

## Vaccine urged during pregnancy

### Docs say COVID vax will protect baby and mom during Delta surge

BY LESLIE CANTU

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One group that is especially lagging in COVID-19 vaccination also happens to be at higher risk of severe illness — pregnant women.

The lack of vaccination is concerning to doctors as they watch the more contagious Delta variant sweep across the nation.

“What I’ve been telling patients is ‘Go get the vaccine today. Immediately. It will decrease your risk of death, it will decrease your risk of ICU admission, and it will decrease your risk of long-term comorbidities from having COVID,’” said MUSC Health Charleston’s Rebecca Wineland, M.D. who specializes in treating high-risk pregnancies.

That advice holds true for everyone, but especially pregnant people. Although a pregnant woman isn’t more likely to catch COVID-19, she is more likely to become seriously ill if she does catch COVID-19. The risks include the respiratory distress that is common to COVID-19 patients as well as ICU admission, pre-eclampsia, premature birth, NICU stays for the baby, stillbirth or miscarriage and death.

MUSC Health Florence’s Germina Suffrant, M.D., has seen this in Florence. She recalls a patient last year who was young and in good health, although slightly overweight, who quickly progressed from shortness of breath to intubation to emergency C-section.

“She was in the hospital for weeks, and she’s still suffering the consequences of that,” Suffrant said.

Many other patients, even those with mild symptoms, have delivered early, she said.

On July 30, the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine issued a joint statement strongly recommending that all pregnant women get vaccinated, regardless of trimester. The Centers for Disease Control and Prevention followed suit on Aug. 11.

National groups held off on recommendations when vaccines first

*See **PREGNANT** on page 10*



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Health & Well-Being

Letter from the  
Office of the

## PRESIDENT

August 17, 2021

Dear MUSC Students, Staff and Faculty,

A recent ruling by the South Carolina Supreme Court confirmed that public institutions of higher learning **are not prohibited** from requiring all individuals to wear masks in campus facilities to protect against the spread of COVID-19.

As you know, masks have continued to be required in the hospital and in all MUSC Health facilities. With this recent ruling by the highest court in the state, the university is now able to be aligned with the mask requirements of MUSC Health and in agreement with recommendations from the CDC and DHEC.

For the safety of all of us at MUSC and for those we serve, we are implementing a mask mandate for all students, staff, faculty and visitors on MUSC's campus indoors in the presence of others (classrooms, conference rooms, other shared spaces) until further notice. This mandate is effective immediately.

Sincerely,


David J. Cole, M.D., FACS  
President

Lisa K. Saladin, PT, PhD, FAPTA  
Executive Vice President for Academic Affairs and Provost

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# Looking for 'signal of the curve' as COVID reaches new Tri-county high

BY HELEN ADAMS

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As the Charleston Tri-county area hits a new COVID high, the leader of MUSC's COVID tracking team is looking elsewhere to see what's likely to happen here.

"It gives us the signal of the curve," said Michael Sweat, Ph.D., referring to what has happened in other areas that saw an earlier Delta-driven surge and are now seeing conditions ease. The curve is the trajectory of the spread of COVID-19 as case numbers go up and down.

But right now, the Tri-county area, which includes Berkeley, Charleston and Dorchester counties, isn't seeing a curve. It's seeing an arrow going steadily upward.

In fact, the area just set a new and unwelcome record, with a seven-day average of 100 cases per day for every 100,000 people. Last week at this time, it was 81 cases per day — a record in its own right, smashed in seven days.

But Sweat said this won't go on forever, basing that on his analysis of previous COVID hotspots.

"I think we're going to continue to see increases for a while, but looking at everything that's happened in thousands of counties in other states, there's a clear signal that this is going to decrease. I feel pretty solid on that. But how high it will go here, I don't know."

Sweat said earlier hotspots got up to between 100 and 200 cases per 100,000 people per day, then began to fall. He predicted cases in the Charleston area may continue to rise through September, then plunge in October.

"It's a mystery why it goes down. I mean, it's probably driven mostly by people getting scared and cutting back, and maybe the virus just burns through the available networks and then kind of runs out of steam."

But when it's burning through like it is now, it can reach a lot of people. "It's looking a hell of a lot like people who aren't vaccinated and have not been impacted before are going to get infected at some point. I think the chances are so huge in this wave."

And unfortunately, some will end up in the hospital. "There's a wealth of people who are unvaccinated," Sweat said.

"Some of the people who are unvaccinated have comorbidities and are older. That's leading us to have this closer relationship to cases and hospitalizations. In fact, it's much higher than we saw in the earlier peak. So that's concerning."

More than 80% of the hospitalized patients at MUSC Health-Charleston with COVID were unvaccinated when they were admitted, as of Aug. 24.

Sweat is also watching something called the "effective reproduction number" for signs of what the near future may hold. It tracks how many other people an infected person might pass along the virus to, based on calculations including vaccination levels and natural immunity.

"It's one of the better leading indicators, because it starts to tell you when things are slowing down or decreasing," Sweat said. "In the Charleston area, we haven't gone below one."

That means each infected person is likely to infect more than one other person. "It shows we're kind of a hotspot right now."

He encouraged people to do what they can to protect themselves, from getting vaccinated to wearing masks and avoiding crowds, and know that better times lie ahead. "This will go back down. People just need to be reassured and we have to have vigilance to work our way through it."



# ‘Marvelous light’ retires after 49 years of service at MUSC

BY CINDY ABOLE

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Patient, family member, employee, care team member or visitor — anybody entering MUSC Health’s Rutledge Tower would almost always pass by the desk of Glennie Davis.

