

## Weak heart no match for strong love

### *Patient ties the knot at hospital*

BY DAWN BRAZELL  
brazell@musc.edu

It's 11 a.m. on a Friday, and Henry Cooper rests in his hospital chair, conserving his energy before his upcoming surgery to treat his advanced heart failure. His eyes light up when his nurse case manager Amanda Ghent enters with the wedding cake.

It's an item not currently on his diet. His fiancée, Carolyn Lowery, beams as well. It may not be the ideal time or setting, but they both know they've waited long enough. They tied the knot in the mezzanine of the MUSC's Ashley River Tower.

Henry's cardiologist, Brian Houston, did the honors of walking Carolyn down the aisle. As Ghent exits with the cake, Houston pops his head into the room to check on Cooper. It's the day before the wedding.

"No cold feet — right?" he jokes. "No crazy bachelor's parties planned for tonight?"

Henry laughs and shakes his head. Houston nods. "I don't want anyone jumping out of cakes or anything tomorrow," he says, grinning at the couple. "Thank you for letting us participate. The whole team is excited."

About that, Houston isn't joking. Henry says he's been amazed how quickly everyone rallied together to make

this happen. When nurse practitioner Jamie Beumel learned the couple wanted to get married before Cooper's surgery to implant a left ventricular assist device known as an LVAD, she jumped into action. She and Ghent put their managerial talents to the task of how to get court approval for a wedding despite Henry's inability to travel downtown to sign a license.

Then there were details to be settled about the cake (donated by Harris Teeter at Sea Island Shopping Center), the flowers (provided by Tiger Lily florist) and photography to be covered by nurse Justyn Lamb Miller who works a couple floors above. There were questions about the minister and whether Henry should shed the hospital gown

Not much debate there: Yes was the resounding answer. Houston's input was the icing on the cake. Henry says when Houston told him he was dressing up, he decided he had to, too.

The excitement was infectious, says Ghent. "It's my first wedding. It's nice to do something so fun and exciting. And it's neat how everyone's coming together to make this happen."

No one could be happier than Carolyn. She and Henry, 56, have been together for 18 years. "He asked me to marry him 10 years ago," she recalls. She didn't answer because he had had a couple of

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Photo by Sarah Pack

**Carolyn Lowery and Henry Cooper discuss plans for their wedding scheduled for early March.**



**Left Photo: The couple share a special moment after their wedding at MUSC's Ashley River Tower. Henry continues to recover with his wife of one month, Carolyn, by his side. Editor's note: The wedding took place on March 11, and his surgery was performed on March 14 and was successful.**

Photo by Justyn Lamb

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cocktails, and she didn't think he was serious. When Henry asked again a few weeks ago in the ICU, this time she said yes.

Henry says there are two important women in his life, Carolyn and his daughter. "When I found out that I was this bad, I decided it was time." He counts himself lucky. Males in his family tend to die young of heart conditions. His brother died under age 40. "In my immediate family, I'm the longest lasting male member."

The down time in the hospital gave Henry thinking time. He thought about how it probably was important to Carolyn to marry and how she had just let him be the way he was without trying to change him. "When you get a scare like this, you get a little softer. It probably does take a scare to soften your heart."

Not wanting to wait any longer, Henry asked his doctor if he could get married before his surgery. Houston said yes. Thirty minutes later the ball was rolling so fast, they were amazed, he says, pointing to Ghent. "It was like she was the wedding coordinator. We couldn't have planned it any better."

Carolyn agrees, saying they appreciate how everyone has rallied around them and how Henry's proposal has meant the world to her. Henry grins. "She was like a fox in a chicken house doing circles, racing around the track."

She's done a great job of caring for him and has been "after him" for years to take better care of himself, he says. They both know his surgery is serious. An



**Nurse case manager Amanda Ghent (aka wedding coordinator) says the wedding picked up everyone's spirits.**

LVAD is designed to increase the amount of blood that is pumping through the heart. It is needed because he has a condition called cardiomyopathy, which means he essentially has a very weak heart.

Houston explains a normal ejection fraction, or measure of how much the heart pumps each beat, is around 60 percent. Henry's is around 15 percent. His heart was so weak that he had to be put on a continuous intravenous drip of medication to "boost" his squeezing function to make sure his heart pumped enough blood around to keep his other organs functioning, he says.

"While that medication can be useful in the short term, it carries real risks over

the long term and actually can cause cardiac arrhythmias and death. Prior studies show that people with a heart as weak as Henry's have a 75 percent chance of dying within a year and less than 5 percent of them are alive at 2 years."

Henry's LVAD, which is a small pump with a rotor turning anywhere between 2,000 and 12,000 revolutions per minute, circulates blood around the body continuously. "It essentially does the work of the heart. Since the pump turns continuously, many of our patients actually won't have a pulse but will feel fine. We hope that this pump will allow Henry to eventually recover to the point of being able to qualify for a heart transplant."



**Cooper heads to get married, accompanied by Dr. Houston, his cardiologist.**

Henry certainly hopes so.

He had been feeling tired and had been struggling just to get a good night's rest. Henry admits he had been too stubborn to make some lifestyle choices he should have made earlier, such as quitting smoking. He has decided it's time for a change and to do what he can over the choices he can make in life.

"What I don't have control over, I leave in the hands of God."

And now he's a married man. He's grateful for the opportunity and for all that the staff has done to make it such a happy occasion.

