

REMEMBERING LIVES LOST DURING PANDEMIC



Photo By Sarah Pack

Britt Bates, MUSC Arts and Healing Program, signs the memory wall that was created as part of the April 14 MUSC Day of Remembrance event held at St. Luke's Chapel. The event, which featured remarks, reflections, music, poetry and prayer, honored the memory of the lives lost to the COVID-19 pandemic.

SC coronavirus immunity estimate shocks expert

By HELEN ADAMS

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Public health experts at MUSC estimate statewide immunity to the coronavirus that causes COVID-19 has hit about 65%.

"I was a little shocked," said Michael Sweat, Ph.D., leader of the MUSC COVID-19 Epidemiology Intelligence Project. "But as we went back through the numbers, it was kind of hard to argue."



Sweat

His team has put not only the statewide estimate but also estimates for every county in South Carolina online, updating the website as more information comes in. It's part of a public service MUSC has been offering since the early days of the pandemic, tracking everything from COVID case numbers to vaccinations to give the public, health care leaders and politicians solid data for decision making.

Pickens, McCormick and Greenville counties have the highest estimated immunity, all over 70%.

Saluda, Jasper and Berkeley counties have the lowest, coming in around 40%.

The Charleston Tri-county area, which includes Berkeley, Charleston and Dorchester counties, has a combined estimated 57% immunity.

"I've always been pretty optimistic about the more recent period we're in, because vaccinations are going pretty well," Sweat said.

See **IMMUNITY** on page 11

Campus welcomes return of print MUSC Catalyst News on April 30

After a year-long hiatus of its hard copy edition, The MUSC Catalyst News will return to print in late April.

The Office of Public Affairs and Media Relations staff has consulted with MUSC Infectious Disease and Safety and Quality experts and industry studies to confirm that paper products such as newsprint are safe and low-risk in surface-based transmission of the

coronavirus.

For this inaugural return to print, we will feature an in-depth look at MUSC's Day of Remembrance to commemorate the lives lost and honor all who have sacrificed so much to care for the sick and vulnerable.

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Recently, MUSC and MUHA Board of Trustees met for their regularly scheduled combined committee sessions and board meeting, April 8 and 9. In light of the ongoing COVID-19 pandemic, many attended the meeting via video conference. Those who gathered in person in the MUSC boardroom observed appropriate safety protocols, including wearing masks and social distancing. In addition to updates on its education, research and clinical care operations, the board received a primer on how the mRNA vaccine works as well as information on how MUSC Health is administering the Pfizer BioNTech vaccine and how the health system is working to reduce vaccine hesitancy.

“During this pandemic, our team focus remains to serve communities across the state with engagement on multiple levels, including getting vaccines into arms, providing virus testing, delivery of the newest, most effective therapies to treat COVID-19 patients and continuing education about safety and prevention,” said David J. Cole, M.D., FACS, MUSC president. “We are also working at a grassroots level to plan and execute vaccine distribution to at-risk and rural communities as the limited vaccine supply permits,” he added.

“To date, we have received 83,850 vaccines and administered 85,407 vaccinations,” said Patrick J. Cawley, M.D., MUSC Health CEO and vice president for Health Affairs, University. “The nearly 102% doses administered

include accounting for the extra doses found per vial.” Cawley observed, “This week has been particularly challenging due to last-minute supply issues that are out of our control, forcing us to move and reschedule vaccine appointments. Nevertheless, MUSC continues to vaccinate as many people as we can as fast as possible.”

□ Despite the enduring challenges of the pandemic, MUSC continues to transform and grow. The board voted to support filing two certificates of need (CON) with the South Carolina Department of Health and Environmental Control (DHEC) for the deployment of a linear accelerator in Lancaster County and a surgical robot for MUSC Health Lancaster Medical Center. DHEC must issue a CON before certain types of health care acquisitions, expansions and creation of new facilities are allowed. A linear accelerator is commonly used by a radiation therapist to deliver external beam radiation treatments to cancer patients. A surgical robot serves to extend the physical capabilities of surgeons, adding the most advanced and refined technology at the fingertips of surgeons to benefit patients.

□ “It is a tremendous honor to announce the establishment of the Dr. James B. Edwards Endowed Chair in Oral and Maxillofacial Surgery in the College of Dental Medicine,” said James Lemon, D.M.D., chairman of the MUSC/MUHA board. “As President of MUSC, Dr. Edwards worked tirelessly

with his wife, Mrs. Ann Edwards, to make MUSC second to none in terms of quality care, instruction and research across all colleges. However, as a dentist himself, the College of Dental Medicine held a special place in Dr. Edwards’ heart. He and his wife, Ann, who is with us virtually today, are responsible for securing the funding for this endowed chair, which included resources from Conoco-Philips, Waste Management and Mr. Peter Lawson-Johnston II.”

He continued, “Ann, on behalf of the MUSC Board of Trustees and senior leadership, thank you for your sustained support and contributions to the Medical University of South Carolina over the years. Today, we honor Dr. Edwards and celebrate this achievement in his honor. Thank you both for making the first endowed chair in the College of Dental Medicine possible. The Dr. James B. Edwards Endowed Chair in Oral and Maxillofacial Surgery will enhance the quality of clinical care and research in this area of expertise for years to come.”

□ The board voted to appoint Martin Steed, D.D.S., to the James B. Edwards, D.M.D., Endowed Chair in Oral Surgery, effective March 1. Steed is a professor and chair in the Department of Oral and Maxillofacial Surgery and associate dean for Hospital Affairs in the College of Dental Medicine.

□ The board also reviewed and endorsed the proposed new enterprise strategy – OneMUSC. The focus of the strategy is to empower and propel team members to achieve greater innovation, impact and influence over the next five-year period. One such enterprisewide initiative, the MUSC Workday implementation, was shared with the trustees.

Workday is a state-of-the-art platform that will transform, integrate and standardize MUSC business processes across finance, human capital and supply chain across all three major areas of MUSC – the university, MUSC Health and MUSC Physicians. It will consolidate some 70 different human resources, finance and payroll systems into a single core cloud-based system.

