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NEWS OF THE TEXAS MEDICAL CENTER - VOL. 5 / NO. 7 - AUGUST 2018



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WILLIAM F. McKEON
President and Chief Executive Officer
Texas Medical Center

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America's 65-and-over population is projected to nearly double over the next three decades. We must find new ways to connect with these patients and provide care for them in the comfort of their homes. The connected future promises to bring us enhanced care that ultimately makes us healthier—and works better for patients and providers alike.

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#### TMC PULSE

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President and Chief Executive Officer William F. McKeon

Communications Director Ryan Holeywell

Pulse Editor Maggie Galehouse mgalehouse@tmc.edu

Assistant Editor Cindy George cgeorge@tmc.edu

Staff Writers Alexandra Becker Christine Hall Britni R. McAshan Shanley Pierce

Photojournalist Cody Duty

Contributing Photographers Scott Dalton Nick de la Torre

#### NEWSROOM

713-791-8812 news@tmc.edu

#### ADVERTISING

Felicia Zbranek-Zeitman 713-791-8829 newsads@tmc.edu

#### DISTRIBUTION

Daniel Martinez 713-791-6136 distribution@tmc.edu

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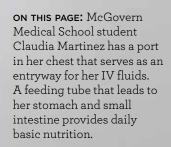
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**ON THE COVER:** Lab technician Elizabeth Scott processes blood donations for component separation at Gulf Coast Regional Blood Center.

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#### The Trauma of Separation

Placing the long-term health of immigrant children in peril

By Alexandra Becker

The Trump administration's "zero-tolerance" immigration policy separated thousands of children from their parents earlier this year. The policy was overturned, but reuniting these families has proved challenging.

In recent weeks, some children have been reunited with their parents and caregivers, but thousands more are still waiting. Either way, childhood trauma experts say, the damage has been done. The brain development and long-term health of these young people has been jeopardized.

Colleen Kraft, M.D., president of the American Academy of Pediatrics, called the practice of separating families at the border "child abuse" and told reporters that the emotional strain of taking a child away from a parent disrupts brain architecture and inhibits development—reiterating a well-established link between early life experiences and long-term health. In the immediate aftermath of separation, children suffer serious psychological, behavioral and physical strain.

"We know that these kids are experiencing acute stress reactions, meaning they are terrified, unable to sleep, oftentimes inconsolable, sobbing uncontrollably and basically yearning and longing to be back with the parent," explained Julie Kaplow, Ph.D., director of the Trauma and Grief Center at Texas Children's Hospital. "That can manifest in younger kids as behavior problems, and it can also appear like ADHD [attentiondeficit/hyperactivity disorder], so it looks like they can't focus or pay attention. In terms of physiologically, we know that there can be high levels of a stress hormone called cortisol coursing through the child's body when they're experiencing that level of stress. Over the longer term, these kids can develop full-blown posttraumatic



A Honduran child is brought to the United States Immigration and Customs Enforcement office ir Grand Rapids, Mich., in July to be reunited with his father.

stress disorder [PTSD], depression, anxiety, they may over time turn to substance use as a coping mechanism, and brain development is delayed."

Substantial evidence suggests that trauma in early childhood has long-lasting effects on

a child's ability to self-regulate and manage interpersonal relationships, as well, said Elizabeth Newlin, M.D., vice chair of child and adolescent psychiatry at The University of Texas Health Science Center at Houston (UTHealth) and chief of child and adolescent services at UTHealth Harris County Psychiatric Center.

"The basis of our understanding of ourselves and of the outer world starts through our relationship with our parent and through a secure attachment relationship with our parent—that's our greatest protection against adverse experiences in childhood," Newlin said. "When that's disrupted, the child is essentially left completely unprotected from all the stressors that are out there in the world. They are very quickly overwhelmed and there's a huge stress response."

(continued)

We know that these kids are experiencing acute stress reactions, meaning they are terrified, unable to sleep, oftentimes inconsolable, sobbing uncontrollably, and basically yearning and longing to be back with the parent.

- JULIE KAPLOW, PH.D.

Director of the Trauma and Grief Center at Texas Children's Hospital

After the initial panic, many children eventually move into a more dissociative state in which they appear numb or "glazed over," Newlin said. If that state persists for prolonged periods in early childhood, a "kindling effect" could occur down the line, meaning stress in later life will trigger that same psychological detachment.

"We know the brain is rapidly developing during this period. It's developing a framework for dealing with stress, so in a way we're teaching the brain how to deal with the world, and if this is the context in which it is developing, that's obviously pretty toxic," Newlin said.

Biology is affected, too. According to The National Child Traumatic Stress Network, early childhood trauma has been linked to a smaller cortex—the area of the brain responsible for memory, attention, thinking, language and consciousness. The neurotoxic stress experienced during trauma has also been associated with cell death, inflammation and a weakened immune system.

Notably, children are quite resilient after traumatic events so long as their parent or caregiver is both present and exhibits resiliency themselves, experts say.

"Children actually function fairly well in trauma if they look to their attachment figure for support and understanding of the situation," Newlin said. "We know that there's a correlation between how parents manage and cope with a catastrophic situation and how the child will manage the situation. That's why when there's a really stressful situation and you remove the parent, it's one of the most damaging things that you can do to a child."

Most of the children who have been separated from their parents at the border come from a highstress environment, which is why their families embarked on the journey in the first place. I think there's this false notion that once the kids are reunited with their caregivers, they're going to be totally fine. But the bottom line is, we know that that's not true.

- JULIE KAPLOW, PH.D.

"Many of our clinicians have worked closely with undocumented youth or unaccompanied minors, and these kids have experienced atrocities that are almost unspeakable," Kaplow said. "These are kids who are really vulnerable coming in, and then to separate them from their caregiver—that may just be the straw that broke the camel's back in terms of really pushing them over the edge to the point where it's going to be very hard for them to recover."

The accumulation of stressors makes the trauma exponentially worse, Kaplow added. In working with children affected by Hurricane Harvey, team members at Texas Children's Trauma and Grief Center observed that kids were rarely thrown into ongoing neurotoxic stress solely by the hurricane or the loss of a home.

"It's rare for us to have a child come to us who has full-blown PTSD solely in response to the hurricane," Kaplow said. "The kids we're seeing certainly have been affected by Harvey, but the vast majority of them have had prior traumas and losses, and Harvey, again, was kind of the straw that broke the camel's back. We've had many, many kids who are coming primarily because their dad died by suicide or their brother was murdered or the child was sexually abused for seven years, and then we ask the question, 'Were you

affected by Harvey?' And most of them say 'Yes.' Many of them lost their homes, many of them had to rebuild, but the bottom line is, that was a blip on the screen compared to the many other traumas and losses they've had."

Kaplow and her team have also been helping students at Santa Fe High School, where a mass shooting on May 18 left 10 people dead. Again, the team noticed that the majority of kids who reached out for help were already coping with two or three past traumas.

"Many had been adversely affected by Harvey, even prior to the shooting. So the kids that are grieving the loss of friends or a sibling also have to grapple with being out of their home," Kaplow explained. "I think a lot of these things start to accumulate, and not all traumas are equal, so we have to pay attention to the type of trauma, but we also know that the more traumas the kids experience, the more likely it is that they are going to have significant mental health issues and need the most intervention."

For all children experiencing trauma, recovery is a process.

Moving forward, the most important first step for immigrant families who have been separated is reunification, Kaplow said. But it won't be a panacea for the trauma these children have endured.

"I think there's this false notion that once the kids are reunited with their caregivers, they're going to be totally fine. But the bottom line is, we know that that's not true," Kaplow said. "For many of them, they are going to need significant mental health intervention given what they've just been through—some kind of trauma-focused therapy that addresses not just the separation, but the pre-existing traumas and losses that the vast majority of them have had."

The basis of our understanding of ourselves and of the outer world starts through our relationship with our parent and through a secure attachment relationship with our parent—that's our greatest protection against adverse experiences in childhood.

— ELIZABETH NEWLIN, M.D.

Vice chair of child and adolescent psychiatry at UTHealth and chief of child and adolescent services at UTHealth Harris County Psychiatric Center





## HIGH



s a boy, James Corner grew increasingly passionate about geography, biology and art. When he listed these interests on a high school career test, landscape architecture popped up as a possible profession.

Today, that student is the founder and director of James Corner Field Operations. The global landscape architecture and urban design firm is the engine behind some of America's highestprofile spaces, including a "pierscape" along Chicago's historic Navy Pier, and the High Line, an elevated public park built on a historic freight rail line in New York City's West Side.

Now, Corner will bring his talents to Houston. His team will design a double helix-shaped park in the heart of  $TMC^3$ , the Texas Medical Center's translational research campus that's set to break ground in 2019, with projected completion in 2022. The park sits atop a three-story structure modeled after the shape of DNA, often compared to a twisted ladder.

"The Texas Medical Center's whole mission statement is about global health and well-being," Corner said. "We spent a lot of time thinking about what this might mean in terms of a program for this rooftop and sequence of spaces. Instead of just making a nice-looking place with plants and somewhere to sit, how could we actually have invitations embedded that invite new kinds of use?"

Helix Park will be multi-sensory, Corner said, because humans see, hear and touch; they experience humidity, heat and cold. "These are all profound experiential dimensions of the human

Landscape architect James Corner brings his vision to TMC3's Helix Park.

Credit: Left: Peden Munk; Right and following page renderings, James Corner Field Operations

## LINE FOR HOUSTON?

By Christine Hall





Above and following pages: Renderings of TMC3's Helix Park, provided by James Corner Field Operations, include an aerial site plan, exercise areas, gardens and green space.

body which have a deep impact on health and welfare and well-being," he said.

Once the park is finished, the space will evolve and mature over time.

"Biology informs what we do because it's a living system," the 57-year-old architect said. Whatever is built will continue living, he added, even the bacteria in the soil around the roots.

#### Trifecta of health

At a recent fundraising event in Houston, Corner told attendees that TMC<sup>3</sup> could be the "healthiest campus in the United States, if not a model for the world."

The 30-acre campus will sit between South Braeswood Boulevard and Old Spanish Trail, on what is now a parking lot. Named to identify Houston as the "third coast" for life sciences, TMC³ is a collaboration between five founding institutions: Texas Medical Center, Baylor College of Medicine, Texas A&M University Health Science Center, The University of Texas Health Science Center at Houston and The University of Texas MD Anderson Cancer Center.

Centrally-located Helix Park will help unite these different entities, bringing employees and the general public together in a dynamic community space.

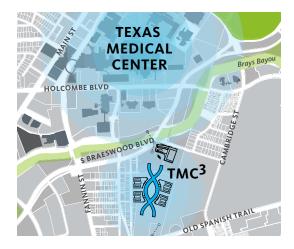
The base floor of the underlying structure will hold three plazas filled with trees and vegetation, along with commercial, retail and entertainment space. The second floor will contain shared laboratory space so that institutions can work together and alongside industry experts. Helix Park, the top floor, will soar 60 feet above ground and offer food

gardens, children's education gardens, walking paths and running trails.

"It's not exactly a running track, but it's an invitation to move quickly," Corner said. "To ride your bike, to run, to jog, to stroll. We also have seating along that path and a variety of fitness equipment. We have a series of healing gardens for therapeutic care and the introspection of being in a healing place, and we have gardens oriented around healthy food and healthy eating."

The running trail winds up one strand of the helix that Sarah Weidner Astheimer, a principal at James Corner Field Operations, has christened Fitness Park—the "active, vibrant, fast" part of the rooftop. On the other side will be Social Gardens, a quieter area where people can meander and engage with nature more intimately, Weidner Astheimer said.

"We really were looking at the trifecta of health—physical, mental, social," she said. "We wanted to provide a lot of variety of space types on site."



Corner agreed, adding that the park will, hopefully, entice people to visit who aren't ordinarily exposed to this sort of space. The rooftop will also sync with the façade of the neighborhood, he said, as some hospitals within the Texas Medical Center have their own medicinal and food gardens.