"It's like we've had a whole outpouring of love from the top down to the bottom."

THE CATALYST

**Editorial Office**

MUSC Office of Public Affairs & Media Relations, 135 Cannon Street, Suite 403C, Charleston, SC 29425.

843-792-4107

Fax: 843-792-6723

**Editor:** Cindy Abole  
catalyst@muscedu

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**2017 Humanitas celebration on April 19**

The latest copy of Humanitas, MUSC's student-edited literary/arts journal that features the works of MUSC students, staff and faculty, has arrived.

The MUSC community is invited to join in a reception honoring its publication and distribution on Wednesday, April 19 from 3 to 4 p.m., Bioengineering Building lobby. Get your free copy and enjoy great food, company and conversation.

For information, contact Dr. Lisa Kerr, Center for Academic Excellence, 795-6390.

April 7, 2017

The Honorable Henry McMaster,  
Governor of the State of South Carolina State House  
1100 Gervais Street  
Columbia, South Carolina 29201

Dear Governor McMaster,

On behalf of the tens of thousands of South Carolina students currently attending our public colleges and universities – and the thousands more who will enroll in the years ahead – we respectfully urge you to reconsider your position on House Bill 3722. We recognize that the state has many needs and finite resources, and we know that you and members of the General Assembly face difficult decisions in setting funding priorities. We believe that protecting the state's significant investment in higher education facilities – which House Bill 3722 will start to do – should be one of our top priorities.

House Bill 3722 will allow the state to take advantage of low interest rates and a positive construction bid climate to address critical maintenance and renovation projects, without passing those costs onto students and their families. This focused and strategic capital bond bill provides targeted funding for top priorities at research universities, comprehensive universities, and two-year and technical colleges. Without this critical funding, many badly-needed repairs and renovations will continue to be delayed, which means they will only become more extensive and costly in the future.

We appreciate your concern for infrastructure that impacts economic growth. Higher education's infrastructure does just that. According to data from the S.C. Commission on Higher Education, every dollar invested in higher education annually returns \$11 to the state. By 2018, more than half of all jobs in South Carolina – 1.2 million – will require post-secondary education. By providing the educated and highly skilled workforce these jobs will require, higher education plays a key role in helping the state recruit, grow and retain industries. Our impact on individuals is also substantial: South Carolina workers with a bachelor's degree will earn \$1.2 million more than a high school graduate over their lifetimes. Further, our research and service programs drive innovation and improve quality of life for all of South Carolina.

Prior to 2000, the state regularly passed capital bond bills to ensure that our college and university facilities were modern, safe and comparable to those of our competitors in other states. Since 2001, neighboring states have continued to invest billions of dollars in college and university facilities while we did not. Earlier bond bills allowed us to make significant progress and extend the useful life of many of our core academic facilities. We owe it to current and future students – and taxpayers – to protect that investment. House Bill 3722 will begin to address just that and will do so utilizing existing state resources without requiring additional taxpayer support. This is a “win-win” that must be finally realized.

Nearly 70 percent of our facilities are 25 or more years old, and a third are 50 or more years old. Without attention, these aging facilities are in poor condition, lack ADA accommodations and will continue to deteriorate – just as many of our roads have. Both priorities must be addressed. Let's work together to find funding solutions for both roads and higher education.

Thank you for your service to South Carolina.

*President Fred Carter, Francis Marion University; President James Clark, South Carolina State University; President Jim Clements, Clemson University; President David Cole, Medical University of South Carolina; President Richard Consentino, Lander University; President Dave DeCenzo, Coastal Carolina University; President Tim Hardee, South Carolina Technical College System; President Daniel Mahoney, Winthrop University; President Glenn McConnell, College of Charleston; President Harris Pastides, University of South Carolina and President John Rosa, The Citadel*

## MUSC aligns with other schools to support bond bill

MUSC is aligned with college and university presidents from across South Carolina in support of the bond bill currently being discussed. To the left is a copy of the letter sent to the governor April 7. The letter includes the signatures of presidents at the University of South Carolina, MUSC, S.C. State University and eight other higher educational institutions. Visit <http://www.thestate.com/news/local/education/article143435384.html>

The bond bill would aid capital projects at 17 universities, campuses and tech systems in the state. The bill would provide \$25 million for "critical" maintenance projects at MUSC, which had submitted \$153 million in project requests for the hospital and university and \$15 million in renovation requests. Read the story at <http://www.thestate.com/news/politics-government/politics-columns-blogs/the-buzz/article143017134.html>.

## Sarcoidosis awareness picnic set for April 23

April is Sarcoidosis Awareness Month and MUSC will host lectures and a community event to educate and inform people about this inflammatory disease, which can affect multiple organs.

On Sunday, April 23, from 1 to 4 p.m., Pulmonary and Critical Care Medicine will host a picnic at the Magnolia Shelter in Wannamaker County Park, North Charleston. The event is open to the public with food and door prizes available to the first 30 registered sarcoidosis patients with one guest.

To register before April 10, contact Katie Shoptaw at 792-0373 or [benfiel@musc.edu](mailto:benfiel@musc.edu). In 2016, the Susan Pearlstine Sarcoidosis Center of Excellence at MUSC was founded. Read The Catalyst article at <http://academicdepartments.musc.edu/catalyst/archives/2016/5-13SarcoidosisCenter.html>.



