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Omicron passes peak as hospitalizations hit new high

By Helen Adams

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As anticipated by MUSC's COVID-19 tracking team, data show that Omicron has peaked in the Charleston Tri-county area. It hit a pandemic high of 416 cases per day per 100,000 people on Jan. 15. It has steadily fallen since then, dropping to 145 cases per day per 100,000 people on Jan. 31.

"The curve looks like the Empire State Building to me," said Michael Sweat, Ph.D., leader of the MUSC team, referring to the updated graph. The same holds true for all four areas the team tracks, including Florence, Lancaster and the Midlands.

"But I just can't stress enough how high the rate still is, though. I mean, that's a big number of people getting infected every day. I worry people are going to see the statement that things are declining rapidly and not be careful at this period where there's are a lot of cases occurring."

He's also seen a record rise in another metric he keeps on eye on. The number of COVID patients in MUSC Health's Charleston hospitals recently hit 178, up from 174 on Jan. 25 and 161 on Jan. 24. The numbers include patients in Ashley River Tower, the Institute of Psychiatry, University Hospital and the MUSC Shawn Jenkins Children's Hospital. It's come down a little since then, hitting 171 on Feb. 1, but Sweat said it's still high.

"It's a large proportion of the overall number of people in the hospital. Every one of those people, for some period of time, has to be isolated, and it takes a

See PEAK on page 3



Photo Provided

Sander Shahan in his hospital bed after surgery.

Lifesaving neurosurgery couldn't have happened without communication, teamwork

By Leslie Cantu

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A Virginia couple attributes their little boy's survival to divine intervention — that when the worst happened, a mother's instinct pushed her to act, which got them to the right doctors with the needed skills and the experience to know when to bypass typical procedure.

"It was a miracle to get him into the hands of people who really could perform a miracle," said Elissa Shahan.

Shahan; her husband, Nick Shahan; and their two

children, Skyler, 3; and Sander, 1, were visiting family in the Myrtle Beach area over the Labor Day holiday last year. Monday, Sept. 6, started off as a normal relaxing vacation day. Elissa Shahan was making eggs for breakfast when Sander, strapped into his booster seat, jerked himself backward and crashed to the floor, hitting his head.

Elissa and Nick immediately checked him out. A selfdescribed overprotective mother with their first, she knew to check whether his pupils responded to light. They did, and Sander stopped crying after a couple of

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Mitigation roadmap App offers automated contact tracing. Inside the lab COVID testing lab shares its process.

- **3** Well-Being: Heart Walk
- **5** Meet Victoria Sullivan, M.D.
- 8 HPV town hall

AROUND CAMPUS

William Basco



M.D., professor and director, Division of General Pediatrics, Department of Pediatrics, was appointed as associate dean for Continuing Medical Education (CME) for the

College of Medicine. Basco will manage the oversight and all aspects of the CME Office including finance/ budget, personnel, programming and management of MUSC's accreditation process through the ACCME.

Devanand Dominique



Devanand Dominique, M.D., has joined the Department of Neurosurgery, MUSC Health Florence Division. Dominique is board certified and fellowship trained in spinal neurosurgery. He completed his

neurosurgery residency at Temple University Hospital in 1999 and went on to complete an in-folded fellowship in pediatric neurosurgery and neurooncology at Harvard Medical School Children's Hospital. He also completed a surgery fellowship at the University of Toronto.

Mileka Gilbert

Mileka Gilbert, M.D., Ph.D., assistant professor, Division of Rheumatology-Pediatric Rheumatology, Department of Pediatrics, was the 2022 recipient of the MUSC Martin Luther King Jr. Humanitarian

Award. Gilbert was honored for her significant contributions at MUSC and the Lowcountry community in the areas of diversity, equity and inclusion. She received her award at the 32nd annual Black History Intercollegiate Consortium MLK event on Jan. 18.

Ray Kessler

of Oral Rehabilitation since January 2014, has continuously assisted in the

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implementation of new digital dentistry technologies within the college. He serves as the liaison with CITA for ADEX licesnsing boards and assists in dental licensure exams.

Cassandra Salgado



Cassandra D. Salgado, M.D., professor and director, Division of Infectious Disease, Department of Medicine, has been named Senior Associate Dean for Faculty Affairs for development and

wellness in the College of Medicine. Salgado will serve on the dean's senior leadership team and lead college efforts in faculty development and the advancement of an academic workforce that promotes excellence and wellness. She will facilitate and help coordinate new programs for faculty orientation, career and professional development and wellness.