In addition to simplifying workflows, Workday will also empower employees to complete human resources and payroll actions from anywhere using mobile devices.

□ In other business, the 16-member MUSC/MUHA board also voted to approve the following items:

- Improve access to high-quality breast imaging in the community by locating 3D mammography at the MUSC Health West Ashley clinic.

- A capital budget request of \$2.9 million for renovations at MUSC Health Chester Medical Center.

- A lease amendment to continue providing 46,857 square feet of space to the Department of Veterans Affairs on the MUSC main campus in Charleston.

- Renewal of an 11,494 square feet lease for office space on Doughty Street in Charleston to continue providing space to support the Department of Psychiatry, Clinical Neuroscience Division, drug abuse research training and the South Carolina Clinical & Translational Research Institute.

- Renewal of a lease for 6,414 square feet of clinical space on Hospital Drive in Charleston that supports delivery of therapeutic services, physical therapy and occupational therapy in the Mount Pleasant area.

- Execution of a new lease agreement for 4,500 square feet of clinical space on Charlotte Highway in Indian Land, which will provide sites for Lancaster pediatrics and a multispecialty clinic.

- Renewal of a lease for 4,200 square feet of clinical space on West Meeting Street in Lancaster to continue providing space for MUSC Health general surgery.

- A lease renewal for 1,143 parking spaces in the Hagood parking lot located at Fishburne Street and Hagood Avenue.

□ The MUSC/MUHA Board of Trustees serves as separate bodies to govern the university and hospital, normally holding two days of committee and board meetings six times a year. For more information about the MUSC Board of Trustees, visit <https://muscco/3x0hjWw>.

MUSC CATALYST news

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‘Wood’ you believe it? High school sophomore shows gratitude to health care workers with gift

BY BRYCE DONOVAN

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This pandemic has been difficult on people of all of ages – none more so than teenagers.

In normal times, high school kids would be hanging out, going to each other’s houses, grabbing meals together, playing sports. It’s a formative time in a young person’s life. But these aren’t normal times. And Lorenzo Liberti isn’t your normal teenager.

That’s because the 16-year-old Bradenton, Florida, native has something most high school sophomores often lack: perspective. Lorenzo, whose mother works in health care, got to hear firsthand what the front lines were like in the midst of one of the deadliest pandemics in our nation’s history. And those tales were frightening. Lorenzo quickly realized there was a new type of hero – one who wears scrubs instead of tights and a cape – that deserved to be recognized.

“Their courageous efforts and strength are inspiring everyone across the world,”

Lorenzo said. “They are risking their lives – and some are even dying – to serve their communities.”

Lorenzo’s father had kept on him about needing to be productive over the summer of 2020, and so, he decided to kill two birds with one stone – and he started tinkering with wood in the family’s workshop. The end result of that tinkering was a beautiful, hand-carved wooden half-scale American flag. He knew he wanted to give it to the hospital where his mother worked as a way of saying thanks, but little did he know that that donation would lead to community interest well beyond his wildest dreams.

Soon, people all over – not just Florida but nationally – were clamoring for more. And with that increase in demand came an idea: What if he made one for a hospital in each state? He would take donations for supplies and anything extra he raised would go to homeless veterans – another type of hero that Lorenzo feels is often underappreciated. From that idea Heroic Flags was born.

For South Carolina, he chose MUSC. And on a sunny March day, a small



Photos by Sarah Pack

A group of MUSC Health front-line care team members – ranging from security personnel to nurses – gathered to receive a gift from 16-year-old Lorenzo Liberti.



Each flag takes Lorenzo approximately 20 hours of work to finish.

ceremony was held in the Horseshoe where the flag was presented to MUSC employees. The finished product is a brilliant red, white and blue painted flag. On the back is a simple message from Lorenzo: “Thank you for your service.”

“Just knowing that there are members of the community out there who are thinking about front line workers is really inspiring,” said Sunday Tuk, principal donor liaison, MUSC Office of Development. “I can’t overstate how much it means to our health care team members to know just how much they are appreciated.”

Hospital leadership is currently deciding on the perfect place to display the gift – which will be accompanied by a commemorative plaque and a photo of the day it was received – but right

now, the money is on Shawn Jenkins Children’s Hospital and Pearl Tourville Women’s Pavilion.

“It just makes sense that something so inspiring done by a child would be displayed in a place where other children and their families could appreciate it,” said Tuk.

Since last summer, Lorenzo has made more than 60 flags – some for states and others for individuals making sizeable donations to his cause. He said each flag takes about 20 hours to make. That’s nearly 1,200 hours of work spent carving and painting. His goal is to raise \$50,000 making flags. He’s almost halfway there already. To learn more or inquire about getting one of your own, visit heroicflags.com.



Technology developed at MUSC holds promise for preventing liver cancer

By KELSEY HUDNALL

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Technology developed by researchers at MUSC Hollings Cancer Center can detect early-stage liver cancer at double the rate obtained with current standard diagnostic tools.

The technology, which is currently only being used for research purposes, is designed to classify how sugars known as glycans change during the development of cancer. If brought to market, the resulting product would be a rapid blood test that could detect liver fibrosis (or scarring) in its earliest stages, allowing time for intervention before the disease progressed to permanent liver damage or liver cancer. The test could also aid providers in determining the current stage of a patient's liver disease.

A new seed investment from Bruker Corporation, a company that manufactures scientific instruments and diagnostic solutions, will help the researchers to further develop, validate and commercialize the technology, which is known as GlycoTyper. The researchers hope this support will aid them in bringing the test to market for the benefit of patients within the next few years.

GlycoTyper is a patent-pending technology developed at MUSC and is licensed by GlycoPath Inc. from the MUSC Foundation for Research Development.

