analytics that we were providing, the providers realized, within seconds, that this kid was in respiratory distress and they needed to change the treatment.

"When we talk about approaching science fiction, that's really what it is," she added. "We're pushing the edges of what is possible in individualized patient care."

Down the hall at TMCx+—the fully furnished space contains 13 modular suites, each complete with two executive offices and a pod of desks that can support up to eight people—what looks like athletic wear adorned with strands of Christmas tree lights is draped over the back of a chair and sewing machines line the windowsill. The inspiration behind this high-tech vest? Nothing too ambitious—just an attempt to expand human perception beyond the limits of our five senses and provide a new sense of hearing for deaf individuals in the process.

"The VEST actually stands for 'Versatile Extra-Sensory Transducer,'" said Scott Novich, Ph.D., co-founder and chief technology officer of NeoSensory. "It all stems from the idea that we can take in any sort of real-time information stream, like sound, and map it to your sense of touch to actually acquire a new sense—in this case it's for the benefit of people who are deaf."

Known as a 'sound-to-touch sensory substitution system,' the VEST functions by picking up all the sounds in an environment, with the help of a cell phone, and converting them to electrical signals that vibrate in different locations and at different frequencies on an individual's torso. Within a few hours of training, someone deaf from birth can "feel" distinct, individual words.

Neosensory's VEST (Versatile Extra-Sensory Transducer) enables deaf individuals to "feel" individual words through small vibrations on their torso.

According to neuroscientist and NeoSensory co-founder David Eagleman, Ph.D., who developed the technology alongside Novich as part of the latter's doctoral thesis, applause feels a little bit like a massage.

"As soon as you put it on, you can start to gain a basic sense of the sound around you," Novich said. "But generally, you're not going to immediately understand that. It takes a lot of training. In that sense, it's similar to learning a new alphabet, but with a bit more information."

There are approximately 70 million people on the planet who have profound hearing loss, according to the World Federation of the Deaf. At a projected retail cost of less than $1,000, the vest is expected to sell for one fortieth the price of a cochlear implant. For Novich, whose eyes grow wide with excitement at the prospect of augmenting existing senses, the potential applications don't stop there.

"The idea there is that maybe you can start developing these deeper intuitions," Novich said. "Let's say you're an airplane pilot and you have all these sensors attached to a remote vehicle. What if you mapped all this information through the vest to you? The vehicle would become an extension of yourself.

"Personally, I'm really interested in gaining 'supersenses' for senses that we already have," he added. "Imagine if you had the ability to give yourself supersonic or subsonic hearing, to hear like an elephant, or even see outside your normal visual range. Are all of these things possible? I like to think so."

Several rooms over, the boundaries of possibility are being tested in another way. At DNAtrix, a biotechnology company with offices in both Houston and San Diego, the most valuable weapon in their battle against cancer—specifically, a devastating brain tumor known as glioblastoma—is a modified version of a virus that causes all of us to reach for our tissues this time of year: the common cold.

"What we've done is take advantage of the fact that viruses are really good at getting into certain cells and making copies of themselves—that's a natural property," said Frank Tufaro, Ph.D., chief executive officer of DNAtrix. "The drug that we've developed is what's known as an oncolytic virus, which normally causes the common cold, but has been modified so that it's very aggressive and can only infect and kill tumor cells. We inject it into a brain tumor, and once it's there, it starts killing the tumor, cell by cell. It's an amplification of the virus itself."

Known as DNX-2401, the company's flagship product represents the culmination of more than a decade of scientific research. Originally the brainchild of scientists and neuro-oncologists at The University of Texas MD Anderson Cancer Center, Tufaro and his colleagues are confident that DNX-2401 is the most potent and effective oncolytic virus delivered to human brain tumors to date.

"This is the most aggressive virus ever put into the human brain, but we've modified it so that it actually recognizes the tumor cell, specifically, sticks to it, and infects it," Tufaro said. "If you put that together—the ability to replicate, the potency of the virus, and the safety factor of having it only target tumor cells—you can put it into the brain in pretty high doses without worrying.

"We've seen it shown in over 100 patients that DNX-2041 is not only safe, but it has the capacity to eliminate tumors," he added. "Some of our patients have been alive for over four years who have been treated with a single dose of the virus. The next challenge will be to improve upon how many people respond."

While the companies' aspirations are as different as their offerings, collocated office space isn't the only thing bringing them together. They're all driven by that same sense of purpose, passion and possibility.

"It's not going to be just one drug or product that is a cure-all," said Imran Alibhai, Ph.D., managing director for DNAtrix's Houston offices. "There are going to be many that come to market in order to provide fruitful solutions for patients. We feel fortunate to be a part of a collaborative environment bringing these advances forward." ■

> "It's not going to be just one drug or product that is a cure-all. There are going to be many that come to market in order to provide fruitful solutions for patients. We feel fortunate to be a part of a collaborative environment bringing these advances forward."
>
> — IMRAN ALIBHAI, PH.D.
> *Managing Director for DNAtrix*

the **LARGEST** MEDICAL **COMPLEX** in the World

#1 CANCER CENTER IN THE WORLD

LARGEST Children's Hospital in the World

Largest Concentration of **MEDICAL PROFESSIONALS** in the World

Pioneering MEDICAL **DISCOVERIES**

Houston's Texas Medical Center, globally recognized for excellence in adult and pediatric care, should also be known as the destination for hosting medical meetings. Just as the TMC has state-of-the-art medical facilities, our convention campus offers first class meeting facilities. The Greater Houston Convention and Visitors Bureau (GHCVB) has partnered with the Texas Medical Center to provide an unparalleled set of resources to ensure that conventions and special events are a success here in Houston.

How it works: The GHCVB Destination Sales staff will handle all of the logistics and negotiations required for hosting conferences and will work in tandem with the TMC to pair the best professionals for each event.

If you are part of a professional medical association, such as AMA, ADA, AHE or ASCO, our Destination Sales staff encourages you to promote Houston as a future meeting destination and let us do the rest!

We are here to assist you every step of the way.
Please contact our Destination Sales Team at 713-437-5285 to get started.

HOUSTON is...
THE FUTURE OF MEDICINE

Visit**HOUSTON**.com/medical

YEAR IN REVIEW

Robert C. Robbins, M.D.

President and
Chief Executive Officer
Texas Medical Center

It has been such an incredible year here at the Texas Medical Center. Our campus saw significant expansion and growth, new partnerships were formed, and each of our 56 member institutions went above and beyond in contributing to the mission of this medical city. For the past 10 issues of Pulse, you have seen story after story of groundbreaking research, quality education and exceptional patient care, and each of those represents only a fraction of the work being done here on any given day. It is thanks to the passion of this community—nurses, physicians, faculty, students, administrators and leaders—that we have so many accomplishments to be proud of, and so many still to come in 2016.

I would like to begin by noting that our campus mourned the loss of several incredible scientists, physicians and leaders in 2015. One of those leaders was our own chairman of the board, David M. Underwood. He served the Texas Medical Center for the past 23 years, and was passionate about the work being done on our campus every day. We will continue to strive for that vision of the future that Mr. Underwood believed in, under the direction of our newly appointed chairman, Holcombe Crosswell. Mr. Crosswell previously served as our vice chairman of the board and understands well the vision for the Texas Medical Center.

Part of that vision is embodied by the Texas Medical Center Innovation Institute, which has had an exciting inaugural year, graduating the first class of TMCx startup companies on Sept. 10. The 21 companies—made up of consumer-facing enterprises, regulated medical device companies and digital health/enterprise-level software startups—were given access to the wealth of resources available within the medical center. They were mentored by some of the best and brightest that this campus and the greater Houston community have to offer, and were supported with everything from office space to legal advice on their road to establishing their startups in the health care industry.

The selection process is underway for the second class of TMCx, which kicks off Jan. 25. We look forward to welcoming the new class of digital health and health IT entrepreneurs.

The TMC Innovation Institute also launched TMC Biodesign, a one-year fellowship program that brings together individuals from engineering, medicine, business, computer science, design and research to identify areas of need in health care devices and technology. Out of 510 applicants, eight fellows were selected—four in medical devices and four in digital health—to shadow in emergency departments and operating rooms within the medical center in an effort to identify opportunities for new devices or technology that would improve processes and patient care.

We are also pleased to welcome a new face to the Innovation team. Dr. Erik Halvorsen recently joined us as the director of the Innovation Institute. Erik previously served as executive director of the Technology and Innovation Development Office at Boston Children's Hospital. He brings tremendous experience to the Texas Medical Center, and we look forward to the exciting things he will do in the Innovation Institute.

JLABS @TMC is set to open its doors in the Nabisco building of the John P. McGovern campus in 2016, offering an incubator to help further foster innovation here in Houston. Startups will have access to wet lab units and office space, all a stone's throw from the heart of the medical center.

The Texas Medical Center Health Policy Institute has a number of ongoing projects, including TMC O2 (Overweight and Obesity)—a diet and weight management program designed to help improve the health of employees across the TMC campus. That effort has garnered support from all 56 members, and shows great promise to help this community lead by example.

The Health Policy Institute has also seen great success with the Texas Medical Center Consumer Health Report, which polled 1,000 Texans on

> **“We see leaders emerge each day from the halls of our member institutions, and this level of growth shows that there are even bigger things still to come as our campus rises to meet the nation’s health care needs.”**

a range of topics related to health care cost, access, quality and coverage. The report was so successful that the 2016 survey will be expanded to include 5,000 participants in California, New York, Ohio and Florida, as well as Texas. Based on last year’s findings, the 2016 survey will look closely at quality of care, and what consumers see as most (or least) important relevant to health care quality. We look forward to the future of the Health Policy Institute, as it harnesses the collective expertise of this campus’ health policy leaders to improve understanding and access across the country.

We were proud to be a sponsor of the 2015 Medical World Americas Conference and Expo, aimed at bringing together health care leaders and practitioners from around the world for three days of presentations, panels and exhibits. Renowned inventor Dean Kamen has already been selected as the keynote speaker for the 2016 Medical World Americas, which promises to be even more impactful than the previous two.

2015 brought several major events to the TMCx space, including Houston 2035, a look at this city 20 years in the future. We also worked closely with students from the British International School of Houston for a daylong Young Inventors Forum, dedicated to innovation and teamwork. In addition to classroom visits from some of the TMCx mentors, the elementary school students were given the main stage in TMCx to present their inventions—the result of a semester-long focus on product development and pitching—to parents, teachers and visitors.

We believe that Houston can be—and should be—a national leader and host city for medical events and conferences, and we continue to collaborate across institutions to attract quality events. Events on the TMC campus, and in Houston as a whole, bring incredible talent and passion to this city. We are fortunate to experience that every day here in the Texas Medical Center, and even more fortunate to share that passion with visitors from around the world.

Talented new hires are added daily across the medical center—from research and education, to clinical care and executive leadership. With new talent comes new opportunities to further our mission, and serve as a leader in human health. The physical landscape of our campus is also changing. Many major construction projects are underway to help accommodate the tens of thousands of patients, students, staff and visitors who come to the Texas Medical Center each day.

Memorial Hermann kicked off a $650 million renovation and expansion project, which will continue through 2019, adding a patient care tower as well as parking and additional infrastructure to support future growth. Texas Children’s Hospital has moved forward on its $506 million expansion project, which will include a renovation of the Emergency Center, the expansion of diagnostic and therapeutic services, and the addition of 19 floors to an existing building. The new tower will house the Texas Children’s Heart Center, and is scheduled to be completed in 2018.