Kristen Hood-Watson

Kristen Hood-Watson, M.D., associate professor, Department of Family Medicine and assistant dean for Inclusion, College of Medicine, has been named assistant dean for Clinical Curriculum. Hood-Watson has been dedicated to medical student education

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for more than a decade and serves at the co-director of the Family Medicine clerkship. In her new role, she will manage the clinical phase of the undergraduate medical education program including planning,

implementation and quality improvement for the clinical curriculum and compliance with accreditation standards.

Catherine Tobin



Catherine Tobin, M.D., associate professor, Department of Anesthesia and Perioperative Medicine, was named the medical director of the MUSC Health Care Simulation Center.

Tobin has demonstrated a commitment to simulation-based education and innovation. She will manage operations and strategic planning for the center and will focus on improving quality and effectiveness of education, student and stakeholder satisfaction, customer service and operational and financial efficiency.





Ray Kessler, assistant professor, Department of Oral Rehabilitation, James B. Edwards College of Dental Medicine. was named division

director of Digital Dentistry. Kessler, who has been with

the Department

□ Save more babies and kids who have congenital heart

Come out to the MUSC Greenway on Thursday, Feb.

17 for a medical mile walk and socialization. Watch for special events during February that promote American

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Heart Month and the Heart Walk at the Wellness Center, the Shawn Jenkins Children's Hospital, South

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By Susan L. Johnson, Ph.D.,

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• Thursday, Feb. 17: MUSC Greenway Event.

• Saturday, Feb. 26: Lowcountry Heart Walk.

Dates to remember:

MUSC Office of Health

Promotion

defects.

Lowcountry Heart Walk on Feb. 26 promotes heart health month

February is American Heart Month with Feb. 4 designated as National Wear Red Day, an effort to support the Go Red for Women campaign, and, locally, Feb. 26 as a day to promote socialization and movement with the Lowcountry Heart Walk.

Founded in 1924, the American Heart Association (AHA) continues to pave the way in the fight against heart disease and stroke, "striving to save and improve lives." The AHA's annual Heart Walk is dedicated to bringing people together, getting hearts pumping, honoring survivors, raising lifesaving funds - and having fun along the way.

Join us for the Lowcountry Heart Walk to help to defeat heart disease and stroke on Feb. 26, at 8 a.m., at Riverfront Park for a fun, easygoing 3-mile walk. It's never been a better time to find new ways to boost physical and emotional health. Joining the Heart Walk is a great way to connect socially and get moving - all while making a great impact in our community on heart health.

All MUSC care team members are invited to join the MUSC Imagine U Heart Walk team. You are also able to start your own team or join an existing team within your department.

Use this QR code to join a team, register for the walk

PEAK Continued from Page One

lot of effort and time to treat somebody in isolation. So it's a really big burden on the hospital."

Sweat said the increase was expected after the surge because hospitalizations usually run a few weeks behind infections. It takes time for someone to get sick enough to need to go to the hospital. Sweat expects hospitalizations to ease in the near future.

But he hopes something else rises as we ride out the rest of the Omicron wave: the number of people getting booster shots. "There's been some analysis of mortality and hospitalizations. Omicron hit Europe, the U.K., before us. They're having about half the rate of mortality that we are. It's believed vaccination and boosting in particular are the reasons. We have very low boosting rates. I think it's 20-something percent for the whole country. In Europe, it's up over 50%. And the impact of boosting is profound. I don't think that message is getting out enough," Sweat said.

"The vaccine effectiveness for



and/or donate.

Note: When starting or joining a team, please ensure that you affiliate with "Medical University of South Carolina" as your designated business.

If you can't make the walk, consider making a donation. When you register or donate, you're helping to:

hospitalization, comparing people who just had two shots, it's something like 34%. But if you got the booster, it's up around 80-something percent. So it has a huge impact when it comes to keeping you out of the hospital. I think we are suffering more than they are in places with higher boosting rates. The effect wanes, and that booster really primes your cellular immunity very strongly."

And staying on top of pandemic precautions, such as booster shots, continues to be important as we face the possibility of more variants. One that's in the news these days, the Omicron subvariant BA.2, isn't a big worry for Sweat. "I would think that immunity from the mother variant, Omicron, would provide strong immunity against slight variants like this."

But Sweat, a professor in MUSC's College of Medicine, adjunct professor in the Johns Hopkins Bloomberg School of Public Health and former research scientist with the Centers for Disease Control and Prevention, is concerned about what else might be out there.

"A bigger worry to me is will another

variant pop out of some weird space like Omicron did. Omicron did not come out of the lineage of Delta. It originated

from the original Wuhan virus, they think, based on all of the genetics they've done."



