

The next level: Kids' trauma center hits important high

MUSC Children's Health achieves Level 1 verification

BY HELEN ADAMS

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The trauma center at MUSC Children's Health has become the only kids' trauma center in the state to achieve Level 1 verification from the American College of Surgeons. That's the highest possible level.

Surgeon Chris Streck, M.D., directs the pediatric trauma medical program at MUSC and serves as a professor of surgery and pediatrics. "The main factors that distinguish Level 1 pediatric trauma centers are volume and quality of patient care. That includes 24/7 coverage by specialists including pediatric trauma surgeons, neurosurgeons, orthopedic surgeons, emergency medicine providers, anesthesiologists, child abuse treatment experts and intensive care unit providers. Injury prevention outreach and quality and volume of research are also major factors."

Nurse Madeline Gehrig manages the trauma program at MUSC Children's Health. "What this verification means to our patients and their families is the assurance that they are receiving safe, innovative and high-quality care from some of the most knowledgeable and skilled medical providers in the industry."

Streck said the trauma center team cares for kids hurt in major accidents or events. "The most common severe mechanisms of trauma that we care for are motor vehicle collisions, pedestrians and bicyclists struck by automobiles, falls from a height, bicycle- and golf cart-related injuries, gun and knife-related trauma, burns and child abuse."

MUSC Children's Health was first named a pediatric Level 1 trauma center several years ago by the South Carolina Department of Health and Environmental Control. Then, DHEC started requiring hospitals to meet even higher standards set by the American College of Surgeons to keep their designations, which MUSC Children's Health has now done. It's one of just 59 Level 1 pediatric trauma centers in the country.

Gehrig said a team of reviewers from the American College of Surgeons visited MUSC Children's Health to review its patient care and quality improvement efforts before verifying its Level 1 status. "The process included evaluating our injury prevention and outreach efforts; our care management through an extensive chart review, interviewing leaders, doctors, nurses and other care team providers; and touring the trauma center to evaluate the resources available for injured children."

Streck said that unfortunately, more than 90 percent of children hurt in the United States aren't taken to trauma centers, at least not initially. "In trauma care, we refer to the golden hour, where early intervention can really make a difference."

In other words, the earlier a trauma patient gets expert care, the better the chance of survival. "The pediatric trauma center at MUSC Children's Health benefits children across the Lowcountry. We also get transfers of severely injured children from across the eastern half of South Carolina," Streck said. "Having a high-level trauma center is like having good community amenities like parks, roads, schools and libraries where you may



Photo by Sarah Pack

The pediatric trauma team includes Dr. Meryle Eklund, from left, Dr. Chris Streck, injury prevention coordinator Aynsley Birkner, nurse Madeline Gehrig and nurse practitioner Jennifer Waterhouse.

not inherently recognize their daily value until you need the resource, and then it's very meaningful."

MUSC Children's Health will open a new hospital in about six months. Streck said it

will offer more state-of-the-art options for trauma patients and their families "Our new facility's infrastructure will match the high level of care that we provide to kids. This is a win for everyone in the community."

Sen. Hollings leaves important legacy at namesake cancer center

BY DAWN BRAZELL

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Describing Senator Ernest "Fritz" Hollings' tireless efforts to ensure that South Carolinians had access to high-quality health care, leaders at MUSC paused to reflect on the significance of that legacy.

Sen. Hollings, who died early April 6 at age 97, was a former U.S. senator and South Carolina governor. He served in

Washington, D.C., for nearly 40 years.

MUSC President David J. Cole, M.D., FACS, described Sen. Hollings as a generational statesman and tireless advocate for the people of South Carolina. "He leaves an enduring legacy for South Carolina and the nation," he said.

"One dimension of his legacy will certainly be his determined efforts to assure that all South Carolinians have

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Beloved cardiologist, leader remembered for contributions

By MIKIE HAYES

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MUSC has lost one of its greats, and the impact has resounded not only through the hospital halls, but also throughout labs and classrooms.

Peter C. Gazes, M.D. was a doctor's doctor. Old school in some ways, he believed in the hands-on approach to patient care. No sitting in front of the computer screen asking the patient to tell him what was wrong; if he wasn't listening to a patient's stomach sounds, he was thumping their muscles or assessing the sclera of their eyes.

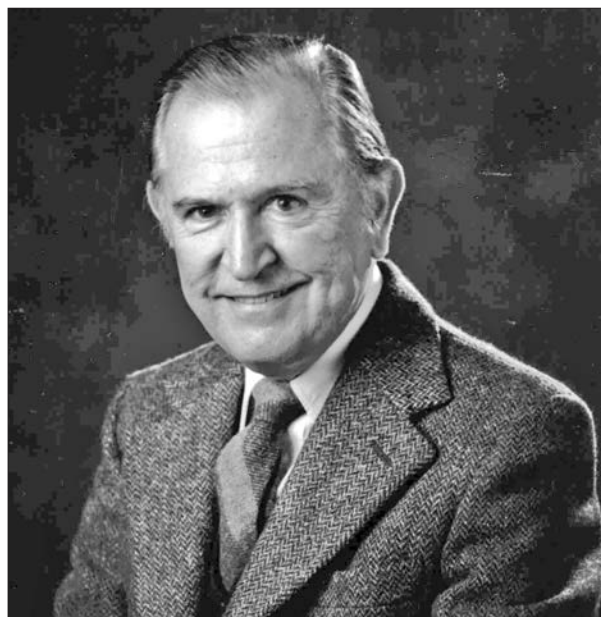
"This," he said to a small group of proteges one day during patient rounds in 2000, "this is how you examine a patient. Doctors don't touch patients anymore. That won't do. We have to get doctors away from computer screens and back to the patient."

And while that might have been considered old-fashioned medicine in today's terms, he also was always eager to digest the latest techniques, trends and studies. Combining the best of both worlds, that level of curiosity, caring and skill led his patients, colleagues and students to respect and adore him.

When President David J. Cole, M.D., FACS, learned Dr. Gazes had died, he reflected on the many years he spent getting to know, work with and learn from such an "incredible man."

"Dr. Gazes was a first honor graduate of MUSC's School of Medicine and had the distinction of being the first board-certified cardiologist in South Carolina, as well as being the founder and director of the nationally recognized MUSC Division of Cardiology. He was a remarkable person, a beloved physician, honored teacher and mentor and tireless advocate for MUSC who left an enduring mark on the field of cardiology in addition to thousands of patients, students and colleagues."

The inaugural director of the Division of Cardiology, Gazes' countless contributions continue to leave a mark. A life well lived and career well spent, he wasn't satisfied with merely saving lives. He sparked discussion, took cutting-edge research from the bench to the bed, shared his insights through innumerable publications and inspired generations



Dr. Peter C. Gazes, 97, passed away on April 2.

of future physicians. Dr. Gazes promoted the concept of prevention well before it was popular to do so.

Thomas Di Salvo, M.D., the Volpe SmartState Endowed Chair in Cardiovascular Biomarker Development and Molecular Proteomics and director of both the Division of Cardiology and the Heart and Vascular Integrated Center of Clinical Excellence, said Dr. Gazes will be missed by friends and colleagues. When Di Salvo joined the MUSC family in 2015, he counted himself as fortunate to have gotten to know and spend time with Dr. Gazes.

"I was touched several months ago after Dr. Gazes made his last visit to his office on the first floor of the Gazes Building to remove some personal effects to have a few moments to review some of the many manuscripts and personal papers left behind in his office. Dr. Gazes had the distinction of being one of the last iconic clinical cardiologists with the intellect, clinical experience, drive and passion for learning to publish a single-authored textbook of cardiology – which had four sequential and successful editions. His bookshelves contained carefully stacked reprints of some of his most

important papers, papers that provided foundational insights and observations in clinical cardiology and the translational research areas of the day," Di Salvo said.

"It was humbling indeed to review the fruit of such a long, productive career and the output of such a fertile, inquisitive and brilliant mind. There were also touches of his flashing humor and storytelling in his office – collections of anecdotes and tales that rekindled fond memories of his vibrant, irreverent wit that I was fortunate to experience at a late phase of his life and which his many friends experienced throughout his life. There were tasteful works of art, particularly Greek statuary and portraits that echoed his childhood and proud Greek heritage. True to the ancients, he cultivated many interests – science, literature, humor, golf. You had to know him only for a brief time to realize the abiding place in his heart he reserved for his family."

Charismatic and funny, Dr. Gazes always had a story to share. It endeared many to him and led to countless friendships.

Tim Hayes of Little River, South Carolina, was his patient for eight years. He and Dr. Gazes shared a love of golf, the classics, family and good quips. Appointments that should have lasted 20 minutes often lasted hours as the men regaled each other with tales of their latest scores on the links, where their travels had taken them and whose grandkids had done what.

"I met him in an elevator one day, and I said, 'Dr. Gazes, this whole joint is named after you.' He laughed and said, 'Yeah, I'm the Strom Thurmond of Medicine.' I was there that day to see someone for A-fib. We got to talking, and by the end of the ride, he was my doctor. I was one of his last three patients. It was a senator, a mayor and me," Hayes recalled fondly.

"Pete was so fantastic. I remember the micrometer he always wore. His mother gave it to him when he graduated from medical school. Finally, one day he called me and said, 'Tim, I know you don't want to hear this, but you're my last patient, and I have to put you in the care of Dr. Butler, a wonderful doctor up in your neck of the woods. It's time for me to hang up my stethoscope.'"