Davis, who retired on July 30, after working a remarkable 49 years with MUSC’s Volunteer and Guest Services, is considered an MUSC hospital legend with her caring attitude, empathetic manner, resourcefulness and sparkling personality. Whether providing directions to a patient’s appointment, welcoming visitors, arranging patient transportation between buildings or recommending dining suggestions, Davis was always happy to help. Her love for MUSC, her friendliness and genuine desire to help others made for the perfect match — not only for her but also the thousands of people she encountered in her nearly half century at MUSC. Davis’ presence made everyone feel better.

“I have truly loved my job because I helped people. I’m a people person — I liked to make sure our patients and visitors can safely get to their destinations every day. Many come through our doors frustrated, worried or scared. When I saw a person come through the doors with a frown on their face or look confused, I was that person who was there to help them,” said Davis.

Audrey Wilder, R.N., works in Ambulatory Surgery Perioperative Services in Rutledge Tower and knows Davis as a colleague and friend.

“Glennie personifies Dr. Cole’s Values in Action — compassion, innovation, integrity, collaboration, and respect — and impact. From the time I met Glennie, her personality makes you feel welcome to MUSC. She’s always concerned about meeting the patient’s needs and is 110% committed to making sure the patient gets to his/her appointment or destination. When you have someone like that who dedicates themselves in the role of patient advocate, it speaks volumes,” she said.

Davis’ career at MUSC began in 1972.

A newlywed, she had just completed classes at Palmer Business College in downtown Charleston, when she applied for a job with MUSC. “I was so excited to get that job,” Davis remembered.

Growing up in the Red Top community in West Ashley, Davis remembers nothing but good experiences with MUSC. For years, she escorted her father to Family Medicine appointments and eye checkups with MUSC Storm Eye Institute’s Joseph M. Lally, M.D., to manage her dad’s early glaucoma care. “I would give the world for MUSC because they gave me and my family the best medical care,” Davis said.

Davis worked in Information Services under Virginia C. Bickley, then director and administrator for MUSC Ambulatory Care. At the time, MUSC’s clinics — ambulatory, cancer care, dermatology, pediatrics, pharmacy, radiology and laboratories — were housed in one facility on Ashley Avenue. In the mid-1970s, when the Ambulatory Clinics relocated to the Clinical Sciences Building, McClennan Banks and 30 Bee Street, Davis remained in the original location, working for other departments, including dermatology and endocrinology. In 1998, she relocated to the new Rutledge Tower Ambulatory Care Facility, working for years in the second-floor connector area above Ashley Avenue helping patients and families to find their way in a growing medical center campus.

“Through the years, I’ve learned a lot about people and their needs and attitudes. Meeting so many of them, I know there are truly good people in the world. If a person came to me angry or upset, I knew what to do. By the time they left my desk or area, everything was just smooth and all was right,” she said with a smile.

When it comes to people, Davis has always followed the Golden Rule — “Treat others as you would like others to treat you.”

And it wasn’t just the patients and families who valued her work. Physicians, nurses and support team members greatly appreciated Davis, too. One day,



*Photo by Sarah Pack*

**MUSC Health Volunteer & Guest Service’s Glennie Davis retired after 49 years on July 30. She poses in front of the Walton Research Building, site of her first job working in MUSC Ambulatory Care Services in 1972.**

Wilder observed a physician talking to Davis. He told her how much he missed seeing her and that he was genuinely happy to see her back at Rutledge Tower. “This place is not the same when you’re not here,” he said. “I just want you to know how much I appreciate you being here.

Just weeks before she was to retire, an employee who works with MUSC Valet Services learned that Davis was leaving; he came by and dropped off a bouquet of flowers, thanking her for her help and assistance. “Receiving flowers from him really made my day. It’s a reminder that you never know how much people really think of you,” she said.

During the COVID-19 pandemic, Davis was right there with other clinical care staff — at her desk. Rutledge Tower was open, albeit to limited in-person patient visits. As part of Guest Services, she was there to help those patients in whatever they needed.

Perhaps Wilder said it best about her friend.

“Glennie’s a marvelous beacon — a light placed in Rutledge Tower for patients to see their way through. Her presence here makes a difference,” she said.

Asked what she would miss most about

MUSC after 49 years?

“I’ll miss helping my patients who really need help. There are people who are shy, afraid to ask for help, don’t speak English as their first language or don’t understand the automated systems that are in place to help in their patient experience. Many times patients were just sent down to my desk so that I could help them. I didn’t mind it — it’s what I do. There are people who need the time and attention, and I was there to help them with their needs,” she said.

Transitioning to retirement shouldn’t be difficult for this spry 70-year old. She hopes to continue her volunteering efforts at her church — St. Andrew’s Presbyterian Church — as well as at the new International African American Museum (slated to open in 2022) and hopefully back at MUSC Health for a few days a week. She’s excited about her plans to travel and spend time with her family — son, Carlton, and his wife, Trina; daughter, Lashawnda, and her husband, Paul; and grandchildren, Bryce, Ryan, Christopher and Aiden.

“I can’t keep still,” she said. “I have to keep up this regimen of fun and activities going.”

See **LIGHT** on page 8

# Microsphere technology repurposed as drug delivery system

BY CAREN DOUEIRY

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SpheroFill, a company co-founded by MUSC researcher William Hill, Ph.D., is helping to convert swords into plowshares with more than a quarter-million dollars in funding from a National Science Foundation (NSF) Small Business Technology Transfer grant. Hill is a professor of Pathology and Laboratory Medicine at MUSC and a research scientist at the Ralph H. Johnson VA Medical Center.