# Researcher alert to finding a cure for sleep disorders

By J. RYNE DANIELSON

daniejer@musc.edu

Sleep plays an important role in physical and mental health: It boosts the immune system, improves problem-solving and memory retention, supports healthy growth and development and even helps stave off depression. But for those with narcolepsy, a neurological disorder that impairs the body's ability to regulate sleep, it can be dangerous and life-altering.

Assistant professor Meng Liu, M.D., Ph.D., is one of many researchers in MUSC's Department of Psychiatry and Behavioral Sciences hard at work on finding a cure for narcolepsy and other sleep disorders. Three new grants from the National Institute on Aging and National Institute of Neurological Disorders and Stroke, both a part of the National Institutes of Health, will help him continue that work at MUSC. The first, a K01 career development grant, will provide Liu with support on the path to becoming an independent investigator in sleep neurobiology. The second, an R21 exploratory grant, will set the foundation for mapping out emotional circuits in the brain that can trigger narcolepsy. And the third, a 5-year R01, will seek to develop a cure for narcolepsy using targeted gene therapy. Altogether, they total more than \$2 million.

Liu grew up in Hulan Erji, a small town in China's far north, about 1,000 miles from Beijing. After obtaining both an M.D. and a Ph.D. at Peking University, he came to the United States to pursue molecular biology and gene therapy research – first at Harvard, then at MUSC, when his whole lab relocated in 2011.

Liu's wife, Bingyu Zou, works alongside him as a research specialist. They have a daughter, Irene. Outside of the lab, art is just as important to them as science. His wife enjoys oil painting. Their daughter plays piano. Liu plays drums and saxophone. He even had a rock band at Harvard.

Since coming to MUSC, he hasn't had as much time to play. He's far too preoccupied with his current research and

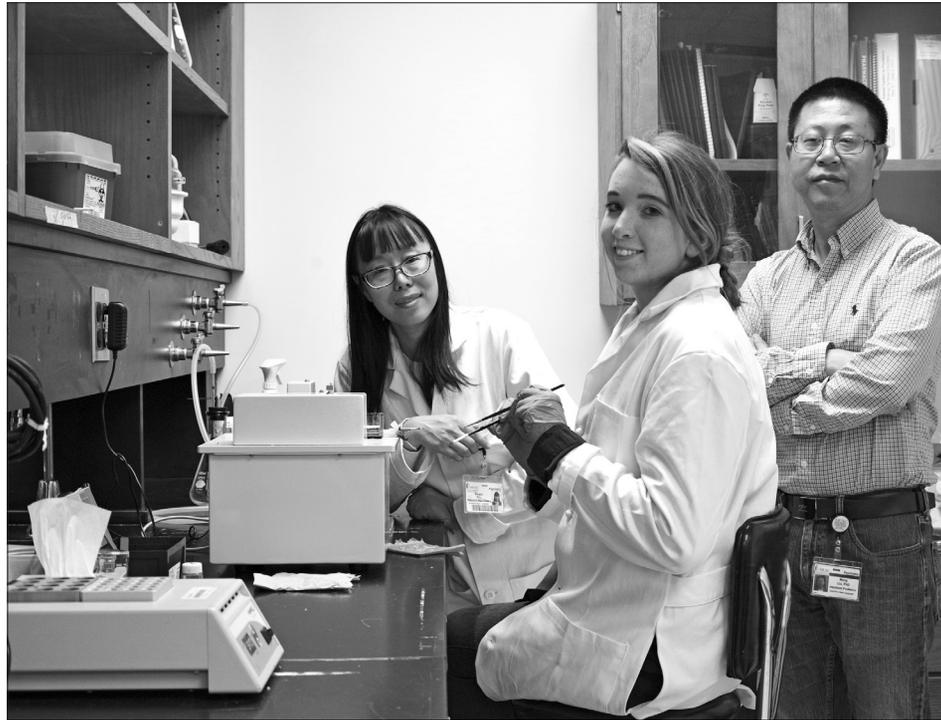


photo by J. Ryne Danielson

**Research specialists Bingyu Zou, from left, and Emmaline Bendell join Dr. Meng Liu at his lab bench. Liu is hard at work on a cure for narcolepsy, a sleep disorder that affects more than 200,000 Americans.**

the potential for a cure for narcolepsy.

"Narcolepsy is linked to a missing peptide in the brain," Liu said. "We think reintroducing it to the brain may cure or treat narcolepsy, but there's currently no way to deliver it. It disappears quickly in the bloodstream and cannot penetrate the blood-brain barrier."

That peptide – discovered almost simultaneously in 1998 by two teams that each named their discovery something different – is called, alternately, orexin or hypocretin. It is produced in specific neurons throughout the brain and essentially keeps the brain awake. In people with narcolepsy, those peptide-producing neurons die for reasons that researchers don't fully understand but may be related to an autoimmune disorder.

To overcome the challenge of delivering the peptide to the brain, Liu is turning to an experimental treatment that has already had success in treating other diseases, from sickle cell to some cancers: gene therapy. By modifying viruses – called vectors – to act as tiny cargo ships, researchers can use them to carry genetic

same spot because the original carrier is gone."

Instead, a more detailed map of the underlying brain circuitry is required, and Liu believes that might start with a better understanding of the specific triggers of narcolepsy. Strong emotions, for example.

"Surprise, love, fear, laughter – these can cause a sudden loss of muscle control in people with narcolepsy, which is called cataplexy," Liu explained. "We need to better understand how emotions trigger cataplexy in the emotion regulation center of the brain, the amygdala."