- PLEASE NOTE THAT YOU MUST PRE-REGISTER FOR YOUR SCREENIN

Roadmap for rolling out COVID-19 risk mitigation initiatives at educational institutions

By Kimberly McGhee

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During the pandemic, colleges and

universities across the nation have wrestled with a common dilemma. They wish to open back up for inperson learning but doing so risks increased spread of COVID-19, potentially

forcing them to



Melvin

shut back down or return to remote learning. Contact tracing could be the answer, but only if students, faculty and staff are promptly informed of potential exposures so that they can seek testing and quarantine while still within the window of infectiousness. Shortages in contact tracing staff can slow the process. The inability of those testing positive to remember all potential contacts also limits effectiveness.

A new article by researchers at the MUSC and Clemson University in the Journal of Medical Internet Research (JMIR) Research Protocols provides a roadmap for implementing an exposure notification mobile app among students, faculty and staff at Clemson, a large public university in South Carolina. The roadmap also provides a theory-based framework for evaluating the success of the rollout and the impact that appbased notifications had on decisions by users to be tested and to quarantine. Although the implementation plan in this case is focused on rolling out an app at a university, it could be used for any COVID-19 mitigation strategy in a wide variety of settings.

"It took us a lot of time to put this together because we were starting from ground zero, but the roadmap outlined in our article could help people hit the ground running for their institution," said Cathy Melvin, Ph.D., lead author of the article. Melvin is a professor in the Department of Public Health Sciences at MUSC and associate director of the Dissemination and Implementation Science Collaborative (DISC) at the South Carolina Clinical and Translational Research (SCTR) Institute.

The SC Safer Together app was developed for use in South Carolina with the Google/Apple Exposure Notification System open-source software and its application programming interfaces for iPhone and Android operating systems. The app aimed to provide quick, largely automated notification of a potential COVID-19 exposure to users, who could then pursue testing and quarantine if necessary.

The app of

The app and supporting software were readied for rollout at Clemson University by technical teams at the MUSC Biomedical Informatics Center (BMIC)

and Clemson Computing and Information Technology (CCIT). The teams were led by Leslie Lenert, M.D., BMIC director and associate principal investigator for the SCTR Institute.

App users who test positive for COVID-19 receive a secure text message from the testing facility. The text includes a deep link, a mobile link that directs users to a specific screen within a mobile



Photo by Charlotte May. Licensed from Pexels: https://www.pexels.com/license/ The voluntary app alerts users if they have been near another user who tested positive for COVID-19.

app. Clicking on that link activates automated exposure notifications to other app users. Using the location feature on smart phones, the app notifies other users who have been within six feet of the COVID-positive person for at least 15 minutes. The app also provides information on users' cumulative lowerlevel exposures by assessing the strength of the Bluetooth signal between their phones and the phones of users testing positive within the past 14 days. Finally, the app provides a "Get Care" link to point users desiring testing to appropriate facilities or websites.

"We developed this app to be an effective tool to study exposure notification technology," said Lenert. "By basing the infrastructure for notification, consent for sharing and reporting at Clemson, within our own custom-built apps, we were able to conduct a more detailed evaluation of the technology than if we used the national platform."

The app is also designed to ensure privacy and choice. The identities of those downloading the app or uploading test results are never revealed to other app users or to the researchers. Users can choose whether to upload test results and activate exposure notifications. Although the location feature is used by the app to identify potential contacts, individual users cannot be tracked using the device.

Ronald W. Gimbel, Ph.D., professor

and former chair of the Department of Public Health Sciences at Clemson University, director of Clemson Rural Health and DISC associate director, headed up the dissemination and implementation research team, which included Melvin, MUSC's Katherine Sterba, Ph.D., and Clemson's Kathleen Cartmell, Ph.D. He also oversaw the operational aspects of the rollout at Clemson. Dissemination and implementation researchers design studies to learn the best way to launch and evaluate evidence-based strategies in realworld settings.

A phased approach was adopted for the app's rollout. It was made available first to students in just two dormitories, then to all employees and then to the entire student body. This phased rollout ensured that health and testing facilities were not overwhelmed. With the help of University Relations at Clemson University, targeted messaging was created for each group of users. These messages highlighted the usefulness of the app, allayed any privacy concerns, provided instructions for downloading and using the app and later provided FAQs. The offices of Student Affairs and Housing, as well as Human Resources, were engaged to ensure proper dissemination of communications about the app. Simple metrics were used to gauge the success of the rollout.



Lenert

MEET TORI



Victoria A. Sullivan, M.D.

Department; Years at MUSC Department of Family Medicine; 3 years

How are you changing what's possible at MUSC

As a resident and soon-to-be family medicine attending physician, I'm studying to become a certified breastfeeding specialist. I also hope to serve as a resource outside of the hospital for patients experiencing challenges of nursing or just those who would prefer extra support.