Hill and SpheroFill are developing microsphere technology to create a unique oral drug delivery platform that will allow for protected, controlled release of drugs over time. The microsphere technology was originally created for strategic purposes by the Department of Energy at the Savannah River National Laboratory (SRNL) and then converted for civilian purposes by the Applied Research Center (ARC) in Aiken, South Carolina.

The other co-founders of SpheroFill are George Wicks, Ph.D., of ARC, and ENT-otolaryngologist Paul Weinberger, M.D. Wicks co-invented the microsphere technology while at the SRNL. Together with MUSC and ARC, the three inventors have submitted a patent on the oral and other drug delivery approaches.

Hill, who serves as the company's executive vice president and chief scientific officer, is excited about the collaboration between SpheroFill, MUSC and ARC.

"The Applied Research Center is a nonprofit research and development organization established to transfer technology from the SRNL and academic institutions

and to assist start-up companies where possible," explained Hill. "It is the value of the taxpayers' investment being amplified into novel uses that can create new jobs and expand the economy of South Carolina. ARC's goal is to build a technology base in Aiken County and the state. Importantly, ARC has been a key initial investor for us."

The microspheres are hollow spheres with a large cargo capacity contained by a porous silica glass outer shell. Complex nanoscale channels connect the interior cargos with the outside world.

"A microsphere is about a third the diameter of a human hair," said Hill. "You can actually load the microspheres with different cargos, drugs in this case, and then control the release rate of materials coming out of them."

Once in the body, the microspheres will release the drug as the outer coating degrades and the nanopores open. The technology could help pharmaceutical companies overcome a serious hurdle in developing oral drugs. Drugs taken by mouth often break down in the harsh environment of the gastrointestinal system.

"The pharmaceutical industry has a large number of drugs that are difficult to deliver orally — either because they don't dissolve very well in the aqueous system that we have in our gastrointestinal tract, or because they are very reactive and will be broken down very quickly by enzymes there," said Hill.

By encasing the drugs, the microspheres protect them from this harsh environment and enable them to reach their target locations, where they release their contents. As a result, less drug is wasted, which is a savings for

both pharmaceutical companies and consumers. This will be particularly important with expensive drugs and newer sensitive biological drugs.

The technology not only allows more efficient delivery of existing oral drugs, but it also makes possible the oral delivery of new types of drugs.

"There is also an ability to deliver drugs in ways that they never could have been delivered before, such as in gaseous form," said Hill. "We're trying to develop new ways to deliver agents that aren't really drugs now because they're just too difficult to use as drugs."

The technology could also help patients with better medication compliance. Many drugs, such as antibiotics, must be taken daily over several days. When patients begin feeling better, they may discontinue taking the medication prematurely, leading to drug resistance and other problems.

"SpheroFill allows patients to have effective drug dosing over extended time, so the patient only has to take the drug once or possibly twice," said Hill.

At MUSC, Hill's research team is working on testing different polymers that can serve as coatings for the microspheres, with the aim of having different drug-release rates with different coatings, ranging from days to months.

"The cool thing is that you can have microspheres with different thicknesses of coatings or entirely different coatings, which will release materials at different rates," said Hill. "And we can mix them together to have overlapping or sequential releases of the same or different drugs for an extended period of time," said Hill.

The team is working on controlling drug release by measuring release rates for different coatings. Once Hill and his team complete this step, they will next study how well the microspheres with the different coatings work as a drug-delivery platform, first in animals and then in humans.

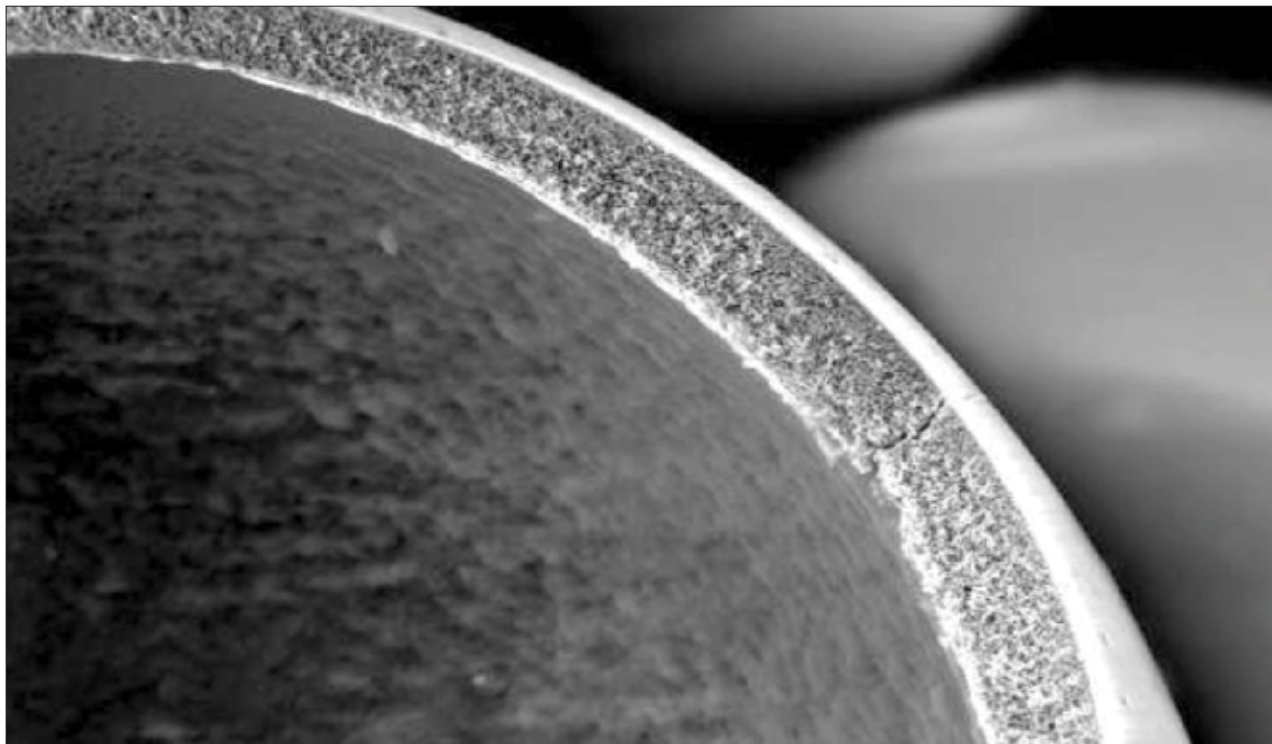
Hill believes that the support from the NSF is an important milestone for SpheroFill and is grateful to the MUSC Foundation for Research Development for its help with the application.