"While I knew the news was coming, I also knew there

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MUSC CATALYST news

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MEET KAMILAH



Kamilah H. Grant

Department and how long at MUSC
Pediatrics; 2 years and 2 months

How are you changing what's possible at MUSC

I come to work daily with a smile on my face. I'm always willing to lend a helping hand. I'm willing to train my co-workers on procurement.

Family

Husband, Timothy N. Grant; daughters, Lilah and Iva Grant

Favorite Easter memory

When our two foster boys were placed with our family, and we shared Easter together.

Greatest moments in your life

The day I had my daughter Iva and the day we adopted our daughter Lilah.

Favorite quote

"Change will not come if we wait for some other person or some other time. We are the ones we've been waiting for. We are the change that we seek." — President Barack Obama

science café

Got AGING on the brain? Learn more to keep yours healthy!

Heather A. Boger, PhD
Associate Professor
Department of Neuroscience
Interim Director, Center on Aging
Medical University of South Carolina

We are inundated with information about brain health these days: what to eat, what not to eat, how much physical activity to get, what are the risk factors for brain disease. We even hear about how social engagement is key to preventing cognitive decline.

Join us to hear Dr. Heather Boger discuss brain health and the latest research to improve our quality of aging.

Science for the rest of us

MUSC's Science Café is a series of presentations offering entertaining talks on scientific subjects in a fun, non-technical way in a pleasant social environment. To learn more, contact Tara Abbott at 843-792-2926 or abbott@musc.edu.

Tuesday, April 23, 2019 | 5:30 pm
Charleston Beer Works (upstairs)

MUSC SCIENCE CAFÉ

Nurses Week 2019 Calendar

Monday, May 6, 2019
Manager Monday
Nurse of the Year Ceremony, St. Luke's Chapel 10:00am
Tuesday, May 7, 2019
Teaching Tuesday
DAISY Team and DAISY Leader Awards, Location and Time TBD
Wednesday, May 8, 2019
Wellness Wednesday
DAISY Statue/Garden Unveiling, Between Main/ED entrance 1:30pm
Nurses Night at the Charleston Riverdogs 6:00pm
Leadership Rounding and Treats Night Shift
Thursday, May 9, 2019
Thankful Thursday
Leadership Rounding and Treats Day Shift
Friday, May 10, 2019
Fun Friday
Saturday, May 11, 2019
Safety Saturday
Sunday, May 12, 2019
Celebrate Sunday

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Family joins study to ‘SPARK’ knowledge about autism

By LESLIE CANTU

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When a child is first diagnosed with autism, parents often wonder what they can expect the future to look like. There’s no simple answer, because the umbrella term “autism spectrum disorder” carries such a wide range of potential outcomes.

“We’re coming to see that there’s not just one autism. There’s probably many autisms,” said Laura Carpenter, Ph.D., professor of pediatrics. “I think anyone who’s ever met people with autism probably can recognize that – that people with autism are so different from each other.”

The Mata family has firsthand experience with this wide range of outcomes. Three of their four children have been diagnosed with autism, yet each of their sons is as different from his brothers as any other group of siblings.

Seeing how these differences have played out in their sons’ autism was part of the motivation for the family to participate in the SPARK study. Miguel Mata said he and his wife, Vanessa, were curious about how the genetics behind autism influenced their sons’ development.

Sponsored by the Simons Foundation, SPARK is a nationwide autism study that seeks to enroll 50,000 people with autism and their parents to build a genetic map of the disorder. For many years, researchers have tried to pin down what causes autism, with little success, said Carpenter, who’s leading MUSC’s participation in the study.

“We haven’t made as much progress as we hoped,” she said. “We’re coming to find that autism is so diverse and so heterogeneous, and there are so many pathways to autism, you need a very large sample in order to figure out all those pathways.”

Thus, the goal to enroll 50,000 people. But that task was quite a bit bigger than researchers initially anticipated, so it will probably take six years, instead of the originally projected three years, to complete enrollment.

Participation is easy enough: Individuals just need to give a one-time saliva sample. In return, they’ll receive a \$50 Amazon gift card and ongoing updates from the Simons Foundation about their genetics as well as general topics of concern for many with autism like problems with eating, sleeping, the transition to adulthood, post-secondary education and more.

There are probably more than 150 genes that contribute to autism, Carpenter said. The hope is that gathering information about such a large group of people will help researchers identify which of those genes, in which particular environments, might lead to autism. Once those different paths are mapped out, scientists can then work on personalized treatments specific to each type of autism.

Although parents Miguel and Vanessa don’t have specific answers as to why Marcos, 21; Macario, 14; and Mauricio, 11, have autism, they both have family members who have been diagnosed with autism or who they think would have been diagnosed if they were children today.

They said parenting children with autism has forced them to grow and adapt.

“For me personally, I’m not a very patient person. I really never have been. But to work with our boys, I’ve really got to dig deep to demonstrate some real patience. Without the experience of raising our kids, who knows if that would have even happened,” Miguel said.

Marcos, the eldest, was diagnosed when he was 7 years old. Neither he nor his brother Macario spoke until they were 4 years old, Vanessa said. Today, Macario is the most verbal of the three. Mauricio is nonverbal, but that doesn’t mean he’s noncommunicative. Vanessa and Miguel have learned to observe him closely and interpret his facial expressions, sounds and gestures. “We’re pretty sensitive,” Miguel said. “There are tones they use in their voices.”

Marcos holds down a job at The Galley, the cafeteria at the Naval Weapons Station, where he cleans and washes dishes. He also enjoys playing video games and reading comic books.

Macario, like many teens, likes to stay in his room on his iPad. He also recently made his big-screen debut as “Cowboy Kid” who bumps into “Halloween” boogeyman Michael Myers while trick-or-treating.

All three boys play baseball with the Charleston Miracle League.

The family lived across the United States and overseas while Miguel served in the U.S. Air Force. He’s since retired, but the family decided to stay in Charleston, rather than returning to their home state of Texas, because the younger boys are in good school situations.

The Matas said they’re comfortable with the idea that the boys might always live with them.

“Macario could be independent. The likelihood of that happening is pretty good. Marcos will probably be staying with us forever,



Photo by Leslie Cantu

Vanessa, from left, Marcos, Macario, Miguel and Mauricio Mata are participating in the nationwide SPARK study to trace the genetics of autism.

To join the study or learn more, contact Candace Van Wade at 843-876-8504 or SPARKautism@musc.

unless he decides he wants to be independent, and we could start working toward that,” Miguel said. Mauricio will always have to live with family, Miguel said.

For other parents of children with autism or disabilities, Miguel stressed the importance of keeping good records. It’s something that Vanessa excels at, he said, and those records have saved the day more than once.

One such example came quickly to mind. When the family first moved to South Carolina, Macario had a negative incident at school. The school principal seemed to want to attribute his meltdown to being spoiled rather than to his autism. Vanessa was called to the school, and she showed up with a binder filled with his records, including his Individualized Education Program plan that spelled out how physical contact was to be handled. As school officials described the incident to her, it was clear they hadn’t followed the plan, Miguel said. Vanessa pulled out a copy and asked if anyone had read it. “That shut everything down,” Miguel said.

He urged parents to do their homework and be involved. “Parents have to learn how to be advocates for their kids,” he said.

Vanessa said she’d like the general public to

“I just want others to know, they’re not meant to be secluded from everybody.”

Vanessa Mata

be more understanding of people with autism.

“Don’t stare. When they’re out with family and they’re upset or having a meltdown, it’s not because they’re spoiled,” she said.

Children with autism are just like any other children – if they’re having a bad moment or a bad day, they’re going to act out, she said, and their parents are just trying to do their best to deal with the situation.

“I just want others to know, they’re not meant to be secluded from everybody. I was told to my face, I should have left my kids at home,” Vanessa said, referring to an incident that occurred at a baseball game in Texas. Vanessa refuses to isolate her boys. They have as much right to enjoy an afternoon at the ballpark as anyone else, she said.

While the Matas go about their lives, their genetic contributions are helping researchers piece together the mystery of autism. Besides the main genetic study, Carpenter said there are about 20 substudies underway that use the data collected through SPARK.

Jaw in a Day: Procedure restores smile, confidence

Procedure is first in state to provide comprehensive jaw, teeth restoration

By MIKIE HAYES

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Arionna McKnight, at age 15, already knows she wants to be a CIA agent. Her dream is to travel the world on undercover missions, work with the president and keep the nation safe. But before she's old enough to achieve these lofty aspirations, she needs to be just be a normal kid, attending football games, school dances and college. And dating.

So, imagine being a ninth grader with a tumor growing out of your jaw. It's growing so aggressively that it's changing the shape of your face and making it difficult to eat, talk or have fun with your friends. Let's face it, in today's era of endless selfies, Instagram and Snapchat, putting your best face forward seems more important than ever.

That's what Arionna was dealing with. Diagnosed with an ameloblastoma, she would require an arduous surgical procedure that could leave her without teeth for six to 12 months, undergoing surgery after surgery.