Richard Drake, Ph.D., Hollings researcher and chief executive officer of GlycoPath Inc., which has licensed the technology, said, "We are excited to partner with Bruker to develop our clinically important glycan profiling technologies and to make GlycoPath products available to customers worldwide. Our analytical technology links the immune response to disease with circulating biomarkers to provide novel diagnostic tools across the spectrum of cancer, infectious disease and aging."

HOW IT WORKS

The proprietary glycan profiling technology works by first capturing diagnostic glycoproteins from blood using an antibody array slide. The

captured glycoproteins are then sprayed with an enzyme that releases the glycans. The glycans that are present on each glycoprotein are analyzed for changes that are associated with liver disease using MALDI imaging mass spectrometry, a laser imaging technique used to find disease biomarkers.

The partnership with Bruker Corporation will link the GlycoTyper technology with Bruker's precision MALDI-TOF mass spectrometry instrumentation, which will help to accelerate a wider adoption of the approach.

What makes the diagnostic assay unique is that it can analyze thousands of proteins from blood or tissue samples quickly, according to the researchers. Current glycan analyses are only able to analyze a small number of proteins at a time, which limits the glycan information that can be collected.

The planned laboratory-developed test would also be unaffected by co-occurring conditions, such as obesity, which are problematic for current diagnostic testing protocols for liver fibrosis.

According to Anand Mehta, Ph.D., Hollings researcher and GlycoPath chief financial officer, GlycoTyper's ability to analyze thousands of samples quickly demonstrates its potential for use in glycan biomarker studies that extend beyond liver disease and cancer.

"In the area of liver disease, including liver cancer, GlycoTyper-based analyses were able to detect early-stage cancer at double the rate obtained with the current gold standard markers," said Mehta. "The platform is capable of hundreds to thousands of glycan measurements per day, making it amenable to a wide range of bioanalytical applications in drug development, clinical diagnostics and basic and translational research."

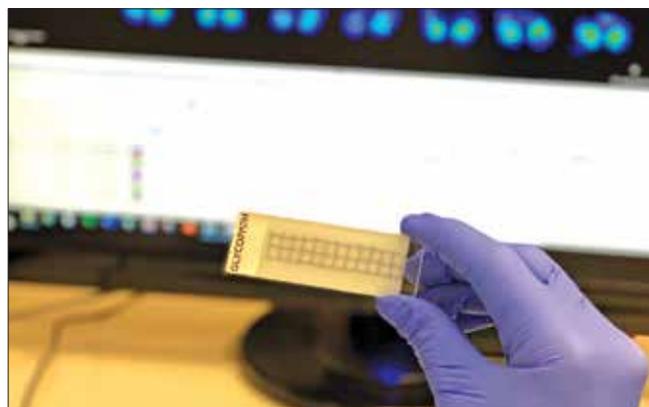
ADDRESSING A LOCAL NEED

According to the Centers for Disease Control and Prevention, roughly 4.5 million U.S. adults (nearly 2% of the population) have been diagnosed with liver disease. While the disease typically takes years to develop, it often goes unnoticed until it reaches a later stage,



Photo by Marquel Coaxum

Dr. Richard Drake and his team recently received investment funding to further develop and commercialize their patent-pending technology to detect liver disease.



The GlycoTyper technology could be used to identify chronic conditions beyond liver disease in the future.

Photo Provided

when treatment options are scarce and less effective. If it's diagnosed early, simple lifestyle changes involving diet, exercise and smoking habits can reverse liver damage, as the organ can repair and regenerate itself.

While GlycoTyper's abilities could be expanded beyond liver disease and cancer to chronic conditions such as heart disease, diabetes and arthritis, the researchers hope their initial focus on identifying liver fibrosis will help them to meet a pressing health need of the state.

Hollings researcher and GlycoPath chief scientific officer Pegggi Angel, Ph.D., said, "GlycoTyper is proving to be an applicable tool for identifying patients

with diseases besides cancer and liver disease. Our unique analytical strategy is highly reproducible and robust, offering a strong foundation for additional clinical tools targeting disease-associated glycan changes."

Glycans are produced in the liver, making liver disease an easy first target. According to the researchers, using the technology to detect liver cancer is simple compared to other applications they have planned.

In the future, they hope to be able to help clinicians to determine whether any type of cancer is present in the body

See LIVER on page 11

MEET AMBER



Amber K. Sansbury

College; Years at MUSC

College of Health Professions—Occupational Therapy Program; Class of 2023

How are you changing what's possible at MUSC

I have the opportunity to actively innovate occupational therapy within my academic setting while promoting diversity. I have the chance to utilize my knowledge so that I can better serve the community.

What music is in your player now

Lofi Hip Hop Radio — beats to relax and study to

Someone in your life who inspires you

My mother, Elaine Sansbury-Williams

Latest TV or cable series to binge watch

"Ginny and Georgia"

April is OT Month, how will you celebrate

By promoting the OT field on all social media

Favorite quote

"She is clothed with strength and dignity, and she laughs without fear of the future."

—Proverbs 31:25

HAVE AN IDEA BUT NOT SURE WHERE TO SUBMIT IT? 



MUSC INNOVATION GATEWAY 

VISIT THE MUSC INNOVATION GATEWAY! THE GATEWAY SERVES AS THE VIRTUAL FRONT DOOR TO MUSC'S INNOVATION COMMUNITY, ALLOWING USERS TO SUBMIT IDEAS AND BE AUTOMATICALLY CONNECTED TO RESOURCES AND TEAMS THROUGHOUT OUR ORGANIZATION.

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Fun demos | Live & recorded sessions

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Pitch Sessions | Innovators Toolbox | Health & Wellness

Don't miss these signature events:
Poster session, Tuesday, 4/27, all day
Shark Tank competition, Thursday, 4/29, 2:00 p.m.

muscedu/innovationweek 

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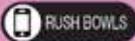
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MUSC Health's first COVID lung transplant patient heads home

BY LESLIE CANTU

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When Ryan Nacovitch, of Sumter, South Carolina, celebrated his 35th birthday in March 2020, he was a typical healthy guy, just two months shy of his first wedding anniversary.