"It's exciting to get this stamp of approval from the NSF," said Hill. This hard-to-acquire support says that it believes the technology and the company are worth the investment to help with technical development and assistance through its strong commercialization infrastructure. This will also help to open doors for us to partners and customers."

In addition to improving drug delivery, SpheroFill

*See MICROSPHERE on page 9*

*Image courtesy of the Applied Research Center*  
**Cross-section of the microsphere's porous wall.**





## MEET ELIZABETH



Elizabeth C. Davis

**College/Program; Years at MUSC**

College of Pharmacy; 4th year – Class of 2022

**How are you changing what's possible at MUSC?**

*By advocating for increased focus on mental health topics and availability of resources to improve the quality of life for students*

**Hometown** Savannah, Georgia**A favorite fall memory**

*Picking apples in the mountains with my family*

**What inspired you to study at MUSC**

*I started in 2017 as an S.C. CHEC student fellow and fell in love with MUSC and Hollings Cancer Center. The research and clinical work they do every day is amazing. It's been a pleasure to learn and grow in pharmacy school.*

**Something that relaxes you during COVID**

*Painting or sketching*

**Favorite place in the world** Xi'an City Wall**Someone in your life who inspires you**

*My sister, Lynn, because she loves so fiercely and always chases her dreams.*

**Best thing about living in Charleston**

*The sunsets*



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# Staff resiliency program for COVID stress expands



Photo by Sarah Pack

**Therapist Tenelle Jones gestures while talking with MUSC employees about resiliency. Nurse leader Dr. Andrea Coyle is on the right.**

BY HELEN ADAMS

adamshel@musc.edu

Cindy Miller loves her job. “I am a certified wound, ostomy and continence nurse. Being able to work with people to help them become independent and learn skills to improve their quality of life is incredibly rewarding.”

But she did not love the toll it started to take on her last year. “Since December of 2019, the patient census for our team went up 70% and our staffing went down by 30%,” she said.

“I’m not really sure why our census exploded, other than sometimes with the pandemic, patients put off care. And so by the time they came into the hospital, they required more care, they had more issues.”

Meanwhile, her team lost a critical member, leading to a long job search. “There are very few certified wound, ostomy and continence nurses

nationwide, so filling a position in our department is pretty difficult. And then we lost a second team member.”

Everyone felt the stress. “Our ability to communicate well with each other decreased, I think in general,” Miller said. “It also affected my sleep. I couldn’t shut off my mind off at the end of the day, thinking about all the things that still needed to get done.”

So when she heard about MUSC Health’s Resiliency Program at a meeting, she was in. “As soon as they started talking about it, I immediately said, ‘Our team needs that now.’”

The Resiliency Program was created to help doctors, nurses and other employees cope with COVID stress. It’s proved so successful that it will continue after the pandemic, helping people with all kinds of stress.

Alyssa Rheingold, Ph.D., a clinical psychologist and professor in the Department of Psychiatry and Behavioral Science at the Medical University of South Carolina, started the program in

collaboration with several colleagues.

“Initially, it was all just volunteers within our department, faculty members and trainees volunteering their time to offer support to individuals or groups. After a few months, we were able to solidify some funding to hire a full-time clinician, recognizing that this needs to be ongoing and long term,” Rheingold said.

Nurse leader Andrea Coyle, DNP, who has long championed excellence at MUSC and beyond, was right there with Rheingold. She’d spoken to a national audience via social media about building resilience during the COVID crisis and was ready to put it into practice.

“The nurses really took a huge interest because they were in the front line of this chaos across the globe. They were delivering the care. They were wearing the PPE,” Coyle said, referring to personal protective equipment.

“But it’s not just the frontline nurses that are feeling all these depression, anxiety, post-traumatic stress. We

*“We actually had one leader say to us, ‘I’m embarrassed to say that I am burned out, and I’m not a direct care provider.’”*

**Andrea Coyle, DNP**

actually had one leader say to us, ‘I’m embarrassed to say that I am burned out, and I’m not a direct care provider.’”

The third member of the team leading the Resiliency Program, Tenelle Jones, is a licensed marriage and family therapist who has worked with people affected by the Emanuel AME Church shooting, rape survivors and people dealing with less extreme but still distressing issues.

“With stress, if you have confidence that you can manage a stressor, then it will limit the amount of impact that stress has had on you,” Jones tells patients.

Rheingold said the program offers a variety of options. “We have evidence-based strategies for folks, health care professionals here, both on an individual basis and a group basis. So if people want one-on-one care, they can get coping strategies and tips. When we work with units and groups, we tailor it to their needs.”

