# TMC PULSE

THE OFFICIAL NEWS OF THE TEXAS MEDICAL CENTER - VOL. 3 / NO. 5 - JUNE 2016



















#### **Diplomacy Opens Doors**

After the United States and Cuba restored diplomatic ties for the first time in over 50 years, scientists at UTMB are building bridges between Galveston and Havana.



### Addicted Before Birth

The CDC's and FDA's tighter guidelines for prescribing painkiller medications could help babies affected by neonatal abstinence syndrome.



# Spotlight: Giulio F. Draetta, M.D., Ph.D.

The director of the Institute for Applied Cancer Science at The University of Texas MD Anderson Cancer Center talks about the Moon Shots Program and more.



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FORMER PATIENT JARED DUNTEN HAS BEEN COMMISSIONED BY TIRR MEMORIAL
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**ON THE COVER:** The Ekso exoskeleton helps patients with neurological conditions, such as multiple sclerosis, stroke, spinal cord injury and traumatic brain injury, regain mobility in their lower limbs.

#### PRESIDENT'S PERSPECTIVE



ROBERT C. ROBBINS, M.D.

President and

Chief Executive Officer,

Texas Medical Center

Here in the Texas Medical Center we have a rich history of firsts, ranging from cardiovascular operations to pediatric therapies to cancer treatments, and every day I speak with colleagues who are excited about new ideas and potential breakthroughs. We hope to highlight many of these within the pages of TMC Pulse each month, and our June issue is no exception. From futuristic exoskeletons that are helping patients recover mobility, to revolutionary neurosurgical techniques, to tailoring care for adults with special needs, our member institutions are continually striving to improve the medical care we provide our patients.

The Texas Medical Center's Innovation Institute works to support these advances through startup initiatives and strategic partnerships. Just this past March, our collaboration with Johnson & Johnson, JLABS @ TMC, opened its doors, providing emerging companies a haven for biotechnology innovation. Now, just three months later, we're unveiling our latest incubator with the grand opening of the AT&T Foundry for Connected Health.

The AT&T Foundry innovation centers, of which there are six centers worldwide, work collaboratively with local entrepreneurs, clinicians, academics and other visionaries to create original technologies to benefit life, business and health. The AT&T Foundry for Connected Health here in the TMC will be the first to be totally focused on digital solutions to improve human health. We are excited about the much-anticipated inaugural projects and look forward to bringing our readers in-depth coverage next month about how this collaboration will foster technology solutions for health care issues worldwide.

It's an exciting time in health care, with potential solutions to some of our patients' greatest needs brimming in labs and clinics throughout Houston. I say it often but I'll say it again: collaboration, be it with AT&T, Johnson & Johnson or among member institutions, will be the key to unleashing these life-changing technologies.



#### TMC PULSE

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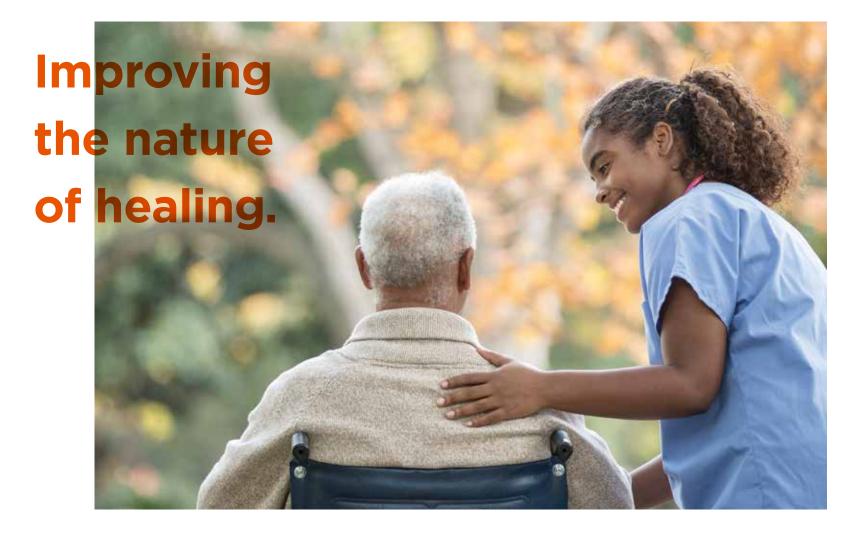
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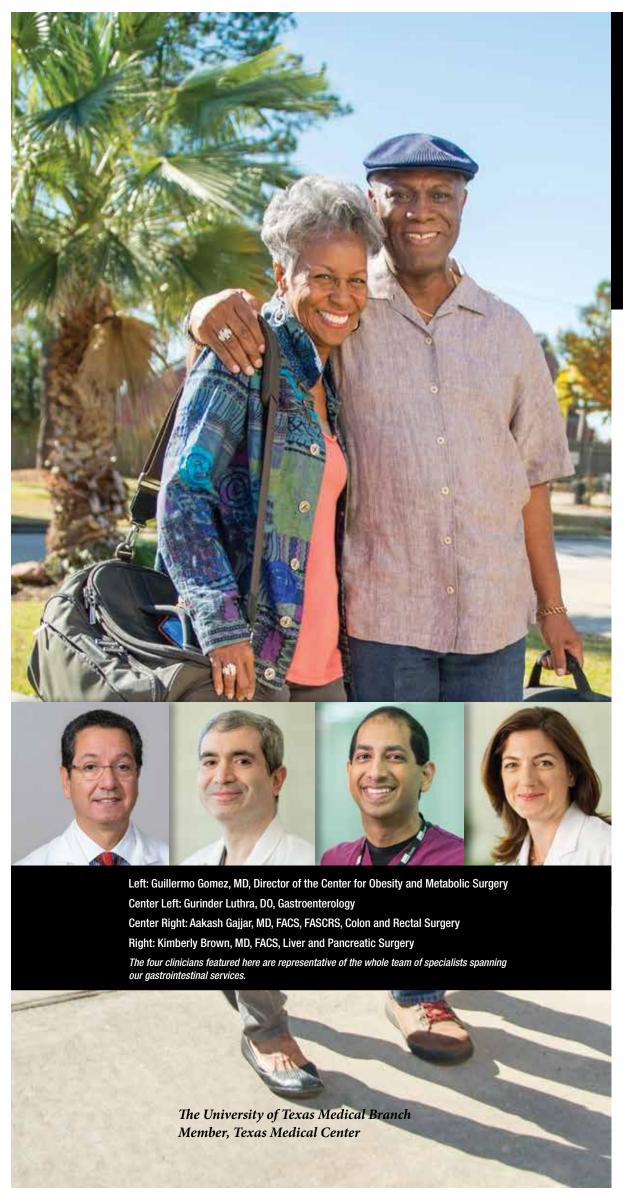
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#### **WHR** ARCHITECTS

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# You could say this couple trusted their gut to UTMB.

Linda and Arthur Triplette love to travel. Last year their plans were interrupted by not one, but two surgeries.

It began with Arthur not feeling quite right. He visited his UTMB primary care doctor who arranged for same-day x-rays. They showed a tumor in his stomach. Arthur's surgery was scheduled and went exactly as planned. A few months later, Linda's routine colonoscopy revealed polyps that had to be removed surgically. The same seamless care resulted in Linda's quick recovery.

As Arthur goes on to say, "We could have gone anywhere. We chose UTMB. We knew this was our team."

Linda says simply, "We got our lives back."

You have a choice in your health care. The gastrointestinal team at UTMB is expert in every aspect of the digestive system, from routine screenings to highly complex procedures. And the skilled surgeons use the latest and most advanced techniques and technology.

With exceptional doctors, more than 30 locations throughout Galveston and the Bay Area, and the convenience of MyChart, we're ready for you.

So whether it's your gut, a different Gl problem, or something else, **call us at 800-917-8906** or go to utmbhealth.com



Working together to work wonders.

## **Diplomacy Opens Doors**

Thanks to improved relations between the U.S. and Cuba, scientists at UTMB have the opportunity to participate in a unique collaboration

By Shea Connelly



 $A young \ boy \ is \ examined \ in \ a \ Cuban \ health \ clinic. \ Credit: @ \ Magnum \ Photographer \ Cristina \ Garcia \ Rodero$ 

It's a great opportunity for UTMB to become one of the first universities to develop an active and collaborative program in Cuba, and we're very excited about it.

— SCOTT C. WEAVER, PH.D.
Scientific Director of the Galveston National
Laboratory, Director of the Institute for Human
Infections and Immunity, and Professor at UTMB

The island of Cuba, with its brightly colored row houses, streets lined with classic cars and lush, tropical scenery, has long been a mystery to most Americans. Seen largely only in photos for over half a century, since the United States severed diplomatic ties with the country during the Cold War, it has been an object of fascination to many. The recent restoration of diplomacy between the two nations, however, has opened the door to closer ties, including a new collaboration between The University of Texas Medical Branch at Galveston (UTMB) and Havana's Instituto Pedro Kouri.

The \$1.3 million initiative, funded by Atlantic Philanthropies, aims to train Cuban scientists in UTMB's training laboratory and to collaborate to combat infectious diseases both countries share. Scott C. Weaver, Ph.D., scientific director of the Galveston National Laboratory, director of the Institute for Human Infections and Immunity, and a professor at UTMB, spearheaded the project.

"Atlantic Philanthropies contacted us and asked if I'd be willing to put together a proposal," Weaver said. "Their board of directors liked it, and then it took a few weeks for us to get everything through The University of Texas System.

There are always new and emerging health threats coming down the pike, and there are no borders to health challenges.

— CHRISTOPHER G. OECHSLI

President and Chief Executive Officer of the

Atlantic Philanthropies Infections and Immunity,

and Professor at UTMB





Left: Parents watch over their newborn in a Cuban health clinic. Right: Patients in the waiting room of a Cuban health clinic. Credit: 

Magnum Photographer Cristina Garcia Rodero

The chancellor had to approve because of the sensitivity of the project." Weaver noted that the project will not involve UTMB's biosafety level four laboratory or select agents UTMB researchers study.

"It's strictly to help do research on mutually important diseases like Zika, chikungunya and dengue," he said.

Atlantic Philanthropies, founded by Duty Free Shoppers entrepreneur Chuck Feeney, has been involved in Cuba since the early 2000s, said Christopher G. Oechsli, president and chief executive officer. "This project is a convergence of multiple things: The increased threat and challenge of Zika and also dengue and chikungunya, and the fact that the U.S. is exploring ways to collaborate for mutual benefit. This is really about mutual benefit," Oechsli said. "We do hope that this particular research could lead to strategies for containing or limiting the spread of these viruses and we always hope that something like a vaccine could result. There are always new and emerging health threats coming down the pike, and there are no borders to health challenges."

Here in the U.S., the main focus of the partnership will be to train Cuban scientists who have an interest in developing a biosafety level three laboratory.

BSL-3 labs have specific requirements and precautions that must be followed, given that the scientists in them handle potentially-lethal microbes. UTMB's training facility, which trains researchers from all over the world, will be working with visiting Cuban scientists to ensure they are able to safely study such volatile materials.

The training process is rigorous, and includes eight hours of classroom training, approximately three one-on-one training sessions, depending on how an individual progresses, written pre-assessment and post-assessment tests, and approval from a biosafety officer before starting a mentorship process.

Vickie Jones, a BSL-2 and BSL-3 trainer for the Laboratory Biosafety Training Program, a component of UTMB's National Biocontainment Training Center, said they use a variety of harmless substances during the process to illustrate different techniques.

"We use fluorescein, the yellow drops ophthalmologists use to check for tears or abrasions on the cornea, because it's nontoxic, and you can see it in normal light," Jones said. "We use it to track contamination and show people at the end, 'Hey, look, let's work on your technique.' It also picks up well under the black light to show contamination."

Jones said they use the same substance, or even food coloring, to test how well a trainee dilutes by looking at the gradation of color. To teach proper personal protective equipment (PPE) donning and doffing, the team uses shaving cream. If the cream ends up on a person's clothes or body, it indicates improper technique. Safe PPE removal is vital in any space where scientists or physicians are dealing with virulent materials. Weaver noted that improper removal of PPE is likely how health care workers were infected with Ebola in 2014.



Scott C. Weaver, Ph.D., demonstrates some of the techniques used to train visiting scientists in the UTMB National Biocontainment Training Center.

Once trainees are checked off by biosafety officers and ready to start mentorship, Domenica (Dee)
Zimmerman, biosafety officer, environmental health and safety consultant, and environmental health and safety director of the Galveston National Laboratory Environmental Health and Biosafety Regulations and Requirements Core, said she takes them through scenarios to see how they apply what they have learned to specific situations.

"In the lab, they're working directly with the principal investigators and researchers," Zimmerman said. "The mentorship cues them into working with experienced people in the laboratory."

Zimmerman added that the mentorship process is a two-way street. The mentor must, of course, be confident that the trainee has acquired the appropriate skills before signing them off, but it's equally important for the trainee to feel secure about his or her own skill set.

"Once you have fulfilled the minimum hours criteria, if the PI thinks you're doing OK, but you are unsure of yourself, sit down and talk. Maybe you need a few more hours of mentorship," she said. "That conversation is critical."

In addition to the training Cuban scientists will experience at UTMB, a team of trainers will travel to Havana to put on a larger training session for anyone interested in attending.

"Then we'll be identifying some priorities for common research projects and will have an internal competition for projects," Weaver said. "We'll pair up Cuban and U.S. scientists who work in the same area. They'll work on a proposal together and then do the project together."

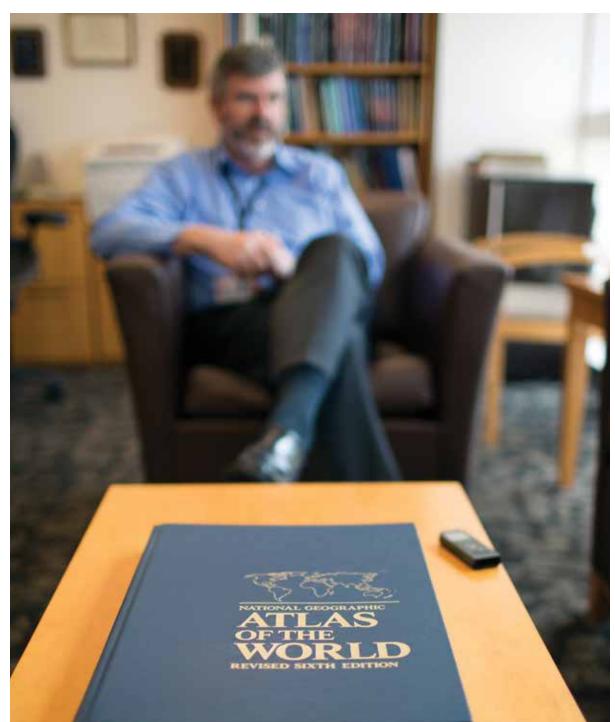
Given similarities in climate, the U.S. and Cuba share a number of viral diseases, particularly mosquito-borne infections, and researchers at UTMB and the Instituto Pedro Kouri are studying similar subjects. The partnership will offer UTMB scientists the opportunity to study epidemiology and the vector of mosquito transmission in sites where the diseases are more prevalent, for a variety of reasons.