"There's incredible contemporary research that shows the dramatic impact that nature and exposure to nature can have on longevity, on stress release, on productivity," Weidner Astheimer said. "The Texas Medical Center is innovative and it's really a leader—they're showing that by investing in their open space."

Helix Park will also help bridge the bayou greenway systems, providing access points to nearby communities. That idea of connectivity—of "threading the centerpiece into a larger whole"—inspired Weidner Astheimer.

"The Texas Medical Center is the eighthlargest business district in the country—that's incredible," she said. "But if you think about the physical space, does it feel urban? This project is really an urban project because of its open spaces and because of the way it's inviting the public and the community."

#### Lessons from Discovery Green

When architectural historian Stephen Fox learned that James Corner would be involved in TMC<sup>3</sup>, he was excited because he admired Corner's work.

Fox said Corner "thinks boldly and unconventionally" and could "kind of do a High Line for the medical center."

(continued)





Fox, who lectures at Rice University School of Architecture and the Gerald D. Hines College of Architecture and Design at the University of Houston, said that Corner's expertise is asking basic questions—before even choosing a piece of property—to identify different goals and how to achieve them.

It may be a challenge to awaken the area around TMC<sup>3</sup>, Fox added, because it is more of a business destination at the moment.

A similar challenge faced designers of another Houston park. In 2008, Houston opened Discovery Green, a public space that has been embraced by the city and might well offer lessons for Corner and his team.

Discovery Green's location—on the east side of downtown by the George R. Brown Convention Center—was in a particularly sleepy part of the city that didn't have much going on, said Mary Margaret Jones, lead designer for Discovery Green and senior principal at New York-based Hargreaves Jones Landscape Architecture DPC.

The Texas Medical Center's whole mission statement is about global health and well-being. We spent a lot of time thinking about what this might mean in terms of a program for this rooftop and sequence of spaces. Instead of just making a nice-looking place with plants and somewhere to sit, how could we actually have invitations embedded that invite new kinds of use?

- JAMES CORNER
Landscape architect

But as developers broke ground on the project, Discovery Green became a driver for social and economic change in that area. In essence, the 12-acre urban park has been "a great success story," Jones said. Built on a series of parking lots, Discovery Green now attracts about 1 million visitors annually.

"Discovery Green was a foothold for a green oasis with the knowledge that buildings

around it would be developed," she said. "It was built as a catalyst for change, intended to spur development."

When designing the park, Jones, who grew up in Baytown, took into account the "tentacles of green" that would connect it to the bayous, to the walkway under the freeway into emerging neighborhoods to the east, and to the Hilton Americas-Houston and Minute Maid Park.

Envisioning what people might like in a park is a constant challenge for landscape architects, Jones said.

"How do you create a green space that can evolve over time, combined with things people want to do, especially when that changes over time?" she said. "Striking a balance is important."

Outdoor spaces must contain the right mix of elements, Jones added. The obvious musts are restaurants and bathrooms, but the key is to balance those items with retail and other attractions.

"If there is too much retail in a park, you lose the value of the park," she said. "That is the cautionary tale. You need some space that is simple and allows people to breathe and find their thoughts."



James Corner Field Operations led the design of the High Line in New York City.





#### 'Connect with people'

Corner believes Houston is making headway with green infrastructure by creating parks and renovating the bayou system.

The city is "a big organism that's having to adapt to climate change and to the kind of storms and floods that you have," Corner said. "And also to social issues—issues of equity and equal access to these spaces. In a sense, the Texas Medical Center is a part of this mosaic."

For every project, Corner takes into account "rational metro transformation," which includes

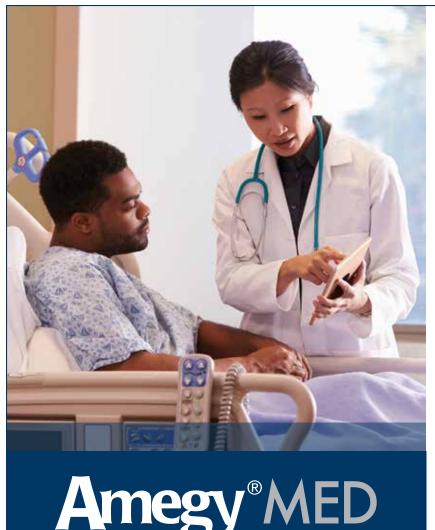
surrounding real estate, the flow of traffic in and out of the area and the impact of the project on the environment.

For TMC<sup>3</sup>, the Texas Medical Center could easily build a gated community with laboratory buildings, medical facilities and parking garages, Corner said, but the only people who would set foot on the campus would be employees or other people visiting for purely professional reasons.

Instead, the goal is to build a place that is conversant with nearby Hermann Park and the medical center. And within that space, Helix Park will serve as a Central Park of sorts, a "crown jewel in the middle that is a gesture to a broader community," Corner said.

Since the High Line opened in New York City in 2014, about 20 million people have visited each year. Helix Park has the potential to attract people to the Texas Medical Center in the same way, Corner said.

"It is a place for all the people who work there," he said, "but it's also a place for the people of Houston."



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RHEA BROWN LAWSON, PH.D., a champion of literacy, education and history, has directed the Houston Public Library since 2005. Lawson oversaw the development and opening of The African American Library at the Gregory School in Houston's historic Freedmen's Town. During and after Hurricane Harvey, she became a disaster recovery leader when her team delivered laptops to the George R. Brown Convention Center so thousands sheltered there could file insurance claims. At the moment, she is advocating for a new "21st century" Central Library with an auditorium to house programs now held elsewhere in the city.

Q During and after Hurricane Harvey, the library's branch locations became safe, welcoming 'lily pads' amid flooding and chaos, providing Houstonians with connectivity and tranquility. What was your first instinct as library director when Harvey hit?

A | The main thing I wanted to do was get those libraries open because of the sense of normalcy for parents and children and the community members that had seen so much devastation. People had lost their telephones; they'd lost their computers. People who never used libraries suddenly found that libraries had a new use in their lives. One of our strongest services to the community is that we are the largest provider of free internet connectivity and access to computers. We never stopped giving service.

#### • How do you view the role of public libraries?

A Libraries transform lives. A library is one of the last standing places where everyone is welcome. It's a symbol of democracy. If you believe in equality and equity, you believe in libraries. No matter what your stage in life, the library is there for you. Expand your thinking about libraries. At one time, media was just books, but now it's so much more than that and there's so much more that's needed.

#### • What do you want people to know about the Houston Public Library?

A | People who aren't necessarily readers of checked-out books—who buy their own books and have their own home libraries—might not think libraries are necessary until they come

to one of our fabulous programs like Nikki Giovanni this year, which had 1,600 people who waited to see a world-class poet. Or, when we had Congressman John Lewis, a civil rights icon. We are a big player in terms of giving people access to nationally-acclaimed authors and personalities. It's not always about the books, but about bringing history alive and giving people exposure. There are a number of people who pay for summer camp and are the first on the phone to get a free week with the library because they know the quality. For scholars, internationally, we have one of the deepest collections of Houston history with the Houston Metropolitan Research Center. We have a scholar-in-residence program at The African American Library at the Gregory School, in partnership with Rice University. We are deep and wide as the seventh-largest library system in the country.

### Q Where were you born and how did your upbringing lead you to become a bibliophile?

A | My heritage is Gullah, off the islands of South Carolina in the Lowcountry. Geechee. My parents were part of the Great Migration because there's very little work and there's very little industry, so they went north and landed in Maryland. That's where I grew up—in Baltimore. My mother used to walk me to the library, the Broadway Branch, and it was very close to Johns Hopkins University. When I was a kid, Ms. Thelma Bell would read stories and she was mesmerizing in the way that she would tell a tale. When I started working at the library, Ms. Bell became my supervisor and mentor. Nothing is an accident.

#### ○ Why did you pursue a career as a librarian and library administrator?

A I kind of stumbled into it. I went to Morgan State University and, after graduating, I wanted to go to Atlanta University. I wanted to be an African American history professor but didn't have quite enough money to do that. So, I said I'd work and raise some money and go back to school. I ended up at the Enoch Pratt Free Library in Baltimore. I fell head over heels in love with the ability that libraries have to impact people's lives. That's kind of what teaching is. I was fulfilling something that I wanted to do, but on a broader scale. Before I knew it, five years had passed and a mentor said that if I was going to stick around, I might as well go get a master's degree in library science. And I did—at the University of Maryland.

#### What prepared you for the diverse customers you serve in Houston?

A One of the jobs I had at the Enoch Pratt Free Library was being in charge of the literacy program. I submitted a proposal to make one of the branches a literacy center. We had the Broadway Lifelong Learning Center right across from Hopkins. Doctors would come to Hopkins and bring their families, who knew no English, to the library. We had this whole community that wanted to learn how to read. That stuff is ingrained in me. (I kept that idea and brought it to the Carnegie Neighborhood Library and Center for Learning in Houston's Near Northside.) I left Baltimore for the Ph.D. program at the University of Wisconsin-Madison, where I was teaching multicultural library services and public libraries in urban centers.

#### How has being a mother and, now, a grandmother influenced your work?

A | My grandson, Nigel, who is 9½, is autistic. The Children's Museum of Houston has a morning when people with disabilities can come free of charge and the mothers and caregivers can bond while the children can just be free to be. We have the Pop Up Library TOO for kids with special needs and people invite us into spaces. You are influenced by experiences that you have. We found that my grandson's strength is technology and math. Learning that he was autistic made me dive into that world as a grandparent to be supportive of my daughter, Ebony, who is fabulous. She is working on her second master's at Johns Hopkins in the development area to bring affordable homes to communities.

(continued)



#### • What do you consider your landmark achievement as the city's chief librarian?

A | The Gregory School, when I arrived in Houston, was all boarded up. It was the first school for 'colored' children in Houston. Then-Mayor Bill White said I had to make that the African American library and I said, 'No problem.' I still point to the Gregory School as my best work because I did it with such passion and love.

#### • What are your goals at this point in your career?

A We need a new central library because Houston deserves it. While I love going to the University of Houston and Alley Theatre and Texas Southern University to do our programs, why can't we have our own auditorium? What would be a more welcoming space than a 21st century central library? A new library is about understanding the city and understanding the problems of the city. We have a woefully inadequate budget that got decimated even more during the recession and is still trying to crawl its way back. The victory that I have in this position

Libraries transform lives. A library is one of the last standing places where everyone is welcome. It's a symbol of democracy. If you believe in equality and equity, you believe in libraries. No matter what your stage in life, the library is there for you.

is that I have an amazing team and we continue with 'One Houston, One Library,' where we are looking at equity. We want libraries across the geography of the city to have top-notch service and fully adequate staff.

#### What is the mission of the Houston Public Library Foundation?

A | The Houston Public Library Foundation raises money for us to do programs. The foundation finds sponsors for programs including

Camp STREAM—which stands for science, technology, reading, engineering, arts and mathematics. It's a week-long, free summer camp. The foundation needs greater support.

### Q | How can people in the community provide more support to the Houston Public Library?

A If they want to make a difference in communities across Houston, invest in the library because we are everywhere. Whether you need a gathering place, if you want to make an impact on latchkey kids after school, if you want to invest in helping our collections grow so that they will be more robust for the researcher or make story times available for emerging literacy, we're that place.

Houston Public Library Executive Director Rhea Brown Lawson, Ph.D., was interviewed by Pulse Assistant Editor Cindy George. The conversation was edited for clarity and length.





The Harvey Healing Tree is composed of fabric strips personalized by victims of Hurricane Harvey.

fter Hurricane Harvey doused an unprecedented amount of rain on Houston last August, creative arts therapists from Texas Children's Hospital, Houston Methodist Hospital and Children's Memorial Hermann Hospital coordinated with the Harvey Arts Recovery Project to organize four Harvey Healing Days throughout the city to help repair emotional wounds left by the storm.

"We are charged with treating the whole human in our nine-to-five jobs at the hospital," said Marial Biard, a certified neurologic music therapist at Texas Children's. "Our physicians, nurses and doctors use medicine to treat the cancer and heal the broken bones and we help heal the head and the heart—the areas impacted by the illness or trauma—to make them whole again. That's what we did with Harvey; we helped heal these humans."