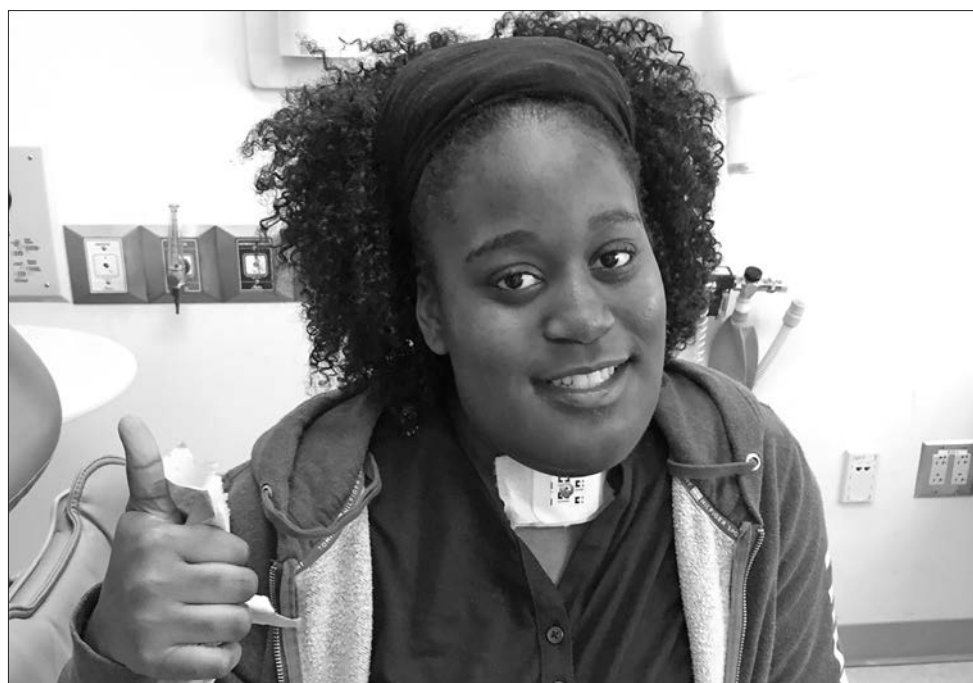
Thankfully, MUSC had something significantly better in store for her.

Baber Khatib, M.D., D.D.S., an oral and maxillofacial surgeon, examined Arionna and determined she was a candidate for a cutting-edge procedure called "Jaw in a Day" that just weeks before, he had introduced in South Carolina. This surgery is the most comprehensive restoration of the jaw and teeth ever been performed in the state, and Khatib is the only surgeon in S.C. trained in head and neck surgery, microvascular reconstructive surgery and dentistry, making him uniquely qualified to plan and execute such a technically challenging operation. In fact, the closest program that has performed the mandibular surgery is the University of Alabama, and only a handful of other centers throughout the United States are even able to offer it.

Khatib explained that for patients, the ability to chew, communicate and maintain social interactions is so critically related to a person's teeth that even missing a front tooth can be a source of great angst. These types of visual changes are a constant and painful reminder of how the person looks to others and can lead to self-esteem and confidence issues.

"Now imagine having been diagnosed with an aggressive tumor of your jaw that necessitates resection of your jaw and most of your teeth," he said. "One quickly asks, 'How will I chew? What will I look like? Will I be disfigured?'"

These were questions Arionna and her family naturally had, and Khatib was able to allay their fears. She would undergo a removal of her jaw thorough a process called a radical mandibulectomy that entails using part of the patient's fibula — or calf bone — to replace the affected jaw. But instead of multiple reconstructive procedures that typically could take a year and a half to complete, Arionna would have her confidence and beautiful smile back in one day.



Arionna McKnight, 15, can smile again after becoming one of the first people in South Carolina to have a speedy new procedure to remove a tumor and restore her jaw.

Photo provided

THE PROCEDURE

Using the latest innovations and technologies and meticulous computer surgical planning, Khatib outlines how he'll remove the tumor, while allowing for the most aesthetically pleasing reconstruction, shaping the fibula specifically to her face and bite. The digital plan is then custom 3D printed into cutting guides, plates, hardware and finally a prosthesis that replaces the missing teeth and gums.

At this point, radical mandibulectomy patients are taken to the operating room. That's where Marty Steed, D.D.S., chairman of the Department of Oral and Maxillofacial Surgery, or Michael Lecholop, D.M.D., Oral and Maxillofacial Surgery Program director, removes the jaw tumor, tissue and teeth, using the custom mandible cutting guides.

At the same time, Khatib dissects out part of the fibula and shapes it into a jawbone. He places dental implants into the leg bone while the bone is still inside the leg, receiving blood. Custom prosthetic teeth are then placed by Khatib on the implants after prosthodontist Mark Ludlow, D.M.D., adjusts and polishes them. The entire construct is taken up to the face, vessels are sutured under the microscope, and at the end of the case, the patient wakes up looking very similar to how they looked before the tumor started growing.

While the surgery can take up to 12 hours, a potential 18-month wait is decreased to one day in the all-in-one procedure.

Khatib describes the surgery as revolutionary. "By immediately implanting the dental prosthesis, the need for multiple surgeries is eliminated. It allows for complete dental reconstruction months before traditional treatment options."

Dean of the James B. Edwards College of Dental Medicine, Sarandeep Huja, D.D.S., Ph.D., is focused on continuing to increase innovation and technological advances in dental education and patient care. He is delighted to have recruited

Khatib, adding a highly specialized surgeon to the faculty and enabling the college to offer this groundbreaking surgical

See JAW on page 13



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COM Cup gives students chance to relax, have fun

Annual spring tradition inspires friendly competition

By **BYRCE DONOVAN**
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It's not often a second-year medical school student gets to shove his professor to the ground in broad daylight. But then again, they aren't usually racing each other on inflatable toy horses while playing a game of speed tic-tac-toe as the rest of their classmates cheer them on.

This is just a small slice of what makes MUSC's annual College of Medicine Cup so appealing to its students and faculty. The annual tradition, now in its third year, pits four teams — Palmetto, Magnolia, Cypress and Oak — against one another in various competitions. The kind of things that might be a little difficult to envision the world's future doctors doing — like having potato sack races and cooking competitions. But anything sounds appealing in comparison to studying all day.

On a sunny spring afternoon, hundreds of students crammed into the environs around MUSC's Urban Farm and Greenberg Greenway while running, jumping and most importantly, laughing. Sure, it was a competition, but more accurately, it was an opportunity for students to get some fresh air and let off some steam.

"I'll take a potato sack race over anatomy lab any day," one student could be overheard saying.

"The idea behind the event is to give us

the opportunity to just relax and take a break from the daily grind," said student event coordinator and fourth-year COM student Melissa Koci. "This is the third year we've done this, and over the years, it's gone from just a thing going on to a thing you don't want to miss. Sure, it's silly and ridiculous in ways, but I think it's easy as students — and teachers, for that matter — to forget that sometimes a little sunshine can do wonders for our well-being."

Adrienne Edge, director of Student Support and Wellness, who oversees the event each year, agreed. "Med school is so pressure packed. It's great that we've created something that allows them to step away from that pressure — even if for a day to relax and have a good time.

Several local vendors were also on hand to provide healthy food, massages, even yoga to any hungry or interested students and faculty. Over the course of the four-hour competition, the teams battled it out for supremacy in cornhole, tug of war, relay races and even a Food Network's "Chopped—" inspired cooking contest, judged by MUSC first lady Kathy Cole.

In the end, the Palmetto team came out on top, earning the coveted COM Cup trophy, but it was Cole who put the entire day in perspective: "I really feel like everybody who participated got something positive out of this experience — myself included," she said.



Photos by Bryce Donovan

"I'll take a potato sack race over anatomy lab any day," says one student competing for the 2019 College of Medicine Cup.



Medical students bounce across the lawn near the Urban Farm.



Trophy time — the Palmetto team claims the College of Medicine Cup.



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Two employees, student celebrated for building bridges, achievements at MUSC

Student affairs leader, nursing director, student advocate recognized for promoting diversity

BY JENNA LIEF

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MUSC recognized Myra Haney Singleton, Ed.D.; third-year dental student Malikah Christie; and Leah Ramos, R.N., with the 2019 Earl B Higgins Leadership in Diversity Awards. Marking its 24th year, the awards presentation took place at Wickliffe House on April 3.

Established in 1996, this award ceremony is a tribute to Earl B. Higgins, a man known for his work as director for Affirmative Action and Minority Affairs. It is a celebration of those who, like Higgins, are admirable leaders that promote diversity and inclusion and represent today's dialogue for equity and equality. Higgins aimed to create an environment at MUSC that was welcoming for all, and in his time at the Medical University, Higgins worked in recruitment, seeking to enrich its programs with diverse students, faculty and staff. The Earl B. Higgins Awards honor those following in his footsteps.

Aiming to celebrate the ever-changing legacy of inclusion and engagement at the Medical University, the award selection committee recently expanded the ceremony so that it not only celebrates one outstanding

university employee, but exemplary members from the university student body and MUSC Health as well.

Lisa K. Saladin, PT, Ph.D., executive vice president of Academic Affairs and provost, commended the winners from each category on the positive role models they are and their continuation of Higgin's work.

"We applaud this year's recipients for their efforts to break down barriers and create the culture of inclusion and diversity that makes MUSC an environment that welcomes everybody. They share our goal of ensuring that everyone who walks through the hospital doors feels the same — accepted and equal across all aspects of what we do — and that they will leave here with that same feeling."

MYRA HANEY SINGLETON – UNIVERSITY LEADERSHIP AWARD RECIPIENT

Myra Haney Singleton is the associate dean for Student Affairs and Student Wellness in the College of Medicine. Following her graduation from the University of South Carolina and receiving her master's degrees from The Citadel and doctorate from Walden University, Singleton assumed several leadership roles at the Medical University. Here, she has been heavily involved in both the creation and implementation of many



Photos by Anne Thompson

The 2019 Earl B. Higgins Leadership in Diversity Award winners Malikah Christie, from left, (student), Dr. Myra Haney Singleton (University) and Leah Ramos (MUSC Health) join Marsha Higgins, sister of the award's namesake, the late Dr. Earl B. Higgins. The winners and other award candidates were recognized at the April 3 reception held at the Wickliffe House.