Family, pets and their names *My partner*, Elliott, and two cats, Custard and Dot

What inspired you to go into medicine

My family doctor growing up was Dr. Mitch Grunskey in Sumter, S.C. We lived in a small town and I honestly didn't realize there were other medical specialties growing up because he was always able to address evey need for my entire family.

Hobbies

I love gardening – I'm currently preparing my spring vegetable garden

Favorite quote *"For there is always light, if* only we are brave enough to see it, if only we are brave enough to be it." – Amanda Gorman

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'We're here 24/7': Inside MUSC COVID testing labs amid Omicron surge

By HELEN ADAMS

adamshel@musc.edu

While most people are sleeping, members of the COVID-19 lab testing team at MUSC are wide awake during the Omicron surge. "We're here 24/7. A lot of our peak time is overnight," said lab leader Julie Hirschhorn, Ph.D.

"It's all about trying to get the results out as quickly as possible. The sooner that people know whether or not they're positive, the sooner they can take measures to try and keep those people around them safe."

She and members of her team offered a behind-thescenes look at what happens once a swab comes in for testing, the role multiple machines play and what can speed or delay results.

THE PROCESS BEGINS

When a swab ready to be tested for COVID-19 arrives at MUSC, Heather Hill is often among the first people to handle it. "I work in a methodical way," said Hill, the supervisor for the COVID pre-analytical process.

"What we're doing here is called manifesting," she said, as she checked labels on bags containing nasopharyngeal or mid-turbinate swabs. "We're bringing in the samples. All the samples that come in from other locations, they put information on the manifest list that we then check to make sure that what comes in is actually what's in the bag."

A lot of the swabs come in coolers from testing sites around the state, dropped off by couriers throughout the day. Others, from patients in the hospital at MUSC Health, arrive with the help of an internal tube system.

Hirschhorn said urgent cases go to the rapid testing area, where results can arrive in less than an hour. "Those are scenarios within the hospital when you need a faster turnaround time because of a need to protect our teams as well as the patients. They usually come from inpatients or the Emergency Department. Ideally, we would like to be able to offer a rapid option to everyone, but due to demand and supply across the nation, it has been difficult to get some of these more rapid tests."

THE MACHINES

The rest of the swabs will be tested on slower highthroughput machines capable of churning out 1,600 to 1,800 results a day. "I think our turnaround time, once the specimen arrives in the laboratory, is less than 10 hours right now," Hirschhorn said, referring to how long it takes to get results to the people waiting for them.

"If specimen travel is needed by a courier to get the samples from the collection site to the main laboratory, it can add upward of eight hours to the resulting time,



Photos by Sarah Pack

Heather Hill, supervisor for MUSC's COVID pre-analytical process, prepares to pour samples taken from people worried they have COVID into tubes for testing. She chooses the type of tube based on which of MUSC's testing machines is in use.



The lab team, including assistant Ajah White, switches roles frequently to ensure everyone can handle everything.

due to the time spent in transit. When the laboratory has a lot of specimens to handle, that can also increase the turnaround to 24 to 48 hours because it takes more people and time to process all of those specimens."

Once Hill or a colleague finishes checking in samples, they're carefully transferred to tubes and prepared for the next steps. Then, the laboratory has multiple machines at its disposal for testing, including the Panther System, the Abbott m2000 and the Abbott Alinity.

"We do utilize all of those machines, especially in a surge like we've seen recently," Hirschhorn said. If there's a problem with one type of machine, such as reduction in the supply of tests, they can pivot to another. "We can shift pretty quickly. Once a specimen is received in the lab and prepared for testing, we try to run it as soon as possible."

But technicians are careful to confirm the names and dates of birth before a specimen goes into a testing machine. They're well aware of both public concern about the speed of results — and the need to be precise. Technician Betsy McLaughlin said she and her colleagues do everything they can to get those results



Sander Shahan, 1, left, and sister, Skyler Shahan, 3.

Photo Provided

MIRACLE Continued from Page One

minutes. Elissa Shahan called a couple of medical providers, but she couldn't get into a pediatrician's office because they weren't regular patients, and the emergency department that she called warned they were overwhelmingly busy. In any case, Sander seemed to be OK.

Sander's parents didn't know that the fall had sheared an artery. Blood was pumping into the space between his skull and the outer covering of his brain, steadily pushing his brain into a smaller and smaller space. Called an epidural hematoma, this type of injury can easily be fatal, said Ramin Eskandari, M.D., chief of pediatric neurosurgery at MUSC Children's Health.

"That type of epidural is the kind that can kill people. That's the stuff where everything is fine ... fine ... fine ... and then suddenly they die," he said.

The family finished breakfast and headed to the pool.