In Miller’s case, a group approach was the best fit, but it started with a personal assessment. “We did a self-evaluation about whether we were stressed — what did that look like and had that stress changed during COVID? Then we met individually with Jones, who went over more specifics about stress and where we were individually,” Miller said.

“After our individual meetings, we’ve been meeting as a group and we started meeting three times a week. We initially started stress reduction and gratitude exercises. We would go around the table and discuss what each of us was grateful for, either in our personal lives or our work lives. We would be assigned another person in the group and say what we were grateful for from that

See **RESILIENCY** on page 11





*Photo by Sarah Pack*

Dr. Elizabeth Mack checks on a patient in the PICU.

## Rate of neurological symptoms in kids with MIS-C, COVID-19 surprises researchers

BY RYAN BARRS

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Children and adolescents are at risk of developing serious neurological complications from COVID-19 that require hospitalization.

Elizabeth Mack, M.D., chief of pediatric critical care medicine at MUSC, contributed to a study that found that 22% of children and adolescents hospitalized with acute COVID-19 developed neurological symptoms such as altered awareness, seizures and difficulty walking or crawling. The findings were published earlier this year in the *Journal of the American Medical Association (JAMA) Neurology*.

Although symptoms were for the most part temporary, they were more long-lasting and severe in some children.

Out of 1,695 patients nationwide, 43 developed life-threatening neurological disorders such as brain damage or stroke, 11 children died and 17 survived with continuing neurological problems.

The study was part of Overcoming COVID-19, a national registry of hospitalized patients with COVID-19 who are less than 25 years old. The study is funded by the Centers for Disease Control and Prevention (CDC) and involves 61 hospitals across the U.S., including MUSC Shawn Jenkins Children's Hospital.

Mack is an Overcoming COVID-19 researcher and part of a team specializing in multisystem inflammatory syndrome in children (MIS-C), a rare inflammatory disorder that can affect multiple organ systems, including the central nervous system, in children and adolescents with

*See MIS-C on page 11*



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# Congratulations, Glennie, for 49 years!

**LIGHT** *Continued from Page Three*

What can I say about someone who has devoted nearly 50 years of her life and her entire career to MUSC? Well, I would say that this special person deserves our sincerest thanks, praise and respect for a job superbly done. Glennie, you've made a powerful impact at MUSC and we will miss you greatly.  
*Patrick J. Cawley, M.D.,  
 CEO, MUSC Health*

I absolutely loved getting to know you! You and I became friends during the COVID shots, and I will so miss seeing you. You were always so kind and asked about my family and were/are the epitome of an empathetic employee.  
*Sean Nelson  
 MUSC Health Ambulatory Services Primary Care*

Your smile, laughter, and positive attitude have always been present whenever passing by the info desk. Your wisdom and calm demeanor have been refreshing!

Much health and happiness as this new chapter in your life begins!

*Joy Burns  
 MUSC Health Patient Access Center*

Glennie has been an institution at MUSC for as long as I can remember. Rarely would a guest or care team member pass by the Rutledge Tower Information Desk without stopping by to say hello to Glennie. She has touched countless lives and warmed what could have been a cold hospital clinic visit with her presence. Often, Glennie would call patients by name, asking how they were feeling and offering words of encouragement. She has made a huge impact on our patient experience in the ambulatory clinics and will be truly missed. Best wishes!

*Kelly Hedges  
 MUSC Health Volunteer Services*

Glennie was the first person I met walking into the doors of MUSC on my first day working here. From that day on, we became fast friends. I watched her daily as she would be the smiling and comforting

face to help our patients, families and staff with whatever their needs were. She has always been a bright light here at MUSC and will be greatly missed. Glennie, thank you for your friendship and for being a wonderful example. Enjoy your next adventure with your family; I can't wait to hear about it!

*Melissa Kubu  
 MUSC Health Volunteer Services*

Congratulations on your retirement. I want to thank you for your 49 years of outstanding committed service to MUSC! Enjoy your retirement!

*Helena Bastian  
 MUHA Human Resources*

The time you spent with us was truly priceless. We have witnessed your ability to make a one-of-a-kind connection with so many patients over the years. While being with Patient Transport, we've watched you adjust and handle every change or new challenge that came your way while this department continually grew. All of us thank you for sharing

your light with us and most importantly sharing your light with so many patients! Enjoy your retirement because you deserve it!  
*MUSC Patient Transportation Department*

I wish you well as you start the new chapter in your life. Working with you has been a privilege. Thank you for being the perfect mentor and for your wisdom, guidance and being a friend. Miss you.  
*Theodosia "Theo" Cockrum  
 MUSC Health Volunteer & Guest Services*

We appreciate all the years you have dedicated to MUSC, and you have personified care and compassion as you have interacted with our patients, families and care team members. Since joining our team, you have proven to be a valuable team member, and your words of encouragement have impacted so many of us in such a powerful way. You will be missed, and we wish you all the best on your new journey  
*Sharon Mazzyk  
 MUSC Health Volunteer & Guest Services*

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Trustees Meeting

## UPDATE

In mid-August, the MUSC and MUHA Board of Trustees held their regularly scheduled committee and board meetings. With the June 30 close of fiscal year 2021, MUSC administrators shared data on its operations, financial position and continued growth, all unfolding during the constant ebb and flow of the COVID-19 pandemic. To support appropriate public health precautions, in-person attendance at the two days of committee and board meetings was limited to presenters and other designated participants.

“Even with the backdrop of this ongoing pandemic, which has adversely affected so many lives, we would be remiss if we did not acknowledge the remarkable work beyond COVID that our providers and team members across the state have accomplished,” said MUSC President David J. Cole, M.D., FACS.