College of Medicine pipeline programs. In addition, Singleton has worked to expand the academic support systems and retention initiatives in the Group on Student Affairs, enhancing the medical education experience. She also has been an engaged collaborator in the admissions process and recruitment efforts. Singleton was an invited presenter at the Association of American Medical Colleges national meeting, where she shared how the College of Medicine has become a national leader in the matriculation of African American males. Highly successful pipeline programs that include A Gentleman and A Scholar Mentoring Program and the Post-baccalaureate Reapplication Education Program have earned the college and Singleton positive recognition for these types of forward-thinking efforts.

Singleton was nominated by Michael de Arellano, Ph.D., a professor in the Department of Psychiatry and Behavioral Sciences and senior associate dean for diversity in the College of Medicine.

"I can say without a doubt Singleton's work is invaluable for enriching the diversity throughout the College of Medicine. She has been a contributor to and a developer of the refinement of many of our highly successful pipeline programs. But most importantly, she's an advisor. She's a counselor. And she's a friend to our students. Singleton

has touched the lives of many of us, not just within the College of Medicine, but throughout the MUSC community."

Her colleagues and students agree that Singleton's commitment to the advancement of campus diversity and inclusion has helped to keep Earl B. Higgins legacy alive, making her especially deserving of the award.

MALIKAH CHRISTIE – STUDENT LEADERSHIP AWARD RECIPIENT

Malikah Christie graduated from the University of Georgia with a Bachelor of Science in Chemistry and is currently completing her third year of training in the College of Dental Medicine. Apart from her hard work in her studies that earned her a spot on the dean's list, Christie enjoys helping her community, chiefly underrepresented minority communities. She has also taken advantage of her enrollment at the Medical University by involving herself in multiple organizations. Christie is a member of the Student Diversity and Inclusion Council, the American Academy of Developmental Dentistry, the Students Creating Relationships and Uprooting Barriers Advisory Board and president of the Student National Dental Association. She was nominated by Pearl Givens, student

See AWARDS on page 12

Also during the event, MUSC Provost Dr. Lisa Saladin, from left, and University Chief Diversity Officer Dr. Willette Burnham-Williams received the HEED Award from Insight Into Diversity Magazine's Lenore Pearlstein.



Science of risk: How a neuroscientist, pro climber learned from one another

Chance meeting led athlete, researcher to understand how some brains defy science

By **BRYCE DONOVAN**

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Three years ago, Jane Joseph, Ph.D., professor of Neuroscience at MUSC, had never heard of Alex Honnold.

That was before they spent a Saturday morning together. That was before she studied his brain. That was before they were in an Oscar-winning film together.

A ROCK AND A HARD PLACE

When Alex Honnold was 19 years old, he remembers standing at the bottom of Corrugation Corner – a technical rock wall at Lover’s Leap near Lake Tahoe, California. He had decided this would be his first-ever free solo – a style of climbing where you ascend without a rope or protective equipment of any kind. Some people call free soloing the purest way to climb. Others call it suicide.

As he looked up at the 300 feet of granite above him, he thought to himself, “No way.”

The idea of Honnold being scared of anything is hard to imagine. That’s because, as fate would have it on that spring day in 2005, there was a way. Not only would he make it to the top of Corrugation Corner free of ropes and a harness, he would go on to achieve the feat of free soloing hundreds of more times on rock formations all across the globe. Mexico. Northern Ireland. Oman. Through the years, he’s been on the cover of National Geographic, featured on CBS’ “60 Minutes,” in TV commercials for BMW and Squarespace. He’s even been on “Jimmy Kimmel Live!” And though he’ll tell you he feels fear just like the rest of us – “I see big-wave surfers and think, ‘No freaking way I could do that’” – it’s hard to think of him as anything other than the poster child for fearlessness.

Today Honnold is, without question, the best free-solo climber in the world. His most recent accomplishment of free soloing the Freerider route on El Capitan is widely considered the greatest rock-climbing achievement in history. The 3,200 vertical feet of sheer granite in Yosemite National Park, California, typically takes seasoned climbers four to five days to complete. That’s with ropes. Honnold did it in less than four hours without them. Honnold’s journey, as well as the feat of climbing El Capitan, was captured by documentary filmmakers Elizabeth Chai Vasarhelyi and Jimmy Chin. It was simply titled, “Free Solo.”

Forget Honnold’s mind-bending physical abilities. What makes him so interesting – so deeply compelling – is his apparent lack of fear. Case in point: A science writer who was covering him for a story during the filming of “Free Solo” approached Honnold and asked if he’d be willing to take a

look at his brain on a scientific level, so they could see what made him different.

“I guess I was a little afraid they’d find something that was wrong,” Honnold admitted.

But he relented, and in March of 2016, Honnold flew across the country and walked into Joseph’s lab at MUSC. Their interaction would prove enlightening to both.

THE SCIENCE OF RISK

Inside the Center for Biomedical Imaging on Bee Street in downtown Charleston, Joseph and her team use fMRI – functional magnetic resonance imaging – to measure brain activity by detecting changes associated with blood flow. According to Joseph, deoxygenated hemoglobin has magnetic-like properties. It’s this oxygen uptake by the brain during neural activity that is detected by the fMRI scanner. As a result, when a portion of the brain is working, it shows up as more colorful on the display. Years prior, Joseph had published a study on neural reactivity and how it relates to sensation seeking – more specifically, in the areas of drug abuse and other risky behaviors. That concept is what brought Honnold to Joseph and MUSC.

Vasarhelyi and Chin’s crew captured that entire Saturday morning on film, spending more than four hours with Honnold, Joseph and her team. That interaction would not only end up making the film but providing the audience with critical insight into why Honnold behaves the way he does.

“I had no idea if I’d be in the film,” Joseph said. “I honestly didn’t fully know what it was all about. I just knew we had the unique opportunity to look at the brain of somebody special. I think what most appealed to me about Alex was he’s doing all these risky things, and he has some degree of impulsivity, just like you’d see in people who try drugs and might become addicted. The difference being he doesn’t use drugs.”

When the documentary came out and Joseph saw it, she was blown away. Not just by what a good job the filmmakers had done but by all the things Honnold was doing on the



Photos by Jimmy Chin/National Geographic

Alex Honnold climbs without ropes or a harness in Yosemite National Park.

mountain. Quickly, her amazement was reflected in the general public. “Free Solo” was instantly the darling of the independent movie festival circuit, and in turn, the Academy of Motion Picture Arts and Sciences took notice.

During the 2019 Academy Awards held on Feb. 24, “Free

See **CLIMBER** on page 9

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Alex Honnold appeared to be twice as sensation-seeking as the average person in an MUSC brain scan. He also scored fairly high on a conscientiousness scale.

CLIMBER *Continued from Page Eight*

Solo” won the Oscar for “Best Documentary Feature.”

Since that Saturday three years ago, Joseph has kept in touch with Honnold by phone and email and even attended a screening party with him and the crew last year.

“Never in my wildest dreams did I think I’d end up in a movie. Much less one that won the Academy Award,” Joseph laughed.

RATTLESNAKES AND CHRISTMAS TREES

Deep inside the brain’s medial temporal lobe lies the amygdala. It’s an almond-shaped set of neurons that for decades has been considered the “fear detector” in the brain. By showing subjects a series of images — ranging from everyday objects like furniture and landscapes to extremely rare or exciting scenes like mutilated bodies or erotic nudity — Joseph and her staff are able to get a good sense of just how risk-averse they might be,

based on how much activity is observed in the amygdala.

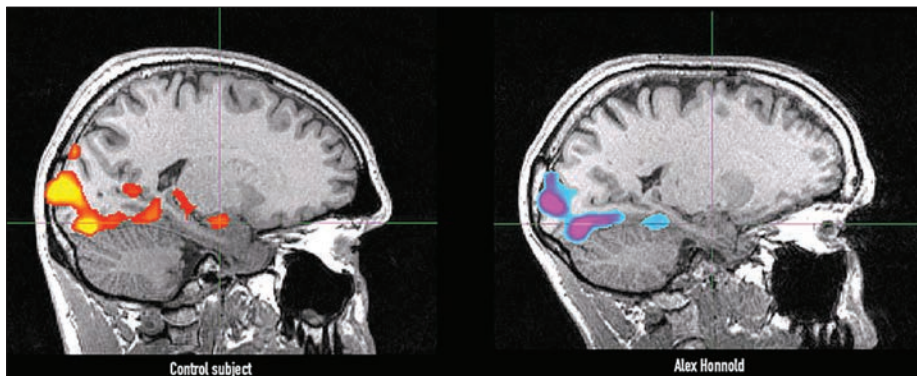
According to Joseph, after about 45 minutes in the MRI tube, Honnold emerged saying: “What? Was that supposed to do something for me?”

“For most people,” she said, “they don’t come out traumatized, but they do come out and say it wasn’t pleasant. Alex just didn’t seem affected.”

After the brain scan, Honnold completed a series of questionnaires used by psychologists to measure the degree of a person’s tendency toward risky behavior. Questions included: Do you enjoy skiing very fast down a mountain? Would you enjoy parachute jumping? Do you like to explore a strange city or place, even if you might get lost?

Compared against the data pool Joseph already had — she had even recruited a rock climber roughly Honnold’s age to come in and go through everything he did — Honnold

See CLIMBER on page 14



FMRI imaging shows amygdala activity in a control subject, left, and Honnold, right, when looking at images expected to elicit emotional responses from the viewer.

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MUSC and MUHA Board of Trustees held their regularly scheduled meeting to receive reports on academic programs, research and clinical operations.