At each Harvey Healing Day, guests had an opportunity to

express their thoughts and feelings on canvas strips that have now become part of one collective piece of art—a big, unbreakable tree. Constructed of chicken wire and cloth, the tree is brightly-colored and flexible.

"We wanted the base of the tree to be created out of fabric and materials that stretch because that is something that we all had to do. Resources were stretched, people were out of their comfort zone," Biard said. "Each of these strips tells a story of community, of resiliency, and adds to this tree and its branches and leaves. So what was a very beautiful but empty trunk has now been brought to life."

The fabric pieces on the Harvey Healing Tree carry the sentiments of participants: "Keep moving through." "Houston Strong." "Every day is new." "Coming together." "Power. Hope. Love." "Faith.
Community. Support." "Breathe."

Creative arts therapists received

psychological first aid training before each Harvey Healing Day to offer the most appropriate care possible. Therapy was not limited to writing on strips of canvas.

"We chose to include all of the creative arts in the Harvey Healing Days because you could see that [victims] had built up these walls and you need these different modalities—art, music and movement—to take these layers down and create with one another and be silly and fun," Biard said.

Therapists encouraged guests to dance, sing, drum, play instruments and more.

"To get an opportunity for expression where you don't need words ... I think that is one of the most powerful pieces for people," said Jennifer Townsend, music therapy program manager for the Center for Performing Arts Medicine at Houston Methodist. "People may not be able to tell you exactly how they are feeling, but

they can create their strip of canvas or learn that song on the ukulele or bang on the drums as hard as they can."

The Harvey Healing Tree will be unveiled to the public on Saturday, Aug. 25—the anniversary of Hurricane Harvey's arrival in Houston—during a celebration at Discovery Green to honor Houston's resilience in the face of a disaster.

At the end of the event, a team of Texas Medical Center creative arts therapists and guests will deliver the Harvey Healing Tree to Houston City Hall, 901 Bagby St., where it will remain on display for two months.

The Harvey Healing Tree will be revealed between 2 and 5 p.m. on Saturday, Aug. 25, at Discovery Green, 1500 McKinney St. Information: 713-400-7336 or discoverygreen.com.

#### Primed for the Storm

What Harvey and Allison taught the Texas Medical Center

By CINDY GEORGE



Sgt. Scott Barnwell, of The University of Texas Police at Houston, prepares to drive one of two high-water vehicles purchased after Hurricane Harvey to transport essential personnel during widespread flooding. The UT System, which operates UTHealth and MD Anderson Cancer Center, bought the trucks.

hen Hurricane Harvey
dumped more than 51 inches
of rain on the Houston area last
August, the Texas Medical Center
(TMC) rallied by proving that a
sophisticated floodgate network
and other improvements made since
Tropical Storm Allison could protect
the world's largest medical city.

But the 2018 hurricane season, which extends through Nov. 30, brings new opportunities to safeguard both patients and employees in the event of another epic storm.

This spring, The University of Texas Health Science Center at Houston (UTHealth) added Laverne—a military surplus high-water vehicle—to its fleet in response to Harvey.

"We have critical folks who would love to be able to get in to take care of patients, but they can't get there and the resources for the city of Houston are so tapped that the decision was made that we would procure an elevated large vehicle—a five-ton military surplus truck—so that if there are key individuals that need to get in and out, docs and nurses, it could be done safely," said Robert "Safety Bob" Emery, Dr.P.H., UTHealth's vice president of safety, health, environment and risk management.

Laverne's sister transport,

Shirley, arrived a few weeks later. The play on the classic TV sitcom "Laverne & Shirley" is one of the more novel responses to hurricane challenges faced by TMC institutions.

Berms, walls and flood doors protected the campus during Harvey, but surrounding flooding impeded employees from traveling to the medical center. "Ride-out teams" are typically prepared to ride out a storm at work for two or three days.

That issue gave UTHealth officials the idea to procure high-water vehicles, Emery said.

"The flooding was so extensive from Harvey that some of these

folks stayed here for six days and that's very problematic in getting that next wave of replacements in," Emery said. "Some of these things are 24/7. Obviously, you've got health care, but we've also got organ transplants, we've got animals that have to be fed and research projects that are time dependent, so one of the things we really re-examined was the length of time that the ride-out teams might be expected to be here—and I think that's a lesson learned by some others around the Texas Medical Center, as well."

Tropical Storm Allison devastated the TMC in 2001 by dropping more than 40 inches of rain in 15 days. That flooding destroyed years of research, while some institutions lost animals and sustained widespread structural damage.

Harvey's 51 inches of rain over five days set a record for the largest amount of rainfall from a single storm anywhere in the continental United States. But the deluge validated more than a decade of meticulous post-Allison planning and improvements in the TMC, which had minimal flooding and fared better than many other Houston institutions.

"The reason is the enormous amount of investment in infrastructure and fortification that has taken place post-Allison," said Shawn Cloonan, the TMC's chief operating officer and executive vice president. "There's been a really strong emphasis from Texas Medical Center corporate, in partnership with our member institutions and in partnership with the regional and state and federal authorities, to really fortify this infrastructure so that we could maintain operations."

After Allison, underground emergency generators and switching gear were elevated at Memorial Hermann-Texas Medical Center. During Harvey, submarine doors—essentially steel barriers sealed with rubber bladders—preserved the hospital's buildings.

"The difference was that we had no intrusion of water on this campus. We had no loss of power. We were fully operational," said Tom Flanagan, vice president of trauma services and disaster preparedness for the Memorial Hermann Health System. "We were able to shelter our staff and patients in house while we continued to receive patients ... a 180-degree difference from what happened in Tropical Storm Allison."

Harvey also revealed the importance of good data for decision-making, good tools for communicating those decisions and good organization for emergency response, said James Mitchell, the assistant director of emergency management at Texas Children's Hospital.

"We have a very mature implementation of the incident command system," he said, adding that communication with employees proved particularly vital during Harvey.

"We've got over 16,000 staffing positions in our system, and through Harvey, during that five days, we sent out about 320,000 contacts—whether it was communicating with everybody or whether it was sending tailored messages to very specific audiences with information they needed to take action," Mitchell said. "One of the things that helps us to be effective is that we have a very strong and resilient employee culture. Everybody is essential to our response."

Houston Methodist Hospital also remained operational in the TMC and across its system, spokeswoman Gale Smith said.

"Harvey was a very unique weather event," Smith said. "Allison was how we got our lessons learned. We moved our generators. We installed the flood doors so that for every weather event we've had since then, we haven't had a major setback."

In its role as the emergency preparedness leader for member institutions, the TMC is working to improve supply chain collaboration, as well as campus-wide mobility and access during a storm.

"We have shown the wherewithal of the infrastructure to maintain operations. Now, the second level is to make sure that people have meaningful access to that care," Cloonan said. "TMC has led multi-institutional emergency planning and flood mitigation strategy meetings that have resulted in updated policies. Those revisions include new ways to handle the critical supply chain for medical waste, food and other institution necessities. We also have launched an inter-institutional emergency preparedness portal so that there can be a real-time exchange of information and needs."

The checklist also includes seeking federal road infrastructure funding to fortify critical corridors to the TMC so that there is access for health care professionals and patients during storms, in addition to collaborating with local, state and regional authorities on transportation staging areas.

"You're not going to have those incredible scenes where you have a physician wading through waist-deep water to go in to do surgery. That's unacceptable," Cloonan said.

Like UTHealth, the TMC corporation also will be investing in high-water vehicles, he added.

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## **Blood Needed Now**

#### PART OF HURRICANE PREPAREDNESS IS AN AMPLE SUPPLY OF BLOOD

By CINDY GEORGE

he well-orchestrated blood business, which functions with a sense of urgency even under ideal conditions, came to an unexpected halt last year when Hurricane Harvey flooded the Houston region.

Gulf Coast Regional Blood Center was unable to operate for four days, highlighting an often-overlooked aspect of hurricane preparedness: Adequate reserves in blood banks.

"It's important for blood to be on the shelf in a situation like this," said Joshua Buckley, the blood center's director of marketing. "It has provided us an opportunity to educate people on why it's important to donate all the time and not just during times of tragedy or crisis."

The closure meant that the blood bank's recovery not only required quickly restarting collections upon reopening, but catching up on thousands of missed donations. On average, Gulf Coast Regional Blood Center must bring in 800 donations daily to meet the needs of the community.

"We were closed for four days and that's about 3,200 donations we missed out on," Buckley said. "We had enough blood on the shelves to make it through the storm, but we were pretty critically low on supplies. Once we opened four days later, we needed a boost from donors and that's what we got. We were able to make up that amount in the first two days we reopened."

#### Summer slump

Gulf Coast Regional Blood Center opened in 1975. The nonprofit, independent blood center serves more than 170 hospitals and health care institutions in a 26-county region and augments the internal blood banks at several Texas Medical Center facilities.

The challenge of maintaining blood bank reserves during hurricane season, which began June 1 and extends through Nov. 30, is complicated by a summer slump in blood drives and donations.

"About 40 percent of our mobile collections come from high schools and colleges. During the summer, high schools and colleges are out, so we don't have blood drives with them," Buckley said. "Notoriously, in the blood banking business, that's a tough time of year to collect blood, so we have to figure out some promotions to get people to come out and donate during those slower times."

#### All about blood

Whole blood has three components: Red blood cells, platelets and plasma. All three parts can be separated from a whole blood donation or donors can give one component.

Platelets have a five-day shelf life, red blood cells have a 42-day shelf life and plasma can be frozen for up to one year.

Within the four major blood groups, there are eight different blood types: A+, A-, B+, B-, AB+, AB-, O+ and O-.

O+ is the most common blood type. O- is universal, which means that this type can be given to everyone, but people with this type can only receive O- blood.

Buckley offers a practical answer when asked what type is in the highest demand: "We need the most of the blood that's not on the shelf."

#### Emergency preparedness

Hurricane Harvey highlighted the impact of natural disasters and other emergencies on blood banks nationwide. Washington, D.C.-based America's Blood Centers—the largest network of community-based, independent blood programs in the United States and Canada—spoke out publicly after the hurricane. The organization's vast network of members, including Gulf Coast Regional Blood Center, provides more than half of the U.S. blood supply.

(continued)

Facing page: Sorted O+ blood rests on metal shelves inside refrigerated closets at Gulf Coast Regional Blood Center.









Facing page: Component lab technician Elizabeth Scott prepares blood products for a spin in the centrifuge at Gulf Coast Regional Blood Center. Lower left: Newly received blood donations are checked into Gulf Coast Regional Blood Center. Lower right: Component lab technician Jamaal Jones prepares blood product bags at Gulf Coast Regional Blood Center.

"It's the blood on the shelf that saves lives. We need the blood to be donated before events occur," said Ruth Sylvester, who directs regulatory services for America's Blood Centers and is the liaison to a national interorganizational task force on domestic disasters and terrorism. "Hurricanes interfere with collection. When hurricanes are coming, people are busy: They're boarding up their houses and evacuating. They're not thinking about the fact that we still need blood products, but people are still bleeding, people still need chemotherapy and they still need their platelets regardless of a hurricane—and platelets only last five days."

Harvey's flooding posed a unique dilemma for those attempting to supplement the dwindling blood supply in Houston during and after the storm.

"We could get it there—we had plenty waiting in Dallas and in Shreveport—but the problem was actually getting it where it needed to go because you needed a high-water vehicle," Sylvester said. "And then, once it got there, getting it that last couple of miles right there to the hospitals in Houston was the biggest challenge."

In a late August 2017 news release, America's Blood Centers stated that Harvey "and its associated flooding" were impacting the nation's blood supply and urged eligible donors—current and first-time—"to make and keep donation appointments as soon as possible."

That's because blood drives had been canceled across Southeast Texas, placing more demand on blood collection agencies nationwide to "ensure a sufficient blood supply in storm-affected areas" to meet the needs of patients.