Sumter County had recorded two deaths from COVID-19, and Gov. Henry McMaster had already ordered schools across the state to close temporarily, yet the pandemic had barely begun.

Sumter had yet to cancel its iconic Iris Festival.

The Centers for Disease Control and Prevention had yet to recommend even voluntary mask-wearing.

Sumter had yet to pass a mandatory mask mandate.

His mother, Laura Nacovitch, had yet to contract COVID-19 and die during the summer spike.

He and Melissa, his wife, had yet to contract COVID-19 in the post-Thanksgiving spike.

And Ryan had yet to spend 116 days hospitalized; to be at the point where, as one of his doctors said, he was maintaining the “bare minimum numbers to stay alive” while getting the most medical support possible at a center without a specialized oxygen-delivery machine called ECMO.

Or to be transferred from his home hospital to MUSC Health to undergo a double-lung transplant after COVID-19 ravaged his lungs.

When he celebrated his 36th birthday, it was in Ashley River Tower (ART) at MUSC Health. He was in the hospital, but he was once again breathing on his own, thanks to the new set of strong donor lungs in his chest.

And on April 8, Ryan and Melissa walked down the hall from his room to a ceremonial bell, where dozens upon dozens of people who had cared for him at some point – doctors, nurses, physical therapists, occupational therapists, respiratory therapists, perfusionists and more – waited to cheer for him.

“This is a time for us to gather and take a minute to celebrate and reflect on Ryan’s journey and Melissa’s journey,” Heather Geffert, R.N., heart and lung transplant coordinator, told the group. “We’re going to celebrate that journey and Ryan’s incredible fight. His tenacity. His drive was relentless in getting us to this point today.”

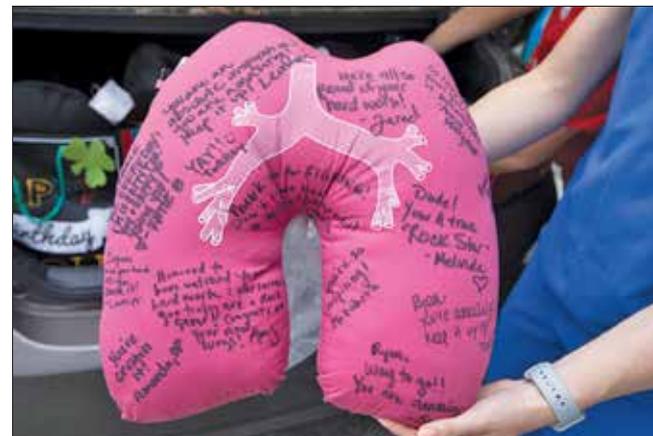
NATIONAL OUTLOOK

It’s unclear, at this point, how many people who have had COVID-19 have required transplants. Timothy Whelan, M.D., medical director of the Lung Transplant Program at MUSC Health,



Photos by Sarah Pack

Staff who cared for Ryan Nacovitch during his stay at MUSC Health lines the halls to watch his bell-ringing ceremony in honor of his lung donor and cheer him on. By coincidence, April is National Donate Life Month.



Transplant patients at MUSC Health receive a pillow shaped like their transplanted organ. Nacovitch’s is signed by a few of the team members who cared for him.

said it seems that fewer than 100 people across the country have had lung and/or heart transplants following COVID-19. He believes Ryan was the first such patient in the Carolinas, he said.

Nor is it clear why people have such different experiences with COVID-19.

“I’ve seen people who are a lot healthier than me die of COVID,” Whelan said.

With most illnesses that hit the lungs, people either fully recover or go on to develop multisystem problems and die, he explained. But that’s not the case with COVID-19. “We are seeing that there are people who live through this and, instead of having a lung injury that will slowly get better with time, they seem to just develop dense scarring, or fibrosis.” That scarring is irreversible and means

the person needs supplemental oxygen. In some cases, it’s meant that the patient needed an entirely new set of lungs. But again, doctors are still learning why COVID-19 might destroy one person’s lungs while barely affecting another.

“I don’t know why it happened to him,” Whelan said.

THE DIAGNOSIS

Ryan was dragging in early December. He and Melissa were helping one of her children to move into an apartment in the Upstate, and he just didn’t have any energy. The next day, Melissa started to feel poorly, so they went to get COVID tests, even though Ryan was pretty sure it was just a cold.

It was COVID. They didn’t know

See **TRANSPLANT** on page 7

Dear South Carolina,

We're excited to share ideas on how to fight climate change.

See you on 4/19.

- Christchurch, New Zealand



All Together Now:
Addressing Climate Change
Monday, April 19th, 7pm
LWV LEAGUE OF WOMEN VOTERS
OF THE CHARLESTON AREA





Photos by Sarah Pack

Left photo: Ryan and Melissa become emotional as they recount their story from Ryan's hospital room at MUSC Health. Right photo: Ryan rings the bell in honor of his organ donor.

TRANSPLANT *Continued from Page Six*

it, but Sumter — and the rest of South Carolina — was at the start of another vicious spike in cases.

After learning they had COVID on Dec. 6, they went home to quarantine and recover, but on Dec. 9, with Ryan feeling worse, they went to Prisma Health Tuomey Hospital in Sumter where they learned he might be developing pneumonia. At home, they used a pulse oximeter to monitor their blood oxygen levels. Normal blood oxygen levels should be between 95% and 100%. When Ryan's hit the 60s on Dec. 12, Melissa packed him up and drove him to the hospital.

At the hospital, Ryan's condition continued to worsen. He suffered a pneumothorax, or collapsed lung. Already, the doctors there were talking about getting him on a lung transplant waiting list. Whelan said he consulted with the Tuomey team and was able to clear some insurance hurdles to allow Ryan to come to MUSC Health for evaluation when Ryan's condition grew even worse, requiring a ventilator.

Ryan and Melissa remember that moment. They were both out of COVID quarantine by then, but Tuomey had reinstated visitor restrictions because the pandemic had spiked again, so they communicated via texts.