Houston Methodist Hospital was another of our members to announce significant expansion for the coming years with a $540 million project scheduled to continue through 2017. The expansion will include a new patient tower that will house over 390 patient beds and a dedicated cardiology floor.

Beyond the Texas Medical Center’s Houston campus, the new Jennie Sealy Hospital at UTMB in Galveston will be operational in 2016, providing access to quality health care in our surrounding areas.

On the academic side, Houston Community College made a big announcement about their plans for expansion. They are scheduled to complete the 248,000-square-foot Coleman Healthcare Educational Facility in 2017. We are also anticipating the completion of the new Michael E. DeBakey High School for Health Professions campus in the fall of 2016. Education is central to the work being done within the medical center, as the students here represent the next generation of physicians, researchers and leaders for the Texas Medical Center.

Plans are also moving forward for the TMC3 campus, as we continue to develop and foster relationships that will serve as the foundation for the success of that campus expansion. Collaboration is always a core value of the Texas Medical Center, and we see that ringing true as we continue to expand and develop plans to further the reach of this campus on a national scale.

All of these projects and events demonstrate our commitment, as well as the commitment of our members, to making the Texas Medical Center a global destination for research, education and patient care. We see leaders emerge each day from the halls of our member institutions, and this level of growth shows that there are even bigger things still to come as our campus rises to meet the nation’s health care needs.

In the pages that follow, you will hear from some of the leaders within the Texas Medical Center. Their institutions have reached incredible milestones and paved promising roads for 2016. We look forward to the continued opportunities for growth and collaboration, as we work together to improve human health, not only here in Texas, but around the world.

State of the Institution

2015 was a year of collaboration and growth for the Texas Medical Center. Campus leaders reflect on some of the highlights, and what is ahead for 2016.

Marc L. Boom, M.D.

President and
Chief Executive Officer
Houston Methodist

Houston Methodist has an incredible team of employees, physicians and scientists who made 2015 exceptional. U.S. News & World Report again recognized Houston Methodist Hospital as the No. 1 hospital in Texas, and UHC gave the hospital its second consecutive leadership award for high performance in quality and safety. Houston Methodist also made FORTUNE's "100 Best Companies to Work For" list for the 10th year. Our system is growing to meet our community's needs with a hospital and medical office building under construction in The Woodlands and a new patient tower in the TMC. As we expand, we continue to work hard to provide our patients unparalleled safety, quality, service and innovation.

With our primary academic partner, Weill Cornell Medicine, Houston Methodist continued educating young physicians as we graduated our 10th class of medical residents, and began a new partnership with Texas A&M Health Science Center to train medical students.

David L. Callender, M.D.

President
The University of Texas Medical Branch at Galveston

Improving health, improving lives. Throughout the coming year, the University of Texas Medical Branch at Galveston (UTMB Health) is celebrating 125 years of advancing that mission for people in the Houston/Galveston region, across Texas and beyond.

Today, UTMB continues to work to create a bright future for health care by growing our student enrollment to educate the health care workforce of tomorrow, advancing lifesaving research that translates into timely treatments and cures, and expanding patient care access to meet the needs of a rapidly growing population.

UTMB is honored to be a part of the Texas Medical Center. We applaud the great work of our TMC peers and congratulate all for their progress in service to others.

We look forward to collaborating with our TMC colleagues in the years ahead as we all work together to ensure a healthier future for Texas, the nation and the world.

Giuseppe N. Colasurdo, M.D.

President and Alkek-Williams
Distinguished Chair
The University of Texas Health Science Center at Houston (UTHealth)

With six schools in Houston, regional campuses across Texas, a statewide biomedical informatics network, clinics throughout the region and partnerships with Memorial Hermann and Harris Health, the "many faces of UTHealth" are committed to serving our communities.

We are the most comprehensive academic health center in the region and have graduated 40,000 alumni to date. Our research programs are thriving, with more than $210 million in new contracts and grants this year. We are home to one of the fastest growing academic group practices in the country, UT Physicians, and one of our primary teaching hospitals, Memorial Hermann-Texas Medical Center, just received the prestigious UHC Quality Leadership Award for the second consecutive year. We also play a key role in Houston's health care safety net, staffing LBJ Hospital and community clinics throughout the city.

We are truly a community of experts, working together to solve the greatest health care challenges of our time.

STATE OF THE INSTITUTION

Michael H. Covert

CHIEF EXECUTIVE OFFICER
CHI St. Luke's Health

I LOOK back at my first year with CHI St. Luke's Health with pride and excitement about our future. We have undergone significant changes as we continue the rewarding process of integrating our 60-year legacy with Catholic Health Initiatives (CHI) as we grow the CHI Texas Division. It's a testament to our passion for making health care affordable and accessible to the communities we serve, while remaining at the forefront of medicine through extraordinary collaborations with Baylor College of Medicine, Texas Heart Institute and Texas Children's Hospital. We are a part of a bold new alliance that has the opportunity to transform health care delivery in Texas and the United States in meaningful and dramatic ways. Through the momentum we are creating together, you will see many advantages as a result of these partnerships, which will uniquely serve our citizens in the years to come.

Brian Dean

SENIOR VICE PRESIDENT AND CHIEF EXECUTIVE OFFICER
Memorial Hermann-Texas Medical Center

2015 HAS been a year of growth for Memorial Hermann-Texas Medical Center, both literally and programmatically. We are delivering effective, safe, high-quality care to more patients than ever before—from all over Southeast Texas—and being nationally recognized for our efforts, as illustrated by being a recipient for the second consecutive year of UHC's prestigious Bernard A. Birnbaum, M.D., Quality Leadership Award.

In March, our show Life Flight: Trauma Center Houston debuted on Lifetime TV, showcasing the tremendous dedication of our staff and affiliated UTHealth physicians to a national television audience. In April, we welcomed approximately 280 employees and affiliated physicians to our campus with the acquisition of Memorial Hermann Orthopedic & Spine Hospital. Also this year, we broke ground on our $650 million Breaking New Ground renovation and expansion project, ensuring our ability to meet the future health needs of the growing patient population we are committed to serve.

Ronald A. DePinho, M.D.

PRESIDENT
The University of Texas MD Anderson Cancer Center

ANOTHER YEAR of dedicated work to end cancer has further enabled MD Anderson to be the most impactful cancer center in its history and a world leader in the field. All 21,000 of our cancer fighters are focused on making a difference one patient at a time—and for countless patients, for all time.

In 2015, MD Anderson once again ranked as the nation's No. 1 hospital for cancer care and our 3,700 nurses were lauded for their excellence by again receiving Magnet Status, by a unanimous vote. Our research engine also continues to shine with Jim Allison, Ph.D., winning the Lasker Award, the nation's highest honor for clinical medical research.

Our commitment to sharing our knowledge with the world has fostered a global network of 32 sister institutions in 23 countries. Here at home, MD Anderson's reach has expanded through our Houston-area clinics, local partnerships and our national Cancer Network.

As we look ahead, we remain focused on driving life-saving progress within our Moon Shots Program, which has broadened to include six additional cancers in 2015. This expansion further demonstrates that our commitment to Making Cancer History has never been stronger.

Robert Ivany, Ph.D.

President
University of St. Thomas

The University of St. Thomas had a milestone year with the addition of signature graduate and undergraduate degree programs to expand opportunities for Houston's workforce. A new master's degree in clinical translation management began in January through a partnership with the Houston Methodist Research Institute. Additionally, St. Thomas joined the Texas Medical Center as a member and is focusing on expanded health care degrees and joint degrees to educate future leaders of faith and character.

In the summer, the university signed an agreement with The Robert and Janice McNair Foundation to establish The McNair Center for Free Enterprise and Entrepreneurship. This center will promote the study of private enterprise to foster economic growth and show the benefits to our society from generations of entrepreneurs.

The School of Education has expanded its scope to become The School of Education and Human Services by adding an undergraduate degree in criminology, law and society as well as an M.S. in clinical mental health counseling. The University now offers 36 undergraduate majors and 18 graduate degrees in areas of business, health care, education, liberal arts and public policy.

Renu Khator

President
University of Houston
Chancellor
UH System

During 2015, the University of Houston continued to meet its ambitious responsibilities as the city's Tier One public research university, with record enrollment, unparalleled public and private financial support and new levels of research awards. A beneficial Texas legislative session approved $362 million for seven requested projects for the UH System, including our Health and Biomedical Sciences Center 2 facility, while a planning dean was appointed to explore establishing a community-based UH Medical School. We were also selected for three new National Research Centers—in subsea systems, superconductors and border issues—bringing our total to five. Thanks in large part to the UHin4 program with fixed tuition and enhanced academic advising, graduation rates have improved 10 points in six years and we're projecting another 10-point rise within the next five. Capping our achievements, the football team is once again nationally ranked—Go, Coogs!—and UH has been awarded a Phi Beta Kappa chapter.

Paul Klotman, M.D.

President, Chief Executive Officer and Executive Dean
Baylor College of Medicine

In September, I celebrated five years at Baylor College of Medicine. During that time, I have witnessed a transformed institution. We have gone from strong, solid programs to bold new initiatives. Once again, we lead the nation in NIH-sponsored genetics research. Our new joint venture, the Baylor Miraca Genetics Lab, is delivering on the promise of personalized medicine and to a much broader national and international patient base. Our programs in the Microbiome, Metabolomics, and Proteomics are without peer. Our Dan L. Duncan Cancer Center received Comprehensive designation from the NCI, only the second one in Houston. Our joint venture with CHI at Baylor St. Luke's Medical Center is making major strides, and our partnerships with our affiliated hospitals, Texas Children's, the DeBakey VA, Ben Taub, Children's Hospital of San Antonio, the Menninger Clinic and TIRR have never been better. Baylor is in great shape for the future!

STATE OF THE INSTITUTION

David W. Leebron

PRESIDENT
Rice University

A KEY advantage of Rice is the location of its beautiful campus across the street from the renowned Texas Medical Center. Our collaborations with the TMC and its member institutions have intensified in recent years. This year those collaborations have revealed genetic clues that could help combat antibiotic resistance, shown how genes are turned on and off in human chromosomes, applied the latest techniques from bioengineering to design new bioreactors for the study of acute gastroenteritis and discovered how some leukemia cells brush off chemotherapy drugs. Through the Rice Entrepreneurship Initiative, our students competed in a startup event at TMCx, and we celebrated the 25th anniversary of the Gulf Coast Consortia. The BioScience Research Collaborative sits literally at the intersection of Rice-TMC collaborations. Visit our campus to enjoy works of art, watch the Owls compete, take in a stimulating public lecture or enjoy coffee with a collaborator at the Brochstein Pavilion.

George V. Masi

PRESIDENT AND
CHIEF EXECUTIVE OFFICER
Harris Health System

IN 2015, Harris Health System reached new milestones in our journey of transformation. In the last few years, Harris Health has seen dramatic changes—spurred on by the 1115 Medicaid Waiver and the Affordable Care Act.

We continue our focus of providing world-class clinical excellence as well as platforms for teaching and research as southeast Texas' leading safety-net provider. Process improvements have driven greater efficiency and access to clinical services for our patients, and we now serve more patients than ever before.

We are focused on meeting the community's need for trauma care, and have begun work to add surgical capacity at Harris Health's Ben Taub Hospital. In approximately 24 months, we will have added seven state-of-the-art surgical suites to accommodate more Level 1 trauma volume.

