MUSC CATALYST news
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‘From one to five kids in two minutes’

Photo by Sarah Pack

Blake Hampton smiles in her room in the neonatal intensive care unit at the MUSC Shawn Jenkins Children's Hospital.

By Helen Adams

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Ally and Justin Hampton had a plan. They'd try to get pregnant with a second child in January, and Ally would give birth before their scheduled military transfer from South Carolina to Washington. Justin's a loadmaster with the Air Force.

"We thought we were being all responsible — we're being really cheeky and outwitting the system," he said. "But you know what they say about people who plan."

Man plans, and God laughs. It's an old saying about the unpredictability of life. And the Hamptons' lives were, in fact, about to be turned upside down — in an amazing way. But the couple had no way of knowing that when they decided to get help getting pregnant.

"We had fertility struggles with our first child. We have a three-and-a-half-year-old daughter. And so we went to Coastal Fertility. We were in that 'unexplained' category. My numbers were great. His numbers were great. Their exact words were, 'We should be baby factories,'" Ally said.

"They were right," Justin said wryly, nine months later in an interview at the MUSC Shawn Jenkins Children's Hospital.

The Hamptons started with an entry-level fertility treatment called intrauterine insemination. It involves inserting washed and concentrated sperm directly into the uterus.

"You're supposed to wait two weeks before doing a pregnancy test," Ally said. "But I was not patient and did it three days early. It was positive. It was like a black line."

See **Quads** *on page 8*

National emergency declaration for children's mental health

By Helen Adams

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The pandemic has pushed the number of kids and teenagers struggling with their mental health to a crisis level, leading three organizations to declare a national emergency. The American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry and the Children's Hospital Association are calling for multiple measures to ease the situation.

Christopher Pruitt, M.D., a fellow of the American Academy of Pediatrics and medical director of the MUSC Shawn Jenkins Children's Hospital Emergency Department, sees the need firsthand. "These kids often come later in the evening when no other resources are available. If it's deemed that they would benefit from inpatient psychiatric care, those resources are incredibly constrained. Inpatient beds for children and adolescents are at a premium everywhere."

That needs to change, he said. Children need better treatment,

See **Crisis** *on page 11*

New treatments for COVID on horizon

By Helen Adams

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New COVID-19 treatments by AstraZeneca, Merck and Pfizer may be on the way soon. One aims to prevent and potentially treat COVID in people at higher risk of getting dangerously ill or dying from the virus. The other two are antiviral treatments that people can take right after getting COVID to try to keep from getting seriously sick.

They add to the growing number of options for combating COVID. Michael Schmidt, Ph.D., an immunologist and microbiologist and professor in the College of Medicine at MUSC, explained how they work – but not before pointing out the best way for most people to protect themselves from COVID-19. "The best treatment for COVID is prevention, right? And the best approach available today is vaccination."

AstraZeneca's Antibody Treatment

That said, Schmidt is pleased to see new treatments coming out. Some people's immune systems aren't strong enough to beat back COVID, even if they're fully vaccinated – so they need more options.

The list of possibilities may soon include AstraZeneca's AZD7442, which the company touts as "the only long-acting antibody combination shown to both prevent and treat COVID-19." For now, AstraZeneca is focusing on the antibody combination's prevention potential in its request for emergency use authorization from the Food and Drug Administration.

The treatment uses monoclonal antibodies made from cells donated by people recovering from COVID infections. "Monoclonal" means they have one target: the coronavirus.

Scientists worked with the cells in a lab to create powerful new antibodies. The hope is that they can prevent or treat a coronavirus infection in people at high risk of getting dangerously ill with COVID-19 because of other serious health problems and/or age that affect their immune system. "The monoclonal antibody really helps individuals who can't help themselves," Schmidt said.

AstraZeneca's head of research and development said the treatment is designed to offer immunity for up to a year, compared with other drugs that protect patients for a much shorter time. It's not clear when the Food and Drug Administration will consider giving it emergency use authorization.

Merck's Anti-Viral

Meanwhile, Merck's anti-viral, molnupiravir, would be the first pill to treat COVID. Like AstraZeneca, the company has asked for emergency use authorization. Unlike AstraZeneca, it knows when the FDA will consider granting it – there will be a public discussion about it on Nov. 30.

Merck says clinical trials show its pill reduces the risk of hospitalization or death by about half. Schmidt said it does that by playing with the virus' genetic code.

"The virus has a set of instructions it goes by, kind of like a glorified Post-it note with a recipe on it. It tells you how many cups of flour, how many cups of sugar, how much salt. What the Merck drug does is change the recipe. And so instead of putting two cups of flour, the drug forces the virus to substitute the equivalent of two cups of salt – no one would want to eat that cookie. And similarly, the virus that results from the incorporation of the wrong bases results in a genome unable to make more viruses."

The federal government has already placed an advance order for enough of the Merck pills for more than a million people. The cost of about $700 per patient is about a third of the cost of current monoclonal antibody treatments.

Schmidt called the drug remarkable if it lives up to its promise — but said people need to keep in mind that it costs way more than a vaccine that can keep you from needing the pill in the first place. "I mean, this is reason why you get vaccinated, so we don't get sick when exposed. Today, the government can pay for this new drug and vaccines. In the future, our country may be forced to choose, should resistance to this new medication emerge. So let's all help by getting vaccinated."

Pfizer's Antiviral Pill

Another antiviral, made by Pfizer, is among a handful of other pills still being studied. Right now, it's known as PF-07321332. It's designed to keep the virus from multiplying in the body by blocking a key enzyme. It's being tested in combination with an older medication called ritonavir, which has been used to treat HIV.

If the FDA grants it emergency use authorization, the pill can be given at the first sign of exposure. Right now, it's being tested in people 18 and older who live with someone who has COVID.

It's all part of a huge scientific effort to end the pandemic. "As of last week, there were 331 treatments that were either in use or under development for this virus, and over 270 vaccines," Schmidt said.

"The need for these treatments hopefully will wane as more and more people get vaccinated. But my fear, and this is a real fear, is that the virus will quickly adapt to these single drug-therapies."