Once Liu has mapped out the processes in the brain that trigger cataplexy and other symptoms of narcolepsy, he hopes it will be easier to identify specific surrogate neurons to target with new orexin genes.

Once he has that map, Liu will move from animal models to humans, and he will be one step closer to a cure.

"We're working very hard," he said, adding that while he's appreciative of his recent grants, grants alone do not always provide adequate support. Liu's team is entirely grant-funded, and with proposed cuts to the NIH looming before Congress, he's concerned. "We are anxious. But, our psychiatry department is helping us now. If we have support, we'll do more science, and everyone will have a happier life."

*"We need to better understand how emotions [surprise, love, fear and laughter] trigger cataplexy [the sudden loss of muscle control in people with narcolepsy] in the emotion regulation center of the brain, the amygdala."*

Dr. Meng Liu

material through the blood-brain barrier. Liu believes he can use this technique to introduce more orexin into the brains of people with narcolepsy in the future.

Just adding orexin alone won't work though, he said. For one, in the worst cases of narcolepsy, more than 80 percent of the original orexin-producing neurons may have been killed, leaving vectors with no targets. "We can't put back it into the



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## MEET DONNA



**Donna M. Grant-Walker**

**Department; How long at MUSC**  
*Patient Access Center-Parkshore; 3.5 years*

**How are you changing what's possible at MUSC** *By being the "screen door" to the "front door" of the patient experience. It starts with Health Connections and helping patients navigate to get the care that they need for themselves, their family members and loved ones.*

**Family**

*Husband, Kevin; daughter, Taylor; sons, Logan, Maximillian and Adam*

**What is the inspiration for your positivity**

*My mother. She passed away in 2012, but she always put a positive spin on any situation and was my greatest cheerleader. I'm trying to keep the light that she shone burning bright for myself and for others to see. I'm an only child, and her positivity got us through a lot of hard times.*

**My idea of a dream vacation**

*A vacation to Paris to see the sights and walk along the Seine River. We're planning this for our 30th anniversary.*



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# Project Quit helps smokers kick the habit

BY MIKIE HAYES

hayesmi@musc.edu

The prevalence of smoking has decreased over the last decade, but roughly 40 million adults in the U.S. still smoke cigarettes, despite 50 years of warnings by surgeons general, explicit labels on cigarette packs, research that points conclusively to the many diseases connected to smoking, even an intolerant society.

And every day nearly 3,300 kids try their first cigarette – many of whom make it a lifelong habit.

“The smoking epidemic is going strong,” said MUSC researcher Kevin Gray, M.D., director of the Division of Child and Adolescent Psychiatry and a professor in the Department of Psychiatry and Behavioral Sciences, who works with South Carolinians struggling to quit.

According to the New England Journal of Medicine, smoking-related illnesses cost the U.S. a staggering \$170 billion annually; that doesn’t include the \$156 billion in lost productivity.

And the human toll is even worse: Every year 600,000 Americans will die from smoking.

So why do so many – 15 percent of Americans – still light up, especially considering that smokers today face societal shaming more than any time in history? Anti-smoking campaigns not only point out the serious health risks associated with smoking but also the unattractive cosmetic issues smokers deal with like stained teeth, bad breath, hair that smells of stale smoke and a persistent, junky cough, as well as the hazards of second-hand smoke exposure for those around them. While factually accurate, this also has empowered some people to make their disapproval known when a smoker practices what they consider a “nasty habit.”

Gray and fellow addiction experts see beyond those biases and frame it more scientifically, characterizing smoking as an addiction – a physical, psychological and social dependence on tobacco and nicotine – one that requires intervention. Some research studies have

indicated that nicotine is more addictive than even alcohol, cocaine or heroin.

“There is no judgment here,” Gray said. “We see tobacco use as a significant public health issue that is still relatively unaddressed,” he explained, “not as a moral issue or a judgment type of issue. We are very interested, through our treatment and non-treatment research studies, to better understand tobacco use and to be able to better intervene with those who want to quit.”

Gray, along with colleagues Michael Saladin, Ph.D., a professor in the Department of Health Science and Research, Matthew Carpenter, Ph.D. a professor in the Addiction Sciences Division, Erin McClure, Ph.D., an assistant professor in the Addiction Sciences Division, and Rachel Tomko, Ph.D., a postdoctoral fellow also in the Addiction Sciences Division, are part of Project Quit, a team leading several ongoing National Institutes of Health sponsored research studies at MUSC that enroll smokers from ages 14 through 65. The team is dedicated to understanding the innermost mechanics of this addiction and working with smokers who are struggling with it.

This team of addiction specialists works tirelessly to improve treatments and can offer the majority of tobacco smokers options for help. Not only do they have a half-dozen research studies currently underway, it’s a continual process – as one study is ending, another is starting.

“This is a sustained tobacco program,” he explained. “We have a variety of studies, and generally speaking, we have studies that accommodate most smokers, and if we don’t, we have clinical programs we can refer them to. It’s a good fit for most, and we are here to offer hope and possibilities through our studies.”

## DEADLY CONSEQUENCES

Today, fortunately, more people have the desire to quit than in the past. The Centers for Disease Control and Prevention reports that in 2015, 68 percent of all current U.S. adult cigarette smokers said that they wanted to quit



Photo provided

**The Project Quit team is currently conducting a half-dozen research studies aimed at both smokers who want to quit and those not quite ready to quit.**

See **SMOKING** on page 11

# College of Medicine Cup 2017: A healthy competition

By ALYSSA FRANCHAK

[franchak@musc.edu](mailto:franchak@musc.edu)

Nothing says healthy competition like the battle for the COM Cup. The College of Medicine hosted its first Health and Wellness Day on Monday, March 27 on the Greenberg Greenway.