As the Affordable Care Act continues to transform the health care industry nationwide, Harris Health is using the opportunity to innovate and design a value-based health care delivery system to better serve all Harris County residents.

Paul Ogden, M.D.

INTERIM SENIOR VICE PRESIDENT
Texas A&M Health Science Center
DEAN
Texas A&M College of Medicine

2015 MARKED a time of significant growth in Texas A&M Health Science Center's (TAMHSC) educational and research affiliations throughout the state, and more specifically, the Texas Medical Center; partnerships that, in turn, allow us—together—to transform health.

Earlier this year, we launched a partnership with Houston Methodist Hospital, affording medical students the opportunity for clinical training alongside world-class doctors and scientists in the Texas Medical Center.

Working hand-in-hand with colleagues across Houston, our researchers are also pushing the frontiers in biomedical research—from discovering new drugs to boost the body's natural immune system, to leveraging a $6 million CPRIT grant to repurpose current drugs into new therapies in the fight against cancer.

Looking ahead, 2016 promises exciting endeavors for TAMHSC, including the proposed TMC3 campus. We greatly value our partnerships among collaborating institutions within the Texas Medical Center and look forward to further expanding the Aggie presence in Houston over the next year. The best is yet to come.

Mark A. Wallace

President and
Chief Executive Officer
Texas Children's Hospital

Texas Children's Hospital celebrated many milestones in 2015. Once again, we ranked fourth among all pediatric hospitals in the nation by U.S. News & World Report. We launched our $475 million Promise campaign, which includes our second community hospital—Texas Children's Hospital The Woodlands—slated to open in 2017 and a new pediatric surgical and critical care tower in the medical center. We also constructed a new Special Isolation Unit, the only one of its kind in the Southwest, designed to care for children with highly contagious infectious diseases.

Texas Children's Pediatrics celebrated its 51st location and 20 years of service to the Houston community, and we added a third Texas Children's Urgent Care location in The Woodlands. Additionally, Texas Children's Health Plan was selected by the Texas Health and Human Services Commission as a health plan in the STAR Kids Program, a managed care program providing health coverage to youth and children with special health care needs.

James T. Willerson, M.D.

President
Texas Heart Institute

The researchers, doctors and staff that dedicate each and every day to progressing the Texas Heart Institute's (THI) mission to reduce the devastating toll of cardiovascular disease are inspiring, and the milestones we've reached in 2015 have been numerous. Progress and leadership in adult human stem cell therapies to treat patients with extensive coronary heart disease and heart failure continued; new genetic insights were unveiled; the vascular receptor for inflammation was identified; and improvements using catheters to treat valvular heart disease have been ongoing. THI continues to develop smaller and more effective continuous flow left ventricular assist devices, including one that may be used in children and very small adults, and work to evaluate new and improved methods for prevention and treatment of heart and vascular disease in women progressed. While this is only a small selection of 2015 accomplishments, I am proud of our successes and eager for the year ahead.

Taking Medicine to the Streets

AT THE HOMES CLINIC, MEDICAL STUDENTS, ATTENDINGS AND VOLUNTEERS PROVIDE QUALITY HEALTH CARE TO THE CITY'S UNDERSERVED.

By Alex Orlando

Set against the monolithic backdrop of downtown Houston, on a Thursday afternoon, Tranquility Park hums with activity. Congregating around park benches, groups of people chat animatedly while others doze on the grass or wedged against the park's concrete walls. Kneeling down in front of one young woman, Arina Chesnokova, a medical student at Baylor College of Medicine, gently reaches out and puts a hand on her shoulder. "How long have you been on the streets?"

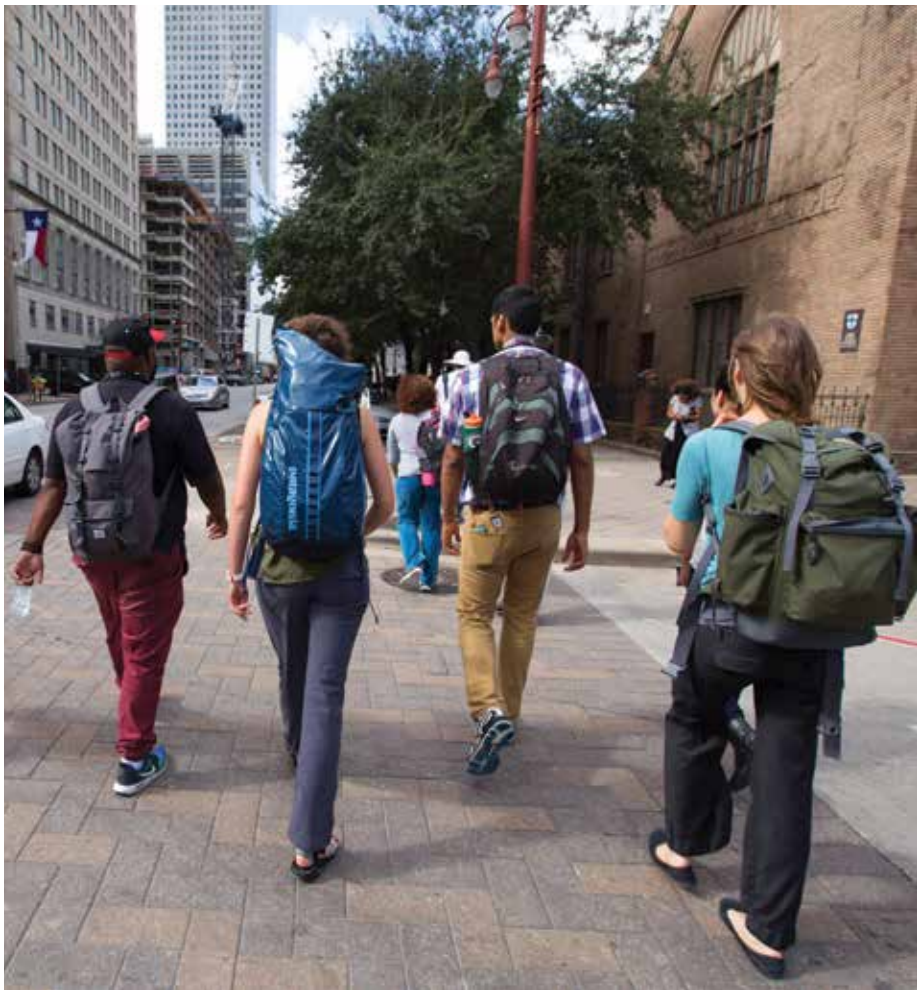
If the statistics are any indication, the old adage, "It could happen to any of us," certainly rings true. According to the most recent report from the U.S. Department of Housing and Urban Development, more than 6,300 people in Houston are without a home on any given night. Compounding the issue, it's estimated that more than a quarter to a third of the adult homeless population suffers from severe and persistent mental illness, preventing them from carrying out essential daily activities—even when it comes to addressing their own medical needs.

"Homelessness is a complex problem," said David S. Buck, M.D., professor in the department of family and community medicine at Baylor College of Medicine, as well as president and founder of Healthcare for the Homeless-Houston (HHH). "It's not strictly a medical problem, and stems from a combination of biological and psycho-social factors, but it can have real medical repercussions. Because of the challenges that those individuals face, we've learned that many of them are still being excluded from the health care system."

In 1999, when Buck met with a group of medical students from Baylor College of Medicine and The University of Texas Health Science Center at Houston (UTHealth), along with social worker student George Bement from UH Graduate College of Social Work, they recognized the urgent need to provide services that benefited the city's homeless population. Responding swiftly, the group established the HOMES (Houston Outreach Medicine, Education and Social Services) Clinic, the only student-managed medical clinic in Houston that seeks to provide both quality health care for patients and a meaningful educational opportunity for students.

"The students wanted a place where they could, first and foremost, provide services that were needed to homeless people," Buck said. "My interest in this was really to build a cohort of leaders in underserved health care and expose them to some of the challenges while providing a nurturing environment early in their training."

A joint collaboration between Baylor, UTHealth and the University of Houston College of Pharmacy, the HOMES Clinic is entirely student-managed, with oversight courtesy of both attending physicians and HHH, which continues to provide administrative and logistical support. Since its inception, the HOMES Clinic has engaged



hundreds of student volunteers and served over 4,000 patients.

"A lot of students really love the fact that they're getting early exposure to real patients," said Camille Keenan, an M.D./MPH candidate at UTHealth Medical School and executive director of the HOMES Clinic. "You're getting to use what you're learning in a classroom in a real situation that is low stress and low pressure, so it really gives you an opportunity to grow and use your new clinical skills in a setting that actually matters.

"At the same time, once they volunteer at the clinic, they also take away a better understanding of these people's situations," she added. "They're able to understand more where homeless individuals are coming from, and cultivate an additional level of respect for those who work in the field of mental health, because that addresses a huge portion of the population."

THE STREET OUTREACH TEAM AIMS TO ENGAGE HOMELESS INDIVIDUALS *AND PROVIDE MEDICAL ADVICE, AS WELL AS SUGGESTIONS FOR OBTAINING THE BEST, MOST PERSONALIZED CARE POSSIBLE.*

Maintaining clinic hours every Sunday—studies have shown that medical care is nonexistent for the homeless on that day, with the exception of local emergency rooms—the students arrive promptly at 9 a.m. Shedding their white coats and badges, they spend the first hour of the day meeting patients—simply sitting down and striking up a conversation to gain some insight into the lives of the people they'll serve. Afterwards, interdisciplinary teams of three, which include a clinical student, a basic science student, and a pharmacist-in-training, will see their first patient. Following a comprehensive, 45-minute evaluation, the teams present the patient to the attending physician to formulate and review a plan of care. Finally, after each team has seen two patients, a group reflection session enables them to decompress and process their experiences.

"The biggest thing, for us, is not only treating patients then and there, but also trying to let them know about the resources that are available now that they've seen us," said John T. Sigalos, a medical student at Baylor and one of the managers at the HOMES Clinic. "Maybe now they can get help on social welfare issues or come back to the clinic during regular hours to continue their treatment. Most of the stuff that we do is fairly chronic, and we want our patients to get into the system so that they can receive continuous treatment."

THE HOMES (HOUSTON OUTREACH MEDICINE, EDUCATION AND SOCIAL SERVICES) CLINIC *IS A MULTI-INSTITUTIONAL, MULTI-DISCIPLINARY, STUDENT-RUN, FREE CLINIC FOR THE HOMELESS PEOPLE OF HOUSTON.*

Even in the wake of concerted efforts throughout the city to house its residents—the number of homeless people residing in shelters or in public spaces in the Houston area has reportedly dropped 46 percent in the past four years—there are still significant strides to be made. According to Buck, emerging barriers to homeless care, such as day shelter services provided only for individuals who are defined as "chronically" homeless, pose the potential to exclude large swaths of the population.

"My worry is that the people who are most at risk, those that are seriously mentally ill, are the ones that we're not reaching because they're unable to make it to our clinics," he said. "In medicine, we're taught that you 'build a clinic and they will come,' but it's the people that aren't coming to our clinics that we need to target. We need to make them more accessible to us, and vice versa."