That makes getting people vaccinated all the more important. "The reason we need a vaccine over just having a natural infection is the virus has tricks up its sleeve. So by getting vaccinated, it's like playing a game of Horse with your kids, where you'll spot them many letters and let your kid win. So by getting vaccinated, our immune system spots us 94 points in a hundred point game. And the virus can never out-compete that, which is why once you're vaccinated, you're not likely to end up in the intensive care unit."

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Rise of the machines: Robotic surgery just beginning to scratch surface of its possibilities

By Bryce Donovan
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A lime green light illuminates the entire room. On a table, draped in blue, lies a man intertwined in four arachnid-like arms, each numbered and covered with plastic.

Fifteen feet away, with his face nestled against the eyepiece of a giant terminal, sits MUSC Health bariatric surgeon Rana Pullatt, M.D., his hands independently moving two joysticks, wrists slightly bowed. The light brown leather caster chair underneath him moves rhythmically as he works with rapid precision – he's slipped off his clogs now, his socked feet resting next to colorful pedals – giving the impression that this is just a stroll in the park.

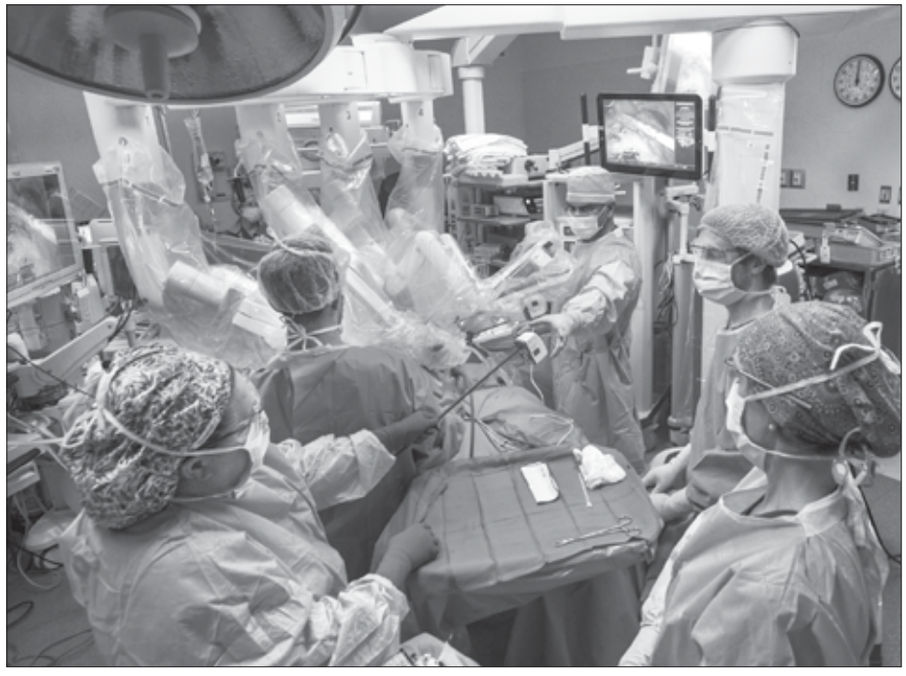
Back at the surgical table, the arms on the DaVinci XI surgical robot move in perfect concert with Pullatt's commands. A slight twist of the left hand and a monitor above his terminal shows the reflected movement of the instrument in the patient's abdomen. A buzzing sound communicates to the team that cauterization is happening.

A team of eight doctors and nurses surround the patient, monitoring his well-being and making small adjustments to the robotic appendages whenever Pullatt requests. Occasionally, a tool will be swapped out, efficiently removed and slid back into place through one of the trocars – think of them as stainless-steel delivery tubes – connected to the robotic arms and running into the man's abdomen.

Pullatt – whose colleagues affectionally refer to him as "Mr. Robot" – has done more than 1,200 of these robotic surgeries. Not only was he the first surgeon in the state to perform a laparoscopic duodenal switch but he's currently the only one doing it robotically. Reserved for only the largest of patients who have tried all other methods to drop weight to no avail, the duodenal switch is a radical surgery that takes gastric bypass to an entirely new level, sidestepping a significant portion of the digestive tract. It's strictly for the kind of patients in which surgery isn't elective; it's necessary for their survival. Afterward, they will be on supplements and vitamins for the rest of their lives. But each will tell you it's a life that most likely wouldn't have been possible if not for this procedure.

"Why we need the robot for surgeries like this isn't all that high-tech actually," Pullatt says through his mask. Yes, the small, precise movements a surgeon can achieve with such a technical machine are helpful, he says, but in the end, it really comes down to sheer muscle.

"The torque required to move all these instruments around in larger patients is extremely difficult with conventional laparoscopic surgery for the length of time we need to be working on them," he says. "It's like trying to tie your shoelaces with chopsticks. That's why these robots are so incredible. They allow us to give hope to the people who thought they'd never have it again."



Photos by Sarah Pack

MUSC Health surgeon Dr. Rana Pullatt, center, is surrounded by his surgical team in the OR as they prep a patient for robotic surgery.

Weighty decisions

Jamie Holmes remembers the moment he hit rock bottom.

Sitting in his car outside a gas station in the middle of the night, he was certain he was having a heart attack. The then-Uber driver was working an overnight shift when he suddenly had trouble breathing.

"No joke, it was like somebody was sitting on me," Holmes said. "I tried to get out and walk around, but that feeling just wouldn't go away."

The last thing he remembers is the clerk coming out for a smoke – a break Holmes would later acknowledge might have saved his life – and he just happened to notice Holmes slumping over. He ran back inside and called 911. After that: nothing.

"I was there, sitting in my car in agony, and then I wasn't," he said.

The attempts to rouse him, the EMTs surrounding him, the ambulance ride – all missing. Things only started to come back into focus hours later, when he woke up in a tangle of wires at the hospital. The episode he had just experienced, the doctor told him, was atrial fibrillation, or an irregular rhythm and rapid heartbeat. It's a serious condition that can lead to stroke or even death. But that's not the part seared into Holmes' memory. It's what the doctor said next.