"Being a bit further south, Cuba is a little more tropical than Galveston or southern Florida, but it's not too different," Weaver said. "Probably the main reasons they have the diseases more often are cultural and economic differences. They don't have air conditioned homes or screened doors and windows, so mosquitoes can enter their homes more easily than they do here in Houston or Galveston."

Weaver said that while transmission of diseases in the two countries is different thus far, the risks are similar, particularly given that both nations have the type of mosquito that transmits diseases like chikungunya, Zika and dengue: the Aedes aegypti mosquito. Those living in the U.S. have less exposure to the mosquitoes, thanks to air conditioning and mosquito-control efforts, but the risk for endemic transmission of Zika, for example, is real and significant.

Though the project is still very much in its infancy, Weaver is optimistic about the opportunities it will provide, both for the two years of the current project and beyond.

"Ideally what will happen is we'll develop some good scientific collaborations and we'll go after NIH grants and other opportunities. I don't know whether, at the end of two years, NIH will be ready to send funding directly to Cuba or not, but hopefully the normalization of our relations will allow that to happen soon, and we'll be able to sustain this through other kinds of funding," Weaver said. "It's a great opportunity for UTMB to become one of the first universities to develop an active and collaborative program in Cuba, and we're very excited about it."



 $The \ Aedes\ mosquito\ species, which\ is\ primarily\ responsible\ for\ spreading\ Zika\ virus, has\ distinguishing\ features\ including\ tell tale\ black\ and\ white\ markings.$ 

# A DI THE BIRTH

WHILE THE OPIOID ADDICTION EPIDEMIC AFFECTS A LARGE POPULATION OF ADULTS,

BABIES BORN TO MOTHERS USING OR ABUSING PRESCRIPTION PAINKILLERS NEED HELP RECOVERING AS WELL

Earlier this year, the United States Centers for Disease Control and Prevention issued 12 new recommendations for prescribing opioid medications. The FDA followed closely on the heels of the CDC with an announcement of its own to implement enhanced safety warnings for prescription painkillers. While the CDC's guidelines and FDA's warnings serve as pivotal moments in the war on opioid abuse and the addiction epidemic sweeping the country's adult population, these new measures could also have a large impact on the tiniest of patients: babies.

"[The CDC and the FDA's] policy is very important because I think the use of prescription painkillers among mothers is one of the main reasons for neonatal abstinence syndrome (NAS). The thing that tugs at our hearts is that these babies go through a lot as soon they are born, through

no fault of their own," said Krithika Lingappan, M.D., neonatologist at Texas Children's Hospital and assistant professor of pediatrics at Baylor College of Medicine. "I think, from a parental perspective, from a caregivers' perspective and from a financial perspective, this is a huge deal."

NAS is a condition characterized by a variety of problems in newborn babies and results from a sudden withdrawal of addictive opiate drugs after prolonged exposure in the mother's womb. As the pregnant mother introduces substances into her system, those drugs pass through the placenta and to the baby, leading to addiction. According to a 2015 analysis by the National Institute on Drug Abuse, the number of babies born with NAS increased five times between 2000 and 2012, during which time an estimated 21,732 babies were affected by opioid withdrawal. The prevalence is equivalent to one baby being born with NAS every 25 minutes.

"They go through symptoms of withdrawal, which are very difficult for parents to see, but it's also heartbreaking for the caregivers," Lingappan said. "These babies are very difficult to calm and often cry inconsolably. Even though our nurses do a very good job of swaddling and comforting them, that's often not enough.

By Shanley Chien

"Close maternal involvement can, in many cases, obviate the need for pharmacological therapy," Lingappan added. "We are very proactive about starting the treatment when needed before the symptoms of withdrawal get very severe, but at the same time, we try our best to do whatever we can to prevent giving pharmacological therapy to the baby, which in most cases is an opioid agent like morphine or methadone."

When non-pharmacological approaches—such as the mother holding, rocking, engaging in kangaroo (skin-to-skin) care and breastfeeding—are insufficient for soothing the baby, doctors refer to the Finnegan NAS scoring system, which is designed to help nurses and doctors determine the severity of NAS and initiate therapies for babies experiencing severe symptoms. The caregivers administer small dosages of morphine to help alleviate NAS symptoms, enough for the baby to continue with his or her normal development and growth.

"Basically, [going cold turkey in a baby with severe NAS has] all the signs that you would see

ACCORDING TO A 2015 ANALYSIS BY THE NATIONAL INSTITUTE
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# 66 .... [babies] are the innocent victims of this epidemic.

— KRITHIKA LINGAPPAN, M.D.

Neonatologist at Texas Children's Hospital
and Assistant Professor of Pediatrics at
Baylor College of Medicine

for NAS, but they just continue to get worse," said Jennifer Placencia, Pharm.D., clinical pharmacy specialist for the neonatal intensive care unit at Texas Children's. "For example, the babies may have severe diarrhea, so they start dumping all their nutrients or they don't feed well and therefore can't grow. They're also very irritable and don't sleep. All of these things are necessary for a baby's health."

Placencia explained that because babies with NAS are irritable and tend to fidget, they also become more susceptible to developing sores on their body and, in extreme cases, can also suffer from seizures.

While treating babies with NAS can be emotionally challenging for caregivers, the ordeal is exponentially more difficult for the mothers, who may have been abusing prescription medications or street drugs. Lingappan and Placencia said there are also cases of pregnant women who took prescription drugs to treat a painful condition such as arthritis, spinal injuries, systemic sclerosis or fibromyalgia, who did not expect the symptoms of NAS in their babies.

"Those are some of the most challenging and heart-wrenching cases because the mom feels responsible and that this could have been prevented," Placencia said. "In most of these situations, moms feel a lot of guilt, but in that situation, a doctor prescribed them medications for legitimate reasons and they were being seen throughout their entire pregnancy. They thought they were doing the right thing and everything would be fine. Maybe they weren't spoken to enough about the possible implications of what's going to happen to the baby, or maybe they just didn't think it would happen to their baby, so they are oftentimes surprised. 'Wait a second, my baby has to go to the NICU? I thought this was going to be OK. I just did what the doctor told me to do."

Placencia explained that while taking care of the baby is immensely critical, it's equally important to comfort and reassure the mothers that they made the right decision.

"Because they [feel], 'I shouldn't have taken the pain medicine,' we have to reassure them, 'You did the right thing. To be in pain during pregnancy and to not take care of yourself is unhealthy for the pregnancy," Placencia said. "We need to open up communication and have those difficult conversations."

Lingappan recalled a case in which a baby was born with NAS to a mother who was prescribed Oxycontin after she suffered injuries sustained in an accident.

"Depending on what's going on in your life at



a given time, your risk factors of being addicted to prescription painkiller drugs might be pretty high, and that's exactly what happened with this mom: She had an accident, separation from her partner and she got pregnant around the same time. It was a perfect storm for this to happen in her life at that point," Lingappan said. The mother subsequently became addicted to the prescription painkillers. When she found out that she was pregnant she reached out for help and was started on a methadone regimen.

Lingappan said the pendulum of treating pain has swung from one extreme to the other, in the sense that at one point in our country's history, the health care system was more stringent about prescribing painkillers. But in 2001, the Joint Commission on Accreditation of Healthcare Organizations pushed to improve pain management standards and assessments, making it easier for patients to obtain painkiller opioid prescriptions from their physicians. By 2014, an estimated 1.9 million Americans suffered from prescription

painkiller-related substance abuse, according to the American Society of Addiction Medicine.

"This mother and baby went through a lot after the baby was born," Lingappan said. "The baby had a lot of symptoms including vomiting, diarrhea and constant tremors. The mother would put the baby to her chest and the baby would [stop] shaking. There would be tears rolling down her eyes and their nurse's, but they got through it."

While the CDC's and FDA's policies are timely and much-needed measures, only time will tell if they are effective.

"I think the heart's in the right place for the new CDC and FDA guidelines because there is an epidemic of prescription painkiller abuse. We are seeing a very important part of that with the babies who are the innocent victims of this epidemic," Lingappan said. "Whether it leads to any real changes in how these drugs get prescribed and whether it leads to a decrease in the actual use and abuse of these drugs, we would have to wait and see, but I think the intention is definitely right."





Babies born with neonatal abstinence syndrome benefit from being held skin-to-skin, rocking and breastfeeding to help soothe their symptoms and are kept in the NICU for approximately two to three weeks to wean them off the drugs. Top and lower right credit: Texas Children's Hospital

#### TMC SPOTLIGHT



GIULIO F. DRAETTA, M.D., PH.D., DIRECTOR OF THE INSTITUTE FOR APPLIED CANCER SCIENCE AND CO-LEADER OF THE MOON SHOTS PROGRAM AT THE UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER, SAT DOWN WITH WILLIAM F. McKEON, EXECUTIVE VICE PRESIDENT AND CHIEF STRATEGY AND OPERATING OFFICER OF THE TEXAS MEDICAL CENTER, TO DISCUSS HIS DYNAMIC CAREER AND HOW THE MOON SHOTS PROGRAM HOPES TO ACCELERATE RAPID DEVELOPMENT OF NEW RESEARCH AND TREATMENT PROTOCOLS FOR SOME OF THE MOST DEVASTATING CANCERS.

#### **Q** What part of Italy are you from?

A I was born in Naples and lived there until I was 27. I am the eldest of three brothers, and I am the only one who entered a career in the sciences. My middle brother was a hospital administrator and my youngest brother is a violinist. We are very different—we all went in very different directions.

#### When did you discover your passion for the sciences?

A It wasn't early on. In middle school, I excelled in English and Italian literature and Latin. I think it was during my third year of high school that I had this fantastic chemistry professor who really made me think twice about my original plan to attend medical school.

She was an amazing role model who got students excited about chemistry and biochemistry, and she made me consider becoming a chemist instead of a physician. Ultimately, I found a renewed passion for medical school and was considering psychiatry.

I explored a number of options and opportunities while I was in medical

school. In Italy, at the time, you could really build your own curriculum, so I was adding classes in neurophysiology and related sciences and psychiatry and so on. Somewhere in my studies, I enrolled in courses in biochemistry and cell biology. These classes in particular had amazing, dynamic professors, and I really loved the coursework, and it

piqued my interest in bench research. I was fortunate to be given an internship in a laboratory to explore this idea of being a research scientist more in depth. At the time, it was possible to continue your medical studies while working in a lab, and I considered this opportunity such a privilege that I stayed on until I completed my medical degree and clinical training in emergency medicine.

After I completed my residency, I decided to come to the United States to sort out where I wanted to go with my career, working as a Fogarty Fellow at the National Institutes of Health (NIH). One of my mentors in medical school had trained at the NIH, and he had been very encouraging about what an interesting time it was because there were many physicians and physicianscientists who had gone there to avoid the draft for Vietnam. This influx of M.D.s, who were choosing civil service as research scientists, were doing pioneering work and really pushing the medical sciences to new horizons. The opportunities I found here cemented my decision to apply my medical training to the sciences and focus on medical research.

# Q How was the transition from Italy to the United States, culturally speaking? Were there challenges after being trained in Italy and then moving directly to the NIH?

**A** Well, I was somewhat surprised to come here and realize that my studies in British English had not quite prepared me to speak 'American,' but I was able to come up to speed with regard to the language quickly. More than feeling challenged by the transition, I would say I actually felt more overwhelmed, but in a very positive way. It was incredible for me to see how welcoming this nation was. In fact, this has been my impression throughout my career: how welcoming the country, and in particular the scientific community, is of foreign nationals from every corner of the globe. Religion, accent, culture—they are all welcomed and embraced. The international presence and integration in this country and in our scientific communities is such a striking contrast to what is going on right now in other parts of the world, and it's something

The doctors here are incredibly generous in volunteering hours to talk about science and talk about solutions for the patients and to engage in collaborative efforts. And outside of these walls as well, we find colleagues to be generous with their time and knowledge. I haven't seen this anywhere else.

I have always respected about the U.S. Just in my little lab at the NIH, I shared a bay with a scientist from New Zealand, one from France, an American, and me from Italy—it was a very exciting atmosphere.

Another astonishing aspect of moving to the U.S., for me, was the immense resources of the NIH. You really felt the obligation to do something impactful because you had no excuses to not do well. And then the culture, the environment at that time, was such that there were Nobel Prize winners just walking around campus. From that standpoint, it was actually rather overpowering, but inspiring at the same time.

# Q You have had a very unique career path that has traversed both industry and academia.

A Yes, after spending my first eight years in the United States, I decided to accept an offer in Heidelberg, Germany, at a very prestigious center, the European Microbiology Laboratory. My family and I stayed there for about four years. Toward the end of the third year I went to London to give a talk, and my former advisor from a laboratory in New York was also there. He mentioned that he'd been approached by a venture capital group about the idea of starting a company. I had no idea what the company would be, but I was intrigued by the premise, which was to start thinking about curing cancer by blocking the cell division cycle. I engaged in multiple discussions with this team, and we put together a plan and started to really think about an entry point and how the company would be shaped at the time. There was, of course, tremendous interest in the eukaryotic cell division cycle at the time, but the vast majority of labs were using model organisms like yeast, sea urchins or clams—organisms where the spawning cycles were very fast-for their research. The community of scientists using mammalian cells to explore cell division was actually quite

small at the time, so the only way to get a company focused on designing drugs to target the cell cycle was to find an individual who could drive this kind of research. My wife and I had discussed the fact that we wanted to go back to America, and the sooner the better, so when they offered me this opportunity, I have to admit I jumped pretty quickly. I didn't really over-analyze it, and I would say that I have acted similarly at other decision points throughout my career, finding great excitement in new opportunities and being quick to seize them.