"People turn out in droves after an event happens. The media shows all these long lines, but that's too late. The people that needed the blood? They needed it there. If the blood is there on the shelf, we can get it where it needs to go," Sylvester explained. "We have this huge dry spell during the summer. The same thing happens at the holidays because everybody's busy. And in January, they're all sick, so that's the other low point in the blood supply."

Earlier this year, America's Blood Centers also addressed the issue of disaster preparedness with Congress.

In a March 2018 statement to the U.S. House of Representatives' Homeland Security Committee for a hearing on the lessons learned from 2017 disasters, the organization noted that the U.S. Department of Health and

#### BLOOD DONATION BY THE NUMBERS

#### 2 seconds

lapse before someone in the United States needs blood

#### 3 lives

can be saved by 1 pint of blood

#### 10 percent

of the eligible blood donation population gives at least once annually

#### 15 million

pints of blood are transfused annually in the United States

 $Sources: Gulf \, Coast \, Regional \, Blood \, Center, America's \, Blood \, Centers$ 

Human Services and the Federal Emergency Management Agency now have recognized that blood centers are essential to emergency preparedness and should be prioritized.

#### Overflow of donations

At Gulf Coast Regional Blood Center headquarters this summer, workers were busy. Some labeled components, placed sorted blood products on shelves and loaded sealed bags in centrifuges, while others hoisted Igloo and Yeti coolers with incoming donations and gathered outgoing items requested by hospitals.

Almost miraculously, an unexpected overflow of donations came in late June from among the 30,000 Lutheran youth convening at Houston's NRG Park, across the fence from the blood center's main office. In one day, the Evangelical Lutheran Church in America's triennial Youth Gathering provided 300 donations. Usually, 100 donations would represent nine or 10 collection sites.

"The need is constant for blood. It's not just during tragedies or disasters. People need blood every day for surgeries and cancer treatments, burn victims, even pregnancies," Buckley said. "That's why we ask people to commit for life and donate as often as they can."

#### DONATING BLOOD

Visit giveblood.org or call 888-482-5663 for more details on eligibility, donor centers and blood drives.

#### Suicide in Middle Age

Isolation, illness and caring for children and elderly parents can contribute to suicidal thoughts

By Britni R. McAshan



Mary Jane Pita attempted suicide for the first time at age 50.

ary Jane Pita had a tough 2002. After 25 years as a compliance officer at a bank, her once-comfortable life began to crumble when her husband's construction company went under.

The couple were forced to file for bankruptcy, and Mary Jane felt she could no longer work at the bank where the loans she and her husband, Charles, had taken out for his business had been processed. At 50 and 69, respectively, the Pitas were not sure what to do next, so they took a chance and moved to Spain.

"We lost everything," Mary Jane said. "The only things I have from my previous life are the clothes and suitcase I packed it all in."

Once in Spain, troubles continued to plague the couple.

"One night, I was robbed as I was walking, and they stole my purse," Mary Jane recalled. "I had my debit card in there and because I could never remember anything, I had to write down my PIN number with the card, so they took everything. My husband was just really mad.

I thought, 'This is all I can take—I've had it.'"

Soon after the robbery, Mary Jane tried to commit suicide, the first of three attempts.

"I took pills and I had to go the hospital," she said.

#### An alarming trend

Suicides across all age groups have skyrocketed over the past two decades. Each year, 250,000 people in the United States attempt suicide and 45,000 succeed.

"Nobody knows why people commit suicide," said Asim Shah, M.D., professor and executive vice chair in the Menninger Department of Psychiatry and Behavioral Sciences at Baylor College of Medicine. "Obviously we can't go in the mind and see what happened. One theory that is widely accepted is that suicidality is an act of impulsivity."

Mary Jane was 50 years old at the time of her first suicide attempt, more than a decade before she sought help at The Menninger Clinic.

The recent suicides of fashion designer Kate Spade, who was 55, and celebrity chef Anthony Bourdain, who was 61, have shined a public spotlight on suicide in middle age.

"This is the age group that has the maximum risk," said Vineeth John, M.D., professor and vice chair for education in the Department of Psychiatry and Behavioral Sciences at the McGovern School of Medicine at The University of Texas Health Science Center at Houston. "The group with the highest risk is around age 45 to 55 and then those over 85, but the question is, why at that age?"

To answer his own query, John explained the U-shaped happiness curve over the course of a lifetime. We tend to start our lives happy, but that contentment begins to wane around 18 and then reaches a low in our 40s, he said. In our 50s, happiness levels often begin to rise again and keep going up, though they may drop in the final years of life.

According to the U.S. Centers for Disease Control and Prevention, suicides in women ages 40 to 65 increased by 80 percent between 1999 and 2014, and suicides in men ages 40 to 65 increased by 60 percent over the same time period.

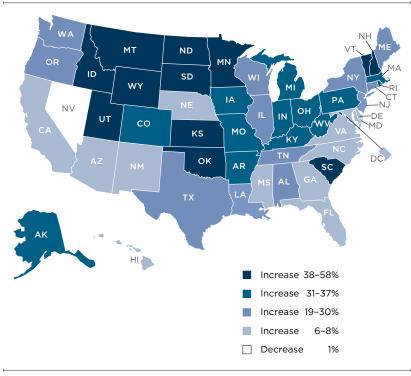
Instability in the workplace,

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 $Source: CDC's\ National\ Vital\ Statistics\ System;\ CDC\ Vital\ Signs,\ June\ 2018.$ 

ageism, relationship fractures such as divorce or the death of a spouse, children leaving home and chronic illness and isolation are among the conditions that can make middle age a vulnerable period in a person's life.

One of these difficult situations, combined with impulsivity, can lead to a suicide attempt.

"A lot of people are focused on the epidemic of youth suicide in our country, where, between the ages of 15 and 19, depending on the year, suicide is the second or third leading cause of death," explained Jonathan Stevens, M.D., a psychiatrist and clinical director of The Menninger Clinic's outpatient services and assistant professor of psychiatry at Baylor. "What people

don't realize is that depression over the ages of 60 or 65 increases dramatically."

#### Less inclined to talk

Mary Jane struggled with mental health issues for decades, but she and her family often brushed her "episodes" under the rug.

"Back in the '60s and early '70s, my parents' divorce really affected me, and, at times, I was depressed and fearful and all of this led up to my suicide attempts," she said. "A lot of people noticed things about me, but at that time no one really knew much about depression and it wasn't talked about or brought up."

Experts say younger generations tend to speak more openly about their struggles with mental health.

(continued)

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Contact dicet@houstonmethodist.org for further information.

"I think the baby boomers, especially compared to millennials, are less inclined to talk about these issues," Stevens said. "And we don't necessarily have the champions publicly that we have in younger folks ... I struggle to think right now, who of that generation is talking about their struggles with depression and suicide."

Stigma still surrounds mental illness and no matter how much money or fame people have, they may not open up and tell anything to anybody, Shah said.

"Now we know that Kate Spade was struggling with depression for a long time, but seeking private help is very different than seeking public help," he said.

Baby boomers are also more burdened than other generations.

"Many of the patients I see are also supporting other family members," Stevens explained. "In your 60s, you may be caring for an aging parent, a spouse and caring for a child in their late 20s or early 30s. When I first came to Menninger, I was without hope—I was at the end of my rope. I told Dr. Stevens I just didn't know what was going to happen to me. It was like a dark tunnel ...

- MARY JANE PITA

There are all of these factors and sometimes that is why they are not accessing the care they need."

This was the case for Mary Jane Pita.

#### Unable to cope

Upon returning to the U.S. after four years in Spain, Mary Jane and her husband moved to Houston to care for Mary Jane's father and stepmother—her stepmother was suffering from dementia.

"I was taking care of the house, her grandson, taking care of all the business, and it just got to be too much," she said. "My father thought, 'Well why can't you find another job, something must be wrong with you.' He was very hostile."

Mary Jane looked for work in banking again.

"I did try, but every time I went in a bank, it was just filled with young people," she said. "It was also hard to explain the gap in my employment. ... They thought I had just taken a big vacation."

After a major disagreement with her father, Mary Jane attempted suicide for the second time, in August 2007. Once again, she reached for pills.

After that, Mary Jane was placed in inpatient care at a Houston facility, but was not seen by a psychiatrist until one came by to discharge her.

Mary Jane attempted suicide a

third time in October 2007, and was formally diagnosed with depression.

"I think it was just being unable to cope with things," she said. "I was thinking every time that my family would be way better off without me. And that wasn't the case, but I got this idea that I was so bad and I thought I was creating all these issues and problems for my family."

In severe cases, people can rationalize suicide as an option, Stevens said.

"It has an internal logic, even though you and I may not view that as a rational decision," he said. "They are saying, 'I can't really work, I can't get out of this, I am in all of this pain that makes every day very difficult."

#### Brain health

After an evaluation at The Menninger Clinic in 2016, Mary Jane was diagnosed with bipolar disorder—not depression—and finally started to get the treatment she needed.



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"When I first came to Menninger, I was without hope-I was at the end of my rope," Mary Jane said. "I told Dr. Stevens I just didn't know what was going to happen to me. It was like a dark tunnel, and I don't know what would have happened if I didn't go to Menninger. I might have tried to commit suicide again. I was very lucky because I was admitted to their financial charity program, and I can't speak enough about how much it helped me."

Many people mistake behavioral shifts—including a lack of interest in formerly pleasurable activities, as well as changes in energy, concentration, appetite or sleep—as a part of normal aging, but these conditions can be early warning signs of major depression, Stevens said.

Mental health experts agree that eliminating the stigma around mental illness will help people of all ages seek the help they need.

"Even the term 'mental illness' has a stigma," Shah said. "Why



Mary Jane Pita journals at home, surrounded by her own artwork.

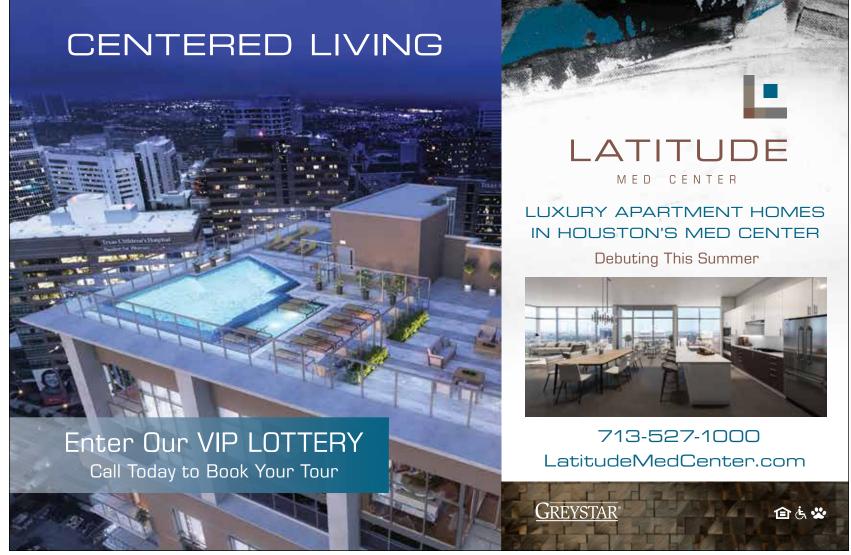
can't we call it brain health? Depression is a brain neurochemical imbalance and it is about the health of your brain."

Today, Mary Jane takes medication that works well for her and attends weekly therapy sessions at

Menninger. She is very involved in the community, charity work and enjoys creating art.

"I have been artistic for many years and, after my third suicide attempt, I signed up for art classes and I still paint to this day," she said.

"It helped me so much because it is a creative outlet and it builds up a lot of self-esteem, too. I donated a painting to a charity for an auction and one of my paintings was auctioned off for \$300 and that made me feel really good."



#### **Back to School**

When the medical student is also a patient

An essay by Claudia Martinez



Claudia Martinez is an ambassador for Fight Like a Warrior (fightlikeawarrior.org), an organization that unites people with chronic and/or invisible illnesses.

hat keeps me alive? Highcalorie liquid nutrition—aka Nutren 2.0—running continuously through my feeding tube into my small intestine, and IV fluids running through my port into my heart.