Jamie Holmes weighed 628 pounds.

"I've always been a big guy," he said, "but I was healthy. Or so I thought."

In retrospect, his weight gain was inevitable. As with many other stories of those who struggle with their weight, it's never any one thing but rather lots of little ones that build upon each other until one day, you find yourself so overwhelmed that it seems as if there's no way out.

"You have no idea what it feels like when you can't even go in the store to do your own shopping," he said. "When you weigh that much, it's like being in jail. Everything stops. You want to do things, but you can't."

During his sophomore year at Socastee High School, Holmes tore his ACL playing football. It would be the last time the nose tackle would play competitively. Understandably, after the injury, he was less active. Around that same time, his eating habits changed. One value meal at dinner turned into two. Then two became three. Meals became more frequent. Throughout the remainder of his time in school and into his professional life, the weight kept adding up. In 2017, when he started feeling particularly lethargic, he went to his doctor, and he was diagnosed with diabetes. Then he developed sleep apnea. Things were beginning to snowball – culminating in that terrifying late night in front of the gas station.

Jamie Holmes was faced with the sobering reality that if something didn't change, he was going to die. He was just 34 years old.

The very next day, after returning home from the hospital, Holmes began his search on the internet for help – anything that would help him to dig out of the massive hole he found himself in. After a few false starts with some other doctors, he finally happened upon the bariatric program at MUSC Health in Charleston. It was a connection that

See **Robotics** *on page 10*

Healthy Me-Healthy SC kicks off statewide community health fair initiative in Blackville

By Leslie Cantu

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Blood pressure checks, blood sugar checks, vaccines and food distribution. These were a few of the services that residents of Blackville, South Carolina, received during Healthy Me – Healthy SC's first health fair on Oct. 9, but HMHSC leaders hope that this is just the beginning of an ongoing partnership with local leaders that will evolve and adapt according to the needs of the local community.

"We really want to come in and work with the existing partners that are already there and figure out how to make it a win-win for the whole community," said HMHSC executive director David Sudduth.

Blackville is a town of about 2,000 people in Barnwell County, one of three pilot counties for HMHSC. HMHSC was formed out of a partnership between MUSC and Clemson University, building upon the strengths of each institution to make health care more accessible in rural areas.

This year, HMHSC began providing support for the MUSC student-run CARES Clinic outreach effort in St. Stephen, a rural community in Berkeley County. Sudduth and HMHSC director Kapri Kreps Rhodes decided they'd like to replicate that model in other rural areas of the state. They asked Anita Ramsetty, M.D., medical co-director and faculty advisor for the CARES Clinic, as well as Rhonda Matthews, Clemson Cooperative Extension program team director, for direction.

"Our goal is to operationalize these kick-off health fairs this fiscal year in Barnwell, Williamsburg and the Upstate, and then to one-by-one expand each to run on a regular basis multiple times throughout the year. Additionally, we want to engage with community partners to ensure these efforts are sustainable," Kreps Rhodes said.

Ramsetty said that it's all too easy for people who mean well to march into an area with an idea and implement it, regardless of whether it's what the people there want or if it's sustainable. Though there are worse things in the world than a one-time health clinic, she said, "I think instead of measuring ourselves against the worst thing in the world, we should really be thinking about the best thing that we could do.

"Ideally, what you want is to have an event where the community is asked about it and is interested. And over time, you build up relationships together, not only so you're bringing a service and relationship that both sides really enjoy and value, but so that it grows naturally over time."

That's happened in St. Stephen, where the format of the clinic has changed as the MUSC team learned more about the community – and as COVID forced changes upon it. Similarly, HMHSC leadership realized during the planning phase of the Blackville health fair that the safest setup would be to host the fair outdoors, using a drive-through format.

The HMHSC team began by traveling to Blackville, about two hours from Charleston, to meet with local groups there that were already working in the community.

Pamela McKnight, coordinator for the Barnwell County HEALing Partners coalition of 35 organizations from across all sectors, said HEALing Partners has been focusing on healthy eating and active living, chronic disease, access to care and behavioral health.

Barnwell County has a high poverty rate compared with the rest of the state, which contributes to poor health outcomes, McKnight said. It also has a large concentration of people over the age of 65. And health outcomes vary even within the small county. She said that life expectancy for people living in Blackville is seven years less than people living in the county seat of Barnwell – which is why Blackville became a focus of their efforts.

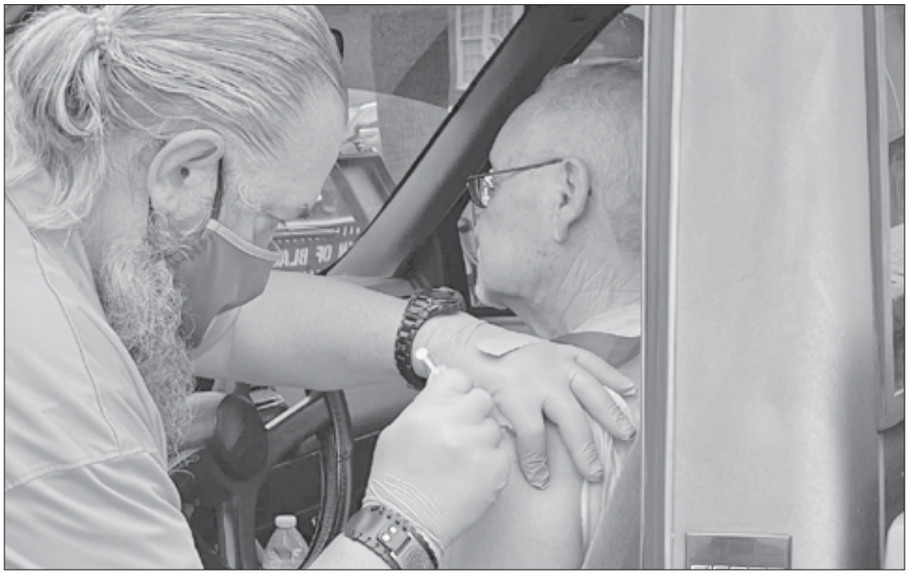


Photo by Kapri Kreps Rhodes

Shaun Brown, a member of the Healthy Me – Healthy SC COVID-19 testing and vaccination team, administers a COVID-19 booster to Ronald Owens during the Blackville health fair.