RACE TO THE ER

Nick Shahan has photos of that morning, of Sander splashing around in the pool in his water wings. The family enjoyed the morning, then mom put Sander down for a nap.

"It was nap time – and I never let him nap with us. But for some reason I let him nap next to us, and he threw up a little. And that made me a little nervous," Elissa Shahan said.

The parents cleaned him up and put him back down. About 45 minutes later,

as they headed in to give Skyler lunch, Sander threw up again, she said. He also seemed oddly sleepy — not just naptime sleepy, but something different. And his body had gone "noodly," Nick Shahan said.

Elissa Shahan knew it was time to head to a hospital. Panicking now, she raced with Sander to Conway Medical Center. The staff there rushed her inside and immediately scanned Sander's head.

Back at the house with their daughter and the dog, Nick Shahan got a call from a nurse a half-hour later. His wife was too hysterical to talk, the nurse said, but his son needed to be sent to a medical facility that could handle his injury.

A helicopter was on its way to pick up Sander and bring him to MUSC Shawn Jenkins Children's Hospital in Charleston.

DIAGNOSIS

Matthew Moake, M.D., Ph.D., was the attending physician in the Pediatric Emergency Department that afternoon. The ED commonly receives calls from other hospitals and pediatricians' offices and then triages potential patients based on information the referring doctors can provide as well as any scans they may have. Most – but not all – hospitals in South Carolina participate in an image sharing system so that doctors can send CT or MRI images to outside hospitals.

The doctors in Conway had told Moake they had an infant with a brain bleed. Yet when he pulled up the images, he was stunned. The injury was far

See MIRACLE on page 10



Fun By The Numbers

Like puzzles? Then you'll love sudoku. This mind-bending puzzle will have you hooked from the moment you square off, so sharpen your pencil and put your sudoku savvy to the test!

	6	8		5			7	1
				1		4		
	2						9	5
2	5	6	8					
		9	6	3		8		7
		3	9	2	1			
		5				9		
	8	4	5		2	6		3
6				8	3	7		4

Level: Beginner

Here's How It Works:

Sudoku puzzles are formatted as a 9x9 grid, broken down into nine 3x3 boxes. To solve a sudoku, the numbers 1 through 9 must fill each row, column and box. Each number can appear only once in each row, column and box. You can figure out the order in which the numbers will appear by using the numeric clues already provided in the boxes. The more numbers you name, the easier it gets to solve the puzzle!

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Hollings to bring cancer prevention to underserved county

By Josh Birch

birchj@musc.edu

Children in certain South Carolina counties are more likely to develop human papillomavirus (HPV) related cancers as they grow up. It's why MUSC Hollings Cancer Center is participating in a virtual town hall event with Cherokee County Schools in Upstate South Carolina to discuss the HPV vaccine. The town hall, to be held on Feb. 21 at 6 p.m., gives parents and students an opportunity to get their questions about the HPV vaccine answered by experts.

Cherokee County was selected due to its extremely low HPV vaccination rate. Only 19% of Cherokee County middle school students enrolled in 2021-2022 had received both recommended doses of the vaccine. That's compared with 44% of middle school students who hadn't received any doses of the HPV vaccine. "We know that parents and students have legitimate questions about this vaccine," said Marvella Ford, Ph.D., Hollings associate director of Population Science and Cancer Disparities. "This town hall allows us to speak truth that is backed up with science. We believe that we have a duty to bring cancer prevention methods to the communities who need them most. The HPV vaccine is one of the most effective resources we have available to us to prevent cancer."

Ford said this and other town halls that will be held are part of Hollings' efforts to raise vaccination rates. The town hall comes just two weeks before Hollings is set to take its new HPV vaccination van to middle schools in Cherokee County to provide the HPV vaccine to students and school staff under the age of 45, free of charge.

"Every year, HPV causes more than 30,000 cases of cancer in both men and women across the country," Ford said. "With the HPV vaccine, over 90% of



Photo by Josh Birch

Dr. Marvella Ford, left, and Melanie Slan are leading efforts to improve HPV vaccination rates across South Carolina.

those cases can be prevented."

HPV is linked to six different cancers, including cancers of the cervix, vagina, vulva, penis, anus and head and neck cancer. Melanie Slan, program manager in Hollings' Office of Community Outreach and Engagement, said HPV vaccination is an important tool that could save lives. "We have a vaccine

See **PREVENTION** on page 11

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The Real

LABS Continued from Page Six

out as quickly as possible. "I think people don't know the whole ins and outs of testing and this particular type of testing. PCR takes a while. This is the gold standard."

PCR stands for polymerase chain reaction testing. According to the National Human Genome Research Institute: "COVID-19 PCR tests use primers that match a segment of the virus's genetic material. This allows many copies of that material to be made, which can be used to detect whether or not the virus is present."