After my first four years with this company, Mitotix, I realized that the environment was limiting to some extent because all four of our major projects had been partnered with large pharma, and the focus had really shifted to later-stage drug discovery and development and further away from innovation, which was really my passion. Fortunately, right as I was feeling the urge to move on, I was presented with another opportunity with the opening of the European Institute of Oncology in Milan. This was an opportunity to go back to Italy after many years, and that's

what we did. We kept the children in the American system by putting them into the American schools in Milan, and we spent the next 10 years there.

Because Milan was yet another international city, we were part of an international community there, too, and that was incredibly exciting. And then from an Italian perspective—Italy is so different, we felt like we were learning about a region that we never interacted with before. So people, culture, habits, food—it was completely strange to us. In Milan, they eat a lot of rice, but in the south and in Naples, you only eat rice if you're sick. We eat pasta. So we learned to eat risotto, and we discovered all of these beautiful things and this wonderful food. Also, Milan is so central, you can drive to Switzerland, you can drive to France, to Austria. Because it's a commercial city, it's full of interesting people, and we made a lot of friends through the American school. There were some journalists and people like us who had been traveling the world and wanted to keep their children in the American system, so it was really enriching for the children and they made some of their best friends there.





While I was in Milan, I was approached to be a consultant for a pharmaceutical company that had really been building their oncology franchise, Pharmacia. Initially this was presented as a local job, and they said I could keep my laboratory, so it seemed like a win-win situation for me to keep my research program alive and simultaneously fully immerse myself in this consultantship to learn the business of drug discovery. I accepted the job and within a year we had acquired yet another company in San Francisco and then merged with another. I started to spend most of my life on an airplane. It was a really intense time in my career, but it paid off in a big way. We had an incredible portfolio of products, but because of that, we were targeted by Pfizer. I stayed on through the Pfizer acquisition, but unfortunately I was charged with the dismissal of some of the sites. Then Merck came knocking at my door and offered me the opportunity to go to Boston and lead their oncology group. We all moved back to America again, and I had five groups within Merck in Tsukuba, Japan; Pennsylvania; Seattle; Rome and Boston.

#### What eventually brought you to MD Anderson?

A I left Merck when it closed all of its sites but one. I really didn't see the opportunity to be able to contribute. I want to stay in early innovation and discovery, and so once you start to narrow

down your early-phase pipeline and limit your activities to clinical development, that's simply not my area. It's not my passion.

I had an offer to join another large pharmaceutical company, but, frankly, I didn't want to be in a situation where I had to spend time consolidating sites again. So, instead, I took the opportunity to go to Dana-Farber, which ultimately led to MD Anderson. We came here and discovered Houston. It is a really special place. It is an incredible community and very down-to-earth. The doctors here are incredibly generous in volunteering hours to talk about science and talk about solutions for the patients and to engage in collaborative efforts. And outside of these walls as well, we find colleagues to be generous with their time and knowledge. I haven't seen this anywhere else.

#### One of the most exciting initiatives in the world is Moon Shots. As co-director of this program, can you explain what makes it both unique and promising?

A We have seen interesting advances in cancer for 40 years, and it's getting better and better in terms of our ability to understand the disease. What's really missing is our ability to take action on our knowledge to develop remedies. For us, we can articulate things that, from a process standpoint, define what we want to do. First, we want to intervene by working on prevention. There are measures that can be taken, but we

We need the experts in all of these areas and, most critically, we need them to intersect, intentionally and humbly, to think, to learn, and to commit to making a difference for our patients. 9 9

don't see adequate dissemination of existing knowledge and policy implementation to favor adoption of these preventative measures. Our own policy at MD Anderson to hire only nonsmokers is an important opportunity to encourage prevention. Within my own group I have Europeans, Chinesesmoking is much more prevalent in those countries—and people are stopping smoking. To me, this is a success because there is such a clear connection. HPV vaccinations are another great example. So many cancers are clearly HPV or virally mediated, and now tools are emerging to dramatically reduce the incidence of these tumors.

We also want to intervene on disease in the clinic. Part of that is to make clinical trials far more informative. We're trying to enable a knowledge system that allows us to really learn from our patients in real time. We are using digital health approaches, which frankly are equivalent to approaches that are being used by the Walmarts of the world, to predict trends in terms of whether we buy more tomato sauce or fresh tomatoes, to enable us to make the best decision for the patient and to disseminate knowledge. MD Anderson is an incredible engine for generation of best practices that are now being adopted by local hospitals throughout Texas, the nation and the world. Twenty-five percent of patients coming to us are misdiagnosed, so we have to reassess the nature of their disease. In some cases, we have dramatic impact. I was just talking to a friend of mine who told me about a patient who came in with a diagnosis of gastric cancer. The chances of surviving gastric cancer are limited, but it turned out that it was lymphoma. It was spreading around the stomach and the patient is now in total remission. There are all these opportunities to intervene clinically in real time. We need to disseminate the knowledge we develop.

Another goal of the Moon Shots Program is to create a multidisciplinary culture. We don't just have scientists around. Or just clinicians. We have both, and most importantly we have hired specialists in disciplines that are normally only represented in industry and the private sector. And now, as we build out our Moon Shots platforms and various resources throughout the institution, we increasingly have tremendous translational medicine capabilities. Bringing the full spectrum of drug discovery—from basic research through deep biology and onto drug development and clinical studies—under one roof and with a united purpose, is extremely powerful. We need the experts in all of these areas and, most critically, we need them to intersect, intentionally and humbly, to think, to learn, and to commit to making a difference for our patients. Part of this is making sure we have the right incentives in place, so that contribution is measured by clinical impact, not by arbitrary metrics or numbers.

Last, but very important, is the 'fast kill' concept. This is about looking at all of the advanced things that have merit and being able to make tough decisions when you develop a diagnostic or therapeutic. It's a rigorous prioritization approach to leverage anything that is actionable now and could show us a way forward. We really hope the Moon Shots Program could enable some of these concepts. If it limited itself to identifying high-priority areas for research and then funding research in just those areas, it may miss opportunities, especially some with short-term impact. I think there are a lot of things we could do if we simply acted on this.

#### Q Any closing thoughts?

A | My wife sees me as excited today as when I started my post-doc at Cold Spring Harbor Laboratory. She says she's never seen me as excited. I think that's really wonderful.



# POMONA

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# **Imaging and Response Evaluation** in Clinical Trials

Friday, June 17, 2016 • 9 a.m. – 4:30 p.m.

The University of Texas MD Anderson Cancer Center Duncan Building, Floor 8, Elevator Q, Conference Rooms 1-8 (CPB8.3321)

Directors/Co Directors: 'Vivek Subbiah, MD; 'David Hong, MD; 'Rivka Colen, MD
Organizers & Speakers: 'Behrang Amini, MD; 'Robert Benjamin, MD; 'Brett Carter, MD; 'Priya Bhosale, MD;
'Naveen Garg, MD; 'Patricia de Groot, MD; 'Filip Janku, MD; 'Vince Kumar, MD; 'Homer Macapinlac, MD;
'Kevin Mulpur, MHA; 'Ravi Murthy, MD; 'Chaan Ng, MD; 'David Piwnica-Worms, MD, PhD; 'Donald Podoloff, MD;

<sup>1</sup>Department of Investigational Cancer Therapeutics; <sup>2</sup>Quantitative Imaging Analysis Core; <sup>3</sup>Department of Diagnostic Radiology; <sup>4</sup>Department of Sarcoma Medical Oncology; <sup>5</sup>Department of Nuclear Medicine; <sup>6</sup>Department of Interventional Radiology; <sup>7</sup>Diagnostic Imaging Administration; <sup>8</sup>Department of Cancer Systems Imaging

#### Workshop will cover:

<sup>7</sup>Sujaya Rao, MS; <sup>3</sup>Komal Shah, MD

- Lesion measurements and RECIST 1.0, RECIST 1.1, CHOI, PERCIST, WHO, CHESON, and RANO criteria
- Imaging principles and Imaging techniques relevant to RECIST
- Limitations and pitfalls of tumor measurements

#### Who might be interested in attending:

- Translational and Clinical Investigators
- Physicians and fellows in oncology, radiation oncology, surgery, pediatrics, and radiology
- $\bullet \, Study \, coordinators \, and \, research \, nurses \,$

This live activity has been approved for AMA PRA Category 1 Credits  $^{TM}$ . Course is FREE of charge. Attendees will pay \$12 for all day parking at the Mays Clinic Garage

Please RSVP by Friday, June 10, 2016 to Barbara L. Wooten @ blwooten@mdanderson.org
RSVP is helpful for event planning but is not mandatory.

For more information, please contact: Dr. Vivek Subbiah, Assistant Professor Investigational Cancer Therapeutics Phone: 713-563-0393 E-mail: vsubbiah@mdanderson.org



### Collaborating on a Cancer Cure

MD Anderson is among six top-notch cancer research centers working to speed up the development of cancer treatments with help from billionaire Sean Parker

By Christine Hall

The fight for a cure for cancer is always in the national spotlight, but it received a celebrity boost recently when billionaire Sean Parker, famous for his entrepreneurial roles at Napster and Facebook, gave \$250 million to bring together hundreds of the country's top cancer scientists, clinicians and industry partners to form the Parker Institute for Cancer Immunotherapy.

One of the six centers involved is The University of Texas MD Anderson Cancer Center. James P. Allison, Ph.D., chairman of the department of immunology, director of the immunotherapy platform and co-director of the David H. Koch Center for Applied Research of Genitourinary Cancers at MD Anderson, and well-known for his pioneering work in immunotherapy, is leading the Parker Institute for Cancer Immunotherapy at MD Anderson.

In addition to MD Anderson, the Parker Institute includes more than 40 laboratories at Memorial Sloan Kettering Cancer Center in New York City; Stanford University School of Medicine; the University of California, Los Angeles; the University of California, San Francisco; and the University of Pennsylvania.

All of these institutions were chosen to collaborate on the development of immune therapies for cancer that could be translated into patient treatments.

Each of the research centers gets a portion of the \$250 million, as well as access to the latest technology and clinical resources.

"We are at an inflection point in cancer research, and now is the time to maximize immunotherapy's unique potential to transform all cancers into manageable diseases, saving millions of lives," Parker, president of The Parker Foundation, said in a statement. "We believe that the creation of a new funding and research model can overcome many of the obstacles that currently prevent research breakthroughs, and



James P. Allison, Ph.D., well-known for his pioneering work in immunotherapy, is leading the Parker Institute for Cancer Immunotherapy at MD Anderson. Credit: MD Anderson Cancer Center

the Parker Institute is positioned to broadly disseminate discoveries and, most importantly, more rapidly deliver treatments to patients."

Allison learned about Parker about four years ago when he was the team leader for a successful application for a Dream Team grant from Stand Up to Cancer, the Cancer Research Institute and the American Association for Cancer Research. His team's research involves the immune checkpoint blockade. Specific inhibitory molecules called checkpoints on

People who have been treating melanoma for years when we didn't have drugs that work, say 'Wow, 22 percent, that's incredible,' but looking at it from the other side, what about the 80 percent or the 50 percent who aren't responding even when you give both drugs?

— JAMES P. ALLISON, PH.D.

Chairman of the Department of Immunology, Director of the Immunotherapy Platform and Co-Director of David H. Koch Center for Applied Research of Genitourinary Cancers at MD Anderson

T lymphocytes, commonly known as T-cells, keep T-cells from killing cancer cells. Blocking those checkpoints frees the T-cells to attack.

Meanwhile, Parker had already given a lot of money to cancer research, and had been interested in immunotherapy for many years, Allison said.

Also seeking a grant was a team from UCLA that was not only interested in Allison's research, but also cancer-targeting T-cell therapies, called CAR-Ts (Chimeric Antigen Receptor T-cell), and adoptive cell transfer approaches to immunotherapy.

"The original grant we received was for \$6 million, but Sean put up another \$4 million to merge our two teams, bringing it to \$10 million," Allison said. "It was really successful, and a really good thing."

Allison found Parker to be incredibly well-informed about the science, so it wasn't a surprise when Allison heard that he was creating the Parker Institute for Cancer Immunotherapy, and wanted MD Anderson to be a part of it.

"He saw where the field was going, what the important issues were, and he was fascinated with it all,"
Allison added. "He has a remarkable depth of knowledge, and he could propose experiments and trials to do."

Though it ultimately took two years to get going, the institute's model is an evergreen one, which is unique, Allison said.

Ownership of intellectual property developed in a member investigator's lab funded by the Parker Institute is divided among the investigator, his or her home institution, and the Parker Institute. The Parker Institute has the right of first refusal to develop and commercialize intellectual property, he added.

As further evidence of Parker's entrepreneurial background, the institute is establishing its own IP office and is head-hunting for people with expertise in this area, Allison said. These will be people who really know the field and know what is hot. If they don't like the technology, they won't take it, but if they do, they will either market the technology to a company or form a small company around the IP.

"That's a unique aspect of what Sean is doing," Allison added. "Any funding generated by the IP goes back into the institute and is distributed back to the individual sites. In theory, that could keep it going for some time, depending on how well we do in generating useful stuff."

The \$35 million MD Anderson has to work with will also enable people on Allison's team, including co-director Padmanee Sharma, M.D., Ph.D., professor in the department of genitourinary medical oncology; Cassian Yee, M.D., professor in the department of melanoma medical oncology; Jennifer Wargo, M.D., associate professor in both the department of surgical oncology and department of genomic medicine; and Elizabeth Mittendorf, M.D., Ph.D., associate professor in the department of surgical oncology, to fund clinical trials that would have otherwise been hard to do.

His team aims to understand the mechanism of checkpoints. Doctors are curing a lot of people, but it is still a fraction of the overall patient population. For example, 22 percent of metastatic melanoma patients,





taking an antibody called ipilimumab, developed from Allison's research, are alive 10 years after a single treatment, based on a sample size of thousands of people, he said. When combined with a second generation drug called nivolumab, there is a similar action, but the overall response rate is 50 percent, and two-year survival rate is higher than that.

"We need to know what is going on so we can get the numbers up," Allison said. "People who have been treating melanoma for years when we didn't have drugs that work say, 'Wow, 22 percent, that's incredible,' but looking at it from the other side, what about the 80 percent or the 50 percent who aren't responding even when you give both drugs?"

Some of the cancers like melanoma, lung cancer, bladder and kidney cancer respond well to the drugs, but others including prostate, glioblastoma and pancreatic cancers don't, so Allison would like to understand why that is, and how to increase the response rate.