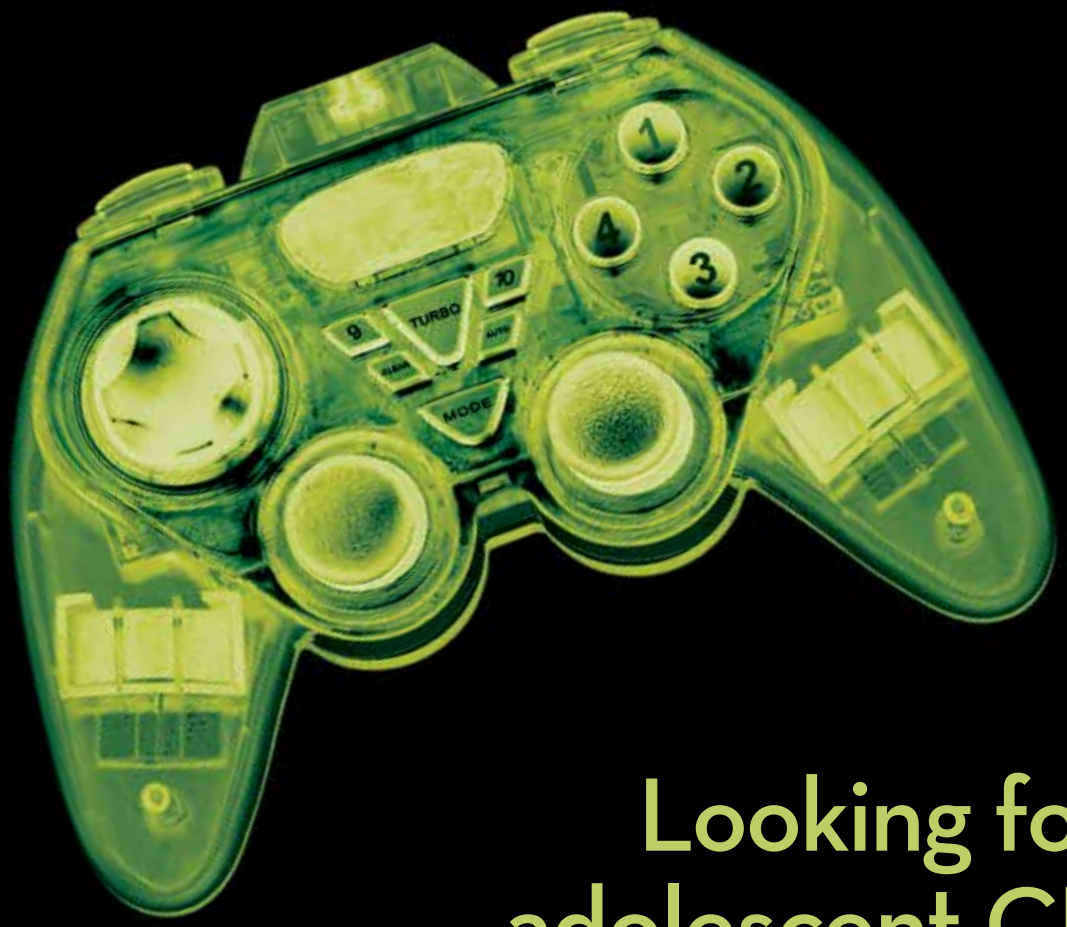
Seeking to engage individuals who might otherwise slip through the cracks, that concern spurred Buck and his colleagues to action. In conjunction with several of the HOMES Clinic's medical students, HHH and Star of Hope Mission, and leveraging advice from the Michael E. DeBakey VA Medical Center, they've worked to develop a local street outreach team. With stethoscopes dangling from their necks and armed with hygiene kits containing toothbrushes, shaving cream, soap, socks and other essentials, the students have already walked the streets of downtown Houston on several occasions.

"We wanted to develop a program here where the students could meet people, on the street, on a Thursday afternoon, and follow up with them and develop continuity of care for the Sunday clinic," said Buck. "I think the heart of true health care is engaging people in a care plan of their own device, that reflects their own goals—not ours—to help them reach their potential. We don't provide medicine on the street because our goal is to engage people in care and to get them to the activation point where they're willing to fulfill their own health care needs."

Tapping into a broader cultural conversation, seven students from UTHealth and Baylor recently returned from a trip to this year's annual International Street Medicine Symposium (ISMS) in San Jose, California. An educational event dedicated to the health care of unsheltered homeless populations—known as "rough sleepers" throughout the community—the ISMS offered a slate for homeless health care experts from around the globe to present clinical topics, research outcomes, and best practices related to street medicine.

"The street outreach team is really changing our paradigm," said Kenneth D. Eakins, outreach case manager for Star of Hope Mission. "It's allowing us to see the need that's around us, and how we're able to partner and participate together as a team with a common purpose. Together, we can truly make an impact and begin to transform lives and gather greater resources for our clients."

For students like Chesnokova, conveying medical expertise, empathy and conviction in her mission, her last question to her patient unfurls a blank page of possibility and progress. "We're going to make you an appointment for this Sunday—do you think you'll be able to make it?"



Looking for adolescent CME?

Game on.

Now you can choose the time and place to take the CME courses you need and want.

- Available and FREE to any physician
- Online, 24/7 access
- Short, time-saving tutorials
- Developed by the Texas Department of State Health Services and the Texas Health and Human Services Commission

More than 50 CME courses approved by 10+ accrediting bodies include:

- Adolescent Health Screening
- Adolescent Substance Use
- Management of Overweight and Obesity in Children and Adolescents
- Identifying and Treating Young People with High-Risk Behaviors
- Pediatric Head Injury: Concussion
- Interpersonal Youth Violence
- Preventing Unintentional Injury: 13 to 18 Years

Ethics CME available for these courses:

- Teen Consent and Confidentiality
- Culturally Effective Health Care
- Recognizing, Reporting, and Preventing Child Abuse
- Motivational Interviewing
- Transition Services for Children and Youth with Special Health-Care Needs
- Introduction to Screening, Brief Intervention, and Referral to Treatment (SBIRT): Tutorial

txhealthsteps.com

Accredited by the Texas Medical Association, American Nurses Credentialing Center, National Commission for Health Education Credentialing, Texas State Board of Social Worker Examiners, Accreditation Council of Pharmacy Education, UTHSCSA Dental School Office of Continuing Dental Education, Texas Academy of Nutrition and Dietetics, Texas Academy of Audiology, and International Board of Lactation Consultant Examiners. Continuing Education for multiple disciplines will be provided for these events.

TEXAS Health and Human Services System

Texas Health Steps™

SALLIE SARGENT, *PRESIDENT AND CHIEF EXECUTIVE OFFICER OF THE HOUSTON SUPER BOWL HOST COMMITTEE, SAT DOWN WITH TEXAS MEDICAL CENTER EXECUTIVE VICE PRESIDENT AND CHIEF STRATEGY AND OPERATING OFFICER WILLIAM F. McKEON TO REFLECT ON WHAT SHE HAS ACCOMPLISHED IN HER SHORT TIME HERE, AND WHAT IS STILL TO COME AS HER TEAM PREPARES FOR THE SINGLE DAY WHEN MILLIONS OF SPORTS FANS AROUND THE COUNTRY WILL BE LOOKING AT HOUSTON.*

Q | *Tell us about the early days—where you were raised, what your parents did and a little bit about your family.*

A | I was born in Sacramento, California, but it was just a stop along the way. My father was in mining equipment sales. My parents are both natives of Tucson, Arizona, and they are now in Scottsdale. My dad was in the mines in Ray, Arizona, and he realized that he didn't want to be underground, so he figured out how to get on the right side of the mine. So mining equipment sales. We traveled around quite a bit when I was young, but we settled in Scottsdale and I grew up in Scottsdale, Arizona. We went from California to Chicago to Florida and then back to Arizona, and then dad started traveling internationally from that point in time. I am one of six children, number four—five girls and one boy. I grew up there and went on to University of Arizona and then got my start in all of this crazy sports stuff with the Fiesta Bowl, so college football, and that was a fluke of a connection. There was a gentleman who was a high school friend of ours, and he was the number two guy, he had been the SID (sports information director) at Arizona State University and he was at the Fiesta Bowl. They had this crazy idea of having a corporate sponsor for a bowl game, so they needed someone to act as a host or an interface liaison. It was just a very short-term job. Fiesta Bowl used to have theirs on Christmas Day. But then I stayed on at Fiesta Bowl. Everyone thought we had ruined college sports forever. It was the Sunkist Fiesta Bowl and from there I went on to do 14 Fiesta Bowls. It just grew and developed.

Q | *Do cities consider you a 'hired gun' when they are awarded a major event like the Super Bowl?*

A | A hired gun, absolutely, that's how I term myself. I am a hired gun. I am also a gypsy because I have moved around a lot. However, my move to Houston was a unique one, as I have never started from the bid process and then carried it all the way through. In my mind, when I came to Houston, I was here for six months to do the bid, win the award and then I am on to the next thing.

Q | ***You moved from the Fiesta Bowl to the Super Bowl. When did the transition happen? Do you focus solely on the Super Bowl or do you still handle other major events?***

A | What's interesting is that I did my Fiesta Bowl, and then in 1990, I started my own business called Spectacular Productions. My business partner was substantially older than I was and had a lot of experience in large-scale events. My first Super Bowl experience was 1991, when we worked on the pre-game show, and that was the famous Whitney Houston National Anthem. I can remember doing rehearsal with her in her white track suit and I was really exposed to this piece of the Super Bowl back then. Arizona was awarded the game for Super Bowl XXX and of course, because the Fiesta Bowl was and still is a very large presence in the Phoenix community—huge band of volunteers, very well organized sports, all of that—there was a lot of interest in taking some of the folks from the Fiesta Bowl and then moving them to the Super Bowl. My first true post-committee experience was 1996, Super Bowl XXX, but we played the game at Arizona State University, so the Cardinal stadium hadn't even been built yet. It was a very unique kind of experience for me, but what is fascinating is some of the people that worked for the NFL then in 1996, I am still working with today. Because of my business, I was doing a lot of other things, worked on other large-scale events that were not necessarily sporting events. Really getting a knowledge and understanding of the technical side of the equation, the operation side of the equation. I can remember shot sheeting back in the day when you used to have to go through film to put video together and all of that. Great, great, great opportunities for me to kind of learn the big picture.

Q | ***Most people think of the Super Bowl as a global event that happens on a Sunday. Help us understand what is involved in staging a Super Bowl and the impact it will have on our city.***

A | The first thing is, the bid process is a very unique process. I have worked on four bids now for the Super Bowl and I liken it to the worst school project you would ever want to do in your life. I say that because you are chasing things, because you can't even be considered as a host city until you have fulfilled all of the requirements of a 153-page document that includes hotel contracts for over 19,000 hotel rooms, all of the venues that seat at least 1,000 people. It is so voluminous, but you have to have all of that stuff in place, because once you are awarded the game, you lose leverage. You have to have those things in place first.

Q | ***Who decides to initiate a bid on a Super Bowl?***

A | First and foremost, it is the NFL owners, so for Houston it was Mr. McNair and the Texans. The owners are the ones who vote and determine where the Super Bowl is held. You certainly have to have the support and the desire from the owner in the city. From there, the actual RFP landed on Greg Ortel's desk who, at the time, was the president of the convention and visitors bureau. Now the relationship between them and Houston has kind of morphed together. Because it is like booking the biggest convention you can in your city, that is where it typically lands, at the convention and visitors bureau, but then you need the support of the city, county and other municipalities that have to come together and work together. There are lots of components to getting everyone together in short order to deliver.