In addition to blood pressure and blood sugar checks, the health fair offered the opportunity to receive a COVID vaccine or booster, an HPV vaccine and a fresh produce box from FoodShare. Importantly, the fair also included representatives from FoodShare, who helped people to sign up for regular produce boxes, and HEALing Partners representatives, who connected people with resources so that they could take action on their blood pressure or glucose results.

Two of these resources are Clemson Health Extension's programs for diabetes and hypertension, which are taught both in-person and virtually by Extension agents who are a part of the Rural Health and Nutrition Extension Team. These agents serve as a direct link to the communities they serve – currently 12 counties across the state. In Blackville, for example, Extension agents have already worked hand-in-hand with HEALing partners and the community at large, and these existing relationships proved critical in planning the health fair in Blackville.

"An Extension agent should always be a familiar and trusted presence in the county they serve," Matthews said. "Rural Health Extension agents are charged with delivering research-based information to help community members improve their health status. Agents are encouraged to link with like-minded local partners and act as a conduit for information and resources available through both Clemson University and MUSC. The health fairs are a great example of that linkage: multiple partners coming together in a focused effort to provide health resources for a local community."

The HPV vaccine station was the first outing for the mobile unit that represents a partnership between MUSC Hollings Cancer Center and Healthy Me – Healthy SC. Third-year medical student Thomas Agostini, who volunteers with the CARES Clinic, worked at that station.

Agostini provided information about the vaccine, which protects against six types of cancers caused by the human papillomavirus. He found that most attendees were receptive to the vaccine, although most were also over the cutoff age of 45 years. In those cases, he encouraged attendees to talk to family members about the vaccine.

Agostini, a Columbia native who is considering primary care or endocrinology, reiterated Ramsetty's points about the importance of local participation.

"I think when the health fairs are done responsibly – and Dr. Ramsetty always makes sure to put a lot of thought and effort into them – I think it's a great

See **Healthy** *on page 9*

Meet Beth

Beth Lamb, R.N.

Department; Years at MUSC *Nursing administration, MUSC Health Kershaw Medical Center; 4 years*

How are you changing what's possible at MUSC
I look forward to change while fostering an environment ready to deliver quality health care services.

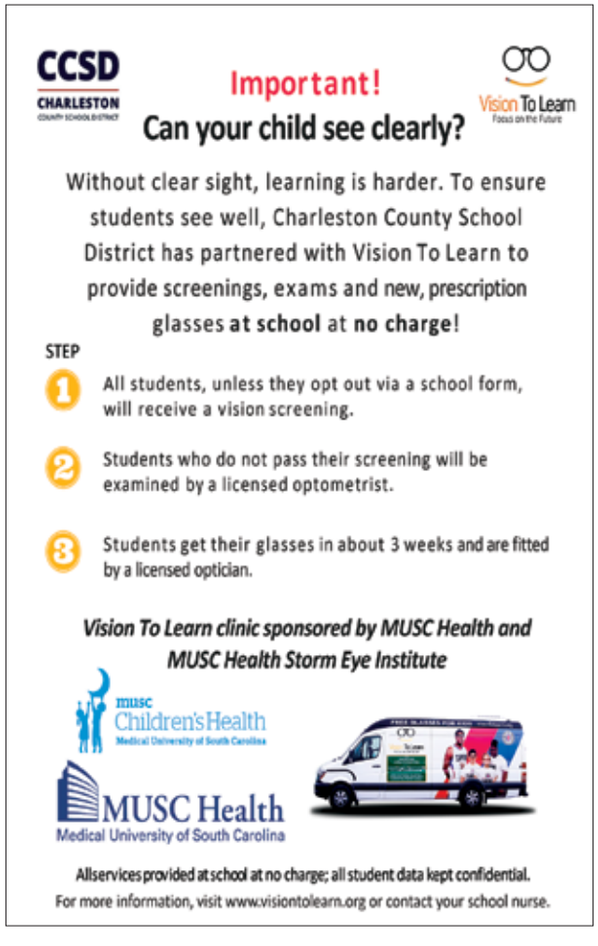
Hometown
Cheraw, S.C.

Family
Husband, John; Sons, Ashton, 15, Jackson, 11, and Colton, 9; and Ace, our black Labrador retriever puppy

Best thing about living in Upstate S.C.
I love going to the lake with my family. The sunsets are amazing!

Something that inspires you
Earlier in May, I was honored with the Daisy Nurse Leader of the Year award.

Favorite Quote
"People will forget what you said, people will forget what you did, but people will never forget how you made them feel." —Maya Angelou



Tiny costumes for babies in intensive care brighten first Halloween for families

By Helen Adams
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Kai Williamson makes one adorably tiny turtle. Born 11 weeks early, the Beaufort boy nestles beneath a hand-made felt shell in his bed in the neonatal intensive care unit at the MUSC Shawn Jenkins Children's Hospital. A red mask, made by NICU nurses, encircles his closed eyes. It's his first Halloween costume, made by nurses with big hearts for the hospitals' tiniest patients.

Kai's parents, Darreontae Williamson and Aaliyah Swan, are amused. "His dad jumped right in. He saw the costume, and he was like, 'The turtle.' Didn't even let her explain what was happening," Kai's mother said of the moment nurse Mara Lloyd, R.N., arrived with the costume.

It's modeled after one of the Teenage Mutant Ninja Turtles, to Williamson's delight. "Raphael. He's the leader," the new father said.

NICU nurses have made more than 70 Halloween costumes by hand, one for every baby in the unit. Really, it's for the parents, Lloyd said. She came up with the project.

"Maybe normalize the holiday a little bit more. If it's a premature baby, they were probably still planning to be pregnant on Halloween and do something with their family. Now they can't. But they can see them dressed up."