To do that requires a lot of money, because clinical trials and technology both are expensive, Allison said. His research could benefit from the latest technology that analyzes tumor tissue, both prior to treatment with drugs and during treatment.

"We know there are at least eight or so of these negative checkpoints, but we want to know what kind of cells they are on, why they appear in patterns, what that means and how to use that information to decide the next course of treatment, for example," he added.

The Parker Institute has engaged with companies on the leading-edge of developing instruments and technology with the goal of getting its six sites early access to those technologies. As a result, MD Anderson is now a beta test site for an instrument that outlines the chemistry of tumor sections in 40 colors.

Meanwhile, the institute is trying to work up clinical trials for all of the sites to collaborate.

Said Allison: "As a group, the directors of the partner sites decided on some key issues that need to be resolved, and everyone is going to work collectively on them."

# PARKER INSTITUTE

# for CANCER IMMUNOTHERAPY

Created through a

#### \$250 million grant

from The Parker Foundation

#### Six centers:

Memorial Sloan Kettering Cancer Center,
Stanford Medicine, the University of California,
Los Angeles, the University of California,
San Francisco, the University of
Pennsylvania and The University of Texas
MD Anderson Cancer Center

#### Over 40 laboratories

#### More than 300

of the nation's top

#### researchers

focused on treating the most deadly cancers

#### Goal:

Accelerate the development of breakthrough immune therapies capable of turning cancer into a curable disease by ensuring the coordination and collaboration of the field's top researchers and quickly turning their findings into patient treatments

 $Source: The \ Parker \ Institute \ for \ Cancer \ Immunother apy$ 

# REHABILITATION RENAISSANCE

By Shanley Chien

In a world of augmented reality, 3-D printing and the Internet of Things, advanced technology is helping the human race reach exciting new heights. Meanwhile, the NeuroRecovery Research Center is using that tech to help patients get back to the basics.

n October 2015, TIRR Memorial Hermann opened the doors to its long-awaited NeuroRecovery Research Center (NRRC), a partnership with the Department of Physical Medicine and Rehabilitation (PM&R) at The University of Texas Health Science Center at Houston McGovern Medical School. What once existed only on the pages of science fiction novels and comic books now finds its place within the walls of the rehabilitation hospital.

Housed on the third floor of TIRR Memorial Hermann's 42,000-square-foot research building, the NRRC conducts innovative research and clinical trials using robotic technology geared toward rehabilitating people who have suffered brain injuries, spinal cord injuries, strokes and neurodegenerative diseases, such as multiple sclerosis. Equipped with four futuristic-looking exoskeleton suits, a robotic arm, various brain and spinal stimulators and a cap that detects brain signals and situated within a sleek, grayscale interior design that would make even Tony Stark feel at home, the ultramodern suite is a growing hub for collaboration between TIRR Memorial Hermann clinicians, UTHealth researchers and institutions across the Texas Medical Center.

"The Texas Medical Center has an embarrassing wealth of resources, and we've only tapped into a small portion of it," said Gerard Francisco, M.D., chief medical officer at TIRR Memorial



Hermann, director of the NRRC and professor and chairman of the PM&R at McGovern Medical School. "With the collaborations that we have with other hospitals and other institutions of higher learning, like the University of Houston and Rice University, it would be a sin not to take advantage of those resources and see how we can serve as a medium for collaboration so that the strengths of the different institutions can add up to something that will really enhance our patients' recovery."

Since Carl Josehart, senior vice president and chief executive officer of TIRR Memorial Hermann, assumed the mantle in 2006, the rehabilitation hospital jumped from being the fifth top rehabilitation center in the country to no. 2 on U.S. News and World Report's List of Best Hospitals, on the heels of the Rehabilitation Institute of Chicago. But it's the leadership team's commitment and the clinical staff's focus on their patients that galvanized the formation of the center and its eight independent laboratories: Neuromodulation, Neurorehabilitation, Neuro-Myo Engineering for Rehabilitation, Motor Recovery, Spinal Cord Medicine, Robotics and Rehabilitation Engineering, Human Machine Interface Systems and the Center for Wearable Exoskeletons.

"This building, this research center, was really part of the dream I had when I first arrived: to create a state-of-the-art facility to really launch our research initiatives to an even higher level," Josehart said. "Part of what makes us a national

leader in rehabilitation is not just doing rehabilitation effectively with the current knowledge that exists, but it's creating new knowledge. Research is part of the investment in pushing the frontiers of clinical rehabilitation even further."

With seven Ph.D. researchers and five physicians working under the same roof to combine academic research and clinical application, the NRRC is the epitome of what cross-collaboration between disciplines can achieve with a shared vision and goal. It's a symbiotic relationship in which the physicians who are not trained in research work closely with researchers who have great ideas but need the physicians' expertise in patient care.

"TIRR Memorial Hermann has a history of providing the best rehabilitation care and the quest for, 'How do we make the best even better?'" Francisco said. "These are people who work at different levels—clinicians, physicians, therapists, nurses, administrators—and everyone has a common goal of giving our patients the best possible chance at recovery. When that passion comes together, there's only one way to go, and that's to be more creative and think of ways of how things that have been known to work successfully can [be applied to our patients]."

\* \* \* \* \*

The NRRC is currently conducting about 20 independent and joint clinical trials and

#### Approximately

#### 1.7 MILLION PEOPLE

in the country sustain a traumatic brain injury each year.

Source: Centers for Disease Control and Prevention

studies with that specific goal in mind, including a unique study out of the center's Motor Recovery Laboratory that uses an array of wearable exoskeletons to evaluate how it could benefit people with multiple sclerosis and improve their quality of life.

According to the National Multiple Sclerosis Society, MS is a chronic and disabling immune-mediated disease that affects an estimated 2.3 million people worldwide. Because MS can present a variety of symptoms—including fatigue, muscle weakness, disorientation, vision impairments, spasticity and trouble walking—the disease can be difficult to diagnose. Although there is currently no known cure for the disease, the NRRC is conducting an ongoing clinical trial in an effort to help people with MS regain their mobility and strengthen their lower limbs.

For 45-year-old Pearland resident Kelly Davis, who was an avid dancer prior to her MS diagnosis in April 2005, participating in the clinical trial gives her the opportunity to do what she hasn't been able to do since she was 34.



It would be a sin not to take advantage of those resources and see how we can serve as a medium for collaboration so that the strengths of the different institutions can add up to something that will really enhance our patients' recovery.

- GERARD FRANCISCO, M.D.

Chief Medical Officer at TIRR Memorial Hermann, Director of the NeuroRecovery Research Center and Professor and Chairman of the Physical Medicine and Rehabilitation Department at The University of Texas Health Science Center at Houston McGovern Medical School



"When they hooked me all up the first day, I was terrified. He was kind of intimidating," Davis said, referring to her "dance partner" Ekso, an exoskeleton developed by Richmond, California-based company Ekso Bionics. "The first time, it was very stressful, but then once I got the hang of it and we got more familiar with each other, if you will, we started learning how to dance."

Davis spent 15 one-hour sessions "dancing" with Ekso, as well as the ponderous REX exoskeleton—created by Auckland, New Zealand-based robotics company Rex Bionics—under the guidance and supervision of trained physical therapists. The REX exoskeleton is programmed to independently perform the same walking, turning, reversing and climbing up and down stairs motions as humans to give people with MS a means of exercising their legs.

"My balance was so much better, and getting around was a lot easier. I was stronger, and my legs had definition again," Davis said. "[Working with the exoskeleton] was a really great experience, and I see it helping so many people."

In addition to the Ekso and REX suits, the NRRC also utilizes the ReWalk Rehabilitation System.

"I'm always interested in looking at how to help my patients with neurological conditions [...] go back to their normal life and go back to what they love to do," said human movement scientist Shuo-Hsiu "James" Chang, Ph.D., assistant professor of PM&R at McGovern Medical School and lead researcher of the MS clinical trial. "What I want to see is a smile on [our patients'] faces, saying that they feel good and they feel better after doing the study. They help us find the answers to our hypotheses, and we try to help them and provide the opportunity to recover their functions. I think that's the most important part."

Multiple sclerosis affects an estimated

2.3 MILLION

individuals worldwide.

Source: National Multiple Sclerosis Society

Beyond the MS study, the NRRC is also conducting a clinical trial out of its Neuromodulation Laboratory to evaluate the efficacy of vagus nerve stimulation for improving upper limb motor functions in patients who have suffered a stroke. Although vagus nerve stimulation has been shown to effectively treat chronic depression and epilepsy, this is the first time researchers are implementing the technique to study its effects on stroke recovery.

According to the Centers for Disease Control and Prevention, stroke is one of the leading causes of disability in the country. More than 795,000 Americans suffer strokes and 130,000 die from strokes each year, averaging one death every four minutes. For those who survive, recovery can take anywhere from weeks or months to years; however, regaining full function of the body is not always guaranteed. Long-term physical

disabilities from stroke include muscle weakness, pain in the hands and feet, and paralysis on both or one side of the body, but researchers are optimistic that the vagus nerve stimulation clinical trial could improve patients' chances of recovering upper limb motor functions.

Sponsored by Texas-based medical device company MicroTransponder, which first ran the vagus nerve stimulation clinical trial in January 2013 at the University of Glasgow in the United Kingdom, the NRRC is one of only three locations in the United States, along with Dallas and Minneapolis, testing the effects of the technique on stroke survivors.

The vagus nerve is the 10th and longest of the 12 cranial nerves responsible for conducting electrical impulses between the brain and neural system. Patients involved in the clinical trial undergo a surgical procedure in which an electrode is



Shuo-Hsiu "James" Chang, Ph.D., and patient Kelly Davis celebrate a successful session of walking laps around the NRRC floor in the Ekso exoskeleton.

attached to the vagus nerve at the neck and a battery is placed in the chest beneath the skin. Using a remote to activate the battery from the outside, the system sends electrical pulses to the entire neural system to help the brain rebuild neural circuits that control upper limb functions.

"In other forms of neuromodulation, the non-invasive brain stimulation focused on the motor cortex, the part of the brain that is directly responsible for movement, planning and movement execution," said the study's lead researcher Nuray Yozbatiran, Ph.D., assistant professor in the department of physical medicine and rehabilitation at UTHealth. "But with the vagus nerve, we are not directly stimulating the motor cortex but stimulate parts of the brain (basal forebrain and locus coeruleus) that release neurotransmitters such as acetylcholine and norepinephrine that are known to facilitate reorganization of cortical networks."

A critical component in the clinical trial, Yozbatiran said, is combining the technique with simple, activity-based training and exercises that reteach the portion of the brain responsible for motor function how to do certain movements, such as reaching, grabbing and turning objects of various sizes. Each time a movement is attempted, the patient receives small electrical pulses to activate the vagus nerve and rebuild neural connections affected by stroke.

For retired Richmond, Virginia-based business consultant and investor Paul Kelly, 56, that possibility of regaining function in his left arm was enough for him to move to Houston for two months to participate in the trial. After he suffered a stroke in January 2013 while working out at his home, Kelly became paralyzed from the neck down on his left side, and he was determined to regain full function of his body. Eventually, he was able to use his left leg again, but his tenacity, coupled with his business savvy, drove him to experiment with a variety of therapies—including stem cell treatments and an upper limb exoskeleton—to see what else could be done for his left arm.

At the encouragement of one of his doctors in Virginia, Kelly decided that one of the best ways to improve, while also helping others, was to participate in the vagus nerve stimulation clinical trial at TIRR Memorial Hermann. To him, the decision was clear and recovering from a stroke was no different than solving complex tax situations in China

"I'd pull together a team of experts—accounting experts, tax experts—and we would go through in detail everything we needed to do to solve that problem," Kelly said. "I told my wife many times, 'I don't know why we can't have a team like that to address stroke?' [...] But when I had lunch with Drs. Francisco, Yozbatiran and their team, I told her, 'That's my dream team right there. That's it."



### PHYSICAL DISABILITIES from STROKE include:

muscle weakness, pain in hands and feet, and paralysis on both or one side of the body.

Starting in August 2015, Kelly committed each week to working with Yozbatiran and her team to perform different exercises, such as moving small blocks and turning cards. The two months of hard work eventually paid off: By the end of the clinical trial, Kelly, a self-proclaimed outdoorsman, was able to cast a fishing rod. For many, this was a simple task, but for Kelly, this was a major, meaningful milestone.

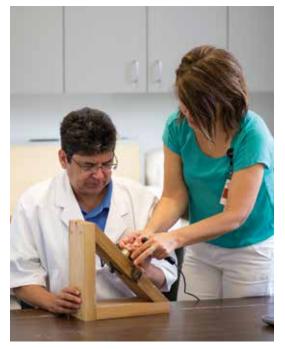
"My greatest accomplishment has been that I have not allowed [the stroke] to ruin my life," said Kelly, who recently returned from a hiking trip to Machu Picchu in Peru. "I loved the life I had before, but probably the most important lesson I've learned in the three and a half years is to not let what you cannot do keep you from enjoying the things you can do."

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While the NRRC already has a cutting-edge setup, the team's hope is to further develop their program and continue providing the clinical rehabilitation version of precision medicine for their patients by using and finding new neurore-habilitation applications for the most advanced technology available.

"What I want to see in the future for this center is to develop very novel and effective treatments in physical rehabilitation and neurorehabilitation to help patients," Chang said. "My hope is that we can push this to the clinical phase to help the public. That is my vision of what is next for the NRRC."

In the process of the NRRC's ongoing evolution, and in keeping with the center's mission of finding novel and creative ways to rehabilitate people, the team is currently preparing for the addition of three new harness support devices, including one from NASA that runs on





Physical therapist Nuray Yozbatiran, Ph.D., works with patient and stroke survivor Paul Kelly on improving function and control in his left hand as part of a clinical trial.

pre-installed ceiling tracks to provide overground gait training to help people develop the strength to walk again.

"The first time I see a patient moving around the facility, either walking, through a power chair or some assisted device, being able to take back control and feel like they're in charge of their life again, there's just nothing better than that," Josehart said. "We really don't think that good is good enough, so we're always tweaking, always looking for that next level of function. We're always trying to push the boundaries [because] it's our goal that people not just recover medically, but they recover emotionally and that they get back to life."

We really don't think that good is good enough, so we're always tweaking, always looking for that next level of function.