"It was seven o'clock in the morning. I

was getting ready for work, and he said, 'I'm so sorry.' And I was like, 'Why?' He said, 'I'm having trouble breathing, and they're going to put me on a ventilator,'" Melissa said.

The nurses helped them to FaceTime, and then Ryan was vented.

"Him going on the ventilator was very frightening for him," Melissa said. "And for me."

That was Jan. 12, exactly a month after he had been admitted. That timeline is pretty unusual, Whelan said, as most COVID patients who end up on a ventilator do so early in the course of the disease. With his condition so grave, Melissa was looking to both MUSC Health and Duke University Hospital to see which center would have space first for Ryan.

"MUSC got him first, and we're thankful," Melissa said. "MUSC has saved his life and treated us like family."

PREPARING FOR TRANSPLANT

Jessica Mullins, M.D., was the critical care doctor on call when Ryan arrived on Jan. 16. He was barely hanging on, and the doctors figured that if he was going to recover on his own, they would have started to see signs of improvement already.

"We know COVID takes a long time to get better, but he had not gotten any better," she said.

Yet Mullins saw Ryan's fighting spirit.

"He's a trouper," she said.

Communication is a common frustration for patients on ventilators, because they cannot speak and can be too weak to write. Because it appeared Ryan would be on the ventilator for a while, Mullins got him a special speaking valve and had a speech therapist teach him how to use it.

But, she added, "I told him if I got him the valve, then the first thing he had to say was that Dr. Mullins was his favorite doctor. And he held true. He's a trouper even when I ask him to do stupid stuff."

But most of what she asked wasn't so light-hearted. Although the possibility of a lung transplant had already been raised, Ryan wasn't strong enough for the surgery when he first arrived. He needed nutritional support as well as physical therapy to build him back up.

The "deconditioning" after being ill and bedbound since early December had left him incredibly weak. But unlike other patients whose underlying conditions ruled them out as transplant candidates, this deconditioning could be reversed, Mullins said.

"I got a text from Dr. Mullins early in February that said, 'We have kind of a long shot, but this is really his only hope. You need to be able to get him to walk,'" said Alex Myers, physical therapy team lead at ART.

By that point, Ryan had been placed

on ECMO, or extracorporeal membrane oxygenation, a device that pumps oxygen directly into the bloodstream to allow the lungs to rest. Although the process can give patients and doctors the necessary time to get a situation under control, it also comes with risks of complications and must be constantly monitored.

At her first session with Ryan, Myers was able to get him to sit on the edge of the bed for 15 seconds.

That was it. Fifteen seconds.

"I remember thinking, 'Oh my goodness, we have our work cut out for us.' Medically, he couldn't tolerate doing more than that. It wasn't that he didn't want to," Myers said.

But Ryan was determined. And Melissa was by his side, coming to his hospital room every day and returning at night to the garage apartment of a friend of a friend. The care team universally credits Melissa for her role in Ryan's recovery.

"Half of his resilience is his incredible spouse, who has been through so much and has been here in the most amazing manner," Myers said.

Within a week of that first session, Ryan was standing. Soon he was walking. For nearly three weeks before his surgery, he was walking 300 to 400 feet each day. He also rode a recumbent bike in his room. In addition to getting strong enough for surgery, he had to

See TRANSPLANT on page 11

COVID-19 Vaccines

Crowded airplanes, skeptics and other things you need to know

BY BRYCE DONOVAN

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So many variables go into a meeting these days.

Will it be outside? Inside? Are there going to be lots of people there? How many are vaccinated? Do any of them listen to Nickelback? Two trains are driving toward one another.

The first train leaves Town A at 5 a.m. traveling at 60 miles per hour. The second train ...

You get the point. It's complicated. No two situations are seemingly ever similar.

Each week in this space we try to

delve into the most relevant topics in the world of vaccine. In light of how complex navigating life outside the home seems to be these days, we thought we'd lead off this week by sharing a really cool tool put together by the New York Times. (Just enjoy it; don't feel obligated to leave feedback.) Think of it as a choose your own adventure book but with yes/no questions relevant to living life outside our own walls. It asks things like, "Will you be there for more than an hour?" or "Will there be more than 10 people there?" Each answer leads you to another question until eventually you are given a risk rating.

Of course, most people will straight up ignore any advice if it isn't what they want to hear, but isn't it nice to have somebody that isn't your know-it-all cousin doling out a little guidance for a change?

With the vaccine landscape changing almost daily, each week we are checking



Scheurer



Photo by Suhyeon Choi for Unsplash

Airplanes are about to get a lot more crowded.

in with Danielle Scheurer, M.D., MUSC Health System chief quality officer to ask her the most pertinent questions that are

hanging in the balance.

See **VACCINE Q&A** on page 9

3rd Annual MUSC Septima P. Clark Poetry Contest & Awards Reception

Celebrating the poetic achievements of local youth and the legacy of a national hero

Submissions accepted from
January 18, 2021 to March 15, 2021

Theme: *Life During COVID-19*

Virtual Awards Ceremony:
April 30, 2021, 6:00 pm via Zoom

Registration is required. See link above for more.

For information or to register for the April 30 virtual awards ceremony, visit <https://musc.libguides.com/spcpoetrycontest>



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- Respect
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- Collaboration
- Integrity



Changing What's Possible

Visit horseshoe.musc.edu/everyone/values-in-action to learn more.

What you need to know about the COVID-19 vaccine – Part 6

Danielle Scheurer, M.D., MUSC Health System's chief quality officer, weighs in on the most pressing issues related to COVID-19 and vaccination. The following is a condensed compilation from recent articles that can be found in their entirety on the MUSC Catalyst News digital platform at web.musc.edu/about/news-center.

Q. Coronavirus cases are going up again. In nine states over the past two weeks, virus cases have risen more than 40%. Michigan led the way with a 133% increase. In light of that, President Biden is calling for reinstating mask mandates. How do you feel South Carolina is doing on that front?