> "As it pertains to the charitable giving, what makes up the future of Houston? We believe it is education, youth, health and wellness, and beautification or enhancement of our city. Those are the pillars of our charitable giving."

Q | ***Cities that host the Olympics are often challenged on the return on investment for hosting an Olympics. The Super Bowl, however, has the reputation of making positive contributions. How are they different?***

A | The main difference between the Olympics and the Super Bowl is there is no requirement by the NFL to build venues. The reason they come to a market like Houston is because we have a fabulous stadium, and the complex at NRG park, a very robust convention center and the hotels that associate with it. They start with that so there is no requirement for building infrastructure. I also think that the NFL has a very strong position on this legacy. One of the requirements of the bid is that we, as a committee, raise $1 million to go back into the community that the NFL Foundation matches. In our case, Ric Campo and I agreed that $2 million for a city this size just wasn't enough, so we committed to double that number and give $4 million back to the community through grants and charitable giving.

Q | ***Is it too early to determine some of those projects that will contribute to the Houston community?***

A | What we have now is the umbrella concept of what we are doing. Super Bowl 50 will be played in San Francisco, actually Santa Clara, and this whole season is kind of a retrospective. The last 50 years of Super Bowl, the golden anniversary. So for us, Super Bowl LI is the launch of the next 50 years of Super Bowl, the future of Super Bowl. We certainly know in our community, but want the rest of the world to understand, that Houston is the city of the future. We look like today what the rest of the United States is going to look like over the next couple of decades. We are really using that theme of future for everything that we do. As it pertains to the charitable giving, what makes up the future of Houston? We believe it is education, youth, health and wellness, and beautification or enhancement of our city. Those are the pillars of our charitable giving.

Q | ***What are some of the key events that we can look forward to for Super Bowl LI in Houston?***

A | The day after Super Bowl 50, we are on the clock. We have some pretty exciting things so that certainly the Houston community, but hopefully the surrounding nation as well, will be able to recognize us as the host. Kind of getting that momentum going right then. We will launch a lot of our community projects right then, with the launch of Super Bowl LI. Then with the Final Four, the NCAA and NFL are very mindful and respectful of each other's large-scale events and we will take our show on the road and let Final Four have their day in the sun. But we really feel strongly about communicating what we are doing to Austin, San Antonio, Beaumont and North Texas, reminding everyone that the Super Bowl is coming. So we will do a road show out in those communities and then really come back in the fall when football season kicks off and start doing some of these in our community. We are such a big geographical region—Katy, Sugar Land, Pearland—all of those folks need to first understand what we are doing as part of Super Bowl, but also ask, 'How do I get involved?' We need 10,000-plus volunteers to manage all of this, so we want to be able to draw from all of our communities to be able to participate and shrink down, down, down to a calendar of events. The host committee will sponsor and host a lot of civic events during that time and then our big crescendo is the 10 days prior to Super Bowl and then Super Bowl Central and the fan festival. In my mind there are two ways to produce a Super Bowl in a big city. You can keep your head down and just make sure you get the requirements done that the NFL needs and the community is kind of oblivious to what is going on. To your point, they think, 'Oh I don't have a ticket so there is nothing really in it for me.' A lot of times, it can leave a bad impression or a bad taste in a community's mouth, because I have extra traffic to deal with or road closures or whatever it is, so what is the benefit to me? We believe that you go about it another way and that is to embrace and really get the community involved and behind it and then offer some of these exciting ways to feel like you have been part of the Super Bowl, even if you are not inside the stadium. So the NFL Experience, which happens inside the George R. Brown, the NFL has created a very robust, interactive trade show, if you will, that has fun stuff for the kids and autographs from players and press conferences and all of that. Our idea of Super Bowl Central is to extend that out in the Downtown area as a free event for our community to then experience a lot of the Super Bowl experience, fun concerts in the evening, food and beverage, really just to get the Super Bowl experience. ■

For the full interview, visit *TMCNews.org*

Top Guns

For a family in need of trauma care, there's nowhere better than Memorial Hermann-Texas Medical Center and Children's Memorial Hermann Hospital

By Alexandra Becker

From left to right, Gary, Linda and Jonathon Flynt at Baytown Airport before a Saturday morning flight.

Gary and Linda Flynt still don't know exactly what happened. That information will come with the official report from the National Transportation Safety Board, likely citing mechanical failure of some kind after an extensive investigation over the recovered Cessna 172 parts is complete. Until then, all they have is the string of facts they pieced together while recovering as a family at Memorial Hermann-Texas Medical Center (TMC).

It was July 7, 2014, and Gary, a NASA engineer and experienced flight instructor, had taken his wife and their youngest son, Jonathon, on an evening ride in their private plane. After 30 minutes in the air and a brief landing, the aircraft reached its final ascent at 300 feet when the engine inexplicably quit. Quickly calculating his options at that altitude, Gary searched for a safe place to land. To their left, stadium lights from a little league practice illuminated an open park next to a pair of baseball fields—it was perfect. Steadily guiding the plane in that direction, Gary prepared his family for landing when the plane's right wing clipped a power line, abruptly twisting the aircraft and flipping it upside down. Just moments later, they made impact with the ground.

The family's memories from the rest of the evening are vague and chaotic. A man with a baseball glove yelled into the cockpit to tell them EMS was on their way. Gary remembers calling out repeatedly to Linda and Jonathon, trying to confirm that both were OK. Within minutes, all three were taken by Memorial Hermann Life Flight helicopters to Memorial Hermann Texas Trauma Institute, where adult and pediatric trauma teams were waiting to evaluate their injuries.

"I barely remember anything from that night after the crash," Linda recalled. "I know I was taken in for surgery pretty much immediately, and I remember feeling relieved knowing that Gary and Jon were together in the ER."

Linda had suffered a neck fracture and a crushed carotid artery, as well as facial lacerations, a dislocated right elbow and multiple internal injuries including severe intestinal damage. Gary was being treated for a dislocated elbow, broken nose, lacerations to his face and difficulty breathing, while Jonathon had deep cuts in both knees as well as extensive fractures in his jaw.

"Jonathon was in the emergency bay next to me before he was taken into surgery, which was invaluable for my peace of mind," Gary said. "Once I figured out that everybody had survived the accident and was conscious, I didn't have a real concern because I felt like we were being taken care of, that we were in the best place for our injuries and that there wasn't anything to worry about at that point. We were together."

Alfred Mansour, M.D., UTHealth pediatric orthopedic surgeon at Children's Memorial Hermann Hospital, which shares a campus with Memorial Hermann-TMC, was on call the night of the accident.

"After our trauma teams stabilized Jonathon, they brought him to the ICU, which is where I first saw him," Mansour said. "The open cuts in his knees were very deep and a cause for

concern, especially when you're talking infection risk, which can cause permanent damage in children. He had also torn cartilage and his quadriceps muscle in one of his knees which, without surgery, would hinder his ability to walk. Once we determined how severe his wounds were and what kind of surgery would be required, I actually went down to the emergency room and found his dad. I explained the procedures and the details involved and told him I'd come back to give him updates. I didn't want him just sitting there in the emergency room wondering how his son was doing and feeling helpless."

Mansour noted that in a different hospital, one without expert pediatric and adult trauma care under the same roof, this kind of communication and continuity would not have been possible.

"There's no better place to take a family for an injury than a hospital that can take care of the kids and take care of the adults at the same time," he said. "The last thing you want as a parent, if you're injured and your child is injured, is to be separated. You already feel so helpless, and I think it's a unique setting to be able to give updates to a family member directly at their hospital bed, or to bring a parent to his or her child's room. It gives hope that can't be replicated when you're offsite."

"That interconnectedness was priceless," Linda said. "I needed to see my family during that time."

Together, the road to recovery was made easier for each of them, despite the serious extent of their injuries. Jonathon's jaw was wired shut for six weeks and he was unable to walk until his knees healed from surgery. He is now back to being "100 percent" according to both his physicians and his parents. Gary, who still deals with lingering joint and back pain, required help with daily activities until his arms and elbow healed. Linda, whose internal injuries mandated further hospitalization and an additional surgery a few months later, is almost fully back to her previous level of activity.

"I won't say it hasn't been tough, but we have the best family in the world and we were able to be together," said Linda. "Memorial Hermann gave us that, on top of providing the best care we could imagine. I really cannot say enough about how incredible they are. From our Life Flight team to all of our doctors and nurses, they were all such blessings. They were genuinely concerned for us, and we never once felt like we were just patients with any of them. They treated us like family."

Indeed, after saving a father's life, or caring for a mother during the hardest periods of recovery, or performing skillfully executed surgery to ensure a little boy can challenge his older brother to races again, it seems clinicians and their patients are often forever connected. It's a bond marked by overwhelming gratitude and a shared story that, for some, changes the course of their lives.

Today, the Flynt family is back to flying. They often run into members of the Life Flight crew at Baytown Airport, home to one of the fleet's helicopter bases as well as the hangar in which the Flynts keep their new plane. Jonathon and his older brother Charles, who was away at scout camp the night of the crash, are both enamored of the shiny red aircrafts, the cutting-edge trauma equipment inside, and the crew's pilots and paramedics. Recently, Jonathon has even expressed interest in learning how to fly. And who knows? He may just end up piloting one of those red helicopters himself someday. ■

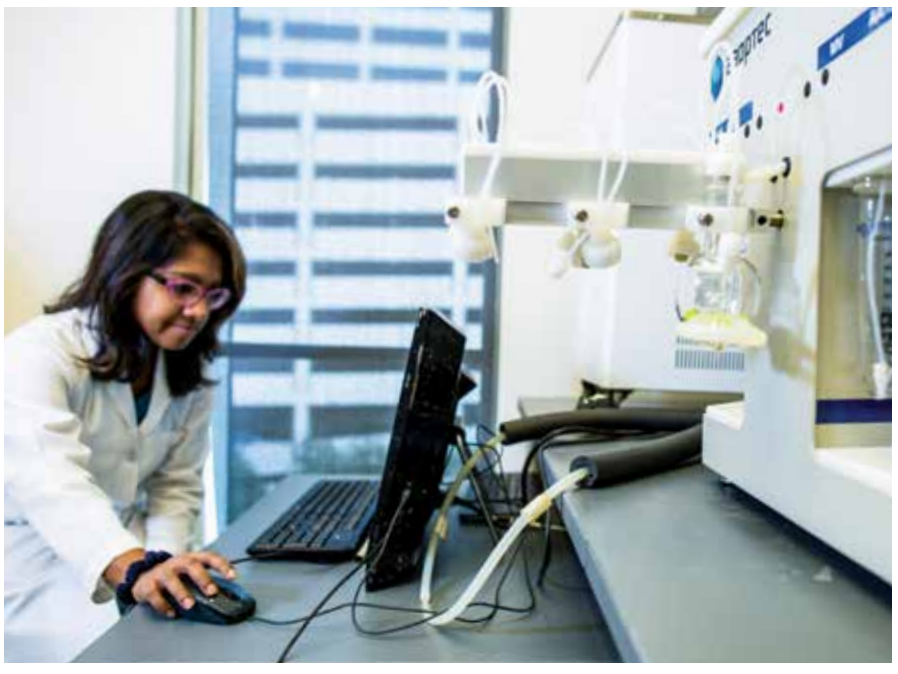
> "There's no better place to take a family for an injury than a hospital that can take care of the kids and take care of the adults at the same time."
>
> **ALFRED MANSOUR, M.D.**
> *UTHealth Pediatric Orthopedic Surgeon at Children's Memorial Hermann Hospital*

Top left: Alfred Mansour, M.D., UTHealth pediatric orthopedic surgeon at Children's Memorial Hermann Hospital, treated Jonathon's injuries the night of the crash. Middle and bottom: The Flynts often run into members of the Life Flight crew at Baytown Airport, where they keep their new plane.