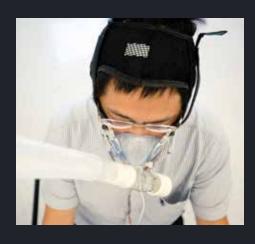
— CARL JOSEHART Chief Executive Officer of TIRR Memorial Hermann

# MOBILIZING REHABILITATION



#### REX

REX is one of the premier self-supporting wearable exoskeletons that helps individuals with severe disability stand upright and ambulate. It features a joystick to help the user, or a physical therapist, operate the exoskeleton—choosing from a variety of functions, such as sitting, standing, walking, reversing, turning, and side-to-side movements.



#### BreEStim

Sheng Li, M.D., Ph.D., associate professor of physical medicine and rehabilitation at The University of Texas Health Science Center at Houston McGovern Medical School, designed the breathing-controlled electrical stimulation (BreEStim) device to help manage spasticity and neuropathic pain. It uses voluntary breathing to enhance the effects of electrical stimulation on muscles and nerves.



#### Hand of Hope

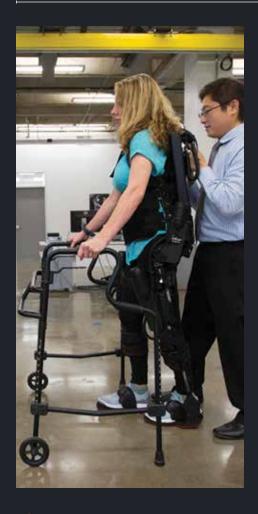
The Hand of Hope is a robotic hand rehabilitation device that can open and close individual fingers. Through intention-based control and repetitive training, it has been shown to improve patients' hand function and grip.



#### Robotic Arm

The MAHI Exo-II is a robotic arm that was designed and developed by Marcie O'Malley and her team of Rice University mechanical engineers. It has four active degrees of freedom: elbow flexion and extension, forearm pronation and supination, wrist flexion and extension, and radial-ulnar deviation.

Researchers and clinicians at TIRR Memorial Hermann's NeuroRecovery Research Center combine fields of robotics and physical therapy through the use of exoskeletons and other cutting-edge devices to improve rehabilitation and mobility.

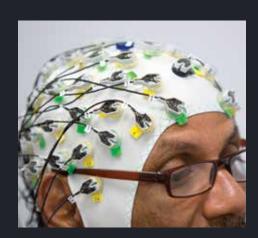


#### Eksc

Ekso is designed to help patients recovering from stroke, spinal cord injury, traumatic brain injury and other conditions that impact the lower extremity. Primarily used in the clinical setting with a physical therapist, it provides a function-based approach to over-ground gait training and upright, weight-bearing exercises.

#### actiCHamp Brain Cap

The actiCHamp brain cap uses electroencephalography (EEG) to noninvasively detect and measure brain signaling and activity. It has been used to detect seizures and determine various sleep stages, but the NeuroRecovery Research Center is now studying its efficacy in helping patients with stroke-related paralysis, amyotrophic lateral sclerosis and spinal cord injury perform intention-based, or thought-controlled, movements.







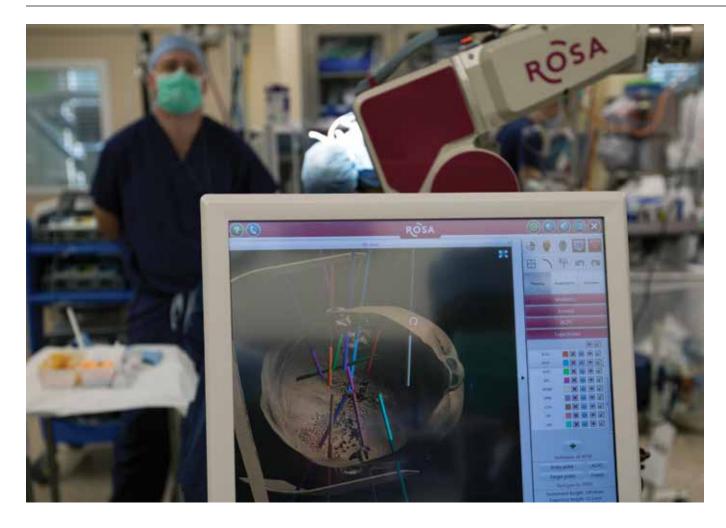
#### Nexstim

The Nexstim uses navigated repetitive transcranial magnetic stimulation on people who have suffered a stroke. Using a patient's magnetic resonance imaging scan, the noninvasive device uses magnetic stimulation on specific parts of the brain to either suppress or enhance brain activity.

### Something to Talk About

A new grant study aims to explore how words are formed after stroke-related speech impairment

By Christine Hall



The ROSA robotic device enables
Nitin Tandon, M.D., to pinpoint where he
will implant electrodes into a patient's
head to figure out where epileptic
seizures originate.

E veryone at one time or another has forgotten the name of that one guy they used to work with, or the restaurant that had that one chocolate dessert they loved. Now imagine not knowing the word at all, or not being able to physically say it.

That is similar to what happens to patients after experiencing some kind of brain trauma, whether through stroke, a car accident, a neurological disorder or a fall during which the person hits his or her head.

It is also something a group of neuroscientists, led by Nitin Tandon, M.D., the director of the epilepsy surgery program at Memorial Hermann Mischer Neuroscience Institute at the Texas Medical Center and associate professor in the Vivian L. Smith Department of Neurosurgery at The University of Texas Health Science Center at Houston (UTHealth) McGovern Medical School, will examine.

"More than half a million people have had the effect of a stroke on language in their brain," Tandon explained. "Half of those cannot speak well as a result, and nothing can be done right now."

Epilepsy is similarly devastating to those affected, taking away a person's independence and making it difficult to do things like have a job, he added. Those affected by this neurological disorder also often have difficulty remembering names of things and people, like what happens following a traumatic brain injury. Many of these patients with epilepsy are candidates for surgical procedures that target the area where the seizures originate.

"We aim to help them be seizure free, for them to live a normal life, be able to get married and have children," Tandon said.

Recently, Tandon and his group were awarded a \$1.8 million National Institutes of Health grant to explore new treatments for people who have speech problems following a stroke, traumatic brain injury or other neurological disorder.

Tandon's team includes Joshua Breier, Ph.D., of UTHealth; Greg Hickok, Ph.D., of the University of California, Irvine; Robert Knight, M.D., of the University of California, Berkeley; and Xaq Pitkow, Ph.D., of Rice University.

They will be conducting a series of experiments over the course of five years on about 80 patients that will look at word production by people whose brain waves will be monitored through the use of intracranial electroencephalographic (icEEG) recordings.

Unlike being able to move or see, which are hardwired into brains the

These areas are hardwired, so when there is an injury, there isn't another part of the brain that can do this, so that's why people end up with a speech deficit.

- NITIN TANDON, M.D.

Director of the Epilepsy Surgery Program at Memorial Hermann, and Associate Professor in the Vivian L. Smith Department of Neurosurgery at McGovern Medical School at UTHealth

Where we eventually go with this research is creating a rehabilitation therapy that actually works, or a prosthetic device to integrate into their brain that can speak for them.

- NITIN TANDON, M.D.

moment they develop, language is something that is acquired later, and typically set in stone in humans before eight years of age, Tandon said.

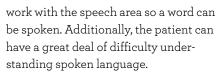
"These areas are hardwired, so when there is an injury, there isn't another part of the brain that can do this, so that's why people end up with a speech deficit," he said. "This can happen because of a stroke or brain injury from a motor vehicle accident or hitting your head. There are lots of reasons, but the net result is often similar."

Speech lives in the brain in multiple places, including on the left side of the brain in the inferior part of the frontal lobe, the posterior part of the temporal lobe and the inferior part of the parietal lobe.

The frontal lobe is a large section of the brain, and doctors refer to an area within this lobe linked to speech production as Broca's area, named after Pierre Paul Broca. People who have damage in this area have difficulty speaking, and even with minor injury, the ability to string words together with the right grammar is diminished, Tandon said.

Another area in the same region, called Wernicke's area, named for German neurologist Carl Wernicke, deals with the comprehension of language. For example, if there is a pen sitting on the desk, a person can look at it and know that it is a pen, but the brain is unable get that visual information to





The healthy brain functions in some ways just the same as muscles do when a person goes to the gym. When people work out, blood flows to that certain muscle. Similarly, when they use an area of their brains, blood supply increases in that area. Functional magnetic resonance imaging (MRI) can measure the change in blood flow, showing doctors which part of the brain is active during the language process.

However, what MRIs can't do is tell doctors how or in what order language is happening, because all of that activity is too rapid for the MRI to collect, Tandon said.

The electrodes, on the other hand, pick up the signals in the brain when a seizure occurs. Tandon expects the electrodes to also show how words are chosen and then strung together to make a sentence.

"The brain is an interesting structure, because when an injury occurs, brain cells and supporting cells die and you end up with a hole," Tandon said. "When it fills with fluid and scar tissue, it no longer looks or works like the brain."

As part of the study, Tandon and his team will gather icEEG recordings from patients with epilepsy by inserting electrodes into the areas of the brain where





doctors suspect the epilepsy is originating, or close to them. He explains that if they knew where the epilepsy was in the brain, they could just target it with surgery.

Following the surgery, which involves using a computerized robot to pinpoint the areas and angles that the electrodes will be inserted, patients are slowly taken off of their medication over the course of a week, so they will begin to have seizures.

While their brain activity is being monitored, they will engage in tasks and games on a computer that will have them name objects and perform other language functions. The doctors will use that information to construct a map of how language works in the areas where the icEEG recordings occur. The ultimate goal is to create a complete map of all the brain areas, Tandon said.

That research won't be the end, though. Tandon said all of that information will take the form of maps of brain networks and equations that describe the interactions between the areas of the brain as the person thinks of words and forms sentences.

"The research will give us an understanding of how to take information from a normal brain area, connect it to another area and bypass an area that was damaged," he said. "Where we eventually go with this research is creating a rehabilitation therapy that actually works, or a prosthetic device to integrate into their brain that can speak for them."

#### PARTS OF THE BRAIN

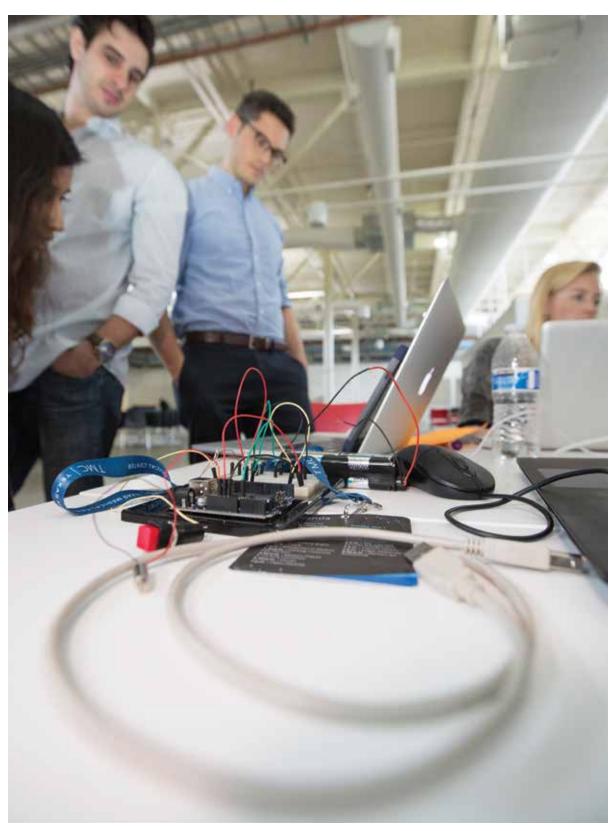


■ Frontal Lobe ■ Parietal Lobe Temporal LobeOccipital Lobe

### **Working Together**

What happened when 40 strangers spent a weekend at TMCx hacking solutions for unmet health care needs

By Christine Hall



The members of the SpaceApples team put the finishing touches on their pitch presentation for their chest tube device for the TMC Biodesign Hackathon. Their idea wowed judges during the competition, earning them first place and a check for \$2,000.

Avni Patel holds up a long, clear tube with a funnel attached to the top while teammate Brian Dawson fills the tube with red-colored artificial snow to simulate blood flow. When the "blood" gets stuck, they turn on their device and watch the red mixture begin to flow freely through the tube.

That prototype chest tube device, to help prevent retained blood product syndrome (RBS) following heart surgery, led Patel's and Dawson's team, SpaceApples, to a first place win at the inaugural TMC Biodesign Hackathon.

The Biodesign program unites a group of individuals from diverse backgrounds—engineering, medicine, business, computer science, design and research—to create digital health solutions and new devices for unmet health care needs.

Hackers, some of whom are also finalists for the next Biodesign program, came from places as far as Europe, representing various academic disciplines and some of the best academic institutions in the world.

"One of the key factors to the success of this year's hackathon was the diversity of the hackers," said Farzad Soleimani, M.D., associate director of TMC Biodesign and assistant professor of emergency medicine at Baylor College of Medicine. "This also goes to highlight how competitive our program has become."

For the 40 participants, it was a weekend spent doing what they love. One team, 5 Tries Design, became an audience favorite for its exoskeleton materials solution to alleviate back strain for physicians who have to wear heavy lead aprons for hours.

This was the first hackathon for Jeric Bautista, a mechanical engineer at Re:3D, and one of the 5 Tries teammates.

"I thought it was fun and also interesting how far you could make progress on a real need," he said. "Toward the end, we got really good feedback, and it was good to hear how well our product aligned with radiologists' and cardiologists' needs that were in attendance"

With all fun aside, for half of the participants, it was also an audition for Biodesign's highly competitive, one-year innovation fellowship program.

The idea to do a hackathon came about when program leaders Sandeep Burugupalli and Soleimani wanted an interactive and engaging way to meet potential Biodesign candidates and evaluate their skill.

"In many ways, the Biodesign program is a

yearlong hackathon," said Burugupalli, business strategist at TMC Biodesign. "We couldn't imagine a better way to test the candidates than to see how they do in this environment."

When Burugupalli worked in Boston as part of Massachusetts General Hospital-Massachusetts Institute of Technology Co.Create, an academic incubator pairing early MIT startups with clinical design input and mentorship, he saw firsthand the value that hackathons brought to the ecosystems they serve.