“As the academic health center for South Carolina, we are committed to providing the best care possible for our communities and state,” said MUSC President David J. Cole, M.D., FACS. “The recent acquisition of the regional hospitals will allow us to continue to develop meaningful partnerships and regional relationships that we consider to be essential to our future success.”

“It is gratifying to see how well the MUSC leadership team is working with the local teams at the four recently acquired regional hospitals,” said Charles W. Schulze, CPA, chairman of the MUSC board. On March 1, MUSC Health acquired hospitals in Chester, Florence, Lancaster and Marion counties, more than doubling its number of beds to more than 1,600. “Our board is committed to supporting the innovative, forward-looking initiatives that will best utilize MUSC resources and advance the academic, research and patient care missions of this institution.”

In an effort to temper costs for students and families, the MUSC board voted unanimously to hold in-state tuition rates for fiscal year 2020 at the same levels as fiscal year 2019. The hold on in-state tuition rates applies to all six MUSC colleges.

In his report to the board, President Cole noted several academic highlights that include:

- ❑ On Match Day 2019, the College of Medicine successfully matched 99 percent of its 167 first-time applicants to a residency position. The national match rate was 93.9 percent.
- ❑ U.S. News & World Report currently ranks the College of Nursing No. 6 among the Best Online Graduate Nursing programs overall, No. 3 among public universities, and No. 2 among the Best Online Graduate programs for veterans. Additionally, the Doctor of Nursing Practice program ranks No. 14 in the publication's 2020 Best Graduate Nursing Schools list.
- ❑ The College of Pharmacy 2019 residency match ranked in the top 20 percent of all Pharm.D. programs.
- ❑ The College of Health Professions has two programs ranked in the 2019 U.S. News & World Report standings. Its Master in Health Administration program is No. 20 out of 75

ranked schools, and the Physician Assistant program is No. 46, placing it in the top 20 percent of 240 accredited PA programs across the nation.

❑ All six of the underrepresented minority students who recently graduated from NIH PREP, a post-baccalaureate program in the College of Graduate Studies, will begin their Ph.D. programs this fall.

The College of Dental Medicine received donations to purchase a 3D metal printer, transformative technology that allows custom titanium and cobalt chrome devices to be fabricated and tested. Specialists will be able to create frameworks, crowns, bridges and hybrid prosthetic substructures instead of using traditional casting methods.

Cole also advised the board that the MUSC Access advertising campaign recently won Best of Show at the 2019 American Advertising Awards local competition in Birmingham, Alabama, and a Gold ADDY Award in regional competition for District 7. The national ADDY Awards competition, which recognizes excellence in advertising, will be held in Orlando, Florida, from June 5 to 8.

Linda Cox, interim vice president for Development and Alumni Affairs, told the board that since the start of its fiscal year, July 1, 2018, MUSC has raised more than \$32.7 million in new gifts and pledges. Contributions were made to a variety of MUSC colleges, departments and programs; however, a significant portion of the funds were donated to support the new MUSC Shawn Jenkins Children's Hospital. Scheduled to open in the fall, the \$389.1 million hospital will provide the most technologically advanced facilities available for the children of the city, state and region.

Kathleen Brady, Ph.D., vice president for Research, updated the board on how a multi-pronged research and outreach program, started about two years ago, is helping to address the opioid epidemic in South Carolina. MUSC research teams are working in partnerships with S.C. Department of Health and Human Services and S.C. Department of Alcohol and Other Drug Abuse Services, and using federal funds in an effort to improve knowledge about opioid prescribing and improve access to care for people across the state who have opioid use disorders. Brady noted that for the past two

More people using telehealth: System now needs exam

\$3.6 million federal grant funds research

By HELEN ADAMS

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A study that found some commercial telehealth doctors are prescribing antibiotics to kids who don't need them is actually encouraging in a strange way, says MUSC Children's Health pediatrician David McSwain, M.D., who is also the chief medical information officer. It shows telehealth, also known as telemedicine, is getting the research scrutiny it needs.

And thanks to a \$3.6 million grant the National Institutes of Health just awarded to MUSC, that scrutiny is about to intensify.

“We are leading a national collaborative looking into pediatric telehealth practices,” McSwain says. It's called SPROUT, which stands for Supporting Pediatric Research on Outcomes and Utilization of Telehealth.

The antibiotic study was not part of SPROUT, but it's a perfect illustration of why the network is so important. While the American Academy of Pediatrics discourages families from using direct-to-consumer telehealth outside of a child's usual primary care office for kids who have viruses or bacterial infections, some use it for that purpose anyway.

When they do, the AAP study found that they're more likely to get antibiotics than they would if they did an in-person visit, even when they don't really need them. The downside is that kids are taking medications that don't help, and they're increasing their bodies' resistance to antibiotics in the future.

Telehealth is already closely monitored at MUSC Health, which is part of MUSC. Emergency medicine doctor Edward O'Bryan sees patients through the online system MUSC Health Virtual Care.

He said he follows the same Infectious Diseases Society of America antibiotic prescribing guidelines for online patients as he does for in-person appointments. “We have not done a head-to-head comparison, but our antibiotic prescribing for kids with respiratory infections is a good bit lower than noted in the article.”

The American Academy of Pediatrics study found 52% of children got an antibiotic from a telehealth visit compared to 42% at an urgent care clinic and 31% from a primary care doctor.

The study stands out not only for its findings but also because it offers hard data about telehealth on a fairly large scale. It's exactly the kind of research McSwain wants to see a lot more of through the SPROUT grant.

“Research into the real impact of telehealth services is a critical part of developing and growing programs with the greatest potential to improve our health care system,” he says. “Many doctors and other health care providers are hesitant about incorporating telehealth into their practices because it's difficult to separate the theoretical benefits from the real value.”

MUSC Health has incorporated telehealth into multiple areas. Its stroke specialists use the technology to help doctors in rural South Carolina during the “golden hour” that gives stroke patients the best shot at recovery. Psychiatrists use telehealth to take care of patients who can't easily get to MUSC Health. Some school nurses use it to get quick care for kids. Overweight people who live two hours from Charleston can have online video appointments with MUSC Health nutritionists without leaving their hometowns.

McSwain and his colleagues will use the \$3.6 million SPROUT grant to:

- ❑ Support telehealth research.
- ❑ Come up with metrics, or ways to measure and compare telehealth programs.
- ❑ Figure out what the best practices are.
- ❑ Develop policy and advocacy materials.

Other institutions involved in the grant include the University of Colorado-Children's Hospital Colorado, the Children's Hospital of Philadelphia and Mercy Clinic in St. Louis, Missouri.

McSwain said they already know one thing: “Telehealth that is practiced within the context of the patient's medical home has huge potential to improve their care and result in improved coordination and quality of care.”

See **BOARD** on page 16

Response to HIV crisis can serve as model for global health problems

Global and Public Health Week speaker

BY LESLIE CANTU

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The response to the HIV/AIDS epidemic can serve as a model for other global health concerns, whether they be communicable diseases like tuberculosis, chronic diseases like hypertension or personal habits like smoking, said Thomas Quinn, M.D., National Institutes of Health distinguished investigator and founding director of the Johns Hopkins Center for Global Health.

He spoke Tuesday as part of MUSC Global and Public Health Week. Kathleen Ellis, executive director of the MUSC Center for Global Health, said the week was a learning opportunity for students.

"Each year, we host leading experts in the global health field, such as Dr. Quinn, to highlight the tremendous advancements that have been made and to spur discussion about the continued need for innovation, passion and science to achieve health equity around the globe," she said. "It's important for our students and trainees – the future leaders in global health – to learn from the challenges and response to the HIV pandemic in order to be more prepared for the role they will play in transforming health care for underserved and vulnerable populations."

Quinn has gotten an up-close view of the course of the HIV/AIDS epidemic throughout his career. He was a young doctor who had just finished his training in infectious disease when the first reports of AIDS began to emerge. It first showed up among gay men, then within a year was observed in Haitians, hemophiliacs, people who had gotten blood transfusions, infants and women who had sex with bisexual men.

"Just think about the panic that is going through the United States at this time," he told the audience of mostly young people, including high school students from Ashley Hall, who have only known a world where antiretroviral drugs mean a newly diagnosed 20-year-old can expect to live almost to age 80. When HIV/AIDS first emerged, life expectancy was one to two years.

"We had no idea what virus or bacterium was causing this disease," he said.

At the time, the Centers for Disease Control and Prevention classified being Haitian as a risk factor for AIDS. Quinn took exception to that decision.

"I said you cannot list a nationality, an ethnicity, as a risk group for an infectious disease," he said.

Quinn traveled to Haiti to begin researching the disease. The audience chuckled as the silver-haired professor shared a photo of his much younger self from that time.

"Believe it or not, that's me. I know it's hard to believe that – I don't have any gray hair there – but I'm more like you all. This is your opportunity. As things come up, and you get intrigued by particular diseases, seize that opportunity and go pursue it," he said.

From Haiti, his group traced the disease back to Kinshasa, Zaire, a country in central Africa now known as the Democratic Republic of Congo. There, he was shocked to find what had been considered a "homosexual" disease in the general population.

Two years later, in November 1986, he published a paper in *Science* warning that prevention and control of HIV should be an immediate priority for all African countries. The paper was trying to influence leaders in the Southern Hemisphere, but no one listened, he said.

"There's one thing wrong with this paper and maybe why people didn't listen. Do you see an African co-author?" he asked, pointing at the first page of the study displayed on the auditorium's screen. "They're not there. We're all Americans. I've learned a lesson, and I'm passing that on to you. We had studies working with the Africans – they needed to be up there."