I'm not your typical medical student. Beneath my white coat lives a patient.

In 2011, as an undergraduate, I was diagnosed with Chiari malformation, a condition in which a portion of the cerebellum herniates out of the bottom of the skull and compresses the brain stem, and Syringomyelia, the development of a fluid-filled cyst within the spinal cord.

Since then, I've undergone six major brain surgeries, multiple shunt surgeries, multiple feeding tube and port surgeries, as well as countless procedures and hospitalizations. Along the way I've been diagnosed with hydrocephalus (a buildup of cerebrospinal fluid in the brain), trigeminal neuralgia (a chronic pain condition that affects the fifth cranial nerve), adrenal insufficiency (a condition in which the adrenal glands do not produce adequate amounts of steroid hormones), gastroparesis (partial paralysis of the stomach) and a tethered brain stem (in which the brain stem becomes pinned to the dura, or outer covering of the brain).

On Feb. 6, 2017, my life was forever changed. I went into the operating room as one person and came out as another. Although I'm no stranger to brain surgery, this time was different.

I underwent an experimental

66 I'm here to represent and bring light to those in the medical profession who have a disability, who battle health issues, who have been underrepresented for far too long. As health care providers, we're not immune to illness. 9 9

- CLAUDIA MARTINEZ

surgery to untether my brain stem, which had attached itself to the outer covering of my brain and was pulling some of the surrounding cranial nerves along with it. Because of this, my vision was compromised and I had lost nearly all muscle control in my pharynx and esophagus, making it extremely difficult to swallow. My body was deteriorating. After searching the literature, I found only a handful of patients who had undergone this surgery, and most of the cases didn't end well. With all odds against me, I agreed to this risky operation.

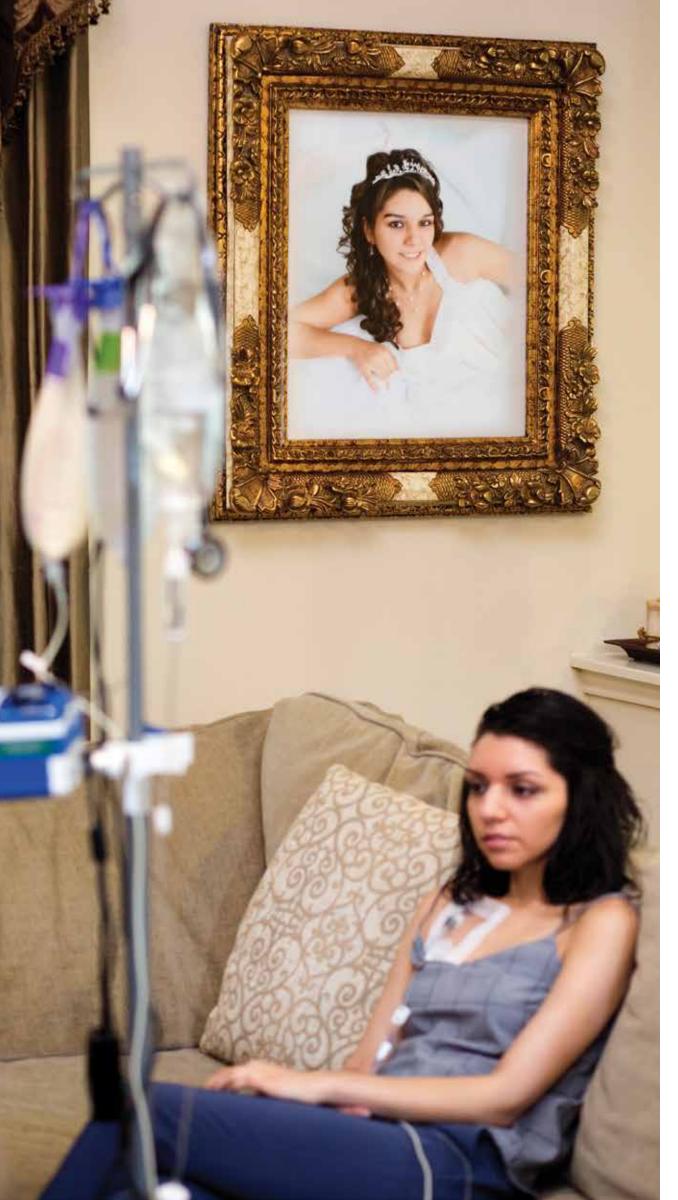
As I awoke from surgery, the doctors and I quickly realized something was wrong. Although the surgery was successful, I had suffered a stroke to my brain stem during the operation, leaving me, initially, unable to function from the neck down. I couldn't sit up on my own, move to turn in bed, walk, bathe or dress myself. All I could do was lie in bed.

My dream of becoming a doctor felt like it was shattering before me, once again, but I've never allowed my health to keep me from continuing my journey and I wasn't going to let it start now.

After a few weeks, I was transferred to TIRR Memorial Hermann to undergo intense inpatient neurorehabilitation. Each day was filled with physical, speech and occupational therapy, among other activities. Every simple thing we do and take for granted in everyday life I had to relearn. Absolutely everything. When asked what my goal was, I always said, "I just want to be able to take care of patients and go back to school to become a doctor."

I spent many months at TIRR Memorial Hermann, first working on gaining the strength to sit up unassisted and then slowly advancing to standing on my own. The REX robotic exoskeleton was one of the devices that helped teach me how to walk again. The days were hard, long and, at times, frustrating, but every sensation and movement gained was rewarding.

As a medical student, I still had tests to study for and assignments to complete. Initially, I couldn't operate my computer, write or even turn the pages in a book. When I could finally see clearly and listen, my mother placed ear buds in my ears and played lectures for me to watch. She typed my essays as I called out my thoughts, turned the pages in my books and wrote my notes. We started studying early—before my doctors came in to round and the long days of therapy began—or stayed up late after exhausting days. It was extremely



difficult, but I was determined.

Many people couldn't understand why I never wanted to take a break from school. While in the hospital, I didn't watch movies or take naps. I studied. God has always preserved my intelligence during my many brain surgeries, and I wasn't going to waste that precious gift.

My brain, at times my greatest challenge, was my biggest ally in continuing my path to become a doctor.

Over the past seven years, doctor's offices and waiting rooms have become my school. I've always wanted to become a doctor, but I never thought I'd be working toward a medical degree while being a patient, as well.

I always hoped for the day I'd be cured, when I'd no longer be the patient, only the doctor, because for so long I was made to believe the two could not exist at the same time. You are one or the other—the patient or the doctor.

I am now starting my third year at McGovern Medical School. As I sit here in the hospital waiting to see the next patient, wearing a white coat and a stethoscope around my neck, I, too, look like a patient. I carry a heavy backpack containing liters of IV fluids, nutritional feedings and a feeding tube pump, heparin and saline flushes, syringes, dressings, caps and sterile swabs.

(continued)

Martinez, who spends four to six hours each day at her home infusing IV fluids, sits on the sofa under her "Sweet 16" photo. A tube from my port that goes into my heart and a feeding tube that goes into my small intestine tethers me to this backpack. My gait is abnormal and my hand function is quite limited. But as I contemplate my situation, there is a part of me that hopes I am never cured. Perhaps I am not meant to be a "normal" doctor, but a voice to bridge the gap of those who are solely doctors and those who are solely patients.

Over the years, some doctors, professors and advisors told me to quit medical school. They said, "Your medical history is too extensive," and "You don't have the functioning you need," and "It is impossible for you to continue school while being a patient in the hospital so much." Some said, "If you do continue, you need to hide the deficits and illnesses you have."

I remember one neurologist walked into my hospital room and asked everyone to leave. She sat



After brain surgery No. 6, Martinez's medullary stroke scar healed nicely.

down at the foot of my bed and looked me straight in the eye and said, "Claudia, you have to give it up, you can't be a doctor." After telling her I disagreed, she told me, "Look at where they are and look at where you are." ("They" referred to my classmates who were rounding with her on my case.) "Lift up your legs!" she yelled. "Lift up your legs!" At the

time I couldn't move my legs. "See, you can't even lift up your own legs. You can't even take care of yourself. How can you take care of a patient?"

All these years, I wish I had known someone fighting a serious illness while also trying to get through college and medical school—someone to look up to, to show me that it is possible. I've been sharing my story on social media for six years in the hopes of finding others like me. And I've found that just because people like me are underrepresented doesn't mean that there aren't a few of us out there. They, too, were told to hide.

You may see a young woman who has overcome adversity with resilience, time and time again, but I hope you also see a woman who is only human, a woman with a disability and medical history neither she nor her doctors can change, a woman who is good enough to become a doctor, despite everything.

I'm here to represent and

bring light to those in the medical profession who have a disability, who battle health issues, who have been underrepresented for far too long. As health care providers, we're not immune to illness. We should embrace individuals on both sides of medicine because they bring unique perspectives to the field and serve as a bridge between doctors and patients.

To those, like myself, who find themselves on both sides of medicine, remember this: They say there is light at the end of the tunnel, but I've learned there may never be a true "end" to a medical condition, that the light may stay beyond our reach. But, perhaps, this is when we should create light for ourselves, to encourage others to see us just as we are, to show how we can shine despite the darkness.





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#### **New Ways to Identify and Treat Sepsis**

The illness is difficult to diagnose and often fatal

By Christine Hall

uman bodies can be fickle. While some work to fight germs and prevent infection, others turn on themselves and stop attacking the bacteria or viruses that keep infection at bay.

When the body has an overactive, outsized response to an infection, this is the start of sepsis.

"An easy way to think about it is being poked by a sharp object and the body's response to it being totally disproportionate to the pain," said Sarma Velamuri, M.D.

If not treated quickly, sepsis can cause tissue damage and organ failure, and could lead to death—sometimes in a matter of hours. In the United States, someone dies from sepsis every two minutes, according to the Sepsis Alliance, a sepsis advocacy organization.

Velamuri, the founder and CEO of health care startup Luminare, is working to help hospitals better diagnose the illness so treatment can be given more quickly. He and his team are developing a sepsis process improvement software for hospitals that analyzes vital signs and laboratory work-ups of patients for evidence of sepsis in a matter of minutes. Luminare recently completed the Texas Medical Center's TMCx accelerator program, which helps health care startups take their products from idea to commercialization.

While on rounds, Velamuri would walk into patients' rooms and it would be obvious to him that some had sepsis. So he came up with a standard of care that could be applied to every patient.

He found there was a disconnect in information, especially during shift changes, when nurses needed to be brought up to speed on the patients who would be in their care. For every hour of information processing, mortality by sepsis increases by 8 percent, he said. Although patient



Sarma Velamuri, M.D., is CEO of Luminare.

information is available, it is often unclear what the information means.

Luminare's digital application processes some 30 different variables simultaneously and helps nurses do the critical thinking. They can see who has been evaluated, what the assessment was, any treatment that was prescribed, where the patient is in the treatment process and whether or not the patient is progressing.

If there is a probability of sepsis, the software notifies the nurse immediately and explains what to do next. For example, the software might recommend sending out for certain labs or

calling the doctor to prescribe antibiotics. The system also builds a network of people to treat the patient—from the nurse to the supervisor to the rapid response team—instead of relying on the nurse to run around and gather all the players, Velamuri said.

"I had a friend whose daughter passed away from sepsis, and that motivated me to invest everything I had in the company four years ago," he said. "We believe we are producing something that is reproducible at every hospital and will systematically drop the amount of deaths and bad outcomes from sepsis."

#### Diagnosing sepsis

The most common ways to get sepsis are urinary tract infections and pneumonia, followed by Foley catheters (used to drain urine) and central lines, which are catheters inserted into a vein in the arm.

"Sepsis is the No. 1 cause of death from infections and it is preventable," said Imrana Malik, M.D., associate professor in the Department of Critical Care and Respiratory Care at The University of Texas MD Anderson Cancer Center. "We see it in all ages, genders. It hits everyone, and the difficult thing is there is little in the armory to fix it."