The action-packed afternoon was a competition between the four COM teams and consisted of events that included a water balloon toss, tug of war, relay races and pushup contest. This competition wasn't just for the students, however. Medicine faculty participated in their own event — an inflatable horse race.

One of the highlights of the day was the “Chopped” competition, modeled after the Food Network’s popular television show. Each team was required to use fresh ingredients from the Urban

Farm and was tasked with turning it all into a dish that would wow the judges in just 35 minutes.

COM staff members judged the Chopped competition and enjoyed all four meals, but they ended up awarding COM Team D the victory. At the end of the day, points from all of the events were added up, and COM Team A was named the first COM Cup champion.

“We hope this becomes a fun annual event that people look forward to and that it helps build inclusiveness in the College of Medicine through friendly competition,” said Elle Johnson, program coordinator for Student Affairs and Student Wellness, who organized the event with the help of COM students Annie Niehaus, Marian Hohenwarter, George Book, Harry Rockower and Matt DeMarco.

**Second-year medical student Leslie Moore prepares her dish in the COM Cup’s version of Food Network’s “Chopped” food competition.**

**Bottom photo: Preclinical faculty Drs. Rupak Mukherjee, Paul McDermott, Laura Kasman, Yi-Te Hsu and Joe Blumer participate in the horse race event. First-year student Matt DeMarco, Wellness Leader refereed the event.**



**COM Cup winners, Team A, celebrate as captain Matt DeMarco hoists the cup in victory following the March 27 event.**

*Photos provided*

## IMAGINE NATION

### A MESSAGE FROM Darlene Shaw, Ph.D., Chief Instit. Strategy Officer

Not unlike a long car ride, the journey along our strategic plan may have you asking, “Are we there yet?” However, our Imagine MUSC 2020 strategy for the future will not have a final destination. Why? Because there will always be room for improvement, refinement, innovation. That being said, much progress is being made by our 17 implementation teams, and individuals all over campus, in pursuit of our five goals. In March, Phase II teams were asked to submit milestones through the end of 2019 for their groups’ initiatives. Communicating this is vital to tracking progress and maintaining accountability as we all move toward 2020. In addition, Phase I teams have been asked to submit their “mountaintop metrics” this month. These metrics are the result of the teams asking themselves, “How will MUSC be different when our initiative is successful in 2020?” We are indeed running a marathon, not a sprint. Our strategy is our roadmap, and our metrics ensure we will stay on the most direct route to our success.



### IMAGINE WINS — Featured Goal: Build Healthy Communities

☐ On March 23, about 300 Lowcountry seniors came out for the first MUSC Center on Aging Senior Expo. Heather Boger, Ph.D., director of MUSC’s Center on Aging, hatched the idea, which provided seniors information about resources in the Lowcountry that can enhance the quality of life as we age. Aligned with our Imagine MUSC 2020 goal of Build Healthy Communities, 100 exhibitors provided free health screenings, as well as healthy cooking demonstrations, vaccinations, medication reviews and demonstrations of the SMART 911 system.

Read more about the expo at <http://academicdepartments.musc.edu/newscenter/2017/MUSC-aging-expo-2017/> and see a gallery of photos courtesy of Salt Washed Photography at <https://saltwashedphotography.smugmug.com/Events-NonProfit/MUSC-Center-on-Aging-Senior-Expo/>

☐ Hats off to the MUSC Boeing Center for Children’s Wellness — a unique child care and school-based wellness initiative supporting the healthy lifestyles of teachers, students and families. The child care-focused team consists of the South Carolina Program for Infant Toddler Care, which serves more than 50 child care centers, some of which have been newly designating as “breast feeding friendly.” The school-based team, the Lean Team, incentivizes over 250 schools in 12 South Carolina counties, impacting more than 160,000 students as well as teachers and families. The center’s work is also part of the S.C. Obesity Action Plan. In 2016, the team won the Healthcare Leadership Council’s prestigious Wellness Frontier Award for its school-based wellness efforts.

### UPCOMING EVENTS

☐ April 17 – Ernest E. Just Symposium from 6 to 7:30 p.m., Bioengineering Building, Room 112; “Stress & Healthy: Intersection of Sociology & Biology” (*Diversity & Inclusion, Build Healthy Communities*)

☐ April 18 – Science Cafe at 5:30 p.m. at Charleston Beer Works featuring “Melanoma — Bull’s Eye on a Killer” with Alan Diehl, Ph.D., (*Innovative Learning, Build Healthy Communities, Scientific Discoveries*)

# New office ready to support research community's needs

BY CINDY ABOLE

[aboleca@musc.edu](mailto:aboleca@musc.edu)

At MUSC, clinical investigators, grant administrators, study coordinators and research service providers will have a new shop to support them with clinical research studies through a new campus resource called the Office of Clinical Research. The OCR will form part of MUSC's central Research Administration Offices.