A. On the whole, I think our state has been doing pretty well, so I guess I was a little surprised by the “back to work” mandate issued recently. I think businesses have to make individual decisions based on their unique local conditions – you know, things like local epidemiology, open day cares, etc., so a blanket mandate can be really hard to conform to.

Q. Brazil is a very scary place right now. I read that 125 people are dying every hour from COVID. Do you think we tend to focus more on us as a country and not enough as a globe?

A. I do. It's a global economy that we live in today, and people are traveling constantly. So what's happening in Brazil and India affects us here in the United States. As long as there is international travel, we're always going to continue to have clusters and outbreaks because we have to look at the whole globe.

Q. New York has done the digital passport thing we've talked about. How long before South Carolina – or better yet, the U.S. – rolls out its own version?

A. I think it's not too far out on the horizon. They are becoming more and more popular in many states, so I suspect it's not long before we have one here as well.

Q. It looks like that by June, airlines will go back to putting passengers in every seat. How spooky is that, or will we be in a much better spot by then, making domestic less scary?

A. Air travel should still be approached with some reservations, as there is no way to socially distance. Airlines are also likely going to pursue some combination of vaccine passports and/or negative rapid testing in order for passengers to board a flight. Couple that with the fact that most of these airplanes have really good air filtration systems, I'd say that if you're smart it should be OK.

Q. How did Pfizer and Moderna get through their trials and to emergency use authorization so fast and AstraZeneca didn't?

A. The crazy thing is that all three of them started trials in July. Then AZ had a small hiccup, followed by another much longer (seven weeks) pause. That almost two-month hiatus really set them back, and I think it was just really difficult to recover enrollment after their trials came back online.

Q. I've heard that some folks with long COVID have experienced relief from their symptoms after they got the vaccine. Have you seen any of this?

A. Just anecdotally. There's nothing in the literature yet. We'll just have to see

what pans out. It's a good question though; it's just unanswerable right now.

Q. How great is the Pfizer trial news about kids 12 to 15? Better results than adults and no virus infections after receiving the vaccine. Why do you think that is? And do you think this will help sway people who were on the fence about vaccinating their kids?

A. The short answer is immunity becomes more complex the older you get. It's basic science: The more things we are exposed to over time, the more nuanced our immune system becomes, as opposed to kids who have fewer comorbid conditions. From an immune system standpoint, they are just more predictable. So it shouldn't really be all that surprising that it's working so well. It's still great news, though.

Q. Italy is now forcing health care workers to get vaccinated. Is this something we as a country might be forced to do in the future?

A. That is just such a thorny subject. I saw a survey published in the New York Times last week that focused on vaccine hesitancy. In it they asked health care workers if they were forced to be vaccinated, would they do it or quit their jobs. Sixteen percent of the people surveyed said they would quit. So it's really all about risk ratios and how organizations make those type of decisions. Hospitals have to ask themselves if they are willing to risk a 16% departure to get to that goal. I think the public expects – regardless of their own personal beliefs – that health care workers should protect themselves so they can protect their patients. That's certainly my feeling. Patients have to trust us, and in this pandemic era, what better way to gain that trust than by getting vaccinated?

Q. I've asked you this in the past, but what do you think is the best approach for getting vaccine skeptics to say “yes”? One-on-one talks with a trusted person? Money? Days off work? Allowing for greater freedoms (less masking/social distancing) for those who get it?

A. What the literature points to right now seems to be that the most convincing way to get people to get vaccinated is through a trusted colleague or community member. Having them – it could be a family member, a pastor, a small-town mayor, that kind of person – get vaccinated and then show the skeptic that they are fine. That seems to be the most impactful. When somebody whose opinion you value says it's OK, that seems to work best. As far as incentives go, I do think some allowance of freedoms might point people toward getting it. This gets into the concept of passports, allowing those with them to attend larger gatherings, take advantage of air travel without testing, stuff like that. And I think it's good that the CDC is finally saying to people who have been fully vaccinated that they can actually do more.

Anatomist, medical historian and MUSC leader remembered

BY CINDY ABOLE

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W. Curtis Worthington Jr., M.D., former educator, academic leader and director of the Waring Historical Library, died on March 27, 2021, at the Bishop Gadsden Episcopal Retirement Community in Charleston, South Carolina. He was 95 years old.

Originally from Savannah, Georgia, Dr. Worthington grew up in Frogmore, a small community of St. Helena Island, near Beaufort, South Carolina. He attended The Citadel and later completed a B.S./M.D. program with the Medical College of South Carolina (now MUSC) and completed both degrees in 1952. He completed a surgical internship at Boston City Hospital and previously taught at Johns Hopkins Medical School and the University of Illinois, Chicago. He returned in 1957 to MUSC as a faculty member, beginning a career that would span 50-plus years at the institution, and later was named chairman of the Department of Anatomy. Dr. Worthington also served in academic leadership positions, most notably as the associate dean of the College of Medicine and vice president for Academic Affairs.

Dr. Worthington relished his role as a medical archivist and humanist, serving as the second director of the Waring Historical Library at MUSC, from 1982 to 2012.

In January 2013, Dr. Worthington was honored for his lifetime of service and contributions to MUSC and the South Carolina Lowcountry, receiving the Order of the Silver Crescent, the state's highest civilian award presented to an individual for his or her significant contributions, leadership and lifelong influence to a region or community. The award nomination was submitted by former Waring Library Society president Charlie Strange, M.D., professor in the Department of Pulmonary, Critical Care, Allergy and Sleep Medicine.

"My remembrances of Curtis are as a friend to anyone who shared his interests in the history of medicine," said Strange. "He was the kind and knowledgeable physician who knew the history of MUSC from its early days because he had lived it over the more than 50 years of his service to the institution. As such, he was a fitting recipient of the state of South Carolina's Order of the Silver Crescent award by former Gov. Nikki Haley in January 2013."