That's compared with antigen tests, which look for viral proteins and don't have to be done in a lab.

Once a sample is in one of Hirschhorn's team's machines, which are subjected to daily quality control tests, it moves through several steps. "In the first step, it's going to break up the SARS-CoV-2 virions where the virus is located. Then it's going to isolate that virus. Once the virus is isolated, it's going to go through a process called nucleic acid amplification. And basically, what that means is that it's going to look for COVID-19 in particular. If COVID is there, it's going to amplify it. And if it amplifies it, it's going to detect it as positive. If COVID is not there, it has nothing to amplify, so it's negative or not detected," Hirschhorn said.

"These machines are interfaced with our electronic health records, so when the results are done, they immediately pop off into the patient's health record, and you'll get the results in MyChart."

Julie Hirschhorn, Ph.D.

"These machines are interfaced with our electronic health records, so when the results are done, they immediately pop off into the patient's health record, and you'll get the results in MyChart." That's a change from the early days of the pandemic, when the results had to be entered manually, a much slower process.

The simple step that can speed or delay results

These days, the speed with which test results arrive can hinge on whether a swab is labeled electronically or by hand — electronically is better — and something pretty basic: your name. "The most important thing that really plays into turnaround time issues is



A label on a test sample is scanned to get the patient's name and information into the system before testing.



Photos by Sarah Pack

Betsy McLaughlin carries samples from a refrigerator, where they've been kept cool while waiting for testing, to a colleague.



Heather Hill checks swabs that have come in for testing to make sure their labels match the names on the list that came with them.

registration. When people register for a COVID test, when you put your name on a label, the most important thing you can do is to use your full legal name," Hirschhorn said.

"A lot of times, somebody will put a nickname – they're called a middle name instead of a first name. When that comes into the laboratory, we have trouble finding the patient and who that test belongs to."

She encouraged people who bump into delays to play it safe. "I know that testing can seem really frustrating right now because everybody wants to know whether or not they have COVID. But I guess for me, the most important piece of advice is if you don't feel well, isolate yourself until you know whether you have COVID if you can. Masking with a high-quality mask has also been shown to reduce the transmission of the virus.

"I know that's hard sometimes, given our lives, and some of us don't have the luxury of being able to take that time to be careful. And so, we also have masks and N95s, KF94s — are all really good choices because they're higher grade, and so they can help control the virus's spread."

MIRACLE Continued from Page Seven

worse – and far more urgent – than he had expected. He immediately called Eskandari, who was on call but not in the hospital.

Because Eskandari wasn't near a computer, he couldn't see the scans. Moake began describing them, including a measurement of the bleed. The bleed was so large, Moake said, that Eskandari at first thought Moake must be measuring front-to-back instead of side-to-side.

Assured of the accuracy of the measurement, Moake said Eskandari's reaction was essentially the same as his had been — unpublishable. Moake then photographed the scans and texted the pictures to Eskandari.

"It was one of the biggest, if not the biggest, epidural hematomas I've ever seen," Eskandari said.

Sander would need surgery immediately upon arriving at MUSC Children's Health, Eskandari said. Every second mattered at that point.

GHOST PATIENT

It takes a lot of people and a lot of teamwork to make an operating room jump into action – far more than simply a surgeon who's willing and able. To begin with, a doctor can't just walk in, claim an OR and start grabbing supplies. Everything – every medication, every set of sterile blue drapes, every set of scalpels, not to mention the reservation of an OR – must be associated with a medical record number: in other words, an actual patient.

But technically, Eskandari didn't yet have a patient.

The usual procedure is for a transferring trauma patient to be triaged through the Emergency Department, at which time a patient record would be created and supplies could be ordered. But Eskandari wanted Sander to be brought directly from the helipad to the operating room, bypassing the Emergency Department.

There's good reason that patients, even patients who you know will need surgery, are triaged in a standardized manner, Moake said. This ensures that nothing is missed and gives the doctors here a chance to stabilize the patient, conduct a physical exam or do additional scans. And the unfortunate truth is that parents aren't always honest about how a child was injured. If the injury happened differently than how parents say it did, there could be additional injuries lurking undetected. It would be disastrous if Eskandari started operating on a child's brain without anyone realizing that the child was also bleeding in the abdomen, for example.

In this case, though, the doctors felt confident that the images they were seeing from Conway Medical Center and the parents' description of the incident matched up.

"With the low odds of there being anything else, and the very real chance that this kid wasn't going to make it from the injury we knew he had, it made sense to go ahead and address it right away," Moake said.

Moake spent the rest of his shift communicating with both the flight team and teams within the hospital to clear the way for the surgery.