Saving Lives with Snake Venom

RICE UNIVERSITY SCIENTISTS HAVE DEVELOPED **A HYDROGEL THAT COULD PLAY AN IMPORTANT ROLE IN SAVING SURGICAL PATIENTS' LIVES.** ***THE SPECIAL INGREDIENT: AN ENZYME FOUND IN SNAKE VENOM.***

By Shanley Chien



Top: Vivek Kumar, Ph.D. and Jeff Hartgerink, Ph.D., display a vial of hydrogel they developed to stop bleeding in surgical patients.
Below: Rice graduate research assistant Navindee Charya Wickremasinghe works on a solid phase peptide synthesizer in Hartgerink's lab.

Rice University scientists recently created a new nanofiber hydrogel containing an enzyme found in snake venom to quickly stop bleeding in a matter of seconds, providing a potentially useful solution for surgical patients.

Lead author and researcher Vivek Kumar, Ph.D., and Rice professor of chemistry and bioengineering Jeff Hartgerink, Ph.D., published their study in the American Chemical Society Biomaterials Science and Engineering journal, where they showed how the enzyme batroxobin, produced by South American pit vipers, can be used to clot blood in six seconds. The study combined Hartgerink and Kumar's decade-long pursuit of developing an injectable hydrogel scaffold designed to heal wounds and stimulate natural tissue growth with Kumar's idea to incorporate a blood-clotting component.

"It's interesting that you can take something so deadly and turn it into something that has the potential to save lives," Hartgerink said.

For ophidiophobiacs and skeptics, rest assured: There were no actual snakes involved in this study.

"If you look at the popular media that's taken hold of this thing, you would think we had a laboratory full of snakes," Hartgerink said. In reality, the scientists were able to obtain batroxobin necessary for the study in a way that didn't require handling any scaly adders.

"We're not purifying it from snake venom, so we don't have concerns about exogenous toxins, byproducts or what have you," Kumar said, explaining that they eliminate risk of toxicity by creating it in a lab, recombinantly expressing the enzyme in E. coli.

Hartgerink said many people are surprised to see the words "snake venom" in their paper, but batroxobin's

properties are rather well known and it does not pose a toxicity threat by itself, particularly in this application.
The hydrogel Kumar and Hartgerink developed only uses nanograms of batroxobin and allows them to localize the material to a specific injection site, eliminating possible risks of using too high of a concentration and the material traveling to other places.

One of the primary uses Hartgerink and Kumar see for their hydrogel is in surgical settings where precision and accuracy are critical for successful outcomes.

"For traumatic bleeding, there are quite a number of ways people have used to stop bleeding. If you think about it, if you've had a life-threatening injury, anything that will stop the bleeding is good. It doesn't have to be some wonderfully tailored material," Hartgerink said. "But in a surgical bleeding case, particularly if you're heparinized, you don't want to use what's basically glorified clay, what's used to stop bleeding in traumatic situations, because of other problems it causes—including burns and other things."

Heparin, a common blood thinner administered in drip form to patients before surgery to reduce the risk of blood clots, blocks off the functions of thrombin, an enzyme that plays a factor in the blood coagulation process. But batroxobin is unique in that it is not inhibited by the presence of heparin. This is particularly important in the surgical arena. If a patient is on anti-coagulant therapy, it's not uncommon for doctors to reject them for different surgeries because of the bleeding risk, but batroxobin will work regardless of heparin. By the way batroxobin works when it's within the hydrogel, the material is designed to more accurately and precisely control bleeding.

"The [hydrogel's] scaffold provides an anchor to localize the response," Kumar said. In the case of surgical bleeding, the batroxobin serves as a chemical barrier, while the hydrogel acts as a physical barrier. "It's like a double whammy."

This precision is in part due to the nature of the thixotropic hydrogel. Once loaded into the syringe, the hydrogel maintains its gel state until it is pushed through the needle. The sheer force applied to the material as it goes through the needle turns the hydrogel into a liquid, then returns to its solidified state as soon as it comes out of the other end of the needle, delivering the material into a localized area.

"This is exactly how ketchup works," Hartgerink explained. "If you put ketchup in a bottle, it's this thick material that you can squirt out just fine and then resolidifies on your hamburger, so it doesn't go dripping all over the place. That's exactly the same thing when we apply [the hydrogel]."

For Kumar, the science was a met at a rare intersection of social media and applicability to decade-long research.

One of Kumar's friends had posted on a social media platform a BBC News article in which people extracted venom from a snake's fangs and added a drop of the poisonous secretion into a cup of blood. Within a minute, the blood reacted with the venom and congealed into solid form, sparking Kumar's interest and prompting him to share his curiosity with Hartgerink.

Within 18 months of seeing the video, Kumar and Hartgerink were able to conduct the study, test the research and publish their findings.

Although Kumar and Hartgerink were able to publish their findings in a short period of time, they said it will take two to three years before it is approved for clinical trials and another five or more years of evaluation. ■

> "It's interesting that you can take something so deadly and turn it into something that has the potential to save lives."
>
> — JEFF HARTGERINK, PH.D.
> *Professor of Chemistry and Bioengineering at Rice University*

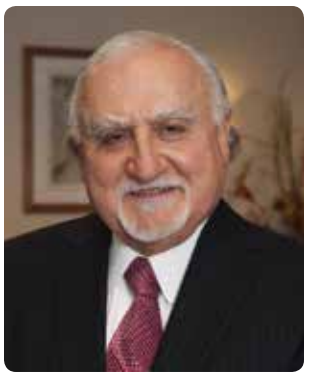
ACCOLADES

ROBERT ALBANESE, M.D., joins The Menninger Clinic as director of psychosomatic services and as psychiatrist for the Professionals in Crisis Program. Albanese is also an associate professor at the Menninger Department of Psychiatry and Behavioral Services at Baylor College of Medicine. His clinical interests focus on combat-related PTSD and sexual trauma-related PTSD, as well as co-morbid conditions, such as addictions, mood disorders, thought disorders, personality disorders and neurocognitive disorders. Albanese is a graduate of East Carolina University where he also earned his medical degree. He completed his internal medicine and psychiatry residency at the University of Virginia School of Medicine.

ROBERT CORRIGAN, senior vice president, general counsel and corporate secretary at Baylor, has received a Houston Business Journal 2015 Best Corporate Counsel Award. Corrigan was the winner in the small legal department category. He was recognized in particular for his work on two complex joint venture agreements—one between Baylor and CHI St. Luke's and the other between Baylor and Miraca Holdings. Honorees were nominated by their peers and then a judging panel selected the finalists and winners based on submitted applications, which included letters of recommendations from CEOs.

RICHARD GIBBS, PH.D., director of the Human Genome Sequencing Center at Baylor, was named one of 13 new Faculty Fellows of the Texas A&M University Institute for Advanced Study in recognition of his trailblazing work in the field of genetics. The fellows will partner with one or more departments offering graduate degrees housed at Texas A&M or the Texas A&M Health Science Center. Additionally, they will provide resources for graduate students and funding to support visiting graduate students and postdoctoral researchers affiliated with the Faculty Fellows.

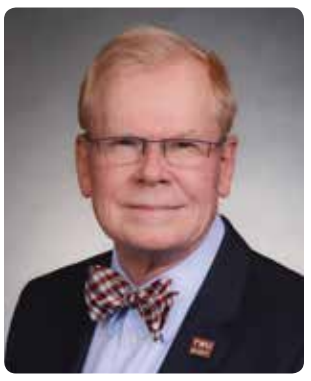
JOSHUA RODGERS, M.D., joins The Menninger Clinic as staff psychiatrist for the Compass Program in the young adult and adolescent division. Rodgers is an assistant professor at the Menninger Department of Psychiatry and Behavioral Services at Baylor College of Medicine. His clinical interests are behavioral neurology and neuropsychiatry. Rodgers is a graduate of the University of Colorado-Boulder, and he received his medical degree from the University of Colorado-Denver. Rodgers completed his psychiatry residency at the University of Illinois at Chicago.



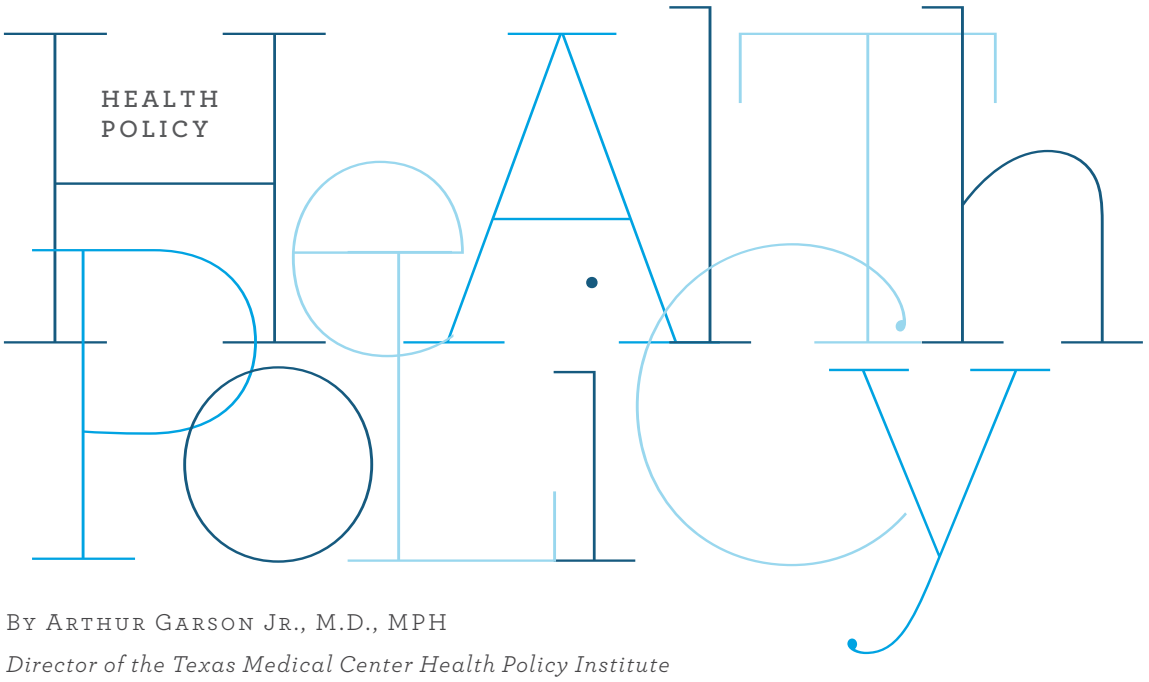
PHILIP A. SALEM, M.D., president of the Salem Oncology Center, was awarded the Supreme Medal of Excellence by FOEDUS, the Italian Foundation of Culture and Science, for 2015 during a ceremony in Rome, Italy. He has worked with the Italian Consulate General in Houston to help treat more than 500 patients from Italy as well as many other patients from around the world who come to the Texas Medical Center for treatment. Foundation chairman Mario Baccini said Salem was awarded the Supreme Medal for being a great physician, scientist and humanist.