The creation of the OCR at MUSC was the result of several years of planning. Currently, academic medical centers across the country have instituted similar types of offices or are beginning to develop them. Studies have shown that a central office is critical to providing guidance and support to research teams in specialized areas, such as research opportunity identification, feasibility assessment, the site selection process, billing compliance, budget development, sponsor negotiation and invoicing and participant remuneration. With the increasing burden of federal, state and institutional requirements, the OCR will serve as MUSC's billing compliance hub. Two primary goals are to mitigate the risk of federal audit findings due to non-compliance with federal research billing requirements and reduce any related negative publicity.

"The idea of establishing an office for clinical research has evolved over the last four to five years," said Kathleen Brady, M.D., Ph.D., vice president for Research. "Other academic medical institutions also are actively contemplating

developing their own offices of clinical research. A driving factor for establishing OCRs is the development of electronic health records at hospitals and clinical institutions, and the mandate to use these systems for billing. While research has long been conducted within the clinical setting, there is a history of issues related to accurately billing for research services separately from clinical services. The process has become more complicated now that electronic health record systems are automatically generating bills. The OCR will help with billing compliance and improve the efficiency of research processes. As a bonus, the electronic health record also brought about opportunities such as improving awareness of available clinical trials to patients at their clinic visit and increasing recruitment into those trials. The OCR will help ensure MUSC continues to bring cutting-edge clinical studies to our region, and as the number of trials increases, that billing remains accurate and efficient."

In October 2016, a memorandum of understanding was signed by senior leaders representing the MUSC Office of the Vice President for Research, MUHA, MUSC Physicians, the College of Medicine and the Office of the Provost, to support this effort. Royce Sampson, who also serves as chief operations officer for the South Carolina Clinical & Translational Research Institute (SCTR), was named as the OCR Director.

"It's a complicated research environment today. EHR – electronic health records – have changed the billing



*Photo provided*

**Members of the Office of Clinical Research (OCR) presented at the April 12 Department of Radiology and Radiological Science's (RRS) faculty meeting. They include Susan Holland, from left, RRS grants administrator; Royce Sampson, OCR director; Dr. Susan Ackerman, Division of Ultrasound; Dr. Sameer Tipnis, Radiation Safety officer; Dr. Philip Costello, RRS chairman, and Dr. Patrick Flume, Research Compliance and Regulatory Affairs.**

process for research studies. The changes have resulted in research coordinators and investigators trying to understand and comply with laws that drive billing, which include requiring cost language in consent forms and building complex billing calendars in electronic systems. By centralizing support and oversight for the billing process, the OCR will meet federal billing compliance requirements and free up study teams to focus on their research. The OCR will consolidate services and expertise on campus to fill identified gaps in study team support. Our goal is to provide services that are of value to the research community," said Sampson.

In today's competitive clinical research environment, it's important that investigators and research teams stay in compliance. Inaccuracies could jeopardize future study opportunities and

research funding necessary to discover tomorrow's cures.

"It's impossible, particularly in the research world, to have all of this knowledge," Sampson said. "Study coordinators already have a great burden managing active studies while continuing required training. They can't possibly stay current with all of the billing compliance requirements."

Nationally, there's a drive to create more efficient processes that can lead to studies being activated quickly, better patient recruitment, improved operational performance to shorten the timeframe to get new treatments and study drugs to market." The OCR is tasked with ensuring that efficient processes are in alignment with best practices through metric tracking,

*See OFFICE on page 10*

## Interprofessional team-based clinical rotation grant offered

A program in support of Imagine MUSC 2020 and Team-UP for Better Health, MUSC's Office of Interprofessional Initiatives, is soliciting faculty-involvement in the creation of new interprofessional team-based clinical training opportunities. This is a competitive award program and funding will be made available (up to \$15K for up to 24 months) to select proposals to support the implementation and evaluation of new clinical educational experiences for students at MUSC. This program primarily seeks to create new interprofessional training opportunities for students with an emphasis on development of new rotations for physician assistant (PA) and advanced practice nursing (APN) students. However, students from all professions at MUSC can and should be involved (e.g., OT, PT, PharmD, DMD, CRNA, MD, etc) in proposed clinical rotations. Funding can be

used to seed faculty involvement, facilitate logistical problem-solving, offset costs associated with increased initial load on preceptors and support program evaluation. A viable plan for program sustainability after the award period is required.

Faculty and staff members can serve as principal investigator on only one award each, but may be included as co-investigators on more than one application.

More information is available on the application web page. Here are three simple steps for locating the information:

- ❑ Applications must be submitted via the online portal at: <http://ip.musc.edu>
- ❑ Click on the button associated with "Interprofessional Team-Based Clinical Rotation Development Grant Application"
- ❑ Log in with your net ID and password

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reporting and continuous quality improvement.

Another valuable service provided through the OCR will be data tracking throughout the course of a study. Providing continuous data collection is important to MUSC, said Brady. "This gives MUSC the ability to bring in high-quality trials. It elevates the types of research opportunities we can attract. Plus, the OCR will help investigators be successful in industry trials site selection and recruitment."

For the past six months, both Brady and Sampson have been busy promoting OCR's expertise to the research community. They've set up training on campus with Aegis Ethics and Compliance, a national expert compliance consultant and training firm. Additional training is provided by the OCR related to budgeting, billing compliance, invoicing, metric tracking and other relevant topics.

Susan Holland is a grants administrator with the Department of Radiology and Radiological Science. She works closely with clinical researchers, grant administrators and study coordinators in the coordination and management of information for NIH grants and clinical and multicenter trials for sponsored and principal investigator-initiated studies. According to Holland, her department has operated with the necessary tools to help manage and maintain study trials, but recently it turned to the OCR to collaborate and share best clinical research practices.