Former professor and MUSC College of Medicine Dean Layton McCurdy, M.D., echoed his deep admiration for his former teacher, mentor, colleague



Photo By Anne Thompson

Dr. Charlie Strange presents the Order of the Silver Crescent Award to Dr. Curtis Worthington given by then-S.C. Gov. Nikki Haley in January 2013.

"He was the kind and knowledgeable physician who knew the history of MUSC from its early days because he had lived it over the more than 50 years of his service to the institution."

Charlie Strange, M.D.

and friend. "Curtis was a person that exemplified great integrity. He had limitless integrity – doing and believing in what he said. He was a wonderful man."

Brooke Fox, university archivist at the Waring Historical Library, worked with Dr. Worthington for several years and admired his dedication and commitment to preserving the rich history of MUSC in the Lowcountry community and throughout the state.

"Dr. Worthington loved this institution and the Waring Historical Library," said Fox. "His role in preserving MUSC history and the history of the health sciences in South Carolina cannot be overstated. I learned most of what I know about MUSC's history

EARTH MONTH 2021 EVENTS

MUSC Sustainability

Social, economic, & environmental resilience is imperative in our changing world. MUSC Sustainability and its many partners present a series of resilience themed events.



WEEK 3: APRIL 18- 24

The League of Women Voters is collaborating with CoFC, the Charleston Climate Coalition, & SC Interfaith to refresh your understanding of climate change and what we can do about it. Compare notes with an expert from Christchurch, New Zealand!

ALL TOGETHER NOW: ADDRESSING CLIMATE CHANGE

LWV

MON, APRIL 19TH
7:00PM

Register:
<https://tinyurl.com/tdkxrb7>

RESILIENCE IN THE 21ST CENTURY

MUSC, CoFC, and the Citadel invite you to a virtual faculty panel exploring the social, economic, and environmental aspects of climate change for Charleston.

WED, APRIL 22ND
3:00-5:00PM

Register:
go.cofc.edu/earthmonth



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MEDICAL DISTRICT GREENWAY

4/19 - 4/21
7:00am - 1:30pm

MUSC URBAN FARM

4/19 - 7:00am - 1:30pm
4/20 - 1:00pm - 2:30pm
4/21 - 7:00am - 1:30pm



More information: powerplantsc.com

COMING UP...

Arbor Day Tree Planting, April 30th
Time slots: 10am, 12pm, 2pm

Registration:
<https://signup.com/go/Loqmfg9>

Oyster Restoration

Charleston Medical District Event



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WITH ANY QUESTIONS



from him and will be forever grateful for his knowledge and wisdom that he shared with me. As I continue preserving the institution's historical record, I will ask myself, 'What would Dr. Worthington do?'

He was predeceased by his wife, Floride McDermid Worthington, and is survived by a son, a daughter, a son-in-law, daughter-in-law, six grandchildren and four great-grandchildren.

In lieu of flowers, donations may be made to the Waring Historical Library at MUSC, Edisto Island Open Land Trust, South Carolina Coastal Conservation League or a charity of choice.

TRANSPLANT *Continued from Page Seven*

strengthen his legs in preparation for life immediately post-surgery, when he wouldn't be able to use his arms to push up from a lying or sitting position. Pushing up with the arms would exert force on the incision through his sternum, potentially interfering with healing.

Once Ryan was ready for surgery, it was a matter of waiting for lungs to become available.

"Every day when you're critically ill, every hour that you have to wait to get the gift can be the difference between getting one and not," Whelan explained.

"None of this happens without people making the gift. And unfortunately, somebody's got to have something bad happen in order for us to do great things," he said. "Thank goodness someone signed their donor card and was willing to make the gift."

THE SURGERY

COVID-induced lung transplants are still so new that surgeon Barry Gibney, D.O., wasn't sure what he would find when he opened Ryan up. Descriptions from colleagues across the country were all over the place.

Ryan's lungs were an odd combination of the types of lungs he sees in cystic fibrosis patients and those of people with interstitial lung disease, an umbrella term that means scarring caused by disease or an environmental factor.

"It was very easy to see why his lungs weren't working," Gibney said.

Normal lungs should be soft and spongy. Ryan's were heavy and dense — more like a liver. And the blood vessels were clumped together and contracted, so small that they reminded Gibney of what he might see in a pediatric case.

Gibney thinks Ryan's is a somewhat unusual case in that few people survive for almost two months on ECMO. But lung transplants could become necessary for some people with long COVID, he said.

"I do think that we're going to start seeing the COVID long-haulers that are going to have end-stage lung disease as it relates to their coronavirus. I would imagine that it's going to be a new

category of patients that we're going to be offering transplants to," he said.

All told, despite the logistical challenges of transferring Ryan from ECMO to a cardiopulmonary bypass machine for the actual surgery and the apprehension of not knowing how the surgery might unfold, Ryan's transplant went remarkably well.

The team had anticipated keeping him on ECMO after the surgery to let his heart rest, but Ryan "flew off" the cardiopulmonary bypass machine, Gibney said.

"The most remarkable thing, to me, has been his positive attitude through the entire thing," Gibney said. "He's been extremely motivated. He has done everything we've asked him to do, and on top of that, our physical therapy staff has been really working hard with him."

"This is less a story of COVID and lungs; this is more a story of motivation and teamwork," Gibney continued. "He wouldn't have done what he did if he didn't have the attitude and if the physical therapy team wasn't committed to him recovering."

DISCHARGE DAY

Many of those who had worked with Ryan and Melissa gathered last week for the traditional bell-ringing ceremony in honor of the organ donor.

Many more couldn't be there: the team at Tuomey, who kept him going until he could be transferred; his and Melissa's shared workplace family, who held fundraisers and let Melissa remain in Charleston at Ryan's side; and all his friends and family watching his progress from afar via updates from Melissa.

Ryan is eager to get back to work building firetrucks at Fire Equipment Sales and Service, not to mention lifting weights and a new woodworking hobby, though it will be some time before he can tackle any of those activities. He's also become interested in painting, after a session with the art therapy team.