“In a year when there seem to be new obstacles constantly strewn in our path, MUSC team members have risen to the ongoing challenges. We’ve employed innovative thinking and high-impact actions to achieve a tide of transformational accomplishments for our patients, colleagues and communities.”

“Even during challenging times like this, healthy, forward-looking organizations must continue to grow,” said Patrick J. Cawley, M.D., CEO of MUSC Health and vice president for Health Affairs, University.

“Our recently completed acquisition in the Midlands is a testament to the solid footing of our hospital system and its affiliated facilities. We remain committed to

serving communities across the landscape of South Carolina and maintaining our best-in-class status as a destination for health care.”

The board also received reports on the progress of several projects already underway including:

❑ The Department of Otolaryngology – Head and Neck Surgery and expanding both General ENT (ear, nose and throat) and Audiology into existing clinic space on Kiawah/Seabrook islands.

❑ Upfitting the existing Nexton Medical Office Building to expand Orthopedics and add Women’s Health services.

❑ Build out space for a Breast Clinic, expected to go live in December, and a Dental Clinic, with an anticipated opening in April 2022, at the West Ashley Medical Pavilion.

❑ Construction of the Sea Islands freestanding Emergency Department complete with helipad and a medical office building with prioritized clinics and telehealth flexibility.

❑ The status of construction for the MUSC Williamsburg-Lake City Hospital, which is expected to start seeing patients in January 2023.

Also, the board voted to approve filing three Certificate of Need (CON) applications to acquire three surgical robots to be located at MUSC Health Charleston, MUSC Health Columbia Medical Center Downtown and MUSC Health Columbia Medical

Center Northeast. The CON documents will be filed with the South Carolina Department of Health and Environmental Control (DHEC), which must issue a CON before certain types of health care acquisitions, expansions and creation of new facilities are allowed.

“MUSC donors have contributed an amazing outpouring of support to our organization,” said Kate Azizi, vice president for Institutional Advancement. “For the fiscal year just ended in June, we raised more than \$52.7 million in philanthropic support from a wide variety of donors. It is both heartening and humbling to know so many people recognize the importance of this institution and value the impact we have on our statewide community,” she noted.

In other business, the board voted to approve:

❑ Fiscal year 2022 budgets for the university and the clinical enterprise.

❑ The launch of a new five-semester program, the Master of Science in Genetic Counseling, to be administered by the College of Health Professions through a hybrid format of on-campus and virtual learning. Fall 2023 is the proposed date for enrollment of the first class.

*The MUSC/MUHA Board of Trustees serve as separate bodies to govern the university and hospital, usually holding two days of committee and board meetings six times a year. For more information, visit [web.musc.edu/leadership/trustees](http://web.musc.edu/leadership/trustees).*

## MICROSPHERE *Continued from Page Four*

and its partners also hope to support the South Carolina economy by bringing research and development, high-tech and pharmaceutical jobs to Charleston, Aiken and other areas of the state.

U.S. Sen. Lindsey Graham and U.S. Rep. Joe Wilson see that economic potential.

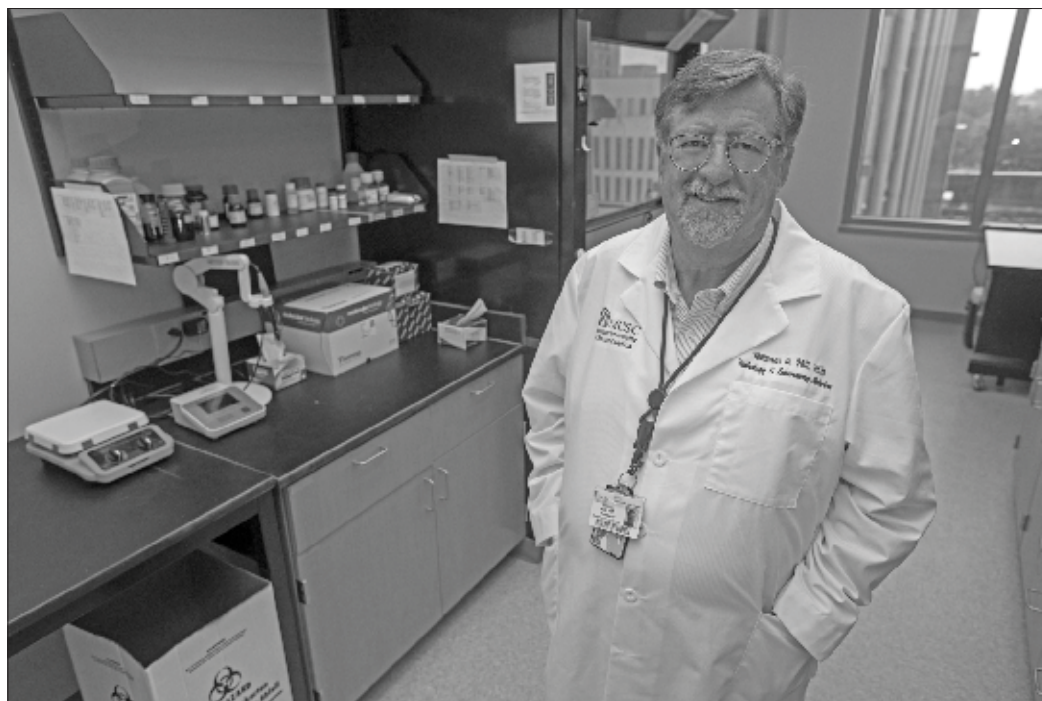
“The funding will allow SpheroFill to create advancements in the medical field, and I appreciate NSF working to help turn this into a reality,” said Graham.