He urged the students and young doctors in the audience to learn from his mistake, one he said he never repeated.

"When you're working overseas, you'll have partners, and you need to recognize the role that they play in helping you put those studies together," he said.



Photo by Anne Thompson

Dr. Thomas Quinn discusses an article he co-authored in *The Lancet* in 1984 during his Global and Public Health Week talk.

Quinn said the year 2000 was a turning point for fighting HIV/AIDS in the developing world. That year, the International AIDS Conference was held in Durban, South Africa. It would be the first time it was held in an African nation – despite the fact that 70 percent of infected people at the time lived in Africa. Nelson Mandela, who until 1999 had been the president of South Africa, and then-President Bill Clinton both spoke at the conference. Quinn said the conference sparked a flurry of activity from the international community, including bringing the issue of HIV/AIDS to the United Nations Security Council, the first health concern to be discussed by that body.

In 2003, President George W. Bush announced the President's Emergency Plan for AIDS Relief, or PEPFAR, during his State of the Union address. As of September 2018, funding from PEPFAR has put 13.3 million

people on antiretroviral therapy, prevented 2.2 million perinatal HIV infections and has achieved a 25 to 40 percent decline in new HIV cases in young women and adolescent girls, Quinn said.

And yet, he added, there are an estimated 10 million people with HIV who aren't receiving treatment; perhaps because they don't know they have the disease. There are 1.8 million new infections each year, he said.

"Our country is one of the problem sites," he said. New infections in the U.S. have continued at the same rate for the past decade, rather than decreasing, he said. He was excited to hear President Donald Trump announce a new HIV/AIDS initiative during his State of the Union address, though Quinn expressed skepticism about the mechanics, because Trump's proposed budget

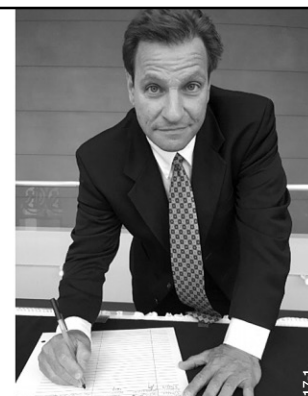
See GLOBAL on page 12

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AWARDS *Continued from Page Seven*

services coordinator at the James B. Edwards College of Dental Medicine.

“I am extremely pleased to endorse Malikah Christie. She has impacted diversity at MUSC and improved our relationships with our community through many ways but particularly through community involvement and the nurturing of current students. She has definitely had an impact on our diversity and inclusion for the future.”

Through her involvement in both her community and within MUSC, Christie stands out on many levels, she added, describing her as a warrior like Earl B. Higgins for diversity at the Medical University.

LEAH RAMOS – MUSC HEALTH AWARD RECIPIENT

Leah Ramos has more than twenty years of nursing experience and is the nursing director for Neuroscience, Speciality Surgery and Spine and the Heart and Vascular Integrated Center of Clinical Excellence at MUSC. Through this position, which she has held for the past several years, Ramos has implemented education initiatives and organizational and clinical policies and encouraged team building. Ramos also has been the recipient of multiple significant awards to date including Nurse of the Year, Nurse Manager of the Year, Palmetto Gold Award, South Carolina League of Nursing Excellence Award and American Association of Critical Care Nurses Circle Excellence Award.

She was nominated by Patricia Hart, DNP, associate chief



Photo by Anne Thompson

Leah Ramos, nursing director for Neuroscience, Speciality Surgery and Spine and Heart and Vascular ICCE, accepts the MUSC Health Leadership in Diversity Award on April 3.

nursing officer for inpatient and ambulatory services.

“It is a pleasure to work with Leah Ramos. She has identified many areas of opportunity within our organization, and she is the driving force for the transformation of our culture and diversity to embrace differences and to appreciate how that enhances our team. She has honed the skill of influencing others in this way, and she has made it a priority

to create relationships and work environments to ultimately improve staff engagement and patient outcomes.”

Coworkers agree that Ramos’ valuable work enables MUSC to fulfill Earl B. Higgins’s vision and allows her not only to add an important award to her impressive collection but also the knowledge that she has made an important difference at MUSC.

GLOBAL *Continued from Page Eleven*

also includes cuts to Medicaid. “How are you going to do it without Medicaid? It’s the poor people, the disadvantaged people, that get HIV predominantly,” he said.

Quinn said the world should come together in the same way to fight other diseases, using the infrastructure that was built up to address HIV. Tobacco use is a major killer around the world, accounting for 6.4 million deaths each year, and is a tangible risk factor that health professionals can educate people about.

“For a nonsmoker, and living in a country where smoking has become more rare, it’s a bit surprising that it’s still so bad. Half a billion people in the world are still smoking,” he said.

Clinics that were built to treat HIV patients could also do glucose monitoring for people with diabetes, he said. It’s easy enough to take a blood pressure reading, and from there treat hypertension, he said.

“Strengthening the health systems to go after these chronic diseases is really key, and it has to be integrated with HIV. And that is global health – a fully integrated health system that’s multisystem involvement in making a difference,” he said.

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	7:00 pm	RESOURCE NETWORKING & RECEPTION <i>Participating Resource Partners: SCORE, US Small Business Administration (SBA), Small Business Development Center (SBDC), South Carolina Research Authority (SCRA), Local Development Corporation (LDC), Small Business Innovation Research (SBIR), City of Charleston, Charleston County 1st Floor Rotunda</i>
Tuesday 23	12:00 pm	LUNCH & LEARN - FUNDING YOUR BUSINESS <i>Join us for lunch to learn more about small business funding and the Small Business Investment Company (SBIC) Program - Equity Investment Funding Presented by Scott Kester with Route 2 Capital Partners A214, 2nd Floor</i>
	6:00 pm	ACCESS TO CAPITAL & PATHWAYS TO GRANTS <i>Learn more about small business lending and technology grants Presented by Tyler Tatum with Small Business Innovation Research (SBIR) B330, 3rd Floor</i>
Wednesday 24	6:00 pm	DOING BUSINESS WITH GOVERNMENT <i>Presented by Linda Blanton with Small Business Development Center (SBDC) & Robin Roark with Space and Naval Warfare Systems Command (SPAWAR) B330, 3rd Floor</i>
	7:00 pm	ADD GOOGLE TO YOUR MARKETING STRATEGY <i>Presented by Eileen Fernandez Parker, Google Certified Trainer with Kizsee Web Design and SEO</i>
Thursday 25	6:00 pm	CHARTING THE COURSE - LEAN CANVAS <i>Create your one-page business plan Presented by Justin Hudd with SCORE B330, 3rd Floor</i>

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Changing What's Possible

JAW *Continued from Page Five*

technique to patients throughout the state and region.

“Dr. Khatib’s ‘Jaw in a Day’ surgery is a substantial addition to the innovation that occurs at our college. We are proud to be one of the few centers in the country to offer this procedure. The skill set and knowledge Dr. Khatib has brought to the University will help us continue to pave the way in Oral and Maxillofacial Surgery.”

YOUNGEST PATIENT

Khatib operated on Arionna on March 1, and the Charleston freshman is doing well — progressing, he said, right on schedule. It was his second such surgery at MUSC. The first was Feb. 22 on a 17-year-old patient. Both are eating solid food and walking well on their own.

Arionna has the distinction of being the youngest patient ever to have had this procedure on her mandible. Hers was a significantly larger resection than the first MUSC Health patient since it involved two sections of her jaw. In fact, Khatib built Arionna an entirely new chin in a specialized procedure called double barreling.

Prior to coming to MUSC last August, Khatib had performed five such procedures at the Head and Neck Institute and Providence Cancer Center in Portland, Oregon, where he completed fellowships in craniomaxillofacial trauma and reconstructive surgery and also head and neck oncologic and microvascular reconstructive surgery, working with the pioneers in the field.

The tumor Arionna had typically occurs between the ages of 10 and 30, and when caught by dentists and oral surgeons can be treated successfully. Tumors of the mandible are usually benign but can be cancerous.

Ameloblastomas are extremely aggressive and locally destructive, and even though they are usually not malignant, they have a high recurrence rate if not caught early and managed appropriately, Khatib said.

In addition to patients suffering with ameloblastomas, like the first two MUSC patients, or other tumors of the jaw, the Jaw in a Day procedure is also beneficial for patients of all ages who have suffered trauma, gunshot wounds to the face, medicine-related deterioration or who previously had jaw reconstruction or other benign pathologies.

THE OLD APPROACH

Advances in microvascular reconstructive surgery have revolutionized surgeons’ ability to correct certain defects of the jaw. The traditional approach to jaw reconstruction delayed dental implant placement by at least six months after the bone was placed. Then patients would still need to go back to the operating room for a debulking surgery, implant uncovering, possible gum lowering surgery and, finally, impressions before fabrication of a prosthesis for the replacement of teeth — a process that could take up to 1.5 years before a patient could have teeth.

Trained in both medicine and dentistry prior to his fellowships, Khatib is among a select few surgeons who possess the unique skill sets and knowledge that allow for such an intricate procedure, because the procedure involves a combined knowledge of head and neck microvascular surgery, dentistry and medicine. Now that MUSC specialists have done two successful Jaw in a Day procedures, the department is receiving referrals from in and out of state.