For example, PillPack, a pharmacy that provides personalized prescription packs, originated from a hackathon, Burugupalli said. Co-founders TJ Parker and Elliot Cohen pursued the idea and have since raised \$62 million. Their idea was named one of the "25 Best Inventions of 2014" by Time magazine.

"Great things come out of hackathons, and at the minimum, you get this community that allows the ecosystem to grow," Burugupalli added.

Once he and Soleimani started building out the event, it attracted interest from the Clinton Foundation, which came on board as a partner.

"On a daily basis, EMS brings a large number of patients with mental health or substance use disorders to our department. Not having access to their medical information complicates the process of diagnosis and treatment," said Soleimani, who is also an emergency medicine attending at Harris Health System's Ben Taub Hospital, one of the top five busiest emergency departments in the country, and the only hospital in Houston with 24-hour emergency psychiatry services.

The Clinton Foundation brought a focus on emergency medical services, including mental health triage in hospital emergency departments.

"In both clinics and hospitals, there is a general lack of capacity and support for individuals seeking mental health advice from clinicians, and many don't have the necessary resources to screen the person when they come into the emergency room, arrive at a regularly scheduled visit or seek health or wellness services. That is having corollary effects on their usage of medical facilities," explained Alex Chan, director of national health for the Clinton Health Matters Initiative (CHMI), an initiative of the Clinton Foundation, and one of the partners of the hackathon.

Unfortunately, when someone goes into the ER suffering from a mental illness, those symptoms may be masked by other symptoms, so there is often a misdiagnosis and a missed opportunity for a warm handoff to psychiatrists for therapy, he added.

CHMI would like to see a system or platform created to allow for better screening during the intake or first visit, which Chan said was just as important as follow-up care and referrals.

"If they are going to specialized care, how do we ensure that the care is provided immediately or the appropriate follow-up is done the next day or within a week?" Chan added. "This is something larger medical clinics are also looking at."







One of the key factors to the success of this year's hackathon was the diversity of the hackers. This also goes to highlight how competitive our program has become.

— FARZAD SOLEIMANI, M.D.

Associate Director of TMC Biodesign and

Assistant Professor of Emergency Medicine at Baylor College of Medicine







#### **HACKATHON JUDGES**

#### Luke Bonney

Co-founder of Redox

#### Katherine Chambers

Co-founder of The Right Place

#### Alex Chan

Director of national health for the Clinton Health Matters Initiative

#### William Cohn, M.D.

Cardiologist and director of the Center for Technology and Innovation at the Texas Heart Institute

#### Thomas DeSouza

Managing director at Allegory Venture Partners

#### Mark Escott, M.D.

Assistant professor of emergency medicine at Baylor College of Medicine and director of the EMS and disaster medicine division

#### William F. McKeon

Executive vice president, chief strategy and operating officer of the Texas Medical Center

#### Nidal Moukaddam, M.D., Ph.D.

Assistant professor of psychiatry and behavioral sciences at Baylor College of Medicine

#### Vinay Patel

Business development manager at AT&T

#### Toral Sindha

Houston and Harris County regional director for Clinton Health Matters Initiative

#### Farzad Soleimani, M.D.

Associate director of TMC Biodesign and assistant professor of emergency medicine at Baylor College of Medicine



William F. McKeon, middle, executive vice president and chief strategy and operating officer of the Texas Medical Center, asks questions of one of the presenters during the pitch presentations.

One of the ways he feels will help bring mental health to the forefront is for communities to work to take away the "undying stigma" related to mental health—to figure out ways the community can come together to support citizens with mental illness, and how that could be translated into a clinical setting.

Though CHMI has partnered on previous hackathons, Chan and Toral Sindha, Houston and Harris County regional director for CHMI, both say having this one run through the Texas Medical Center enabled a deeper dive into the specific unmet needs of the medical community and which ones could be disrupted in a good way.

"The mental health space is becoming more emergent and diverse in terms of the populations experiencing it, and institutions are really looking at how technology intersects with medicine," Sindha said. "The proactive application of technology, national trends and local trends will be a successful model

The second unmet need presented at the hackathon specifically guided the participants to devise a solution to enable emergency medical services teams to pull up a patient's medical history when they arrive on the scene, regardless of their underlying medical conditions.

The Biodesign directors drew attention to the fact that nearly seven million transports are conducted in the U.S. by EMS responders without any knowledge of patients' medical histories.

After all eight teams presented their solutions, the judges awarded SpaceApples with the \$2,000 first prize; mBiometrics came in second and won \$1,000 for its application that helps EMS identify patients; and 5 Tries Design won third, and \$500, for its RadPal lead

Nidal Moukaddam, M.D., Ph.D., assistant professor of psychiatry and behavioral sciences at Baylor College of Medicine and one of the judges, thought the event was a good way to spend the weekend, and she enjoyed seeing how multidisciplinary and accomplished the teams were.

"It was great to hear their different perspectives," she said. "A lot of these people are very skillful and

66 It really blew me away and spoke to the DNA in the room these are bright, highly motivated folks, and it was inspiring and a wonderful thing to see. 🤊 🦻

#### - WILLIAM COHN, M.D.

Cardiologist and Director of the Center for Technology and Innovation at the Texas Heart Institute, Professor of Surgery at Baylor College of Medicine, Adjunct Professor of Bioengineering at both Rice University and the University of Houston



creative, and their pitches, for being done so quickly, were very professional."

Chan mentioned he was "blown away" by the caliber of the products, pitches and presentations, and he was not expecting the level of thoughtfulness and intent that went into the design of the products.

Meanwhile, his colleague, Sindha, thought the teams were mindful of who they were going to target and had an understanding of who the user would be and who the recipient would be.

Another judge, William Cohn, M.D., a cardiologist and director of the Center for Technology and Innovation at the Texas Heart Institute, a professor of surgery at Baylor College of Medicine and an adjunct professor of bioengineering at both Rice University and the University of Houston, said he was "amazed" by the fact that all of this was done over a weekend.

"The individuals came in on a Friday, heard about what they needed to focus on and then came up with fully cooked presentations with business models, beautiful PowerPoint presentations and, in some cases, functioning prototypes," he added. "It really blew me away and spoke to the DNA in the room—these are bright, highly motivated folks, and it was inspiring and a wonderful thing to see."

Following the event, four of the teams, including the winning team, announced that they were in the process of filing for provisional patents on their products. Next up for TMC Biodesign is preparing for its next class of fellows after selecting the eight fellows in May.







#### THE MAKING of $\alpha$ BIODESIGN FELLOW

Diodesign unites a group of individuals from diverse backgrounds including engineering, medicine, business, computer science, design and research, to create two innovation tracks—digital health solutions and new devices—for unmet health care needs.

The first class of fellows started last August and is nearing the home stretch of their yearlong program. Sandeep Burugupalli, TMC Biodesign business strategist, said they have made a lot of progress since that time.

They completed the initial prototype-identifying stage, where they engaged with hospitals to find unmet needs, and now they are in the inventing stage, or the stage during which they are building out the solution. The class will then move into the implementation stage that involves both teams starting companies and raising seed capital, and filing a patent for the medical device team.

"Our hope is that the companies that come out of Biodesign pursue other things within the TMC Innovation Institute and go broader into the Houston ecosystem," Buruqupalli said.

For the new class, Burugupalli and his team, including Farzad Soleimani, M.D., associate director of TMC Biodesign and assistant professor of emergency medicine at Baylor College of Medicine, and Sabah Pervez, a business associate with TMCx Accelerator, sifted through more than 600 applications.

Pervez reached out to mentors and advisers for the event as well as marketed the application. She said a large number of applicants responded back within a day of the application going out. There was also a diverse mix of people and skill sets.

"One of the applicants is a clinician who could take a break from his residency, and he wants to use that break to be a fellow," she said. "That kind of passion from him and others made it a hard call to pick the finalists."

They reduced those down to about 70 applicants and performed rounds of interviews and assigned them a case analysis, for which they could choose one of two health care needs to create a solution and the process they would take to commercialization.

They could conduct case analysis on either the need to help emergency medical personnel get quicker access to patient health history or the need to prevent embolic stroke in patients with atrial fibrillation who have contraindications for anticoagulation, Soleimani said

"In a sense, we are trying to assess their research and analytical skills and to figure out how creative they are, how they can leverage design thinking and how collaborative they can be," Soleimani said. "Based on interviews and need analysis assignments, we could then see where the applicants fit in terms of their role as builder, researcher, organizer and/or scientist-clinician. We aim to recruit individuals with complementary skill sets as well as great chemistry to be part of the Biodesign fellow teams."

Our hope is that the companies that come out of Biodesign pursue other things within the TMC Innovation Institute and go broader into the Houston ecosystem.

— SANDEEP BURUGUPALLI Business Strategist at TMC Biodesign



IN APRIL OF 2000, JARED DUNTEN DOVE INTO THE RIO GRANDE WHILE ON A CAMPING TRIP WITH A FRIEND. SIXTEEN YEARS LATER, HE OPENS UP ABOUT THAT DAY, HIS HOPES FOR CURING PARALYSIS, AND HOW NEVER GIVING UP HAS HELPED HIM CREATE A LIFE NO ONE COULD HAVE IMAGINED.

#### Q Tell us about your background.

A It was kind of unconventional. My parents grew up in the Houston area, and in 1977 or 1978, they moved to Lake Travis, just outside of Austin. My dad used to work for Houston Lighting and Power and my mom worked for NASA as a librarian. They told the family that we were going to move to Lake Travis and start a cactus nursery. As you can imagine, everyone was like, 'What?' They really loved going up to the desert. They really appreciated the landscape and loved the way the plants looked, so it became a hobby [...] and they wanted to do that full time. They got to the point where they were looking at the jobs they had and [realized], 'This is not what we're passionate about. It's not who we are and not what we want to do.' They packed me up and the three of us headed west. They started a shop in Bee Caves, which is about 15 minutes from where I live now, and have run a cactus and succulent nursery for 30 to 35 years.

I grew up just outside of Austin and went to school in Lake Travis until ninth grade. After ninth grade, I went to St. Michaels and had a great time. After I graduated from St. Michaels, I went to Texas A&M and was in the Corps for about three semesters, but it just wasn't for me, so I got out and joined a fraternity. Both experiences were great and I met a lot of wonderful people.

Over the summer I interned with GSD&M right after my freshman year in college on the account services side, but realized that wasn't what I wanted to do long term. As I changed my major from business to English and I got more interested in writing, I was able to get another internship on the creative side at GSD&M. I worked my way up and was hired as a writer for GSD&M, which is what I still do today.

| How has your "unconventional" upbringing shaped who you are today? | | We would go on a lot of buying

trips out to Arizona, New Mexico, Colorado, California, different areas in Texas and out west. That was kind of different and a little strange. During that time, I was exposed to a lot of nature. We did a lot of camping, went on really beautiful road trips and spent time outdoors. I developed a deep and wonderful appreciation for nature—the natural beauty and the severity of it.

### Q | Can you talk about how you sustained your injury?

A | A buddy and I were on a camping trip in the Chisos Mountains in the left section out in Big Bend, where we had been camping for a couple of days. The plan was to go over into Mexico there in Bosques, and we were going to stay the night and get up to go to Mass the next morning. Before we had done that, we pop all our gear and stuff off and we're having enchiladas and we headed down to the hot springs there right next to the Rio Grande. While I was doing that, I grabbed a bar of soap and dove into an area that I thought was deep, but it was a bad move on my part because I didn't check before. There's all kinds of little pools and stuff in the Rio Grande. I hit a sand bar and don't really remember much after that. I was in the river for a couple of hours, but thankfully my buddy saw me dive in and fished me out after I didn't come up for a while. He basically stood in the river and held me above water while he was screaming for help. Luckily, while we were headed down to the Rio Grande, we met some other campers there at the place we were staying and they heard him screaming for help. I was in the river for a couple of hours though until, finally, they came and he told them what was going on. I don't remember any of this really. It's just kind of stories I've been told. The two girls went to the park ranger, who then got a boat and came down the Rio, got me, took me on a stretcher and transported me from there to an ambulance to Alpine.

The doctors at Alpine weren't going to be able to do anything there because, at that point, I was paralyzed. I was taken in an ambulance to Lubbock, where they did the decompression on my spinal cord at C4 and C5, where I had my injury. I was in an ICU there in Lubbock for about a month and a half.

#### Q What happened then?

A During that time, I developed a really bad case of pneumonia because I had taken so much of the water and, as they were trying to treat my lungs, I was put on a stryker bed. They used a special bed that you swing back and forth to keep the fluids moving in your lungs so it doesn't settle in and doesn't make the pneumonia worse. At that point, because this bed shifts back and forth, I developed a pressure sore that is like an ulcer in the lower part of my back. Now I have this wound and I've got pneumonia and on a ventilator. The doctors did a lot of suction of my lungs and that was really painful. That's really what I remember the most. The doctor who was there said they had

never seen anything like this or quite this bad because I had taken in so much of the dirty water and that kind of stuff. Throughout this, I was pretty out of it. I don't really remember a lot and what I do remember is pretty dreamy. Real dream-like memory of that whole experience, but maybe dream-like is not the right description because it was pretty terrible.

The doctors had talked about paralysis, but I had no idea about paralysis and spinal cord injury. I knew nothing—I was naïve: I thought I'd be going to rehab, work really hard for six months, and it'd be like what you see in movies, where I'd get on parallel bars, learn how to walk again and all that kind of stuff. Thought that was really what it was going to be like. The thing was, I was in the ICU for so long, just up and down, while the doctors were trying to keep my fever down. I think there was some concern that, if I stayed there, I may not make it. In fact, one of the nurses had told my parents that it was very important that they get me out of there because it wasn't going well.

# I will paint myself out of a wheelchair. That was literally how I thought this would work.



#### What was your first clear memory after the accident?

A Probably my first very clear memory was when I finally got rolled outside. I remember the giant blue sky. It was really windy and cool at the time. That was pretty amazing. It was a big deal for me. As I was being transported into the plane to go to TIRR, I still couldn't talk or anything at this point. I was on a ventilator, still pretty messed up, so they took me to the plane and I flew and then I'm not sure which airport I flew into in Houston, and then from there they took me in an ambulance to TIRR. The whole thing was really scary because during the transport, I had an Ambu bag. It's basically a bag that hooks to the TRAC and the ventilator, and someone literally is breathing for you. They squeeze their hand so you can breathe. That was scary as hell and pretty weird. You're just staring at this person that's squishing this bag and saving my life. My life is in your hands, literally,

#### | What was your mindset during rehabilitation at TIRR?

A I got off the vent and I was able to go to more stuff at the gym and start doing more conventional rehab. I had Dr. Kenneth Parsons and he was great. It was a really good experience for a really bad time and a really bad situation. I was 25 then, so I was pretty pissed off the whole time. At this age now, 42, you realize that these people are coming to you to help at the hardest time in your life. I can see that now, but

at the time, I don't know that I would have said that. Now I have a better understanding of things.