Wilson, too, acknowledged the NSF’s generous funding of SpheroFill’s valuable collaboration.

“The synergy between SpheroFill, the Applied Research Center and the Savannah River National Laboratory has allowed this research to gain momentum, providing transformative opportunities in medical treatments,” said Wilson. “I am grateful that NSF recognized and rewarded the talent here in our community.”

### ABOUT AMERICA’S SEED FUND

America’s Seed Fund, powered by the National Science Foundation (NSF), awards \$200 million annually to startups and small businesses, transforming scientific discovery into products and services with commercial and societal impact. Startups working across almost all areas of science and technology can receive up to \$2 million in non-dilutive funds to support research and development (R&D), helping de-risk technology for commercial success.



*Photo by Sarah Pack*  
**Dr. William Hill, one of the co-founders of SpheroFill, in his laboratory at MUSC.**

# From wellness to well-being – a whole-life approach to healthy living

For most of us, when we hear the word wellness, we think about our weight, annual check-ups and visits to the gym. Physical health has traditionally been our measure of personal wellness. In recent years, however, we've seen a shift away from "wellness" to "well-being." While wellness focuses on physical health alone, well-being takes a more holistic approach to health and considers the whole person, not just their physical health conditions and risks.

The Gallup Organization's extensive research on statistical factors of well-being reveal five universal elements that differentiate a thriving life from one that is simply surviving. They are:

- ❑ Career well-being: how you occupy your time or simply liking what you do every day.
- ❑ Social well-being: having strong relationships and love in your life.
- ❑ Financial well-being: effectively managing your economic life.
- ❑ Physical well-being: having good health and enough energy to get things done on a daily basis.
- ❑ Community well-being: the sense of engagement you have with the area where you live.

According to Gallup, approximately 66% of people are doing well in at least one of these areas, but just 7% are thriving in all five. If we're struggling in any one of these domains, as many are, it erodes our well-being and contributes to a lower quality of life.

Two recent movements that are expanding our definition of well-being and making a healthy lifestyle accessible to all are the True Health Initiative and the Blue Zones Project. Both take a simplified approach to healthy living, focusing on simple recommendations that most anyone can follow and that can significantly improve the length and quality of life.

The True Health Initiative, founded by preventive and lifestyle medicine expert David Katz, M.D., of the Yale Prevention Research Center, focuses on what it takes to be healthy, including the core principles that

can significantly reduce chronic disease and improve the quality of life. This initiative introduces six pillars of a healthful lifestyle, which concentrate on:

- ❑ Forks: Eating minimally processed, generally plant-predominant foods.
- ❑ Feet: Doing routine physical activity at moderate intensity, frequency, and duration.
- ❑ Fingers: Avoiding toxins, particularly tobacco and excess alcohol.
- ❑ Sleep: Getting adequate in both quality and quantity.
- ❑ Stress: Mitigating psychological stress.
- ❑ Love: Cultivating meaningful, supportive relationships and strong social bonds.

Interestingly, these pillars are similar to and well-aligned with the nine principles of the Blue Zone Project, which takes the lessons learned from seven very diverse global communities that have the highest numbers of centenarians, who not only live longer but live healthier and happier lives. Looking at the similarities between these disparate cultures, a team of medical researchers, anthropologists, demographers and epidemiologists uncovered nine common characteristics that identify a path that can lead to up to 12 extra years of life, regardless of geographic location. These shared lifestyle behaviors are known as the Power 9:

**Move naturally:** Get more physically active by walking in the community, do manual labor around the house and yard and grow gardens.

**Know your purpose:** People who know why they get up in the morning live up to seven years longer than those who don't.

**Down shift:** To reverse inflammation related to every major age-related disease, find time each day to meditate, nap, pray or enjoy a happy hour.

**80% rule:** It takes the stomach 20 minutes to tell the brain it is full, causing most people to accidentally overeat. Stop eating when 80% full.

**Plant slant:** Eat a mostly plant-based diet heavy on

## MUSC Health & Well-Being

By Susan L. Johnson, Ph.D.,  
MUSC Office of Health  
Promotion



beans, nuts and green plants. This is consistent with U.S. Department of Agriculture recommendations.

**Wine at 5:** For those who have a healthy relationship with alcohol, 1 to 2 glasses of wine daily can add years to a life, especially when combined with a healthy diet.

**Family first:** Living in a thriving family is worth six extra years of life expectancy.

**Belong:** Recommit to, reconnect with or explore a faith-based community. No matter which faith, studies show that people who show up to their faith community four times a month live an extra four to 14 years.

The Blue Zones Project helps communities and businesses to apply these principles to make the healthy choice the easy choice. The project's unique systemic approach to improving well-being – focusing on our "life radius" – is growing nationally, so far implemented in nine states and 42 communities.

The bottom line: Healthy living shouldn't be complicated. Well-being and a higher quality of life can be achieved through simple changes in diet, sleep, stress management, social interactions and physical activity. Consider the 80/20 rule – not only in relation to eating – stop when you are 80% full – but for life in general. The goal is to try our best to make good decisions 80% of the time and the other 20%, accept that we are human and can't be perfect all the time. Enjoy all that life has to offer and just try to focus on the healthy aspects of life most of the time. Applying these principles each day can help us to achieve a rich quality of life that allows us to thrive and experience a life well-lived.

## PREGNANT *Continued from Page One*

became available because pregnant women hadn't been included in the clinical trials, although some trial participants did become pregnant during the course of the trials. Since the vaccines have become available, though, tens of thousands of pregnant women have been safely vaccinated, ACOG and the SMFM said.