The costumes represent everything from cartoon characters to coffee – and beyond. "All of our nurses love Starbucks, so we made Starbucks cups. Then there are some capes with superheroes. We have peanut butter and jelly for twins, little jars. And then there's bacon and eggs, also for twins. And a little scrub jacket for an itty bitty."

The babies in the unit range from full-term sized to less than a pound. "Normally, they're here for prematurity or complications from birth," Lloyd said. They stay anywhere from a few weeks to several months, depending on their diagnoses. The nurses temporarily become part of their lives, a role they love.

"I like the complexity. You're not just caring for the infant. You're caring for the whole family. You're teaching them how to be a parent for their baby," Lloyd said.

Along the way, they're providing more than medical advice. They're also making sure everyone is as safe and comfortable as possible during their stay.

The nurses plan to hand out costumes to all of the babies on Halloween. Kai got his early so the nurses could demonstrate how they'd carefully place them on the fragile children.

"You're famous already," Kai's mom tells him as a photographer snaps a picture. The tiny turtle stays snug in his bed. But one day, he'll be able to see that photo of himself on his very first Halloween.

Neonatal intensive care unit nurses Kennedy Herbert, from left, Haley Kowalski, Rebecca McGann, Mara Lloyd and Amanda Regan organize the babies' Halloween costumes.

Photos by Sarah Pack

Kai Williamson, 11 days old and born 11 weeks early, sleeps in his Teenage Mutant Ninja Turtle costume.

A salt shaker, a superhero cape and llamas are among the costumes the nurses made by hand.

> *"If it's a premature baby, they were probably still planning to be pregnant on Halloween and do something with their family. Now they can't. But they can see them dressed up."*
>
> **Mara Lloyd**

Young apprentices get hands-on training

By Leslie Cantu

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Nine of the newest staff members learning the ropes at MUSC Health are either still in high school or have just graduated.

They're part of a youth apprenticeship program facilitated by Trident Technical College that combines academics with paid hands-on learning, and director of nursing excellence Kara Simpson, DNP, R.N., has high hopes for their futures.

"Our goal is to make sure these apprentices have such a wonderful experience that when they graduate high school, they stay with us as patient care techs while in college, and once they graduate nursing school, they stay at MUSC as R.N.s," she said. "It's really a pipeline of talent for us and building that workforce of the future."

The Charleston Regional Youth Apprentice program began in 2014 with just one pathway – industrial mechanics – and six employers. Today there are 18 pathways, ranging from culinary arts to cybersecurity, and more than 160 employer-partners.

Photo by Sarah Pack

Apprentice Shea Held works regular shifts on a Digestive Disease Center floor, where she can get a true hospital experience, when not taking classes at Trident Technical College.

The CNA/pre-nursing pathway, added in 2017, is one of the most competitive, said Ellen Kaufman, Trident Tech youth apprenticeship coordinator. Students commit to two years of apprenticeship. During this time, they'll complete both the certified nursing assistant (CNA) and patient care technician (PCT)

See **Nurses** *on page 11*

Quads *Continued from Page One*

They called the doctor's office and went in for a blood test to check for the presence of a hormone to confirm the pregnancy. "My numbers were just ridiculously high. And so they were like, 'Come in, we want you to do more blood work. And if that comes out the way we think it is going to come out, we want you to come to an early ultrasound," Ally said.

The Hamptons hoped that was a good sign. Maybe it was twins. But they were also cautious. The American Pregnancy Association puts IUI's success rate at 20% per cycle, depending on certain factors.

"We'd gone from being excited about the pregnancy to thinking there's a chance that it's a chemical pregnancy," Justin said, referring to the possibility of an early pregnancy loss.

But during the ultrasound, the doctor confirmed Ally was pregnant – and said something that surprised them. "He was just like, 'I'm going to start from left to right.' And we were like, 'What?'" Ally said.

"Then he started counting. He said, 'Here's one. Here's two.' We were like 'Huh, OK.' He said, 'Here's three.' We were like, 'Oh my gosh.' And then he goes, 'And four,'" Ally said.

"You can stop counting now. Please stop counting," Justin joked as they remembered that moment.

"We were in shock," Ally said.

The doctor sent them to MUSC Health, which has a Maternal Fetal Medicine program for high-risk pregnancies. Its team includes doctors, nurse-midwives, a genetic counselor and sonographers who do ultrasound imaging.

Rebecca Wineland, M.D., was among the first from that team to meet the stunned couple. "I remember seeing them March 18th. They had just come from Coastal Fertility. We talked about the risks of a pregnancy with four babies," she said.

But they also talked about what the Hamptons had in their favor. "Alexandria is an extremely healthy person. The majority of people with a singleton pregnancy have aches and pains," Wineland said. "But she was such a trouper and a fabulous patient."

Ally and Justin understood the risks. "It was always, 'Don't anticipate everyone making it.' So we were always on edge. We literally called them baby A, B, C and D. We didn't want to get too attached," she said.

"We're very realistic," Justin agreed. But as the weeks passed, their attachment grew — and so did the babies.

From one to five

Ally and Justin Hampton were not planning to have quadruplets, but they're thrilled with their new life.

"From the beginning, they told us they were all in their own amniotic sacs. So they're not identical. That actually increases the chance for survival. They also had their own placentas, which meant that they were getting their own nutrients. And so we were just more and more like, 'This is real,'" Justin said.

Barbara Head, M.D., tracked the babies' growth through ultrasounds, using high-frequency sound waves to create images that let her monitor them in the womb. And she had not only regular ultrasound but also higher-tech 3D and 4D ultrasounds at her disposal. The quadruplets needed to be watched closely.

"Higher order multiple pregnancies have a variety of potential complications, including growth abnormalities. Monitoring the babies' growth and amniotic fluid with ultrasound allows us to ensure that growth is normal and if it's not, appropriately time interventions such as glucocorticoid therapy to enhance lung maturity before delivery," Head said.

Wineland said one baby was growth restricted, meaning he was below the 10th percentile in size for his gestational age. "And so we were watching him to see how far along we could carry this pregnancy."