Sepsis is not a disease that needs a certain environment to occur, Velamuri said. Anyone can get it

In addition, sepsis is not the product of one symptom, according to the U.S. Centers for Disease Control and Prevention, but could be a combination of any of the following: Confusion or disorientation, shortness of breath, high heart rate, fever or shivering, extreme pain or discomfort or clammy, sweaty skin.

Sepsis is often difficult to diagnose, Malik said. Someone could come to the hospital clutching his or her chest, but that could be because of several sepsis symptoms that the doctor would have to put together.

#### Sepsis in cancer patients

Chemotherapy or central transplants put some cancer patients at a higher risk of sepsis, Malik said.

(continued)

#### SYMPTOMS OF SEPSIS

Shivering, fever or very cold

Extreme pain or general discomfort

Pale or discolored skin

or red S Sleepy, difficult to rouse, confused

"I feel like I might die"

Short of breath

Source: Sepsis Alliance (sepsis.org)

Having the right amount and right type of immune cells and white blood cells is important in the treatment of cancer patients, especially in the event that they can't take antibiotics.



The faster sepsis is recognized, the faster the treatment and the better the outcome, Malik reiterated. If sepsis isn't diagnosed in time, it is likely the patient will be in full-blown shock and, in that case, it is hard to reverse the failure of multiple organs. In addition, the immune system is going wild, attacking at every angle.

Malik chairs the Sepsis Committee at MD Anderson, which seeks to improve outcomes for cancer patients with sepsis. She also serves on the steering committee for World Sepsis Day under the auspices of the Global Sepsis Alliance.

Locally, she and other care providers also came together to form the TMC Sepsis Collaborative, a multi-institutional effort to galvanize Texas Sepsis is the No. 1 cause of death from infections and it is preventable. We see it in all ages, genders. It hits everyone, and the difficult thing is there is little in the armory to fix it.

— IMRANA MALIK, M.D.

Associate professor in the Department of
Critical Care at MD Anderson Cancer Center

Medical Center institutions in adult and pediatric sepsis care, research and outcomes.

"We want to share experiences and learn from others who have developed successful ways of treating sepsis," she said.

In addition, MD Anderson's Cancerwise blog includes articles on sepsis protocols, as well as videos to help patients understand sepsis.

"We empower patients and caregivers to recognize and say they have sepsis," Malik said. "It jumps the ball forward much faster in the emergency room setting because every minute counts."

#### First hour is critical

Timing is critical for the treatment of sepsis, which includes administering antibiotics and intravenous fluids to maintain blood flow and oxygen to different organs.

The Surviving Sepsis Campaign, launched in 2002, recommends 3-hour and 6-hour bundles of care—protocols clinicians should implement after a patient presents with symptoms of severe sepsis or septic shock.

Those include starting antibiotics within an hour and checking labs for information on kidney, liver and lactate functions within the first three hours. Beyond that, caregivers check for progress on lower blood pressure and increased hydration. If a lactate level rises, the patient is going to have a bad outcome, potentially, Malik said.

In 2018, though, the Society of Critical Care Medicine and European Society of Intensive Care Medicine recommended a one-hour bundle of care because the first hour is so critical for sepsis treatment. This shift validated all the work that Velamuri and his team at Luminare have been doing.

"It's good to see the industry agree with what we have been saying," Velamuri said.



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#### **Feeding Souls Through Service**

Lutheran Youth Gathering volunteers aid TMC institutions

By CINDY GEORGE

n a blazing hot summer morning, teens clad in orange shirts were transported to a Houston Health Department community garden on the city's southwest side, where a lush array of vegetables, herbs and fruit trees grow.

Their arrival surprised Hawa Mahamad and Varsha Bhabad neighborhood residents who routinely work in the garden.

"We didn't know that the students were coming," said Bhabad, a 39-year-old mother of three who was born in India. "When I reached here at 8 o'clock, I saw all of the students and I was like, 'Wow. Good."

The Evangelical Lutheran Church in America's triennial Youth Gathering convened in Houston for one week in June, but the impact of thousands of adolescents volunteering throughout the city will be felt far longer.

Volunteers gave two Texas Medical Center member institutions a boost.

Dozens of teens worked alongside immigrant mothers at the health department's Southwest Multi-Service Center by helping to fertilize a hearty harvest of okra and other vegetables in the raised beds that the women tend regularly.

And across town in the Montrose area, teams of young people and their mentors spent two days cleaning the school at The Center for Hearing and Speech and turning the agency's summer camp area into a superhero sanctum.

• • •

At the community garden, the out-of-town youth in their ponytails, crew cuts and short-sleeved T-shirts worked alongside local women who wore scarves on their heads and long-sleeved tunics.



A volunteer at the Evangelical Lutheran Church in America's Youth Gathering adds a top dressing to the raised beds of a community garden outside the Houston Health Department's Southwest Multi-Service Center.

"It's fun. It's good," said Mahamad, 40, a cafeteria worker from Sudan who has eight children. A member of the Darfurian Association of Greater Houston, she uses okra from the garden to make different kinds of soup. "Every season has its own thing. I like tomato, squash. I like the watermelon."



Volunteers cart nutrient-rich soil in the community garden.

The women appreciated the volunteers so much that they left briefly and returned with drinks and snacks.

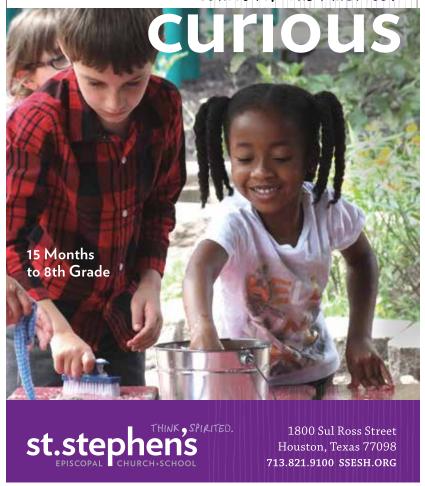
"They're just doing from their heart," Bhabad said. "They are having fun."

Lutherans have been convening young people for summer meetings for more than a century in the United States. In 1988, the Chicagobased Evangelical Lutheran Church in America became the nation's largest Lutheran denomination through a merger of three smaller bodies and continued the Youth Gathering. After two conferences in 2009 and 2012 in New Orleans to address lingering needs from Hurricane Katrina, the gathering landed in Detroit in 2015. About 30,000 young people descended on Houston this year.

(continued)

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In addition to strengthening their faith through worship sessions, each participant engages in a day of "service learning" to put his or her faith into action through one of dozens of local projects. That makes the conference one of the nation's largest public service efforts.

• • •

The outdoor service project was guided by Joe Icet, a veteran urban farmer who assists the Houston Health Department with more than a dozen community gardens through Last Organic Outpost, an organization that works to create food security using urban agriculture resources and collaboration.

"We create this opportunity to gift a whole neighborhood with food and food production through reintroducing farming or gardening back into communities," explained Icet, founder and CEO of the group, which describes itself an "urban pioneer collective."

When Icet explained and demonstrated different tasks, the volunteers followed. Some sifted soil to separate the larger pieces for mulch and the finer components for fertilizer that will break down and provide nutrients to plants.

"They're using one of the local fertilizers to create a really good blend and then what we're doing is going and top dressing all of the beds with our fertilizer mix. It's called the Minnesota Hot Mix. It's a fertilizer that was created right here from the local resources," said Icet, a retired refrigeration mechanic. "I'm teaching how we can be real effective in creating food systems for communities."

The Houston Health
Department—formerly known as
the City of Houston Department
of Health and Human Services—
became a Texas Medical Center
institution in 1963. Many of the
agency's multi-service centers feature community gardens.

Though the Lutheran youth were sent to help Houston, the experience

also had a profound impact that will return home with them.

"I wanted to grow my faith and be ... closer to God and meet new people," said Brook Ekenberg, 15, of Frisco, Texas. "A little bit of help can go a long way."

Katie Mersiovsky, 14, also from Frisco, said she enjoyed learning something new.

"I think it's fun because we don't really get to garden a whole lot and plant stuff and get our hands dirty," she said. "It's hard work ... but this is going to a great cause and helping a lot of people."

• •

Unexpected assistance came just in time for The Center for Hearing and Speech, which teaches deaf children to listen and speak without using sign language. The nonprofit, which joined the Texas Medical Center in 2017, usually has a group of returning volunteers to help prepare for a summer camp, but that group was unable to help this year. Real-life superheroes in orange shirts came to the rescue.

"We were so grateful that they were able to help us." said Mari Bosker, the center's director of development. "It's a huge job preparing for camp and they filled a gap that we had this year."

Getting ready for the camp required expanses of craft paper, numerous boxes and lots of painting to make children who enter the hallways feel like Spider-Man, Batman or Wonder Woman navigating a city skyline. The volunteers also thoroughly cleaned the Melinda Webb School—which serves preschoolers and kindergartners with hearing impairments—by disinfecting tables, chairs, walls, cubbies and toys for the fall.

"Their work wasn't glamorous," Bosker said, "but it will transform the lives of children with hearing loss."

#### How TMC Employees Spend Their Spare Time

Pediatric plastic and craniofacial surgeon Edward Buchanan, M.D., is training children to become "mental ninjas" through storytelling.

During his first year in practice at Texas Children's Hospital, Buchanan was inspired by his patients to write books that encourage young people to embrace their individual differences, think positively and treat others—and themselves—with kindness.

"It was this concept of looking at things in a positive light rather than a negative light, which is the type of circumstance you come across a lot when you're working in a children's hospital," said Buchanan, who directs the Cleft Lip and Palate Clinic at Texas Children's. "There are lots of ways to look at certain things, and it's really easy to look at things negatively. If that's going to overpower your psyche, it's going to be a very hard place to work in."

Buchanan's foray into children's books was also inspired by his role as a father. Raising his own children and spending long days with patients taught him the importance of cultivating emotional resilience in young people.

"They're not very hard lessons. They're just hard to learn," Buchanan said.

He recruited his younger brother, Matthew, to illustrate the stories and bring the characters to life. The first in his Mental Ninja trilogy, The Adventures of the Prickly Pear and the Happy Hoglet, was published in 2013. Through whimsical characters and playful artwork, Buchanan stresses the need to stay positive when facing challenging situations. Two friends, Prickly and Happy, react differently to the same scenarios: Prickly experiences self-doubt and shies

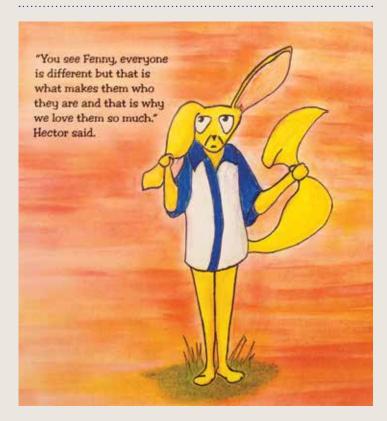


NAME: Edward Buchanan, M.D.

occupation: Chief of plastic surgery at Texas Children's Hospital

.....

INTEREST: Writing children's books



away from unfamiliar encounters, while Happy exudes confidence and delights in making new friends.

"At the end of the book, it comes down to a culmination of sharing their experiences and saying how you can look at things from different perspectives to make your day seem a little better, as opposed to a little worse," Buchanan said.

Pit Bully: The Mental Ninja Awakens, released in 2015, tells the tale of Hector the black cat, who controls his emotions and stands up to Pit Bull Paulie, the school bully who torments students in class and on the playground. With a level head and compassion, Hector demonstrates to his friends and readers—how to overcome bullying.

In the final Mental Ninja book, The Tale of Fenny Fox:
The Mental Ninja Emerges,
Buchanan draws on his personal experience as a pediatric plastic and reconstructive surgeon to emphasize the beauty of being different—whether that difference is based on physical appearance, personality or background.

For more than a decade, Buchanan has specialized in treating children with cleft and craniofacial deformities. Every Monday, the Cleft Lip and Palate Clinic at Texas Children's evaluates patients with facial differences related to congenital or traumatic causes. The team sees and treats more than 80 patients each clinic session and examines more than 100 new cleft babies a year. Patients are seen by the multidisciplinary cleft team and followed until adulthood for all their clinical needs.