"The recent surge of the Delta variant, along with the safety profile of the vaccines, has led our national guidelines to strongly recommend vaccination

for all pregnant and lactating women," Wineland said. "We also suspect that maternal antibodies from the vaccine transfer to the unborn baby and provide some protection to the newborn."

The Delta variant has caused a resurgence of cases, and the vast majority of people hospitalized with COVID-19 are unvaccinated.

"The last five days – it's been terrible, honestly. Just devastating," Wineland said on Aug. 5.

Wineland said the most common reason that her patients give for not being vaccinated is that they thought that

*"We understand the fear, but we do see the consequences of having COVID in pregnancy."*

**Germina Suffrant, M.D.**

pregnant women can't get the vaccine.

"They were surprised when I told them," Wineland said.

Suffrant said distrust about vaccines in general – a distrust that has been growing for the past couple of decades – and concern about the mRNA type of vaccine, which relies on a technology previously unknown to the general

public, have contributed to vaccine hesitancy among her pregnant patients.

"We understand the fear, but we do see the consequences of having COVID in pregnancy," she said.

She urges patients to get the vaccine, emphasizing that it is safe and will not only protect the mother but also her unborn child.



## RESILIENCY *Continued from Page Six*

person. And then stress reduction — we would do some meditative exercises as a group.”

It worked. “Probably by the end of the second week, we were noticing a difference. It really has been just amazing for our department. It has vastly improved our cohesiveness, and we are working significantly better as a team,” Miller said.

“We are able to communicate better with each other. One of the other exercises that we worked on involved how one person perceives communication versus another person, and what works best for each of us.”

Miller also applied what she learned to her personal life. “It has definitely crossed over into home, using those gratitude and meditative skills. I’ve started a gratitude journal. I have a gratitude app on my phone. I do a five-minute meditation prior to work in the mornings that just helps center and ground me for the day. Then I do my gratitude journal at night and put on a sleep meditation at bedtime, which helps me rest better.”

Her team will continue to work with the Resiliency Program. “I can’t imagine our team not having resiliency. This is essentially group therapy for our team. It’s been amazing.”

For more information about the program, email Tenelle Jones at [jonesten@musc.edu](mailto:jonesten@musc.edu) or call her at 843-364-7798.



*Photo by Sarah Pack*

**Dr. Andrea Coyle, Tenelle Jones and Dr. Alyssa Rheingold.**

## MIS-C *Continued from Page Seven*

a recent COVID-19 infection.

Inflammation in the central nervous system, which includes the brain and spinal cord, can cause a spectrum of neurological issues, such as stroke and neurodegeneration.

Mack and her team screened pediatric patients with COVID-19 or MIS-C for neurological involvement, such as stroke, encephalitis or seizures. With approval of the institutional review board, they reported their findings to the Overcoming COVID-19 Registry.

“Of the patients, 22% had neurologic involvement, which I think surprised us all quite a bit,” said Mack. “Of those cases, 88% experienced only temporary symptoms, which is certainly reassuring, but the other 12% did not bounce back and some did not survive, which are big numbers when you’re looking at over 1,000 patients.”

It’s unclear why some children developed serious neurological involvement from COVID-19 and MIS-C and others didn’t. Most of the patients with life-threatening neurological complications did not have any major underlying conditions.

“For whatever reason, in some kids the immune system goes wild in response to prior COVID infection,” said Mack.

MIS-C is an emerging disease and is still poorly understood. Consequently, its diagnosis is often missed.

“We’re learning a new disease,” said Mack. “There’s not any sort of singular finding that defines MIS-C. It’s just something you have to think about and dig into a

little bit more.”

Mack’s team diagnoses MIS-C according to the definition provided by the CDC.

“The case definition of MIS-C is a patient younger than 21 years of age with fever and lab evidence of inflammation in at least two organ systems,” said Mack. “The patient also needs to have evidence of COVID exposure in the last four weeks or known infection and no other plausible diagnosis.”

To date, no therapies have been approved by the U.S. Food and Drug Administration to treat neurological diseases from acute COVID-19 in children or MIS-C.

To guide treatment, pediatric specialists have turned to measures that have been successful in managing Kawasaki Disease, a well-known inflammatory condition that affects blood vessels in infants and young children and shares some similarities with MIS-C.

“When we first started looking into MIS-C, we thought it was going to be similar to Kawasaki and the therapies would be similar,” said Mack. “But we’ve learned quite a bit, and there are certainly some nuances.”

Mack was an author on another Overcoming COVID-19 study published in April in the New England Journal of Medicine that assessed the effectiveness of immunomodulatory medications for MIS-C therapy. The study found that a combination



*“We’re learning a new disease. There’s not any sort of singular finding that defines MIS-C. It’s just something you have to think about and dig into a little bit more.”*

**Elizabeth Mack, M.D.**

of steroids and intravenous immunoglobulin is effective against MIS-C.

Long-term follow-up studies may be needed to find out what’s causing neurological complications in pediatric COVID-19 and MIS-C patients and their effects on cognition and development.

“We’re collecting samples, looking into family medical histories and performing whole genome sequencing to figure out why some kids develop severe disease and other kids don’t,” said Mack.

Going forward, neurological involvement in children and adolescents with acute COVID-19 infection may need to be monitored more closely. A better awareness and understanding of MIS-C is also critical to providing appropriate medical care.

“I think that neurological complications are more common than we may have initially thought,” said Mack. “Pediatricians will need to consider the possibility of MIS-C in children presenting with fever and evidence of inflammation, once other diagnoses have been excluded.”

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