IVETT TAMEZ SHAH, was recently named assistant vice president by the Texas Children's Pavilion for Women. In her new role at Texas Children's Pavilion for Women, Shah will work with leaders across ambulatory services including Baylor Obstetrics & Gynecology, Maternal Fetal Medicine, Partners in OB/GYN Care, the Women's Specialists of Houston and Texas Children's Fetal Center. She will also oversee Patient Experience and Texas Children's International Services.

RYAN WALSH, M.D., has been named the chief medical information officer of The University of Texas Health Science at Houston (UTHealth). After a national search, co-chaired by Kevin Dillon, senior executive vice president and chief operating & financial officer at UTHealth, Walsh quickly emerged as the sole finalist of the search committee. In addition to his duties as CMIO, Walsh has an adjunct faculty appointment at UTHealth School of Biomedical Informatics and plans to be a provider in the Department of Family and Community Medicine at UTHealth Medical School.



CHAD P. WICK, Texas Woman's University ambassador and founder of the KnowledgeWorks Foundation, has been named vice chair of the ACT Board of Directors. Wick has long worked to achieve equity and respect for diversity inside and outside education. Wick led the development of the Ohio College Access Network, which supports the college aspirations of more than 165,000 students each year, and assists in turning neighborhood schools into community learning centers. He has also served as president and CEO of RISE Learning Solutions, president of Mayerson Company and CEO of Southern Ohio Bank.



By Arthur Garson Jr., M.D., MPH

Director of the Texas Medical Center Health Policy Institute

OBAMACARE: A PRIMER FOR UPCOMING DEBATES >> PART 4: COST OF CARE

Now that the Supreme Court has decided and the election season begins to boil, it seems likely that the Affordable Care Act (ACA), known as "Obamacare" will be one of the pervasive issues.

It is worthwhile to have an understanding of what Obamacare was supposed to do, what it has done to date, the problems remaining and what could be done now—"the fix." Health policy issues can be organized by four pillars: insurance coverage, access, quality and cost. In the last issue of Pulse, I discussed insurance coverage. This month, I will look at cost of care.

The Problem | The United States has, by far, the most expensive medical care on earth. Currently, we spend $8,233 per person; we are 1.5 times as expensive as the next most expensive, Norway at $5,388, and we are 2.5 times the Organization for Economic Co-operation and Development (OECD) median. The most cogent explanation for why we are so expensive comes from Dr. Donald Berwick, a former administrator of the Centers for Medicare and Medicaid (CMS), who categorized the ways that we waste one-third of our medical care dollars: 1. Administrative complexity, $248 billion; this is made up of three major components, the inefficiency of having numerous public and private insurance systems, the inefficiency of record-keeping without electronic health records (just how many times do we have to be asked our name and address in different clinic visits on the same day) and the inefficiency of billing. 2. Over-treatment, $192 billion; we have dealt with this previously, with induced demand both by physicians and patients. Included in this number is over-treatment at the end of life, certainly a topic for much debate, but if 10 percent of all health care dollars are spent in the last year of life, most people would agree that at least some of that did not need to be spent. 3. Fraud and abuse, $177 billion; 4. Pricing failures, $131 billion; American pricing is the highest in the world: Victor Fuchs found that the bill for most procedures in the U.S. is more than three times the price in Canada; the average physician in the United States makes approximately three times what the average physician makes in England. 5. Failures of care delivery, $128 billion; this number quantitates a lack of access to care, either because of a lack of health insurance or because of a practitioner within a rural area. 6. Failures of care coordination, $35 billion; this quantitates largely the amount of money spent on unnecessary hospital readmissions. The total of these six is $910 billion (which is 34 percent of total spending). For comparative purposes, it is important to note that the expenditure under the ACA for the uninsured is approximately $150 billion per year; therefore, if we eliminated even 15-20 percent of the waste, we could cover the uninsured.

What Obamacare Did | The most tangible attack on costs included in Obamacare was a reduction in Medicare payments to physicians and hospitals. This was felt to be possible since the number of insured patients was going to be markedly increased. Of course, the problem with that analysis is that most physicians already have practices that were unable to take new patients. This was demonstrated in Massachusetts where, after the increased numbers of insured patients, fully 50 percent of primary care practices were found to be closed to new patients. Therefore, for 50 percent of physicians moving forward with Obamacare, all they would see is a decrease in fees per patient.

The ACA also provided stimuli for development of new payment methodologies, such as payment for quality, as well as stimuli for development of integrated health systems such as Accountable Care Organizations, and stimuli for increased use of electronic health records (EHRs).

The ACA also created a new part of the Centers for Medicare and Medicaid Services, the Center for Medicare and Medicaid Innovation (CMMI). This Center was an outstanding idea and was funded with $10 billion over a five-year period. While this appears to be a huge amount of funding, it is important to point out that this funding is 0.2 percent of the combined Medicare and Medicaid budgets. The programs are funded by grants through CMMI and have resulted in important data being generated. However, so far, none of these grant programs have taken a large bite out of the wasted $910 billion per year.

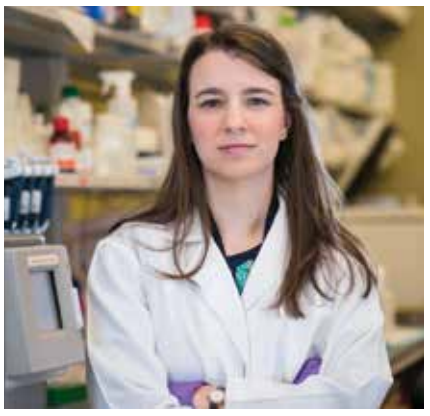
The Continuing Problem | Under Obamacare, the expenses for the uninsured are known and fixed. Within a margin for error, the only variability in projection of future expense is whether and when more states agree to expand their Medicaid programs. In the face of known expenses, the "savings" are theoretical. For example, the projected savings in Medicare, both from physicians and from a reduction in uninsured patients admitted to hospitals (e.g. reductions in DSH payments), have not been "booked". As in the past, any proposed decrease in payment to physicians (or hospitals) may be met with similarly strong lobbying and therefore projected savings may be considerably less than anticipated.

However, it does appear that there has been a "halo effect" of Obamacare. Many health systems, seeing the changes that are coming, have already been making plans to reduce utilization (e.g. clamp down on hospital readmissions) and the rate of rise of Medicare spending has slowed significantly.

The Fix | The ideas of stimulating integrated health systems as well as stimulating a new physician payment methodology are important and should be increased significantly with aggressive goals set for the number and operation of integrated health systems (whether or not they are the structure of Accountable Care Organizations), as well as changes in physician payment methodology.

What does this mean to you? The two most important things a patient or potential patient can do: 1. Improve lifestyle. Care for obesity, diabetes and smoking account for billions of dollars in spending. This is much easier said than done, but programs and incentives to help in these areas are needed. In a recent Texas Medical Center Nielsen poll of 1,000 Texans, more than 50 percent were in favor of a "fat tax" on unhealthy food. 2. Use care appropriately. On the positive side, this means taking prescription drugs as ordered—after one year, about a third of Medicare patients are taking their statins appropriately. On the "needs improvement" side, about half of visits to the emergency departments are not emergencies. Emergency centers are not the place for the uninsured to get routine care. Not only does this drive up the cost of care, it takes time away from those who truly have emergencies. ■

Blood Test Results Vary From Drop to Drop in Fingerprick Tests



Credit: Jeff Fitlow/Rice University

When it comes to needles and drawing blood, most patients agree that bigger is not better. But in the first study of its kind, Rice University bioengineers have found results from a single drop of blood are highly variable, and as many as six to nine drops must be combined to achieve consistent results.

The study, which appears online this week in the American Journal of Clinical Pathology, examines the variation between blood drops drawn from a single fingerprick. The results suggest that health care professionals must take care to avoid skewed results as they design new protocols and technologies that rely on fingerprick blood.

"We began looking at this after we got some surprising results from our controls in an earlier study," said lead investigator Rebecca Richards-Kortum, Ph.D., Rice's Malcolm Gillis University Professor and director of Rice 360°: Institute for Global Health Technologies. "Students in my lab are developing novel, low-cost platforms for anemia, platelet and white blood cell testing in low-resource settings, and one of my students, Meaghan Bond, noticed there was wide variation in some of the benchmark tests that she was performing on hospital-grade blood analyzers."

The benchmark controls are used to gauge the accuracy of test results from the new technology under study, so the variation among the control data was a sign that something was amiss. What wasn't immediately clear was whether the readings resulted from a problem with the current experiments or actual variations in the amount of hemoglobin, platelets and white blood cells (WBC) in the different drops of blood.

> "In some donors, the hemoglobin concentration changed by more than two grams per deciliter in the span of two successive drops of blood."
>
> — MEAGHAN BOND
> *Ph.D. Candidate at Rice University*

Richards-Kortum and Bond designed a simple protocol to test whether there was actual variation, and if so, how much. They drew six successive 20-microliter droplets of blood from 11 donors. As an additional test to determine whether minimum droplet size might also affect the results, they drew 10 successive 10-microliter droplets from seven additional donors.

All droplets were drawn from the same fingerprick, and the researchers followed best practices in obtaining the droplets; the first drop was wiped away to remove contamination from disinfectants, and the finger was not squeezed or "milked," which can lead to inaccurate results. For experimental controls, they use venipuncture, the standard of care in most hospitals, to draw tubes of blood from an arm vein.

Each 20-microliter droplet was analyzed with a hospital-grade blood analyzer for hemoglobin concentration, total WBC count, platelet count and three-part WBC differential, a test that measures the ratio of different types of white blood cells, including lymphocytes and granulocytes. Each 10-microliter droplet was tested for hemoglobin concentration with a popular point-of-care blood analyzer used in many clinics and blood centers.

"A growing number of clinically important tests are performed using fingerprick blood, and this is especially true in low-resource settings," Bond said. "It is important to understand how variations in fingerprick blood collection protocols can affect point-of-care test accuracy as well as how results might vary between different kinds of point-of-care tests that use fingerprick blood from the same patient."

Bond and Richards-Kortum found that hemoglobin content, platelet count and WBC count each varied significantly from drop to drop.

"Some of the differences were surprising," Bond said. "For example, in some donors, the hemoglobin concentration changed by more than two grams per deciliter in the span of two successive drops of blood."

Bond and Richards-Kortum found that averaging the results of the droplet tests could produce results that were on par with venous blood tests, but tests on six to nine drops blood were needed to achieve consistent results.

"Fingerprick blood tests can be accurate and they are an important tool for health care providers, particularly in point-of-care and low-resource settings," Bond said. "Our results show that people need to take care to administer fingerprick tests in a way that produces accurate results because accuracy in these tests is increasingly important for diagnosing conditions like anemia, infections and sickle-cell anemia, malaria, HIV and other diseases."

The research was supported by the National Science Foundation and the Bill & Melinda Gates Foundation's Grand Challenges in Global Health Initiative.

— Jade Boyd, Rice University

University of Houston
Department of Research Policies, Compliance and Committees

IRB Coordinator (#S003563)

This coordinator will be responsible for the coordination, management, operation, and compliant function of one of the University of Houston's Institutional Review Boards (IRBs), geared primarily toward the review of student research. Education of students and faculty on human subjects regulation and institutional policies and systems is a significant aspect of this role. Strong communication skills are required, and experience in human subjects research administration is strongly preferred. Certified IRB Professional (CIP) perferred. Non-certified candidates will be considered, however must be willing to sit for CIP certification when qualified as part of the job fulfillment.