#### Q How did your accident affect your career at GSD&M?

A I have nothing but wonderful things to say about the company and group of people. They were really incredible—they always stood by my side, helped me, and continued to work with me in terms of my availability and what I can realistically do on any given day.

I was at TIRR when one of the partners at GSD&M called my mom and said, 'Look, about Jared. Don't worry about the job. We'll figure it out and we'll figure out how he'll continue to work. Don't worry about where he's going to live and how that's going to work because we're going to build him a house.' They built a studio-type house for me on my parents' property, so I was able to stay and work there. My parents took care of me after I got home from TIRR and my father continues to help me today. After I got married and had kids, we just kept adding onto the house and kept expanding.

#### Q How is your life now different from before you had the accident?

A I was very active before the accident. I ran, lifted weights, played team sports all my life and continued on the tennis team where I worked here in Austin. Tennis, soccer, camping and hiking, that sort of stuff. I think going from that pretty high activity level to

the prospect of zero activity or the idea of not being able to do anything like that was pretty tough. It was also the fear of not knowing. I was doing well as far as my career went and things were really just starting to take off in some respects when I had my accident. It was going from career minded, driven, ambitious to thinking all that's gone and everything is gone. I'm going to have to end up depending on people for the rest of my life on a very patient level, not just the normal 'we all need stuff' kind of stuff. Literally, to brush my teeth or get something to eat. I think that was probably the toughest thing. I

#### Q At what point did you have that 'aha' moment when you realized you could still have a good life?

think the mental part was the toughest.

A It's a gradual process. I think it sounds better if you have that moment. It would be nice to think I had that epiphany but the reality is it's still hard today. I still deal with a lot of the same issues today that I think my advice to anyone who's dealing with something like this is stay busy, try to do things that occupy your mind. That was one of the big things my grandmother told me when I was there—just keep your mind active and don't give up. That was kind of the mantra there at TIRR. The beneficial slogan was to never give up, and that's the same today. At the end of the day, when I've gone to visit people in the hospital and they're in similar situations, that's what I leave them with: 'You know how fast your life changed, but I don't know why it couldn't change back or change in a positive way just as quickly.' You're always kind of looking behind the bend or over the hill to figure out what's going to happen next, but you just don't know. I just try to stay positive and just keep going, keep breathing. Sometimes it's one minute at a time, sometimes it's an hour, sometimes it's a day, sometimes it's a month. You just focus on what you can take in at that moment.

#### What inspired your passion for art? How does it fit into your life now?

A I think there was still something missing or lacking in my life. I had always been into art as a little kid. I was drawing in elementary and middle school. I liked art and would be a little involved, but I really just lacked the focus and I didn't see it necessarily as a career.

I think that's how I found peace with being a copywriter. I was able to be creative, have a career and continue that, so once I started painting and my mom told me about what the Lichtenstein Mouth and Foot Painting Artists organization was doing, I was like, 'Sure, what the hell, I'll give it a try.' Right at first it was very basic. It was literally just trying to figure out how to do things. I started off doing watercolor on paper and just drawing, being frustrated, a little maddening and just keep going from there, but I ultimately

It was the thing that I got to do to make something. The work I did at the agency was cool, but it was just that there were a lot of people involved. Let's say you make a 30-second television spot. It's not just you and one other person. You're talking about hundreds of people being involved. I loved the fact that when it came to painting, when it came to the artwork in that sense, it was sink or swim for me. This painting either will be great or not or it's going to be what it is, but it's going to be because I did it or I achieved something or I failed. I like that part of it.

There was an independence that painting gave me. To some degree, I still have a lot of people who help me and I have to, especially now that I'm dealing with bigger canvases. Being involved with painting, starting to paint, and getting any kind of attention or recognition for it was basically to build a platform to talk about spinal cord injury and the need for it to be solved. How do we fix this? If we can send a person to the moon, we can certainly cure paralysis.



66 I think my advice to anyone who's dealing with something like this is stay busy, try to do things that occupy your mind. "> "

I will paint myself out of a wheel-chair. That was literally how I thought this would work. Anytime I get a chance to say, 'Look, this is something we, as mankind, can fix, change and finally overcome.' I still believe that.

### Q What is your hope for curing paralysis?

A I think it's something that's still very real and a goal that can happen. That was part of the painting. Any time I have a chance I tell someone, 'Look, we have to heal, we have to fix this.' Sure, a wheelchair gets me from point A to point B and my life's wonderful, but I still wanted it to be known that being in a wheelchair, being paralyzed, still sucks. We can fix it—I know we can. I don't know how, but I know we can and I know there have been a lot of strides made. A lot of things that have been done to make things better and I've noticed that all along from a medical research standpoint.

It seems like there's a lot of good stuff on the horizon. It's one of those things that I just want to keep pushing. When I started, that was when Christopher Reeve was alive too, and I knew he was a very vocal advocate for the research and so I really just kind of thought that's what I have to do if I want to beat it, be as vocal and as visual as I can about the need to change it. He always had an analogy that I liked. He compared it a lot to the transcontinental railroad. The medical science is going to start on one side and I'm going to start with the physical rehab that I can do on the other and God willing we'll meet in the middle and fix this.

I liked that and it made sense to me. That's why today I'm still trying to continue to stay healthy and just every day hope that I wake up not paralyzed or that I'm going to read some headline that we cured it or something like that. It's kind of the whole idea in this paint myself out of the wheelchair.

### Q How do you balance writing and painting?

A | The two complement each other really well. It's very much different sides of your brain that you use for painting and writing, but it's cool and I'd like to figure out how to incorporate them into my own thing.

Continuing to work has been a really great experience because sometimes you have to step away from the



canvas, stop obsessing over one thing and go obsess over another. When you've done something a hundred times, sometimes you need to take a step back and look at something that's a shape or a color and I think that's been really good. In terms of professional life and time, [...] that's a balance we're all trying to figure out, whether you're paralyzed or not. That happy balance of a professional life and personal life is a constant challenge and like those old carnival spinning plates, trying to keep all that stuff going.

### Q | Tell us about TIRR commissioning your artwork.

A | Susan Thomas looked through the site and some work that I had done, and they had kind of gravitated toward the orchids, which I really liked, too. I enjoyed painting the orchids, because there's something that seems very simple about them, yet the more you stare and study them, the more complicated they become. I kind of thought that was an analogy to the injury and the accident. It's like, 'We can fix this and you'll be fine, but it's more complicated than that.' It's difficult, but I think from a broad view they can still be beautiful.

I chose white ones because there's kind of symmetry that's similar to a vertebra, particularly in one of them. The C5 has more of a linear structure to it and there's more of a pattern that's like a spinal column. You see the cord running through it and it's all back together and then at the end of it there's one that has yet to open. That's the future, as you're leaving the hospital you don't know what it's going to bring and it has yet to open.

The other kind of orchid is more painterly from a style standpoint. You see the strokes, the stem that the orchids are coming off of is definitely fractured and it goes in different directions, and the whole thing, even from a composition standpoint, is a little more hectic and everywhere. There are blooms that are open and blooms that are not, and that's a little bit of the life one has when you're rolled into a hospital like that. Everything at that point is up in the air and fractured, and there's disarray, and then hopefully you get out of there and things are a little more in line again and have a little more structure and are starting to look more like a life.

# Q What do you want your legacy to be? What wisdom do you want to impart to others?

**A** Just don't quit. Never give up and keep trying to make life better. I think that's a big part of why we're all here.

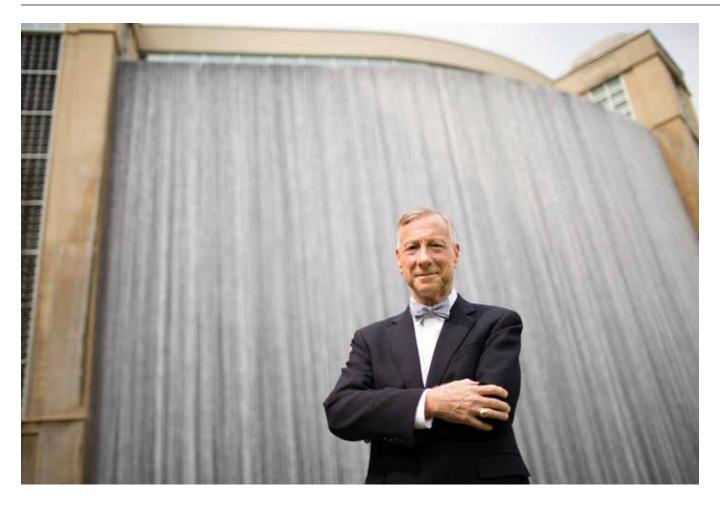
It's to leave something good behind. I don't know if it's inspiration or hope. I think both can be tricky, bad and good, but I think I want people to not give up and to not think that we can't make a difference and, in a weird way, make the world better than you left it.

Let's cure paralysis. That's my dropthe-gauntlet to everyone that's working on and around it. Don't give up, don't tell patients you're never going to walk again. It really all starts with people believing it can be done. I hope that the stuff I do inspires people who are doing research and doing the medical side of it to keep pushing and not give up and not think to the heart that we can't do it. Know that I think once everyone is on the same page that there is a possibility and it is real and to follow this, and I don't mean in 10 or 20 or 30 years, I mean now. There's some urgency to it, I hope that gets it done. I hope that there's a cure, I feel like I can be a part of it and that I made a difference.

### A Turn in the Health Care Tide

The TMC Health Policy Institute's second annual Consumer Health Report highlights changing perceptions on Medicaid and health

By Shanley Chien



The second annual Consumer
Health Report by the Texas Medical
Center's Health Policy Institute (HPI)
made its official public debut last
month at the 2016 Medical World
Americas Conference and Expo.

The HPI collaborated with Nielsen Holdings Inc., a global information and metrics company, to conduct the web-based survey in January and February of this year to put a finger on the nation's pulse regarding views

on the importance of health insurance coverage, quality of patient care, emergency room usage and obesity. Compared to the inaugural 2015 health report, which gathered 1,000 responses from only Texas residents, this year's report was more robust in its coverage, surveying 1,000 individuals from each of five states selected for their political breadth: New York, California, Ohio, Florida and Texas.

One of the most surprising results

ACROSS ALL FIVE STATES, APPROXIMATELY
TWO-THIRDS OF RESPONDENTS AGREED THAT THE
GOVERNMENT SHOULD PROVIDE HEALTH INSURANCE
COVERAGE FOR ALL U.S. CITIZENS.

of the survey included the states' views on the politically charged topic of Medicaid expansion. In the two states surveyed that had rejected Medicaid expansion, 63 percent of Texans and 68 percent of Floridians were in favor of Medicaid expansion, while over 80 percent of those respondents from New York, California and Ohio, where states have accepted the expansion, want to keep it. Across all five states, approximately two-thirds of respondents agreed that the government should provide health insurance coverage for all U.S. citizens, and each state showed similarly strong support for a candidate whose platform included expanding Medicaid.

"I think [the survey] keeps the issue of expanding Medicaid on the public agenda. It keeps elected officials concerned about working [toward] a proper stand for the state to take," said Stephen H. Linder, Ph.D., associate director of the HPI. "We thought, on the surface, that the responses would follow that division between those two groups, but as it turns out, the responses did not. In fact, the public responses not only looked very similar, but concern for coverage was uniform across all five of the states. We didn't expect that at all."

While there are various alternatives for offering health insurance, such as expanding private health insurance, Medicaid expansion as a means of providing health care was the top choice—even in Texas and Florida, two states that also had the highest level of concern regarding the quality and cost of care. In fact, compared to last year's survey, there was a 50 percent increase in the number of Texans who thought Medicaid expansion was the best way to increase health coverage.

"The vast majority of people have said that health insurance is vital to them and vital for everyone in the country to have," said Arthur Garson Jr., M.D., director of the HPI. "How we achieve that goal, and I personally agree with that, is going to have to be uniquely Texan and the people in Austin are going to have to wrestle with it. I hope that the data from this survey will be of some help."

"There is a sense that the issue is closed and the time has passed, but these survey results say that's not the case in the public's mind—that the issue is very much alive and it is still very much a concern. It suggests, then, that more deliberation, more talk and more debate needs to happen because

# THE SURVEY SHOWED NEARLY HALF OF PEOPLE WHO RESPONDED VISITED THE ER TO SEEK TREATMENT FOR NON-URGENT MEDICAL PROBLEMS.

the issue is nowhere near closed," Linder added.

In another problem area, the survey showed nearly half of people who responded visited the ER to seek treatment for non-urgent medical problems, citing doctor's office hours and convenience as key reasons for going outside of their primary care physicians.

"This is an astonishingly high number," Garson said. "But it fits with other data, that about 50 percent of people in the emergency department do not need to be there."

There are various reasons why frequent ER visits for non-urgent situations continue to be the case including a lack of doctors accepting Medicaid, inability to take time off work to go to the doctor's office and a nationwide shortage of primary care physicians. Because ERs are open 24/7 and are required to, at the very least, stabilize any and all patients, the surge of patients resorting to the ER is understandable. The survey's statistics shed light on just how prevalent ER use is in an effort to draw attention to the underlying issues that perpetuate this trend, as well as to the need to develop creative solutions that address the ongoing problem from the top down.

"The story is that we need to develop better methods to deal with patients after hours," Garson said. "We need better patient education and support for not going to the emergency department." In addition to Medicaid expansion and ER overcrowding, the survey results also gauged people's opinions on the oft-discussed "fat tax," a surcharge that would be placed upon fattening or sugary food and beverage items aimed at discouraging people from making unhealthy decisions in an effort to reduce obesity rates.

The results showed more than half of respondents agreed that foods linked to obesity should be more expensive, with 68 percent of people supporting a \$.25 increase for \$1 sugary drinks and 63 percent supporting a \$2.50 increase for an unhealthy \$10 meal. Although overweight and obese respondents were more skeptical that a "fat tax" would help promote healthier eating habits, the fact that a little over half of healthier individuals, 57 percent to be exact, believed such a tax might help could indicate progress.