Eskandari drew upon another case to make the plan to treat Sander immediately upon arrival. Back in 2017, a 4-year-old girl named Annie Nichols slipped in her garage and fell, hitting her head. She, too, was flown to MUSC Children's Health. Stephen Kalhorn, M.D., was on call that day, and he had the hospital admitting team create a dummy medical record number so he could prep the operating room and be ready the instant she arrived. Eskandari, who took over Annie's care the following day, made a mental note of Kalhorn's time-saving trick for extreme cases. But as many surgeries as he does every year, he never needed to go to such extremes to prepare for surgery – until Sander's case. He credits the admitting team for helping to get the ball rolling.

Of course, Eskandari wasn't alone in the OR. He had already called Tracy Wester, M.D., the on-call anesthesiologist. By coincidence, Wester had also been the anesthesiologist in Annie's case. As soon as Eskandari told her what was happening, she knew what they needed to do.

Prepping for surgery typically takes place in a specific step-by-step order, to ensure that no steps are skipped and to protect the sterility of the equipment.



Photo Provided Scans show the epidural hematoma before surgery, right, and Sander's

But in this case, Eskandari said, "It was all going to happen at one time because every one to two minutes saved here or there was lifesaving."

brain after surgery, left.

For instance, equipment usually isn't unpackaged until the OR doors close, to protect sterility. But there was such urgency to this case that Eskandari made an exception.

"We're going to have everything open; we're going to have the drill bits on the drill; we're going to have two sets of everything so we're not switching things up," he told the team.

"We do emergency surgeries not infrequently," he said. "Everyone is on point; everything's done right. This was beyond emergency. This was 'We have to have everything ready so when he rolls into the room, we shave his head and cut his scalp.'"

Wester's only ask — that she have a minute to check Sander's breathing tube before anyone else did anything, because breathing tubes can sometimes shift in transport.

The team was ready — now they only needed a patient.

SURGERY

As soon as the transport team landed, Wester was on her way to meet them.

"The breathing tube was exactly in place, so Dr. Eskandari could start prepping while I inserted an arterial line. We had all the drugs we needed; we had all the equipment we needed, and it went as smooth as a dream," she said.

Because of the simultaneous nature of their prep, the team threw blue drapes over Wester so she could insert the line while the surgical team prepared for the first cut.

While Wester concentrated on the ABCs – airway, breathing, circulation – continuously scanning the monitors and listening for any change in the pulse oximeter, the surgical team began work.

Within about five minutes, the team had removed the skull. With the artery continuing to pump out blood, the hematoma had doubled in size by the time Sander arrived in surgery.

Eskandari knew the artery was severed, but the question was: Where?

He removed as much of the pooled blood as he could and then searched for the source of the bleeding, even as more blood continued to fill the cavity. Unable to find the source, Eskandari had to remove more of the skull to get a better view. Finally, he tracked down the cut and repaired the blood vessel. Once that vessel was taken care of, he carefully checked to ensure there was no other source of bleeding. Satisfied on that count, the team reassembled the bones – somewhat like a jigsaw puzzle

PREVENTION Continued from Page Eight

that is safe and effective in preventing multiple types of cancer," Slan said. "If you could protect someone you love from cancer, wouldn't you want to do it?"

Hollings is collaborating with Duke Health and the University of South Carolina to increase vaccination rates in Cherokee County. It's part of their collaborative school-based intervention to increase vaccine uptake among adolescents in the South, otherwise known as Project INVEST. Cherokee County was selected for Project INVEST due to low vaccination rates.

Sayward Harrison, Ph.D., an assistant professor in the Department of Psychology at the University of South Carolina and researcher involved in Project INVEST, said work to improve HPV vaccination rates in Cherokee County began two years ago and was made possible through teamwork.

"The school nurses are the real superstars in this effort," Harrison said. "They work diligently to get resources and information to families, to help get families connected to health care providers and to spread the news that the HPV vaccination protects children from cancer. We are excited to partner with Hollings and be able to actually deliver the HPV vaccines directly to the community."

Mary Spanos-Beattie, R.N., coordinator of school health services in Cherokee County, said they are excited to bring the HPV vaccination to students and staff. "We want to ensure we are using all available resources to increase awareness of the importance of the HPV vaccine and provide convenient access to receive the vaccine," she said. "Lack of access and inconvenience should not be a barrier for students to receive the HPV vaccine."

It is important for parents to understand the importance of the HPV vaccine as a cancer prevention tool, Spanos-Beattie added. "Although the HPV vaccine is not a required schoolentry vaccine, it is a significant vaccine in preventing various types of cancer." Bringing the HPV vaccine to rural communities continues Hollings' aim to improve HPV vaccination rates across South Carolina. In 2016, fewer than 30% of South Carolinians were up-todate on their HPV vaccination. In 2019, that number improved to 53%.