On Aug. 3, when Ally was 29 weeks pregnant, the maternal fetal medicine team said it was time for a C-section to give each baby the best chance at a healthy arrival. They were born that evening.

"We had the C-section, and they popped out," Ally said. "It was 8:49, 8:50, 8:50, 8:51. They were all here, and it was just crazy. I mean, it was just

Photo by Sarah Pack

Colby and Colt were strong enough to go home with their family. They returned, with their parents and older sister, for the family's daily visit to see Ava and Blake.

See **Quads** *on page 9*

Pandemic predictions: Two-month cycle, immunity effect

By Helen Adams

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The pandemic that seemed so wildly unpredictable at first has settled into a pattern. And last week's 28% decrease in COVID cases in the Tri-county area appears to be part of it.

Sweat

"There's this weird two-month thing that goes on. We all picked it up," said Michael Sweat, Ph.D., leader of MUSC's COVID-19 tracking team, referring to his fellow scientists. "I mean, it's like every time when you get a wave, it goes up, peaks and declines in about two months,"

You can see it in his team's graph tracking the trajectory of COVID cases in the Charleston area. The first wave began in June 2020 and came down in August. The second significant wave started in November and began to fall in January.

Meanwhile, people started getting vaccinated. Case numbers plunged. Then, in July 2021, the Delta variant began its drive toward a new pandemic high. It peaked and declined within two months.

"There's a lot of questions in the epidemiology world around what's driving the two-month cycle. Is it something innate to the viral situation? I think it may be people changing behavior, and maybe it runs through the people most at risk at that point in time," Sweat said.

Unfortunately, he predicts it could happen again this winter. "It just seems hard to believe we wouldn't have another wave. The signals from other places aren't very reassuring. In the U.K., approximately 93% of people have either been infected or vaccinated. And yet they're seeing these resurgences," Sweat said. "I think we'll get to an endemic situation, but I just don't think we're there yet."

But we are at a point where the percentage of people diagnosed with COVID who end up in the hospital is declining, Sweat said. "I'm surprised we're not hearing more about this. It was around 25% in the first wave, then in the winter wave it was around 15% — maybe lower. And then in this current wave, we're down here around 10%. It's all suggesting that immunity is starting to have an effect."

That could bode well for a potential winter wave. For now, Sweat is glad to see COVID case numbers falling. For the week of Oct. 5 through 11, there were about 1,400 COVID cases in Berkeley, Charleston and Dorchester counties combined, compared with almost 2,000 the week before.

The COVID tracking team also lowered COVID's estimated impact on the Charleston area from "severe" to "significant," because the number of reported cases per day per 100,000 people fell to 25. That's the lowest it's been since late July.

But Sweat, a professor in the College of Medicine at MUSC who's also affiliated with the Johns Hopkins Bloomberg School of Public Health, warned against what he called magical thinking. "When it gets better, you have this very optimistic bias saying, 'Oh, it's going away.' I just worry that people see these numbers come down and throw caution to the wind. It's dangerous because it's what frequently causes those surges."

Healthy

Continued from Page Four

way to connect with communities that may not have as easy of access to health care," he said. "The commitment to working with those community partners and making sure there is a community presence is really important."

To that end, Ramsetty also recruited nursing students from Denmark Technical College to participate. Logistically, the Denmark Tech students were closer to the health fair than the MUSC students and faculty and could easily get there. But they were also culturally closer.

"You want the people who know the area best to be involved," Ramsetty said. "They will know things culturally and societally that we wouldn't know, being from a different area even of the same state."

Luckily, she said, Denmark Tech has a strong community service ethic, and its dean of nursing, Karen Myers, R.N., jumped at the chance.

HMHSC leaders said they knew they would learn a lot from this first fair. They had a good turnout of about 100 people, and they expect that number will grow on return visits.

"I can't think of a better opportunity to meet people where they are, particularly in these areas where they don't have resources, a lot of times don't have primary care, certainly don't have a hospital," Sudduth said. "To take our resources out to them and meet them where they live is the essence of community health."

Quads

Continued from Page Eight

such a surreal moment. I think they had 13 nurses waiting to help — they had everybody lined up."

The nurses took the babies to the neonatal intensive care unit. They were the first quadruplets born in the hospital since it opened in February of 2020.

"As crazy as it sounds for somebody who went from one to five kids in two minutes, I knew that everything was okay, because every doctor — from the fertility center until now – even all of our stays in downstairs in the antepartum room, in the labor and delivery area in here, they've all been part of the MUSC family. It was just incredible," Justin said.

Three girls, Ava, Blake and Colby, and their brother, Colt — the smallest one — are going home one by one as they grow strong enough to thrive without being in the MUSC Shawn Jenkins Children's Hospital.

And their parents are growing used to the idea that while plans can be good, life's curveballs can be even better. "I think we've already gotten into that, like, 'This is our story'. I don't know how we did it before," Justin said.

He and Ally thanked the health care team that gave the first part of that story a happy ending.

"It's been just like our second home; we're here all the time. We love everybody," Ally said.

Robotics

Continued from Page Three

would prove critical.

Surgical lightning rod

MUSC Health now boasts five state-of-the-art surgical robots – three in Ashley River Tower, two in the main hospital – making it one of the most robust DaVinci robotic programs in the country. It's also the only hospital in the state offering robotic surgery in virtually all specialties.

Cardiothoracic chief surgeon Marc Katz, M.D., performed one of the first robotically assisted FDA-approved procedures for a leaky heart valve in a patient. Colorectal surgeon Virgilio George, M.D., is able to do more complex procedures thanks to the new technology. And just recently, Bruce Crookes, M.D., chief of Acute Care Surgery at MUSC Health, had a patient with an abdominal stab wound that he was able to repair robotically as well as explore the abdomen to rule out other injuries – a luxury he never would have had just using traditional methods.

This doesn't mean technology is replacing doctors. It simply means surgeons are now able to do more complex procedures, less invasively, in less time. Not to mention patients have shorter hospital stays, with less chance of infection or complications, and return to work sooner.