While the Consumer Health Report is intended to present important data around attitudes toward health care coverage, ER usage and obesity, it will ultimately be up to the individual states to decide how they want to apply this information to implement change.

"I found the data very interesting, but how [states] want to deal with these issues is going to be in the hands of the governors and the legislators," Garson said.





Robert C. Robbins, M.D., president and chief executive officer for the Texas Medical Center (top) and Arthur Garson Jr., M.D., director of the TMC Health Policy Institute (bottom), present the second annual Consumer Health Report at the 2016 Medical World Americas Conference and Expo.

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— ARTHUR GARSON, JR., M.D.

Director of the Texas Medical Center Health Policy Institute

### A New Kind of Care

Health care providers from around the Texas Medical Center have come together to give quality care to special needs patients who have aged out of the pediatric system

BY BRITNI N. RILEY

There are currently 53 million adults with intellectual and developmental disabilities in the United States population, according to the Centers for Disease Control and Prevention. Due to a lack of trained health care professionals, the majority of this population are unable to find quality medical care, and sadly many go for prolonged periods of time without health care as a result.

Cynthia Peacock, M.D., director of the Transition Medicine Clinic at Baylor College of Medicine, received her medical degree and residency training from Baylor College of Medicine. After her medical training, she returned to Baylor and became the combined internal medicine-pediatric residency program director. While in this position, she recognized a gap in care for people with intellectual and developmental disabilities once they aged out of the pediatric health care system.

"While I was the residency director at Baylor, several of my pediatric colleagues began telling me about the number of individuals coming out of the pediatric health care system

MANY PATIENTS WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES
ALSO SUFFER FROM BEHAVIOR DISORDERS THAT MAKE SEEING A DOCTOR IN A
TRADITIONAL CLINIC SETTING VERY CHALLENGING.

who could not find adult health care," Peacock said.

Adults with disabilities such as autism, Down syndrome and cerebral palsy suffer from many health issues that require constant medical care. Fifty percent of people with Down syndrome have congenital heart disease and many also suffer from thyroid disease, lung disease and gastrointestinal issues.

"Many times their anatomy is very different than that of a neuro-typical person," Peacock said. "Generally only pediatricians are trained to work with people with developmental disabilities and understand the physiology differences they present with."

Many of the patients with intellectual and developmental disabilities also suffer from behavior disorders that make seeing a doctor in a traditional clinic setting very challenging. Whether it be a sensitivity to light, fear of elevators and crowds or even sitting still in a chair, it can be very hard for these patients to be seen by community physicians because of the time and accommodations it takes for them to be comfortable.

"Most physicians do not have time to accommodate this patient population and also have not been trained with the techniques to help make them comfortable in a clinic setting," Peacock said.

In 2005, Peacock opened the
Transition Medicine Clinic at Baylor
College of Medicine to provide medical
care and social support services to the
growing population of adolescents and
young adults with a chronic childhood
illness or disability as they move from
pediatric to adult health care.

Today, the clinic serves 700 patients with complex childhood conditions from around the Houston community and utilizes the resources and talent the Texas Medical Center has to offer to provide the best care possible for patients.

"The patients that I see at my clinic are significantly impacted by their childhood conditions. Not only do many have intellectual and developmental disabilities, but they also have numerous social determinants that

impact their disease status. The combination of the two can affect their ability to find health care providers who are willing to care for them," Peacock said.

By partnering with numerous health care providers from around the Texas Medical Center, Peacock is able to offer her patients a complete medical home and primary care. In addition to primary care, patients of the Transition Medicine Clinic at Baylor can receive help from social workers, have procedures done, see specialists and even have optical and dental care arranged for them.

"I think our clinic model demonstrates that if you engage all of these people from different fields and get them to work together, you can really provide the best care for this population of patients, and it has been life-changing for our patients," Peacock said.

Many of the patients from the Transition Medicine Clinic at Baylor are sent to the University of Houston College of Optometry for optometry services. The school provides a clinic specifically for adults with disabilities called SNAPS (Special Needs Adult and Pediatric Service). The clinic cares for teens and adults with a variety of disabilities and with different levels of cognitive aptitude.

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- CYNTHIA PEACOCK, M.D.

Director of the Transition Medicine Clinic at Baylor College of Medicine





Kassaundra Johnston, O.D., explains the different eyewear options for her patients. The Specs4us glasses are specially made for patients with Down syndrome.

Kassaundra Johnston, O.D., director of SNAPS and clinical assistant professor at the University of Houston College of Optometry, started the clinic after seeing a need for care in the special needs adult population.

"After completing my residency, I felt like we were not providing the full service to adults with disabilities. We were doing an excellent job with the pediatric population, we were doing a pretty good job when they got out of pediatrics, but I felt like we could be doing something better and different," Johnston said. "When I became faculty, I was given the opportunity to mold my own clinic, and I wanted to provide a full-service clinic for all adults with developmental delays or disabilities."

The clinic provides comprehensive eye exams for patients, fits patients for glasses specifically made for children and adults with developmental disabilities and provides families and caregivers with information and strategies to better communicate with their loved ones.

"We try to provide the patients and their families with not only the basic eye exam and glasses, but also information that they can take back and use in their daily lives," Johnston said. "For example, if a patient is nonverbal, we can tell the parent that their son or daughter has 20/30 vision and we relate that back to font size, so whenever they are reading or looking at near materials we know they are able to see it properly."

The clinic is run by Johnston through the University of Houston College of Optometry and is staffed by fourth-year students throughout the year. The course is an optional clinical rotation and not required by the school to graduate from the College of Optometry. The course aims to teach students the best techniques to use when examining patients with special needs.

"I think one of the biggest challenges for this population is finding an office that can spend the amount of time it takes to do these exams,"

Johnston said. "There will be times
I have to do my exam on the floor because I am working with a patient who feels the most comfortable there, or they might need 30 minutes by themselves in the room to be comfortable

with it. My hope for my students in SNAPS is that when they have their own practices, they will take the extra time to work with these patients and be prepared to do so."

The majority of patients seen by Johnston and her team have autism and Down syndrome. Patients with Down syndrome, especially, have a hard time wearing traditional glasses because they do not fit well on their faces.

"The facial features of patients with Down syndrome are different than others because their bridges are flatter and their ears are lower-set. Because of this, most glasses will fall off of their faces or will be uncomfortable for patients to wear," Johnston said. "I don't think twice to recommend a new type of glasses for my patients because I want to give them every option for frame selection we have to provide them with the best vision possible."

Specs4us is one of the eyewear companies the University of Houston College of Optometry uses for their patients. The company was started by Maria Dellapina, a single mother of four whose youngest daughter was diagnosed with Down syndrome. Dellapina had 30 years of experience working in the optical field and was very frustrated that she was not able to get her daughter glasses that fit properly.

"When we began looking for glasses for my daughter, there were only two options—Miraflex or Specs4us," said Kalaya Riccio, the mother of an optometry patient. "We started [my daughter] out with Miraflex, but they pushed against her eyelashes and made her very uncomfortable. When we switched to Specs4us, there was much less distraction and she enjoys wearing them."

Whether it be primary care or optometry, Texas Medical Center providers are working to provide quality care to all patients regardless of their cognitive aptitude.

PATIENTS WITH DOWN SYNDROME, ESPECIALLY,
HAVE A HARD TIME WEARING TRADITIONAL GLASSES
BECAUSE THEY DO NOT FIT WELL ON THEIR FACES.





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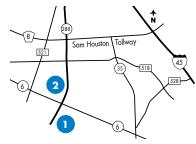
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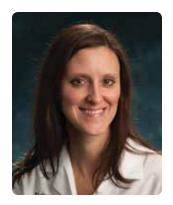


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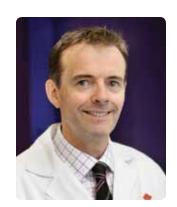


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#### ACCOLADES



JENNIFER DIETRICH, M.D., chief of Pediatric and Adolescent Gynecology at Texas Children's Hospital and the division director for Pediatric and Adolescent Gynecology at Baylor College of Medicine, has been voted president-elect of the North American Society for Pediatric and Adolescent Gynecology. The organization is the premier society that provides gynecologic care to children and adolescents. Dietrich's research interests include congenital problems of the reproductive tract, disorders of sexual differentiation, disorders of puberty, hormonal imbalance, pelvic masses and bleeding disorders in young women.



DANIEL J. PENNY, M.D., PH.D., chief of pediatric cardiology at Texas Children's Hospital and section head and professor of pediatrics-cardiology at Baylor College of Medicine, was recently honored with the American College of Cardiology's 2016 International Service Award in recognition of his strong commitment to enhance cardiovascular care in medically developing countries. His work internationally includes spearheading efforts to address congenital heart disease needs in central Vietnam, which included raising money to build a new local heart institute and training more than 100 local physicians, nurses and other medical staff over the course of 20 trips.



F. ALLEN LYONS has been named to The Menninger Clinic Board of Directors, the governing body of the nationally ranked psychiatric hospital. Vice president of business development for Atlantic Trust Private Wealth Management in Houston, Lyons previously served on The Menninger Clinic Foundation Board, the fundraising arm of the hospital. He also serves on the boards of Mental Health America of Greater Houston, Greater Houston Community Foundation and the Houston Livestock Show and Rodeo. Lyons received his master's degree in business administration from the University of St. Thomas and his bachelor's degree from Louisiana State University.



DAVID POPLACK, M.D., professor of pediatrics at Baylor College of Medicine and director of the Texas Children's Cancer Center, received the Distinguished Career Award at the American Society of Pediatric Hematology/Oncology annual meeting in Minneapolis in May. The award is presented annually to a senior physician or other professional who has had a major impact on the hematology/oncology field through research, education, patient care and advocacy.



JORDAN S. ORANGE, M.D., chief of Immunology, Allergy and Rheumatology Services and director of the Center for Human Immunobiology at Texas Children's Hospital as well as professor of pediatrics, pathology and immunology and vice chair for research in the Department of Pediatrics at Baylor College of Medicine, began serving a one-year term as president of the Clinical Immunology Society this past April. During his tenure, he plans to focus his initiatives around advocacy for patients and immunologists.



TED ROSEN, M.D., professor of dermatology at Baylor College of Medicine and chief of the dermatology service at the Michael E. DeBakey Veterans Affairs Medical Center, was elected vice president of the American Academy of Dermatology. He will be installed as vice president-elect in 2017, and his term will begin in March 2018. The Academy represents more than 18,000 physicians who specialize in dermatology. Rosen also will serve as vice president of the American Academy of Dermatology Association.



**JEFF PAINE** has joined The Menninger Clinic Board of Directors, the governing body of the nationally ranked psychiatric hospital. A vice president at Goldman Sachs & Co. in Houston with over 15 years of experience in investment banking, Paine previously served as chairman of the investment committee of The Menninger Clinic Foundation Board. He also serves on the advisory boards of The Greater Houston Community Foundation and The University of Texas at Austin Department of Economics. Paine received a Bachelor of Arts in economics and English from The University of Texas at Austin.



WILLIAM ZOGHBI, M.D., has been named chair of the Department of Cardiology at the Houston Methodist DeBakey Heart & Vascular Center. Zoghbi is known locally, nationally and internationally as a leader in his field. He has served as president of the American College of Cardiology, president of the American Society of Echocardiography, and on the Board of the World Heart Federation. He is the William L. Winters Endowed Chair in CV Imaging and the Elkins Family Distinguished Chair in Cardiac Health, both under the Houston Methodist DeBakey Heart & Vascular Center.



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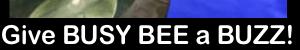






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Under the leadership of United Way Community Campaign Chair, David M. McClanahan, retired president and CEO of Centerpoint Energy, health care related campaigns contributed over \$2.14 million to support the United Way 2015-2016 Community Campaign.

For more information on how your health care organization can get involved, contact Fred Brieden at 713-685-2330 or fbrieden@unitedwayhouston.org.



# June 2016

Science First: The Future of Personalized Medicine in Psychiatry – The Special Role of Genes & Phenotypes

Wednesday, 3 – 6 p.m. JLABS @ TMC 2450 Holcombe Blvd., Suite J 346-772-0302

2 TMCx Demo Day

Thursday, 1 – 7 p.m.

TMC Innovation Institute

2450 Holcombe Blvd., Suite X

TMCxevents@tmc.edu

713-791-8855

James T. Willerson, M.D., Cardiovascular Seminar: Andrey S. Tsvetkov, Ph.D.

Thursday, 4 – 5 p.m.

Texas Heart Institute

6770 Bertner Ave.

Denton A. Cooley Auditorium

Level B1, Green Elevators

832-355-9144

How Might Obamacare Change in 2017?

713-348-2735

Friday, 12 p.m.
Baker Institute for Public Policy
Rice University
6100 Main St.
Baker Hall
www.bakerinstitute.org/events/1777/

415-499-3474

Saturday, 8:30 a.m. – 4:30 p.m. Houston Methodist Research Institute 6670 Bertner Ave. John F. Bookout Auditorium, 2nd Floor www.1dayforums.nationaleczema.org

Love the Skin You Are In Conference

Saturday, 9 a.m. – 3 p.m.
The Health Museum of Houston
1515 Hermann Dr.

www.achildrenshouse.org/programs/ 901-233-6296

Neurofibromatosis Type 1: Updates in Lifelong Care and Screening

Tuesday, 7 – 8:15 p.m. The Children's Museum of Houston 1500 Binz

www.bcm.edu/eveninggenetics 832-822-4280

Third Annual Policy Prescriptions
Symposium

Saturday, 8 a.m. – 3 p.m.
Baylor College of Medicine
McNair Campus
7200 Cambridge
1st Floor Conference
marshep@bcm.edu
713-873-7336



JUNE: MEN'S HEALTH MONTH

Men's Health Month is observed each June to raise awareness about health issues common among males, including prostate health, diabetes, cardiovascular health, mental health, cancer and more. According to the Centers for Disease Control and Prevention, the leading causes of death for American men are heart disease, cancer and unintentional injuries caused by accidents. Heart disease, which can be highly preventable with a healthy diet and active lifestyle, is the no. 1 killer of men. Prostate cancer is the most common cancer among men after skin cancers.

In observance of Men's Health Month, the Texas Medical Center encourages all men, and parents of boys younger than 18, to schedule regular health screenings and to seek medical advice when appropriate.

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For more information, please contact:
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