Ford said she is pleased with the progress made but understands the work is far from over. "When you look at vaccination rates, like the ones found in Cherokee County, you realize there are far too many people who haven't accessed this cancer prevention tool," she explained. "Our goal is to get as close to 100% of the population vaccinated against HPV as possible."

Ford said the town hall will answer frequently asked questions about the vaccine's effectiveness, safety and potential to prevent multiple types of cancer. The virtual event will be held on Zoom. To learn more about the HPV vaccine and Hollings' vaccination initiatives, visit https:// hollingscancercenter.musc.edu/ outreach/hpv.

unsqueezed itself and was occupying its usual position.

"The next day when he put the scans next to each other, it was like it never happened," Elissa Shahan said.

RECOVERY

Sander arrived at the MUSC Shawn Jenkins Children's Hospital on a Monday. That Thursday, he and his family returned to Myrtle Beach. After a few more days of rest, the family went home to Virginia on Tuesday, just a week and a day after the accident.

He had a couple of follow-up scans at a hospital system near his home, and everything looks good, his parents said.

That's the thing about young brains, Eskandari explained. They don't tolerate fast changes, but they also recover quickly if those changes are dealt with.

He pointed to the communication amongst the staff from so many different departments, as well as the flight crew and the referring doctors, as a key reason why he was able to pull off the surgery.

Moake agreed.

"One of the things I like about being at MUSC is that we're a large enough

ROADMAP Continued from Page Four

These included the number of app downloads, consents to share COVID-19 status and notification activations. Researchers also kept track of those who followed through with getting tested after being notified of an exposure.

The rollout had many moving parts, according to Gimbel, and would not have been possible without the close collaboration and teamwork of all of those involved.

"We had communications professionals working with academic faculty and Information Technology leaders, all collaborating with Housing and other Student Affairs administrators as well as Human Resources leads," said Gimbel. This interprofessional team with diverse expertise and a passion for the project became the SC Safer Together support team, he said.

The research team expects to report findings on the rollout later this year.

center that we have everything, from a specialty standpoint, but we're a small enough center still that we know each other by name," he said. "We have each other's cell phone numbers. Attendings can talk to attendings and get things done. Ramin said, 'Every second matters. I need this OR fast.' And we did it."

Elissa Shahan, on the other hand, still needs a little time to recover emotionally.

"Every time he falls, I still cringe. I know he's not made of glass. I know he's a boy," she said. She joked that she intends to follow him to college.

"He's our little miracle baby."

MUSC Black History Awards virtual event set for Feb. 11

MUSC's 8th annual Black History Awards Program, "Extending the Dream," is scheduled at 5 p.m., Friday, Feb. 11. This will be a virtual Zoom event and open to the public. Visit https://tinyurl.com/2r8vj5ee and login using Meeting ID: 86053504111, Passcode: 164860.

MIRACLE Continued from Page Ten

 and attached them to the skull using absorbable implants.

Sander hadn't suffered any seizures, and because young brains can bounce back quickly, Eskandari was optimistic about the outcome. He called Sander's parents to let them know the surgery went well.

THE LONGEST DRIVE

When Nick Shahan got that first phone call from the nurse at Conway Medical Center telling him what was happening with Sander, he fell to pieces for a minute. But he quickly went into "father mode," he said. He needed to get his family safely to Charleston. So he packed up their things, including Skyler and the dog, waited for his wife to return from the local hospital with the RV, and took the steering wheel for the 100-mile trek to Charleston.

"It was the longest, worst drive of our lives," Elissa Shahan said.

Nick Shahan managed to stay cool on the outside – he was driving, plus he didn't want to scare Skyler. But inside, he was worried. The couple had been told that Sander would be out of surgery by the time they got to Charleston. They just didn't know what the news would be.

"I was either going there to help my son with recovery or I'm going there to pick up my 1-year-old son to bring him back to Virginia to bury him," he said.

The couple got the call from Eskandari when they were almost to the hospital. Things were looking good.

Finally in Charleston, they met with Eskandari in person.

"Maybe it's because he's a father; maybe he's just a good person, but his bedside manner was just amazing," Elissa Shahan said. "He sat us down and talked – straight shooting, but as a parent wants to hear it."

Sander wasn't completely out of the woods, Eskandari warned. Another MRI was still scheduled to check whether the bleeding had truly stopped.

The family checked into a nearby hotel, exhausted, around 10 p.m. In the middle of the night, they got a call. The MRI was beautiful – not only had the bleeding stopped, but Sander's brain had

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