Arionna and her family are thrilled with her outcome. Twelve days out, she returned to MUSC for a visit with Khatib. She’s made

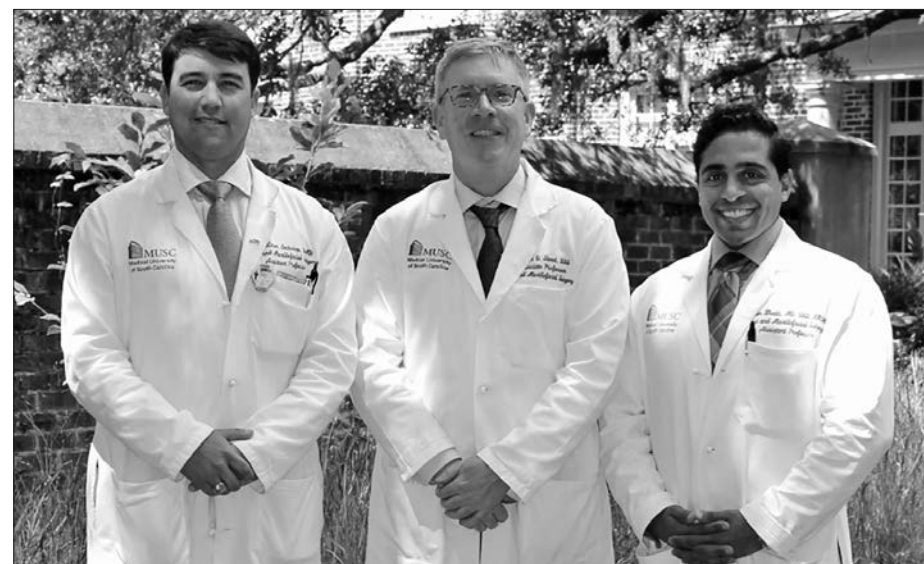


Photo by Meggan Gindhart

Drs. Michael Lecholop, from left, Marty Steed and Baber Khatib work together on Jaw in a Day procedures.

amazing progress, and he’s pleased. She hugged the staff and tears were plentiful all around.

“Arionna is a very special young lady. She’s going to make a wonderful CIA agent. She’s determined, bright and kind. And now, she looks and feels like herself again.”

The two have bonded through this rough

ordeal. Khatib promised to take her out for pizza as soon as she heals and can eat normally again. She can’t wait.

She feels like he’s given her her life and future back.

“Dr. K. is amazing,” she said. I especially love his sense of humor and his patience. I’m so happy he is my doctor.”



Image Provided

Dr. Khatib uses the latest 3D technology to digitally plan the removal of the tumor (first photo), shape a part of the fibula into a new mandible and design a custom plate to hold it all together (second photo) and lastly, place the dental implants digitally in an ideal relationship. The shaded piece on the last photo is Arionna’s new chin after the double barrel procedure.

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HOLLINGS *Continued from Page One*

access to high-quality health care. The impact of the senator's unwavering vision and commitment can be seen through the transformative work of the dedicated staff of the Hollings Cancer Center — one of only 70 National Cancer Institute Designated cancer centers in the nation."

He added, "Our hearts and prayers are with his loved ones and those, who along with the MUSC family, mourn the passing of this great man and leader."

A visible part of his legacy is Hollings Cancer Center. Sen. Hollings not only worked to secure the funding that was needed to establish the center, he also worked over the long term to ensure that federal investment in biomedical research was available. He collaborated with MUSC leaders to attract some of the world's best physicians and researchers.

In addition to these efforts, Sen. Hollings helped lead the congressional effort to develop the Community Health Center program, which brings medical care to the poor and underserved areas. He also authored legislation creating a nationwide program to screen women for breast and cervical cancer and worked with other senators on the appropriations committee to double funding for the National Institutes of Health.

Hollings Cancer Center Director Gustavo Leone, Ph.D., said Sen. Hollings was an amazing man with the vision to know what the impact of having a quality cancer care center would mean to South Carolinians, not only in gaining access to quality care but also in the recruitment of researchers to focus on relieving the cancer burden specific to the state.

"With grateful hearts we remember Sen. Hollings' legacy, and we're dedicated to fulfilling his vision," he said. "He single-handedly brought attention from the federal agencies to the clinical care of patients of South Carolina, and then he brought people in the community to rally and support the establishment of Hollings Cancer Center. He was instrumental



Photo by Julia Lynn

Senator Ernest Hollings left an important legacy at Hollings Cancer Center and beyond.

in the growth of the center, and it eventually becoming an NCI-Designated Cancer Center. Since then, there has been significant growth in the breadth and quality of the science, cancer prevention, clinical care and outreach."

Someone who has witnessed that growth is Gerard A. Silvestri, M.D., the George C. and Margaret M. Hillenbrand Endowed Chair in thoracic oncology who has been at Hollings Cancer Center for more than 25 years. He was also a friend of Sen. Hollings. "As far as development is concerned, he was always concerned about cancer care in this state and particularly about serving the underserved communities in the state. I can assure you there would be no cancer center and certainly not an NCI-Designated Cancer Center without him. He brought money, external advisors, energy and strategic vision to the center."

Silvestri described Sen. Hollings as an incredibly likeable politician. "It didn't matter which party you were affiliated with. He had an amazing ability to remember names and families and where they were from in the state. As a Democrat in a Republican stronghold state, it was a treat to watch him wrangle out deals with both sides of the aisle."

He fondly recalls the late senator's charm. "He was a warm person and a great storyteller. He once regaled me about the Kennedy's and how he worked tirelessly to help JFK get elected. He was a remarkably devoted family man, and his wife Peatsy was a formidable woman in her own right. Watching the compassionate care he showed her when she became ill is all you need to know about what kind of man he was."

Without Hollings' passion and support, Silvestri said the advances Hollings Cancer Center has made wouldn't have been possible. "Without a doubt, cancer care in this state would be 25 years behind the times without him. There would be no cancer center of this caliber without him," he said, adding that Sen. Hollings was keen on recruiting from all over the country and would meet with high-value recruits to encourage them to join the cancer center's team.

"The amount of national funding he was able to garner for our state and the cancer center was millions upon millions of dollars," he said. "His legacy is that there is no one more deserving of a namesake for a building and center than Sen. Hollings. Others can donate money to have their name put on the building, whereas Hollings built that center from the ground up, brick by brick."

For the public observance, Sen. Hollings laid in state April 15 at the South Carolina Statehouse in Columbia. His funeral was held April 16 at Summerall Chapel at the Citadel.

In lieu of flowers, memorials can be made to Hollings Cancer Center. Please designate on the memo line in memory of Senator Hollings and make checks payable to: MUSC Foundation — Hollings Cancer Center, Office of Development, 86 Jonathan Lucas Street, MSC 955, Charleston, S.C., 29425.

CLIMBER *Continued from Page Nine*

turned out to be twice as sensation-seeking as the average person and 20 percent higher than the average high-sensation seeker.

"My take on it is there are probably some stimuli that would activate his amygdala, but if you just compare him to the norm or baseline, he does not show anything," she said. "That said, Alex scored pretty high on the trait of conscientiousness, which has shown to protect against becoming addicted and getting into that spiral."

Honnold laughed when he remembered that day: "I'm pretty sure that if I had done that brain scan with a rattlesnake inside the tube, my amygdala would have been lighting up like a Christmas tree."

A METHOD TO THE MADNESS

One of Honnold's hallmarks is that he doesn't do any free solos until he has practiced the route — with all the safety gear — dozens,



sometimes hundreds, of times. He takes meticulous notes and rehearses moves over and over. It took him almost seven years of preparation before he felt ready to free solo El Capitan. He thinks his lack of fear comes from an obsessive preparation.

"To be honest, I think a lot about falling ahead of time. But once I decide I'm ready, I'm 100 percent committed to it," he said. "Look, it's not that I'm not afraid. If I was in danger, I'm sure I'd respond the same as anybody.

Pain, death, all the things you'd expect. They scare me too, you know?"

Joseph said that even though Honnold shows classic similarities with other thrill-seekers, she acknowledges that there is something different about him.

"If you think about what he does, he plans every detail out," she said. "So as opposed to the Mountain Dew adrenaline-junkie type, he really isn't that. And that kind of surprised me."

Former research analyst Davy Vanderweyen, from left, Alex Honnold, MUSC researcher Jane Joseph and science writer James MacKinnon meet in Charleston.

Photo provided

The guy who was once terrified of speaking in public, doesn't see himself as an adrenaline junkie either. "If we're on a 1 to 10 emotional spectrum, I pretty much live between 4.8 and 5.9. It's a very narrow window in there. I mean, some people might call that depressed because I'm never a 10, or you could say I'm extremely stable because I'm never depressed. I just say I'm even keeled." Still, when he submitted the inimitable El Capitan sans ropes and harness, he hit a full-on 7. "I guess my 7 is everybody else's 10," he said.

At 33 years old, Honnold knows there will come a time when his athletic prime is behind him. For now, he's in the best shape of his life and buoyed by the fact that the majority of his biggest career accomplishments have come in the last decade.

"Right now, I see no reason to think I'm going to back off what I'm doing any time soon," he said. "Free climbing is what gives me the most pleasure in life. And I'm going to keep doing it until it stops."

GAZES *Continued from Page Two*

would never be another like Pete Gazes. We stayed in touch, and I was heartbroken when I learned that he had passed. He might have been small in stature, but that man was mammoth in spirit – when he walked in a room or opened his mouth, everyone stopped. Everyone listened. Everyone wanted to be around him. I loved him to pieces.”

That admiration is felt deeply and widely. Many, giants in their own fields, remain in awe of the man and physician he was. He was a legend.

Raymond Dubois, M.D., Ph.D., dean of the College of Medicine, was one such admirer.