"Our Department of Radiology's research study teams are experienced in the pre-award, award, post-award and closeout phases of clinical studies and we are sharing ideas with the OCR to simplify the process," said Holland. She hopes their collaboration will create a shared system that can accurately capture procedure costs, and their related ancillary costs such as reading X-rays, during a study.

### Office of Clinical Research FAQ —

What services does the Office of Clinical Research offer?

- Study documents and contract analysis for consistent, clear and allowable cost language
- Budget development and sponsor negotiation support
- Identification of services and pricing to support research studies including MUHA and MUSCP costs in collaboration with hospital and departmental service providers
- Coverage analysis
- Verification of insurance coverage for MUSC Health services associated with research studies to be paid by third party payers with regulatory justification
- Support for renegotiation of these costs when not covered by insurance
- Building research billing calendars in SPARCRequest to push to Epic for studies with MUSC Health billable services
- Identify research orders to support the Epic research team's order set builds
- Research billing support to ensure that all MUSC Health charges associated with research are billed to the appropriate funding source and with the required codes and modifiers
- Identification of clinical trial opportunities and investigator matching
- Feasibility assessment and site selection support
- Metric tracking and reporting to ensure efficient study activation timelines, improved participant accrual and optimal financial performance
- Management of Greenphire, participant remuneration system
- Enterprisewide sponsor invoicing
- Providing CTMS research project management in collaboration with MUSC's Biomedical Informatics Center who will lead system implementation and maintenance
- Management of education and training for study teams to navigate the clinical research process

How will this make life easier for the clinical investigator?

Currently, it is the responsibility of the study team, often the research coordinators, to interpret the research study protocol and translate that information into CPT-coded services and construct a research billing calendar. In the future, the analysis of research protocols will be done by research teams in concert with the Office of Clinical Research. The OCR team will support the research teams in the identification of clinical services required to conduct the study, map those to CPT-coded services in SPARCRequest and build the study billing calendar.

Who are the key leadership people that brought this together?

Authorizing signatures on the Office of Clinical Research MOU include: David J. Cole, M.D., FACS, MUSC president; Patrick J. Cawley, M.D., CEO of MUHA and vice president of health affairs; Lisa K. Saladin, Ph.D., interim provost; Kathleen Brady, M.D., Ph.D., vice president for research; Raymond N. DuBois, M.D., Ph.D., College of Medicine dean; Bruce M. Elliott, M.D., chief physician executive of MUSC Physicians

In an alternative role, Holland and her radiology colleagues also serve as providers to campus research teams, which they hope to expand, by reviewing study protocols for correct radiology services and procedures.

According to Sampson, OCR staff will be busy, and their top priorities in this first year will be ambitious: recruiting staff which include research process, reimbursement, budgeting and sponsor invoicing, training, and metric tracking experts; developing and implementing policies,

workflows and training; implementing prospective reimbursement analysis (PRA) for all MUSC clinical research studies; and piloting study invoicing procedures to sponsors. In year two, the implementation of a Clinical Trials Management System (CTMS), in collaboration with our MUSC Biomedical Informatics Center (BMIC), will support enterprise-wide sponsor invoicing for services provided through clinical trials.

For information about the OCR, visit [horseshoe.musc.edu/research/ocr](http://horseshoe.musc.edu/research/ocr).

**SMOKING** *Continued from Page Six*

smoking completely. Yet, just over half of all smokers make a quit attempt each year.

Having the desire doesn't necessarily make it easy by any means. And the tobacco industry doesn't help — in fact, it makes sure that it's nearly impossible to quit. Gray explained that the last thing tobacco executives want to lose are lifelong customers.

Gray said that most people, even with the best of evidence-based treatments, are unable to successfully quit. But the team believes there are many reasons to try — especially here in the South, where smoking remains prevalent and nearly 22 percent of South Carolinians smoke, which is far above the national average, added Carpenter.

In addition to smoking being the single leading cause of preventable disease, tobacco use is the No. 1 cause of both death and disability in the United States and can lead to more than a dozen types of cancers, diabetes, heart disease, stroke, tuberculosis, kidney failure and a long list of other serious ailments.

Quitting is well worth it. When smokers quit, Gray said, their heart rates drop down to normal levels within 20 minutes. Within two hours, heart rate and blood pressure will have returned to almost completely normal levels. After only 12 hours, blood oxygen levels rise to near normal levels. Since the risk of having a heart attack is 70 percent higher than for those who do not smoke, after 24 hours, the risk of heart attack begins to decrease and drops sharply after just one year. After two to five years, the risk of having a stroke falls to that of a non-smoker. After five years, the risks for developing certain cancers are cut in half, and the risk of dying from lung cancer drops by half after 10 years. The payoffs are big.

For smokers who quit before they reach the age of 35, they can reduce their risk of suffering premature death to almost the same level as non-smokers. “Still,” Tomko said, adding an important message, “don't wait to quit. The addiction progresses and quitting becomes that much more difficult.”

**PROJECT QUIT**

While Project Quit was originally a smoking cessation study aimed at adolescents, it has expanded to include other active research, both treatment-based — like medications, behavioral interventions, and clinical therapies — as well as observational — looking at people's habits and noting the statistical correlations between their behavior and health, in an effort to better understand tobacco use disorder.

Carpenter pointed out how the collaborative efforts that take place on campus have strengthened Project Quit, leading to numerous successes.