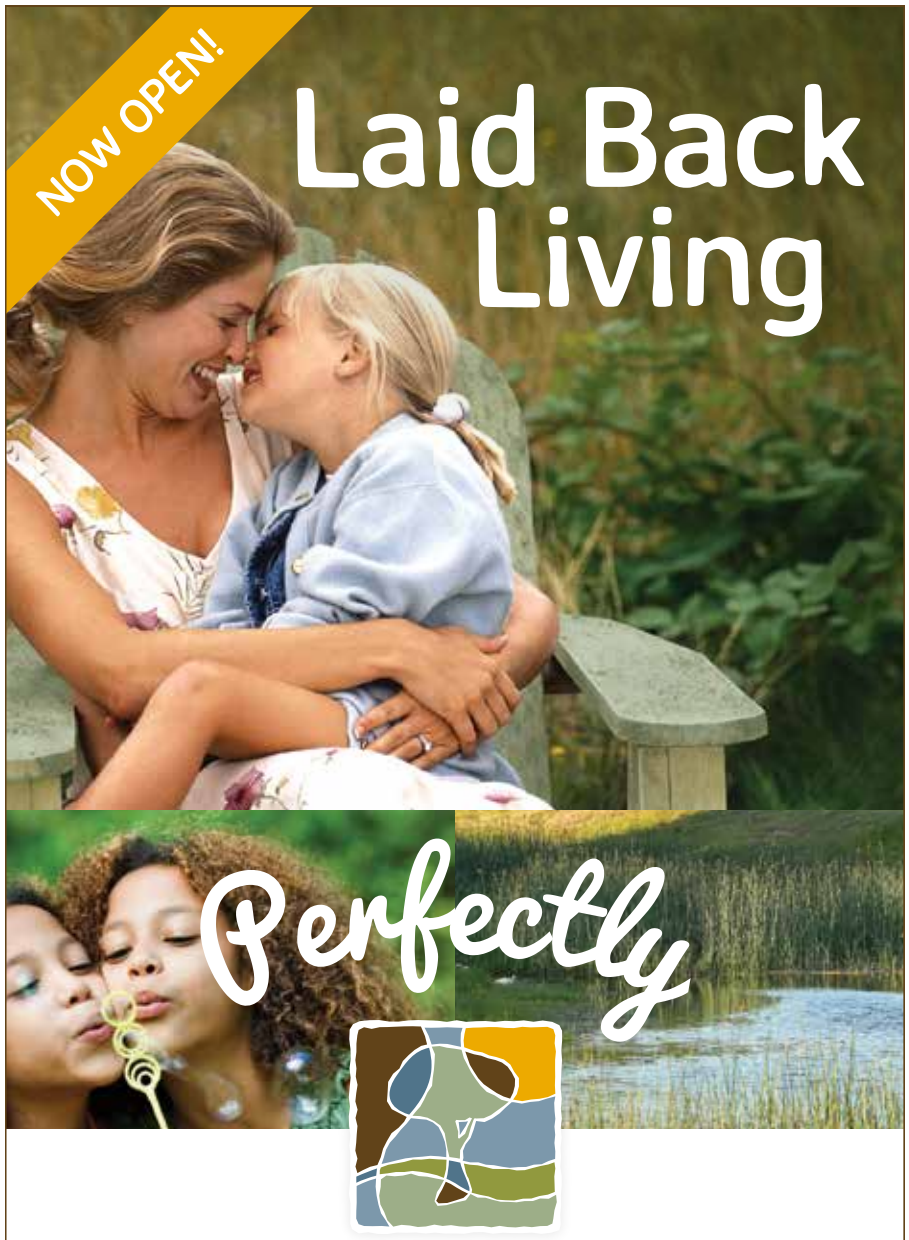
Sponsored Research Congruence Coordinator (#S003576)

This coordinator will ensure university compliance by 1) confirming the congruency of funded research awards to oversight committee approvals, and 2) coordinating the UH Responsible Conduct of Research (RCR) program, which ensures that research teams fulfill sponsor-mandated RCR training requirements. Communication with and education of research faculty, as well as coordination with multiple university components, is a significant aspect of this role. A background in research or research administration, including general knowledge of funded awards, human subjects, animal use, and other RCR regulatory requirements are strongly preferred.

For more information or to apply,
please visit **https://jobs.uh.edu** and search by **Job Number.**

UNIVERSITY of HOUSTON
YOU ARE THE PRIDE

The University of Houston is an Equal Opportunity/Affirmative Action institution. Minorities, women, veterans and persons with disabilities are encouraged to apply. Additionally, the University prohibits discrimination in employment on the basis of sexual orientation, gender identity or gender expression.



December 2015

2 ***Elizabeth J. Taparowsky, Ph.D.: Multiple Roles for BATF-Mediated Regulation of AP-1 Transcription in the Immune System***
Wednesday, 1:00 p.m. – 2:00 p.m.
Houston Methodist Hospital
6565 Fannin St.
events@houstonmethodist.org
713-363-9049

3 ***A Global Lab: Religion Among Scientists in International Context***
Thursday, 5:30 p.m. – 9:00 p.m.
BioScience Research Collaborative
6500 Main St.
hjh2@rice.edu
713-348-3974

4 ***Microbiome and Cancer Symposium***
Friday, 10:00 a.m. – 5:00 p.m.
Children's Nutrition Research Center
1100 Bates St.
Howland Auditorium
dawn.thomas@bcm.edu
713-798-2964

7 ***42nd Annual "Touch, Smell and Hear" Event at the Health Museum***
Monday, 9:00 a.m. – 11:30 a.m.
The Health Museum
1515 Hermann Dr.
scott_atkins@hcms.org
713-816-0020

7 ***Prairie View A&M University College of Nursing Information Session***
Monday, 12:00 p.m. – 1:00 p.m.
Prairie View A&M University
College of Nursing
6436 Fannin St.
HNursing@pvamu.edu
713-797-7000

11 ***Texas Children's Hospital Surgery Grand Rounds***
Friday, 7:00 a.m. – 8:00 a.m.
Texas Children's Pavilion for Women,
Fourth Floor Conference Center
6650 Main St.
kgkaiser@texaschildrens.org
832-822-3873

15 ***RN-BSN Information Session at UTHealth School of Nursing***
Tuesday, 2:00 p.m. – 3:00 p.m.
UTHealth School of Nursing
6901 Bertner Ave.
kristi.rodriguez@uth.tmc.edu
713-500-2100

FOR MORE EVENTS, VISIT TMCNews.org

TREVÍSIO

A Fresh Take On
BREAKFAST

Make the Most of Your Day Starting with Breakfast

NOW SERVING BREAKFAST

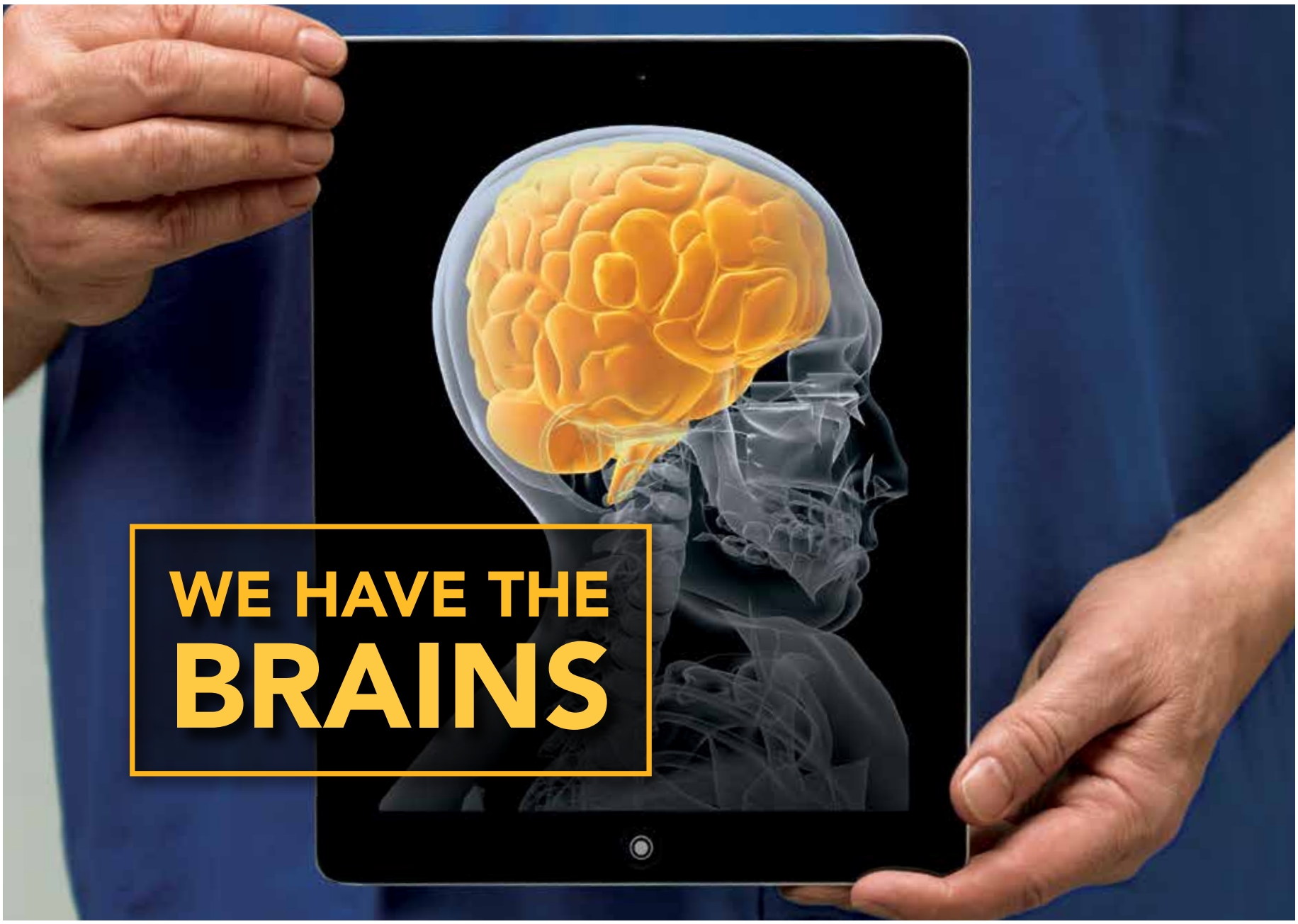
MONDAY – FRIDAY | 7 – 11AM

For Reservations, call 713.749.0400

6550 BERTNER AVE., SIXTH FLOOR | HOUSTON, TX 77030

For a complete menu visit trevisiorestaurant.com

TMC | TEXAS MEDICAL CENTER



Our neuroscience program is led by the brightest, most forward-thinking minds in medicine.

Led by the most esteemed physicians in the field of neuroscience, the Mischer Neuroscience Institute at the Texas Medical Center was the first of its kind in Texas and one of only a few institutions in the country to fully integrate neurology, neurosurgery, neuroradiology and neurorehabilitation for the benefit of our patients. The collective expertise of Memorial Hermann and UTHealth Medical School continues to bring the forefront of neuroscience to you.

Learn more at neuro.memorialhermann.org

UTHealth®
The University of Texas
Health Science Center at Houston
Medical School

Mischer
Neuroscience Institute

MEMORIAL® HERMANN

ADVANCING HEALTH