In the meantime, being "home" with Melissa, in a temporary apartment near MUSC Health so he can complete post-surgical rehab, is a welcome first step toward normalcy.

"I'm just glad I got a chance to keep going on," he said.

IMMUNITY *Continued from Page One*

Vaccinations are one part of the complicated formula that helps his team estimate immunity. "We take into account whether you've had one vaccination or two. You just get partial credit for immunity if you've only had one dose. Once you've pretty well," Sweat said.

Infections, both documented and estimated, are another key factor. Sweat said for every known case of COVID-19, there may be at least five other people who either didn't get sick or didn't get sick enough to get tested.

And the length of time people keep their immunity to the coronavirus after recovering from an infection is part of the formula as well. It's an evolving area. As more time passes, scientists know more about it.

Last week, Sweat's team extended the length of time it considers people who have had COVID-19 are likely to retain their immunity from three months to five months, based on high quality research published online in the respected journal *Science*. Some doctors think immunity extends well beyond that, but that hasn't been documented yet.

You can get a lot more detail about how the epidemiology team estimates immunity on its website.

The epidemiology team's latest update covers a lot of other COVID information as well. COVID in the Tri-county area rose 7% over the past week. It's easy to get a test and hospitals aren't under any strain from the virus.

LIVER *Continued from Page Four*

based on the antibodies that are present. This application could be a useful clinical decision-making tool when clinicians are trying to rule out other diseases.

While antibody array technologies have been around for years, the team believes their novel method for glycan analysis can help to fill critical information gaps that still exist in other analysis methods.

Danielle Scott, Ph.D., chief officer



However, Sweat cautions people not to let the good news obscure the fact that about 35% of South Carolinians may still be vulnerable to the coronavirus because they haven't been vaccinated or infected. People who aren't eligible to get a vaccine yet, such as children, are included in his estimates since they can get sick and transmit the virus to other people.

"There's still a lot of virus around. I mean, it doesn't take much for this to blow up," Sweat said. "This virus seems to be whack-a-mole ever since the beginning. Michigan, in particular, is having this massive outbreak. It could happen again here, too."

He also worries about variants that help the virus spread more easily. But those concerns come against the backdrop of more and more people getting vaccinated every day - and that encouraging 60% immunity estimate for South Carolina.

"There is a point where you get to, traditionally called herd immunity, where the virus just can't propagate anymore. It can't get through the networks and goes away. I personally don't think we'll ever completely do away with this, because there are reservoirs of the virus in some places," he said.

of product development at GlycoPath, who received her graduate degree from MUSC, said, "Although the role of glycans and glycoproteins has been evaluated in cancer for decades, the clinical relevance of these studies has been limited due to a lack of clinical assays. GlycoTyper was developed to directly address the need for a more high-throughput method for protein-specific glycan analysis from biological samples."

Online course is on target with MUSC educators

BY BRYCE DONOVAN

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A year ago, COVID-19 changed the world forever. And in no place was that change more obvious than in schools. Once buzzing epicenters of learning, these same educational facilities across the globe became ghost towns. Classrooms that once held dozens of students were replaced by empty chairs and a laptop. Chatter was replaced by “I think you’re on mute.” And hands-on learning became decidedly hands off.

Though being educationally isolated was a completely new experience for students, for their professors, it was a seismic shift. It’s hard enough to discuss 20th century English literature online. Now try showing soon-to-be doctors how to remove a spleen.

Lucky for professors at the Medical University of South Carolina, leadership realized it couldn’t just expect instructors to “figure it out,” and so the powers that

be came up with a way to arm them with the tools they would need to teach in the new world of COVID.

Alex Walters, senior instructional designer and digital accessibility specialist at MUSC, along with Melissa Hortman, Ed.D., associate professor and director of Instructional Technology at MUSC, were tasked with helping the medical school’s faculty to get up to speed in the new online teaching world – quickly.

In a very short amount of time, Walters and Hortman came up with a course that not only taught faculty the basics of teaching online but also showed them new and innovative ways to make it more fun. Their brainchild, the Foundations of Quality Online Instruction, is a four-week self-paced course designed to introduce best practices as well as tools and theories related to online instruction.

Not too surprisingly, faculty members were very receptive and enthusiastic about it.

“I’ve taken things I used to do completely straightforward in the classroom and turned them into online games,” said Kathryn Kinyon, DNP, a professor at the MUSC College of Nursing. Kinyon has made virtual escape rooms, online scavenger hunts – anything to keep the students connected. “I’m even teaching them to make their own online learning modules. So, in a way, I guess, I’m having them do my job,” she said with a laugh.

Though MUSC instructors might vary a great deal when it comes to their technological IQs, before this pandemic, they most certainly all had one thing in common: a lack of experience teaching virtually.

“Our primary goal was to demystify online teaching,” said Walters. In doing so, the two aimed to create an online community. “One of the biggest casualties of remote learning is the loss of community. When you’re physically spread out and in front of a terminal instead of a colleague, it’s easy to feel all alone,” he said.

Those who took the course learned how to improve interactivity with their students more fully, as well as support active learning, not only through

traditional teaching methods but through the use of video and audio as well.

“What I loved most about the course was it introduced me to new technologies,” said Anthony DeClue, Pharm.D., assistant professor in the Department of Clinical Pharmacy and Outcomes Sciences. “Because of that, I think I go into teaching more confidently. It’s also made me a better conductor, for lack of a better analogy, in that I can keep the other players on track because of the skills I came away with.”

The course, which went from idea to reality in a little over a month, was completely developed and implemented by MUSC.

“This is the first time we’ve had something like this on campus,” Hortman said. “Historically, we’ve been very traditional when it comes to learning. COVID pushed us into a realm no one was comfortable with. So we knew the best way to counter the feeling of distance was to focus on building an online community of learners.”

More than 130 MUSC professors, spanning 27 departments in all colleges, have taken the course. To sign up for the course, visit the faculty resources page.

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