"The facial differences you get with cleft lip and palate are pretty significant and enduring for a lifetime," Buchanan said. "It's important that we think, from the very beginning, to empower the family, as well as the kids, to understand their differences and understand that everyone has differences. That's what makes us who we are and that's why people love us."

With the Mental Ninja series complete, Buchanan is currently working on his next series of books, which will be based on the seven virtues—faith, hope, charity, fortitude, justice, prudence and temperance. The new series will be released next year.

By Shanley Pierce

#### The Common Cold as Cure?

Adenovirus shows promise as brain tumor immunotherapy

By Christine Hall

The common cold is usually something people try to avoid, but researchers at The University of Texas MD Anderson Cancer Center have discovered that the adenovirus is actually useful in attacking certain brain tumors.

After turning the cold virus into an injectable "smart bomb," researchers in a Phase 1 clinical trial

were able to show that the treatment helped 20 percent of patients with recurrent glioblastoma live for three years or longer.

Glioblastoma, which occurs in the brain or spinal cord and forms from cells called astrocytes that support nerve cells, is the most common malignant brain tumor affecting adults and the most aggressive, said Frederick
Lang, M.D.,
professor and
chair of the
department of
neurosurgery at
MD Anderson and
lead author of a report
on the clinical trial, published
in the May 2018 Journal of
Clinical Oncology.

Some 15,000 to 20,000 people are diagnosed with glioblastoma each year and it is "universally fatal at this point," Lang said, with patients living an average of 14 months after diagnosis.

Glioblastoma is more likely to be diagnosed in people in their mid- to late-50s or early 60s and most likely to be found in men.

Symptoms of the tumor can vary and include headaches that don't go away, usually occurring in the morning, as well as seizures and progressive neurological decline, Lang explained.

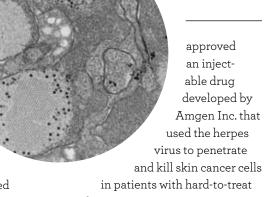
Depending on where the tumor is located in the brain, weakness on one side of the body or a numbness or tingling might occur. Problems with movement, vision or speaking could also arise.

"A lot of it can be subtle because as you get older, you have trouble finding the right words anyway," Lang said.

Symptoms seem similar to someone having a stroke, but glioblastoma symptoms are slower in the onset, he added.

#### Using viruses in tumors

Research supports using viruses to kill cancer cells. In 2015, the U.S. Food and Drug Administration



melanoma.

More recently, researchers at
Duke University showed positive
outcomes while using the poliovirus

to treat glioblastoma. They reported

a survival rate of three years in about 21 percent of brain cancer patients who received the treatment. Meanwhile, other researchers have experimented with low concen-

have experimented with low concentrations of the Zika virus, which was shown to kill certain types of brain cancer cells.

Though these experiments

Though these experiments had promising results, Lang and his fellow researchers weighed the safety of each virus with its ability to attack cancer.

"Herpes gets into brain cells very well, but it is all about the safety," he said. "You also have to consider if you can make the Zika virus safe enough, and handling it is not easy."

Instead, Lang and his team settled on the adenovirus, better known as the common cold. "We thought it was safer and easier for us to engineer," he said.

Lang and his team needed to engineer the adenovirus properly, to make sure it would grow in tumorous cells but bypass normal cells.

#### The experiment

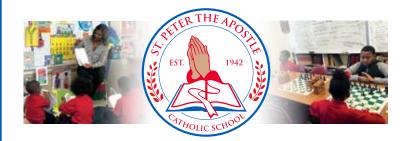
Juan Fueyo, M.D., professor of neuro-oncology at MD Anderson,



Frederick Lang, M.D., is a professor of neurosurgery at MD Anderson. Top right: A cell infected with the injectable adenovirus.

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took the lead in engineering the gene/virus combination, which the team of researchers studied for 10 years in the laboratory and in animal models to see what worked against the brain tumor.

Dubbed DNX-2401, the injectable treatment was designed to infect cancer cells, replicate inside them and then spread from cell to cell, killing the tumor.

Fueyo, along with DNX-2401 co-inventor Candelaria Gomez-Manzano, M.D., an associate professor of neuro-oncology at MD Anderson, helped form DNAtrix, a biotechnology company based in the TMC Innovation Institute, to further develop this drug for regulatory approval.

In 2014, the FDA granted DNX-2401 orphan designation, which means the drug was deemed a safe and effective treatment for a rare disease or condition affecting fewer than 200,000 people in the United States annually.

Later, in the Phase 1 clinical trial with which Lang was associated, DNX-2401 was injected once directly into the tumors of 25 patients whose glioblastomas had recurred after surgery and other treatments. This patient group typically has a median survival rate of six months.

In three of the 25 patients, the tumor went away, which "is very rare for glioblastoma," Lang said.

A total of 18 patients in the clinical trial had some tumor reduction over the course of a year or more, and the median survival rate was 9.5 months.

Although the three patients with the best outcomes lived three or four years following the trial, all ended up with fatal tumor recurrences. In two cases, patients were diagnosed with a different type of brain tumor, gliosarcoma, which is also malignant.

Looking ahead, the treatment remains experimental and there is still much to be learned, Lang said.

Since the Phase 1 clinical study, DNX-2401 has been tested across multiple clinical trials in more than 150 patients with malignant brain tumors, said Frank Tufaro, Ph.D., CEO of DNAtrix. That includes testing it in pediatric patients with diffuse midline glioma, an incurable childhood brain cancer.

"In collaboration with Merck, we are evaluating DNX-2401 with pembrolizumab for the treatment of adult patients with recurrent glioblastoma," Tufaro added. "The initial results from both ongoing trials are promising, suggesting that DNAtrix viruses have the potential to improve the lives of patients with hard to treat cancers."

The challenge for researchers now is to repeat the outcome for all patients, not just the three who had the most positive results in the Phase 1 clinical trial, Lang said.

"We know more now, but not yet the total solution," he added. "Our virus is good for some, but another virus may be good for others."



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#### A Conversation with Mimi Swartz

In *Ticker: The Quest to Create an Artificial Heart,* author Mimi Swartz profiles heart surgeon and left ventricular assist device (LVAD) innovator Dr. O.H. "Bud" Frazier, who trained at the Texas Medical Center under Drs. Michael E. DeBakey and Denton Cooley. In recent years, Frazier has partnered with heart surgeon and inventor Dr. William "Billy" Cohn and biomedical engineer Daniel Timms, Ph.D., to help bring Timms' pulseless, total artificial heart—the Bivacor—to market.

Q | The high-profile heart surgeons who populate your book—including Drs. Bud Frazier, Michael E. DeBakey and Denton Cooley—are and were larger than life. Is there a certain quality they all share?

A To be able to cut into somebody's chest and reach into their heart and repair the only organ you can't live without requires a certain person and a certain kind of ego. It did surprise me. I've written about lawyers, I've written about politicians, but the egos of heart surgeons are profoundly different.

#### Q | How so?

A | They're larger. But I asked Bud once, 'Are you afraid when you put a mechanical pump into a patient? Are you worried it isn't going to work?' And he said 'No. I've done this a million times before.' And so I think they're like the early astronauts, these guys, and the devices have been through as many tests

as possible before they are put in a person. I also think heart surgeons really like emergencies because that really challenges them, whereas otherwise you're kind of doing these routine operations. Most of these guys live for a crisis—to be able to fix a crisis and save somebody's life. They thrive on that.

Q | And as you observe in the book, nobody wants a timid heart surgeon. You want to see confidence.

A | You sure do. You want these guys to be swaggering and smart and completely focused on what they're doing.

Q Inventors and bioengineers who are designing total and partial artificial hearts work in tandem with doctors to test their devices and, hopefully, bring them to market. What are the joys and pitfalls of this sort of high-stakes innovation?

A Innovation is breathtaking. It is like seeing a new color. Something you could not imagine is happening right before your eyes. That's the upside. The downside is you end up thinking you can do anything. Or, actually, that you can do very little, because there are a lot of regulations and the process is extremely slow. And sometimes you have to wait for technology to catch up with your idea before you can move forward.

Q | The road to innovation is paved with failure—that seems to be an underlying theme in *Ticker*.

A I sort of think with innovation, failure is a requirement. The Bivacor artificial heart is the result of failures of many years—the failures of really smart people figuring stuff out. And then there are these great leaps. There's a

by Richard Wampler. Experts didn't think a continuous flow blood pump could spin the blood at a certain speed without killing the patient, but they were wrong. Bud thought the device was spinning at 2,500 revolutions per minute (RPM), but it was actually 25,000 RPM. He said he wouldn't have tried it if he had known the actual RPM. But it worked and it changed the technology.

### Q In your opinion, how long will it be before a Bivacor heart is spinning in someone's body?

A I think two years, that's what Bud keeps saying. I think Daniel Timms is very close. Bud, Billy and Daniel—they're an interesting threesome. When we think of innovation, we might think of Thomas Edison in a room alone. But even he wasn't alone a lot of the time. Now, I think most innovation happens with teams. All Bud wants for the rest of his life is to see this thing through. And I think Daniel worships Bud, but this is his machine and so I think you're always trying to protect and grow at the same time.

Mimi Swartz was interviewed by *Pulse* editor Maggie Galehouse. The conversation was edited for clarity and length.

#### **AUTHOR TALK & BOOK SIGNING**

WHEN: 6:30 p.m., Tuesday, Aug. 7, 2018

WHERE: Houston Public Library, Julia Ideson Bldg.

550 McKinney St.

DETAILS: Swartz will read from Ticker, followed

by a conversation with *Pulse* editor

Maggie Galehouse

INFO: 832-393-1646 or houstonlibrary.org



#### **EXCERPT:**

The door to the lab had a window covered with a venetian blind, a nod to security along with the key card Bud swiped to let himself in. The place wasn't much to look at, which made it camera ready for PETA membership drives. The floor was linoleum, and the tile walls were that sorry shade of prison green. The animals in metal stanchions—like modern-day stocks—raised their heads to look at Bud: one goat, one cow. At his arrival they blinked and chewed the hay at their feet, paying him little mind.

He had told his mother, a schoolteacher, that he'd decided to become a doctor one night while she was cooking him dinner. He was in from Austin and the University of Texas, back home in the small town of Stephenville. She kept stirring a pot on the stove while he explained his choice; she didn't stop to look at him. "Well," she said, when he finished, "I think you should do what you want, but I never knew you to much like to kill things." Well, "killing things" wasn't his goal as a doctor, but being an attentive son, Bud intuited her meaning: with a mother's impeccable memory, she was referencing that time he was eight years old and his friend Butch Henry had shot a rabbit in the brush. Bud raced to the site and found a mother rabbit dying, her unborn babies tumbling out of her belly where the shotgun pellets had torn her open. Bud gathered up the tiny bundle of kits, raced home and tried to save them, but he was too late.

His life's through line became saving the unsavable. This made Bud not just famous and respected, but beloved, and not just in Houston but anywhere he had taken care of sick people around the world. But he still had one goal to accomplish before he hung it up: Bud wanted to see a working artificial heart become a reality, a total replacement that could be implanted and then forgotten, as his friendly rival, another famous heart surgeon, Robert Jarvik liked to say. And, finally, Bud felt that he was close.

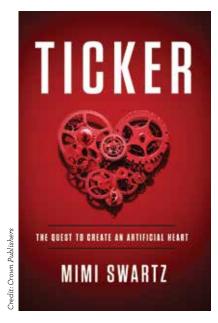
In the next room, Bud found the calf. He was a Corriente, a smallish breed descended from the Spanish. His coat was a reddish brown, soft and thick; in a different life he would have spent his youth avoiding cowboys in a roping competition at a rodeo. Instead, he was standing up in his small stall, wires and tubes running in and out of his chest every which way, hooked up to enough monitors better suited to send him to the moon. Bud scratched the calf's forehead and thought, as he often did, that they were such sweet animals.