"No subject in our field is as much of a lightning rod as robotics is in surgery," Pullatt said. "But the truth of the matter is once a surgeon is properly trained, procedures can be done just as efficiently, or in some cases better, with the robot."

Pullatt estimates that 95% of all of his procedures are now done robotically. A couple of years ago, he was only one of the two MUSC Health gastrointestinal surgeons regularly using the technology. Since then, however, he has trained six others how to operate using the robot properly.

"I think eventually all surgery is going to become computer assisted," he said. "If we resist this, it's very myopic. Surgery is such an invasive thing. We now have a tool at our disposal that allows us to make the entire process less taxing on the surgeon and safer for the patient.

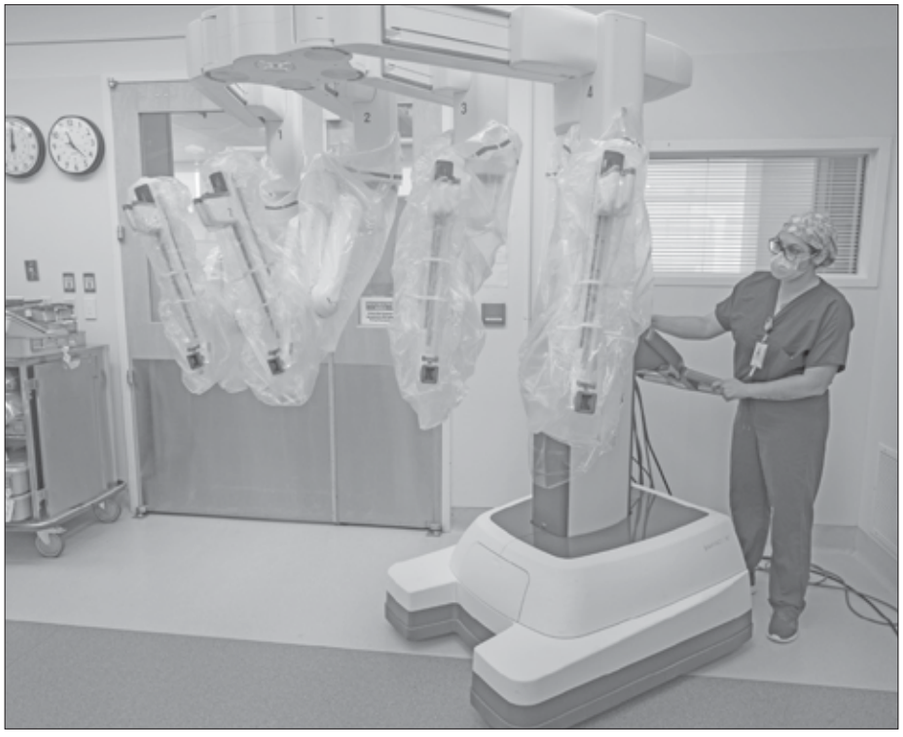

Photo by Sarah Pack

The DaVinci XI robot being moved into position.

Good reasons for hope

Holmes remembers the day he first met Pullatt.

"Up to that point, people kept telling me what things I couldn't do," Holmes said. "But Dr. Pullatt told me what I was capable of and not to get discouraged. He was going to help me."

But that help had to start from within himself, Pullatt had told him. So Holmes started eating healthier and doing water aerobics three times a week. He remembers trying to go for walks and getting winded after just a few steps. But he didn't give up.

Pullatt told Holmes that he was a good candidate for a duodenal switch – a procedure that involves removing approximately 80% of the stomach and bypassing 70% of the proximal small intestine.

"He said, 'I can see you want this. You're down to 618. Keep doing what you're doing,'" Holmes said. As with any relatively new procedure, getting approval from health insurers can be tricky. It took months, but Holmes eventually got the green light from his provider, and Pullatt put him on the calendar.

"I remember getting the call from them that it was going to happen, and I just panicked," he said. "I totally freaked out. I wanted to back out. But my grandfather said, 'What is wrong with you? You ain't backing out now; you waited too long for this.'"

And that's how he ended up on the operating table, bathed in a lime green light, with the shoeless Pullatt a stone's throw away, performing his duodenal switch. Ironically, the day of Holmes' surgery was shrouded by a haze similar to the one he experienced during that trip to the ER back in 2017. Portions were missing, and there was plenty of pain.

"I just remember them spreading me out like an airplane and putting something on my sides to keep me from moving," Holmes laughed. "Then they told me they were giving me the anesthesia, and I was out of here."

This time, however, when he returned home from the hospital, things started to get better.

"It wasn't easy; I'm going to tell you that. People think you have a surgery like this and afterward, you just magically lose weight. It is nothing like that," he said.

At first, Holmes couldn't make it up the stairs in his house. In-home therapy four days a week, coupled with daily exercises, led to incremental improvement. For six weeks, therapists would take him outside for walks. Each day, the walks got a little longer, and he got a little stronger. Holmes was finally losing weight – and fast.

"Everybody else could see it, but I couldn't," he said. "But around two months later, I remember a specific morning when I got up and felt like I could move better."

He got back to water therapy. Met with his dietitian. His clothes stopped fitting. Today, just four months post-surgery, Holmes has lost nearly 150 pounds. Imagine giving a teenage boy a piggyback ride everywhere you go. And then one day, he's gone.

"I always kept the faith," Holmes said.

Instrument of change

"My friends still don't believe me that they used a robot," Holmes joked. "I am so thankful for Dr. Pullatt. He was incredible from day one. He was always patient. He explained everything. He didn't make a single promise he didn't keep."

Each morning Holmes hops on the scale, but now, he's not afraid of what he's going to see. It's his measuring stick. His reminder that he got a second chance. Still currently on disability from his property management job, he plans to eventually pursue a career in real estate, maybe flipping houses; he's not sure.

"There are so many possibilities now," he said.

And he's got a daughter he adores that he wants to be around for – for a very long time. He regrets not having mirrored the best behaviors when it comes to healthy eating. He knows he has an opportunity going forward to be a positive role model, an instrument of change for her. With heredity in mind, he never wants her to experience the pain that he has.