“Though I am relatively new to the MUSC family, I join many others in my deep appreciation for the wonderful legacy of Dr. Gazes. His contributions to teaching, research and clinical service at MUSC are profound. No one has done more to promote cardiac care in the state of South Carolina. Our cardiology program, research efforts and so many other areas benefited greatly from his vision and commitment to excellence, and he will be missed greatly.”

Dr. Gazes taught everybody back in the day, said an old friend. He ran cardiology, and if you were a medical student, Pete Gazes taught you. Today, doctors 30 and 40 years into their medical careers remember the impact he had on their lives and education.

Chuck Davis, III, M.D., College of Medicine Class of 1981 and president of the College of Medicine Alumni Association Board of Directors extended his heartfelt sympathy and condolences when he heard the news.

“Dr. Gazes will always be remembered by all of us as an exemplary clinician with incredible patience and compassion and an incredible gift for teaching! His impact on thousands of MUSC-trained physicians goes without saying, and he will always hold a special place in our hearts.”

Michael Zile, M.D., the Charles Ezra Daniel professor of medicine at MUSC and director of cardiology at the Ralph H. Johnson VA Medical Center, has been a longtime friend, colleague and admirer of Dr. Gazes. In 2003, not long before Dr. Gazes stopped seeing patients, Zile penned an article about the tremendous impact Dr. Gazes had on him and many others, in addition to cardiology at large. We share it in its entirety.

PETER C. GAZES: PHYSICIAN, TEACHER, SCHOLAR

No one in South Carolina, perhaps no one in the Southeast, has done more to promote the advancement of cardiac care, to educate



Photo provided

Drs. Peter Gazes, from left, Maria Buse and Edward Hogan receive MUSC's Distinguished Faculty Service Award.

those who provide this care, and to open the frontier of investigation into cardiac disease than Peter C. Gazes. For more than forty years, Dr. Gazes has led the field of cardiology at MUSC. We, who are his students, his colleagues, and his patients gratefully salute him for his leadership, boundless enthusiasm, and his friendship.

Peter C. Gazes, M.D., was born in rural Matthews, South Carolina, in 1921. He received his primary and secondary education in Charleston and earned his Bachelor of Science degree at the College of Charleston. He was the first honor graduate at MUSC in 1944. After a year in the Navy as a Lieutenant JG, he completed a residency in internal medicine and a fellowship in cardiology at the Philadelphia General Hospital. He returned to MUSC, was rapidly promoted from assistant to associate to full professor, and then for eighteen years was the director of MUSC's Division of Adult Cardiology in the Department of Medicine. Under his leadership, cardiology at the Medical University grew to become recognized and respected both for its excellence in clinical care and its innovation in cardiovascular research. During this period of time, he trained more than 50 cardiologists, many of whom currently practice in South Carolina, Charleston, and MUSC. He taught countless medical students, residents, nurses, and attending physicians here at MUSC. He continues to maintain an active role in these educational endeavors. In 1982, he was named Distinguished University

Professor and assistant dean for alumni affairs. Today, while he insists he is reducing the pace of his practice, he continues to be sought out for his superb clinical care and singular teaching through didactic lectures, small group seminars, and his many publications. He continues to provide state and national education as program director for a three-day cardiology seminar sponsored by the American College of Cardiology, which this year held its 25th Annual Update: Cardiology for the Primary Physician, Managing the Cardiovascular Patient.

Dr. Peter C. Gazes has been recognized for his seminal skills in teaching, clinical care, research, and leadership through the many awards and citations he has received over the years. He is an active member of a number of local, state, and national organizations. He has been a member of a number of editorial boards for prestigious scientific publications.

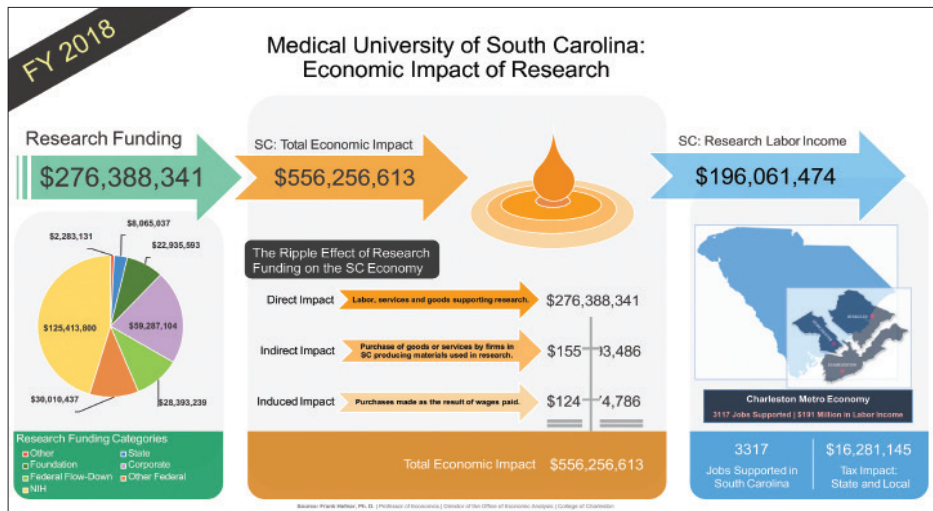
Dr. Gazes' scientific career has spanned more than 40 years. His first publication appeared in 1945 and his most recent publication in 2001. He has authored more than 300 full-length articles, abstracts, book chapters, and books. Perhaps the book that has had the largest educational input is “Clinical Cardiology.” Its first three editions focused on “A Bedside Approach;” his most recent edition, “A Cost Effective Approach,” has focused on the changing realities in the practice of medicine. His research efforts have focused on the most important disease process in cardiology, that of ischemic heart

disease, its causes, its consequences, methods to assess risk, methods of active prevention, detection, diagnosis, and prognosis. He has been an active contributor to both the Charleston Heart Study and the Coronary Drug Project. These nationally funded studies examined risk factors for the development of cardiac disease, the effects of race on these risk factors, and the effect of strategies to treat and prevent cardiac disease that are consequent to these risk factors. Publications that have resulted from this work have been published in the most prestigious cardiac and general medical journals. In addition to these studies, he was an active contributor to a number of randomized clinical trials including the Beta Blocker Heart Attack Trial Research Group.

Dr. Gazes has been a fervent advocate for cardiac prevention, including nutrition, exercise, and a balance between work and relaxation. He is a man who practices what he preaches. At age 80, he chooses a balance between working 3 to 4 days a week and playing golf 2 to 3 times per week. While his long game has become shorter with age, it is more accurate and his short game is legend. He has rightfully earned his nickname as “Pete the Putter.” Always the teacher, he frequently plays with, instructs, and encourages both his grandchildren and the cardiology fellows in lessons of life and the fairway. He carries an aspirin in his pocket. He exercises regularly and never strays from a heart healthy diet.

I first met Dr. Gazes when I joined the MUSC faculty as an associate professor. He welcomed me into the division, supported my efforts, and always provided a source of insightful advice regarding patient care. I often discuss my most difficult cases with him. He always has new insight, allowing me to add to the quality of the care of my patients. He remains unquenchably curious, frequently asking me what I have learned and what I can teach him about the research that my collaborators and I in the Gazes Cardiac Research Institute have performed (examination of cardiovascular pathophysiology and molecular and genetic control of disease based on changes in cardiovascular pathophysiology): How could he use this new knowledge to improve the care of his patients?

His portrait hangs in the lobby of the building and the research institute that bears his name. While his contributions will be remembered and have been acknowledged in this honor, his real legacy will live on in the men and women whom he has educated, the patients whose health he has improved, and in the practice of cardiology he helped to advance.



BOARD *Continued from Page Ten*

years, the number of opioid prescriptions went down in spite of the fact that the state has increased its population by about 500,000 new residents. Plus, slight decreases in opioid-related overdoses have also been recorded.

Brady also shared the results of a recent economic impact study, conducted by the College of Charleston, which shows that the \$276.3 million in research funding earned by MUSC in fiscal year 2018 translates into more than \$556.2 million in total economic impact across the state. For details see the attached summary.

Anton Gunn, chief diversity officer and executive director of Community Health Innovation for MUSC Health, presented an overview of implicit bias, sharing insights on how such bias can influence hiring and hamper delivery of consistent high-quality patient care. Gunn told the board, "When you know what your biases are, you actually make better decisions. Bias plays a role in causing disparities in health care. Treatment decisions can be swayed by your bias. We know it's real in health care, and that's why we are trying to raise awareness and do something about it."

Other business matters approved by board vote included:

- ❑ A resolution related to the new MUSC Regional Health Network, which comprises the four hospitals in Chester, Florence, Lancaster and Marion counties. The board approved submitting an application for a particular type of mortgage insurance; confirmed they will enter into a HUD regulatory agreement and abide by certain standard covenants, as MUSC Health currently does; and authorized commission of a feasibility study to accompany the financing application.
- ❑ Acoustical improvement of the atrium for the College of Health Professions Building A.

❑ Confirmation of an experienced firm to provide construction manager at risk services for the College of Pharmacy addition and innovative instructional redesign project.

❑ A new lease agreement for some 7,723 square feet of clinical space for a multispecialty clinic at Tideland Health in Waccamaw. The lease represents an effort to consolidate disparate leased space into a single existing location. The consolidation will achieve greater efficiencies by offering a range of services at one location, including vascular surgery, general surgery, neurosurgery, OB-GYN, pediatric cardiology, pediatric gastroenterology, pediatric neurosurgery and telehealth.

The MUSC/MUHA Board of Trustees serve as separate bodies to govern the university and hospital, holding two days of committee and board meetings six times a year. For more information about the MUSC Board of Trustees, visit: <https://web.musc.edu/about/leadership/trustees>.

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