Nearby, on a pile of old hospital blankets, was Daniel Timms, PhD, who had been sleeping there all night. A youthful-looking thirty-five-year-old biomedical engineer from Brisbane, Australia, Timms was a slight, tightly wound man with piercing blue eyes and a snaggletooth that, depending on which nurse you asked, made him more or less movie-star handsome. His short brown hair was often tousled, and he always seemed in need of a shave. Daniel wasn't known around the THI [Texas Heart Institute] for his sense of humor, but the rumors of his genius gave him a pass.

The calf shifted its weight and Daniel's eyes followed, watching the animal's chest move in and out. Then, reflexively, Daniel's eyes moved to the monitor. It registered the calf's vital signs as completely normal.

Or rather, completely normal considering that yesterday, in an eight-hour operation, Drs. Frazier and Cohn had sliced out the calf's heart and replaced it with Daniel Timms' invention, a device smaller than a tennis ball, that, once stitched in place, took over all the functions of a normal heart. Except, that is, for one thing: the calf had no detectable pulse. One small titanium disc spinning in its housing—at four thousand times a minute—was the only thing keeping this calf alive.

Reprinted from TICKER: The Quest to Create an Artificial Heart © 2018 by Mimi Swartz. To be published by Crown Publishers, a division of Penguin Random House LLC, on August 7.



Mimi Swartz is a long-time executive editor at *Texas Monthly* and a two-time National Magazine Award winner. Her new book, *Ticker: The Quest to Create an Artificial Heart*, will be released on Aug. 7. Swartz is co-author of the national bestseller *Power Failure*, with Sherron Watkins, about the demise of Enron. Her work has appeared in *Vanity Fair, The New Yorker, Esquire* and *Slate*, and her op-ed pieces appear regularly in The New York Times.

1 | STEPHEN J. INCAVO, M.D., section chief of adult reconstructive surgery in the department of orthopedic surgery at Houston Methodist Hospital, was one of 73 recipients of the American Academy of Orthopaedic Surgeons 2018 Achievement Award.

**2** | ABBEY ROBERSON, vice president of planning for the Texas Medical Center, was appointed Houston District Council Chair of the Urban Land Institute (ULI). Roberson is the first female chair for ULI's local council.

#### 3 | SERENA AUÑÓN-CHANCELLOR,

M.D., a NASA astronaut and a University of Texas Medical Branch at Galveston assistant professor in internal medicine, arrived at the International Space Station (ISS) on June 8 for a six-month mission. She and two other crew members traveled to the ISS on the Soyuz spacecraft, which launched from Kazakhstan.

4 | Olympian YVONNE TREVIÑO HAYEK hosted a mini Olympics for young patients at MD Anderson Children's Cancer Hospital. The event, developed by KERI SCHADLER, PH.D., assistant professor of Pediatrics at MD Anderson, is part of the new Profit Program, a fitness program designed to bring celebrity athletes to the hospital.

**5 | TEXAS CHILDREN'S HOSPITAL** was ranked No. 1 in cardiology, heart surgery and pulmonology among the nearly 200 pediatric centers surveyed by *U.S. News & World Repor*t in their 2018-19 edition of Best Children's Hospitals.

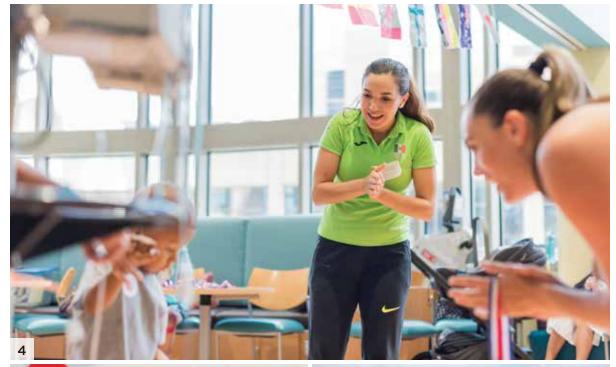
6 | An anonymous \$3 million gift will pay the tuition for the inaugural class of the UNIVERSITY OF HOUSTON'S COLLEGE OF MEDICINE, expected to begin in the fall of 2020. The University of Houston's Health 2 Building serves as a temporary home to the UH College of Medicine for three planning years and the first two years of initial enrollment.

7 DAVID POPLACK, M.D., was named associate director of Texas Children's Cancer and Hematology Centers and director of Global HOPE (Hematology-Oncology Pediatric Excellence). SUSAN BLANEY, M.D., was named director of Texas Children's Cancer and Hematology Centers.















Credit: Nos. 1, 5, 6, 9, 10, 11, 12, 13, 14, courtesy photos; No. 3, NASA; No. 4, Adolfo Chavez III, Texas Children's Hospital; No. 7, Paul Vincent Kuntz, Texas Children's Hospital; No. 10, Gary Fountain; No. 14, William Duncan Beard





DO YOU HAVE TMC PHOTOS YOU WOULD LIKE TO SHARE WITH *PULSE*? SUBMIT HIGH-RESOLUTION IMAGES TO: news@tmc.edu

- **8** | MATTHEW GREIVES, M.D., a pediatric plastic surgeon with Children's Memorial Hermann Hospital and assistant professor of pediatric plastic and craniofacial surgery at McGovern Medical School at The University of Texas Health Science Center at Houston, was named to the Houston Business Journal's 40 Under 40 class of 2018.
- **9** | ALEX LOESSIN, vice president of communications and liaison to the president and CEO at Memorial Hermann Health System, was named to the *Houston Business Journal's* 40 Under 40 class of 2018.
- 10 | WILLIAM F. McKEON, president and CEO of the Texas Medical Center, with JAMES CORNER, founder and director of James Corner Field Operations, at a fundraising event in Houston for TMC3's Helix Park.
- 11 | Patrons of THIRD COAST restaurant watched the FIFA World Cup semifinals in July.
- 12 | M. JUSTIN COFFEY, M.D., medical director of the Center for Brain Stimulation at The Menninger Clinic and associate professor of neuropsychiatry and psychiatry at Baylor College of Medicine, was appointed as the new vice president of the International Society for ECT (electroconvulsive therapy) and Neurostimulation for 2018-2020.
- 13 | RICARDO QUINONEZ, M.D., associate professor of pediatrics at Baylor College of Medicine and Texas Children's Hospital service chief of pediatric hospital medicine, was selected as a 2018 Pediatric Hospital Medicine Excellence in Clinical Care Award winner.
- 14 | Creative arts therapists from TEXAS
  CHILDREN'S HOSPITAL, HOUSTON
  METHODIST HOSPITAL and CHILDREN'S
  MEMORIAL HERMANN HOSPITAL posed
  with the Harvey Healing Tree, part of the
  Harvey Arts Recovery Project. The therapists
  held four Harvey Healing Days around the
  city to help repair emotional wounds left by
  Hurricane Harvey, during which guests had
  a chance to express themselves on canvas
  strips that have now been integrated into one
  collective piece of art.

### August 2018

8/7

#### **Rice University Farmers Market**

Tuesdays, 3:30 – 6:30 p.m. Rice University Parking lot entrance 13B 5600 Greenbriar Dr. ricefm@rice.edu 8/7

Author Talk & Book Signing: Mimi Swartz will discuss Ticker: The Quest to Create an Artificial Heart

Tuesday, 6:30 p.m. Houston Public Library Julia Ideson Bldg. 550 McKinney St. houstonlibrary.org 832-393-1646 8/18

"Body as a Work of Art: More Than Skin Deep" exhibit includes "Scar Stories" portraits by TMC Pulse photographer Cody Duty

Opens Saturday, runs through Jan. 11, 2019 The Health Museum 1515 Hermann Dr. thehealthmuseum.org 713-521-1515 8/21

Ask Me Anything with Venture Capitalists: Q&A organized by Capital Factory

Tuesday, 4:30 – 6 p.m.

TMC Innovation Institute

2450 Holcombe Blvd., Suite X

\$10; Register at eventbrite.com

events@capitalfactory.com

#### Become a Certified Tobacco Treatment Specialist

## Nationally accredited program offered at MD Anderson Cancer Center

August 20-24, 2018\*

Led by MD Anderson faculty who specialize in smoking cessation research and clinical practice, this program will familiarize participants with the latest findings related to tobacco use, dependence, and smoking cessation as applied to clinical practice.

To become certified or get more information about this course or future program dates,

visit www.mdanderson.org/tobaccotraining or email ctts@mdanderson.org.

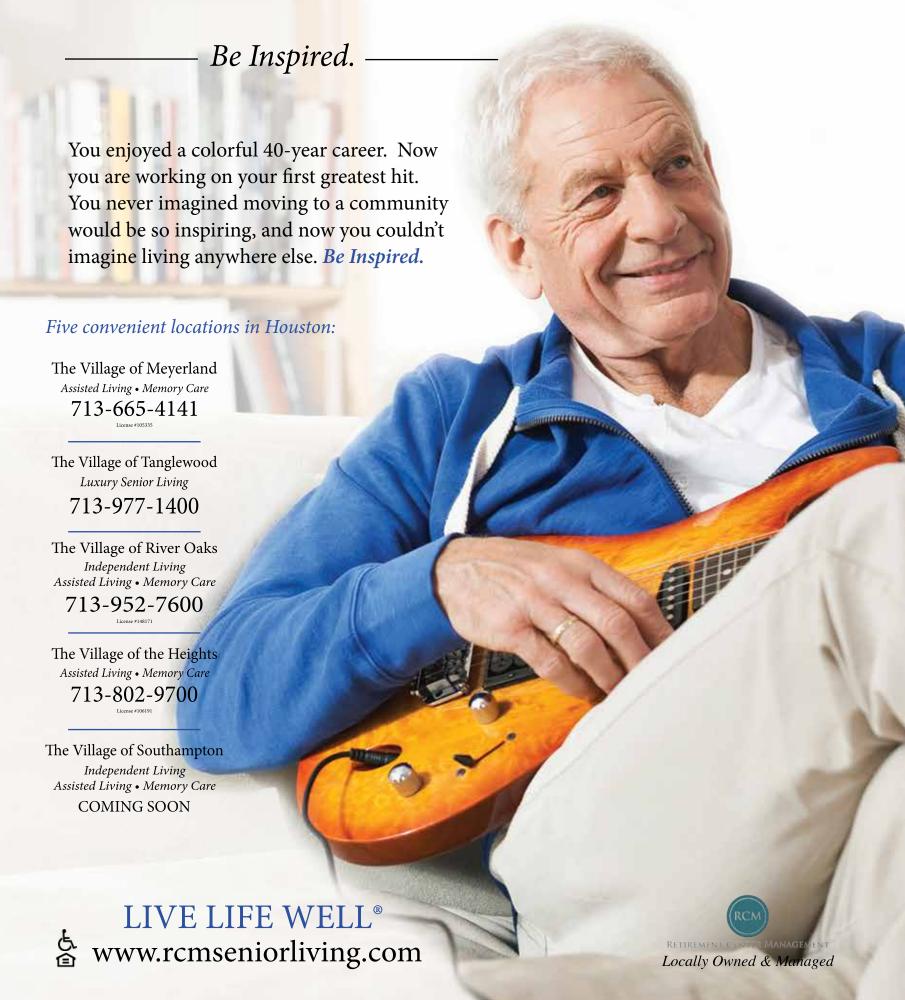
\*Next course offered October 1-5, 2018. MD Anderson will offer continuing education hours from the Accreditation Council for Continuing Medical Education (ACCME), National Commission for Health Education Credentialing (NCHEC), American Association for Respiratory Care (AARC) and the University of Houston Graduate College of Social Work. CEs for LPCs are also available.

For further information on MD Anderson's EndTobacco® Program: http://www.mdanderson.org/EndTobacco Training is sponsored by the Moon Shots Program™ at MD Anderson.



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Arrowwood Cir. Piney Point, \$6.4+ mil. Colleen Sherlock, 713.858.6699



Pine Hollow Tanglewood Area, \$2.2+ mil. Carol Rowley, 832.277.1552



Arnold West University, \$1.9+ mil. Kristin Tillman, 281.785.3566



Southgate Rice/Museum District, \$1.5+ mil. Tim Surratt, 713.942.6830



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