“The people involved in Project Quit are a part of a larger whole,” he said. “Tobacco research at MUSC has expanded significantly in the past 15 to 20 years,

The following are active Project Quit studies that are open to new participants. In addition to smoking cessation studies, there are studies available for smokers who aren't ready to quit just yet.

To inquire about participating in one of these trials or for more information, contact the Project Quit team at 792-4097 or [smokingstudy@musc.edu](mailto:smokingstudy@musc.edu). Please visit the website at [muscmokingstudy.com](http://muscmokingstudy.com). You can also text SMOKE to 44332.

**❑ Adolescent Cessation Study (original Project Quit Study)**

*PI: Dr. Kevin Gray*

Recruitment summary: This is a research study to determine if varenicline (commonly known as Chantix) helps young cigarette smokers quit. Smokers aged 14 to 21 who participate in the study receive medication or a placebo and help with quitting during 12 weekly sessions. Smokers under 18 must have parental consent. There is no cost to participate and compensation is available to those who qualify.

**❑ Translational Neuropsychopharmacology Research of Nicotine Addiction**

*PIs: Drs. Brett Froeliger and Kevin Gray*

Recruitment summary: This study is investigating the effects of combining two medications, varenicline (commonly known as Chantix) and N-acetylcysteine (NAC), on brain responses and smoking behavior in daily cigarette smokers who are interested in quitting smoking. The study consists of 10 visits over six weeks. Compensation is available for those who qualify. Smokers must be between the ages of 18 and 55.

**❑ Evaluating N-acetylcysteine as a Pharmacotherapy for Tobacco Use Disorder**

*PI: Dr. Erin McClure*

Recruitment summary: The purpose of this study is to assess the effects of N-acetylcysteine (NAC), an over-the-counter antioxidant, to assist adult cigarette smokers with quitting and preventing relapse to smoking. This medication may help

people quit smoking by reducing withdrawal symptoms, craving and preventing relapse, but it is not known if NAC helps smokers early in their quit attempt or after they have already quit.

**❑ The Gender-Sex Hormone Interface with Craving and Stress-Related Changes in Smoking**

*PIs: Drs. Michael Saladin and Kevin Gray*

Recruitment summary: This is a non-treatment study for cigarette smokers ages 18 to 45, examining gender and reproductive hormone influences on smoking behavior. There is no requirement that participants be interested in quitting smoking. The study involves four clinic visits and compensation is provided for those who qualify.

**❑ Evaluating Smoking and Relapse in Adolescents and Emerging Adults Using Remote Monitoring Technology**

*PI: Dr. Erin McClure*

Recruitment summary: This is a research study that will test a new remote monitoring technology to assess smoking in the natural environment among adolescents and young adults ages 15-25. After assessment and inclusion in the study, participants will be asked to report on their smoking by answering questions on a mobile phone for 35 days. Participants will also be asked to make a brief quit attempt lasting for approximately 48 hours. There is no cost to participate and compensation is available to those who qualify.

**❑ Gender Differences in Latency to Smoke Following Exposure to Stressful and Smoking Cues in Daily Life**

*PIs: Dr. Rachel Tomko (Mentor: Dr. Kevin Gray)*

Recruitment summary: This is a non-treatment study for smokers, ages 18 to 45, who are being recruited for research at MUSC to help better understand patterns of cigarette smoking among male and female regular smokers. Specifically, participants will track their cigarette use using an electronic lighter and will complete surveys on a mobile device for two weeks.

inclusive of the people involved in this project and these studies. But there are many people on this campus who do tobacco research. Tobacco research at MUSC is actually one of our stronger research programs, arguably in the country, and that's because of our collective presence on campus and the research successes that we've had.”

Saladin agreed. “We have an extremely robust tobacco research program at MUSC, and we work collaboratively with researchers and teams all over campus.”

Carpenter explained that the successes Project Quit has experienced are attributable to the novel therapeutic approaches the team has taken.

“For instance, taking existing medications like varenicline and applying it to novel populations like

adolescents is brilliant,” he said, referring to Gray's study, “as is the marriage of technology to addiction treatment. Dr. Tomko's study will feature a special lighter that tracks where, when, and how much a person smokes. And Dr. McClure's video capture of smoking behavior and her study involving NAC and tobacco dependence put MUSC at the very heart of exciting new research.”

McClure explained that addictions are complex and associated with a series of neurocircuits and brain regions, and habits like smoking are partially controlled by the actions of brain chemicals. One particular brain chemical of interest to addiction researchers is called glutamate. When the brain's glutamatergic system

**SMOKING** *Continued from Page Eleven*

malfunctions, she said, addiction can result, and people trying to quit may be more likely to fail.

Much of the groundbreaking preclinical work revealing glutamate's role in addiction has been conducted in the lab of Peter Kalivas, Ph.D., professor and chair of the Department of Neuroscience, and the Project Quit team is interested in translating these findings into clinical care. McClure's study investigates if treatment with N-acetylcysteine (NAC)

can, via restoring normal glutamate function in the brain, help with smoking cessation. Another study, led by Gray and Brett Froeliger, Ph.D., assistant professor in the Department of Neuroscience, is investigating the effects of combining NAC and varenicline on brain responses and smoking behavior in daily smokers interested in quitting.

"At the end of the day," Carpenter said, "we're pushing the envelope in terms of how we can access and treat tobacco dependence outside our lab."