"I am eternally grateful to Dr. Pullatt and MUSC, but I don't want my little girl to have to do what I did," he said, emotion in his voice. "I want her to avoid being in that position in the first place."

Nurses *Continued from Page Seven*

coursework at Trident Tech as well as required academic courses.

Back at the beginning of the year, Simpson decided how many apprentices the hospital could take on and sent that information to Trident Tech. At the same time, at West Ashley High School, senior Shea Held was working with her guidance counselor to gather materials for her application to the program.

Held said she's always wanted to go into nursing, and she was eager for the experience that the apprenticeship program would provide.

"It's a really great program, especially if you know you want to go into nursing," she said. "It gets you experience really early on, right off the bat, and you learn so much more in the hospital than you do in the PCT classes and the courses."

Once Held's application was seleted for the next round, she went in for an interview at Trident Tech. The Trident Tech staff then sent all the videotaped student interviews to the participating hospitals in town.

At MUSC Health, Simpson, program coordinator Robin Smith and unit nursing managers scrutinized the video interviews and identified the students they wanted to hire. Their counterparts at other local hospitals were doing the same. The determination of which student ends up at which hospital comes down to a draft day, when the hospitals take turns selecting the students they want as apprentices.

Simpson is happy with how this year turned out.

"We got a really strong crew," she said.

The students were assigned to various units, where they'll remain for their two years. They are paid employees, but their managers schedule them around their school schedules. For Held, that means she currently works a 3:30-11 p.m. shift on Mondays and Fridays.

She's assigned to a Digestive Disease Center floor in Ashley River Tower. Under the supervision of an experienced PCT, she's taken a patient's vital signs, helped people get up, prepared rooms, changed linens and emptied catheter and ostomy bags.

"She's awesome," said her preceptor, or trainer, Jaime Edwards. "She's ambitious. She's a good kid."

In all of the pathways, the apprentices must put in 2,000 hours of work and have a core list of tasks they must complete to qualify for certification from the U.S. Department of Labor.

Held is eager to put her new classroom skills to work in the hospital. She's also finding that there are some things that class can't really prepare you for.

"They don't prepare you for how patients are going to treat you. That is a big thing," she said. "You don't really come in contact with a lot of mean people, but there are some people who are having a rough day, and they don't really prepare you for that. It's just something you learn."

Luckily, with her background working in the local food and beverage industry, Held has plenty of experience soothing unhappy customers.

"Most of them are scared," she said. "They just want to know what's going on."

Simpson said that type of on-the-ground training is helpful for young people deciding on a career.

"It's a good eye-opener for the apprentices to get a feel for, 'Do I really want to go to college for this when I get done with high school?" she said.

And it's a great program for the hospital as it seeks to develop more pipelines into health care professions.

"I can see this program expanding," Simpson said. "My goal would be to have an apprentice in every unit."

Judges needed for 2021 Perry V. Halushka Research Day, Nov. 5

Judges are still needed to participate in the annual campuswide MUSC Perry V. Halushka Research Day. The event is open to students, postdoctoral fellows, clinical fellows and technical staff across campus to present their clinical and basic science research in poster and oral formats.

Contact Victoria Findlay, findlay@musc.edu, or Shelly Drake, drakm@musc.edu.

The Declaration of a National Emergency in Child and Adolescent Mental Health cites the need for:

- ❑ **More money to pay for scientifically sound mental health care for kids.**
- ❑ **Less red tape.**
- ❑ **Better access to telehealth.**
- ❑ **More mental health care in schools, primary care doctors' appointments and other community settings.**
- ❑ **Better ways to ease the strain on emergency departments.**
- ❑ **Full funding for programs that connect families with mental health help.**
- ❑ **More people in the field of mental health care, including people from communities that are underrepresented.**
- ❑ **New policies that make sure mental health parity laws are followed.**

Crisis *Continued from Page One*

earlier, and their families need more options.

"There is a dearth of mental health providers for children and adolescents across the country. There is a lack of timely resources for kids who are struggling with depression. The way this manifests itself is if there's a crisis moment or a time when a parent or a teacher learns that a child is suicidal; there are very few avenues for these adults to make sure that these young people are safe."

The organizations that issued the declaration noted that between March and October 2020, emergency department visits for mental health emergencies rose 24% for kids 5 to 11 and more than 30% for children 12 to 17. And in early 2021, suspected suicide attempts among girls age 12 to 17 jumped more than 50% compared with the same period in 2019.

That's the national picture. Locally, this year, mental health visits to the Emergency Department at the MUSC Shawn Jenkins Children's Hospital are up noticeably. "It is an unusual day when I come into the Emergency Department and we don't have at least a couple of young people who are waiting for a psychiatric bed to open up," Pruitt said.

So what's behind the mental health numbers? The emergency declaration cites not only stress brought on by the pandemic but also inequities related to structural racism and the fact that more than 140,000 kids in this country have lost a primary or secondary caregiver to COVID.

But Pruitt said it's not just that kids worry directly about COVID or racism or loss. The other people in their lives may be feeling stress, too – and that can affect everyone.

"These issues are multifactorial. It doesn't take a physician to know that mental health issues for a child or adolescent might come down to science and brain chemistry, but oftentimes, it comes down to family dynamics. Your family setting and your support systems can be really hard to address – things that involve the infrastructure of our country, the family unit or the school."

He encouraged parents and caregivers to figure out where to get help. "Every family should know what their immediate support system is. Most schools in our area have a very good mental health resource, a person that's been placed in the schools," Pruitt said.

"Obviously, we also want parents to talk to their kids and keep communication open. If a concern arises and there could be imminent danger, if your child is expressing suicidality, for instance, you don't want to wait. You want to lean on those resources that you have and that you've made yourself aware of. You don't want to assume it will just go away or that it's a phase, because the consequences could be dire."

Pruitt hopes the emergency declaration will lead to fast action that will help children and their families, saving lives. "The goal is to galvanize both citizens and lawmakers to push for changes in our communities and to make provisions that ensure that every resource is available to help these children and families in crisis."