

'I'm only human'

The Lazarus drug saves life of 25-year-old superstar Demi Lovato after overdose

BY MIKIE HAYES

hayesmi@musc.edu

When reports surfaced that pop star and former Disney ingénue Demi Lovato overdosed on heroin on July 24, the music-sphere was devastated but perhaps not shocked. Just a month earlier, Lovato had released the song "Sober," a haunting confession of relapse after six years of sobriety. Her lyrics reminded family, friends and fans that she's only human.

"Momma, I'm so sorry, I'm not sober anymore. And daddy, please forgive me for the drinks spilled on the floor. To the ones who never left me, we've been down this road before. I'm so sorry; I'm not sober anymore."

In her first public statement since her overdose, Lovato shared with her followers on Instagram that addiction is not something easily conquered. In that Aug. 5 post, she thanked God for keeping her alive and fans for their love and support. She reminded people she had never hidden the fact that she suffered from addiction and asked for their love and prayers.

While it has not been conclusively reported that heroin, and not another opioid, was the cause of her overdose, by all accounts, Lovato is lucky to be alive. Thanks to the fast actions of friends who gave her a life-saving dose of the miracle drug Narcan, she was revived.

Narcan, the trade name for naloxone, is an opiate antidote that can literally bring an opioid user back from the brink of death. The rampant use of opioids like heroin and fentanyl and prescription pain pills such as OxyContin, Percocet and Vicodin is at an all-time high, and experts like Kelly Barth, D.O., an internist and psychiatrist who concentrates her efforts on the management of patients taking opioid medications, are advancing in all directions to combat this nation's rising opioid crisis.

Barth explained that when someone is overdosing on an opioid, breathing may slow to a dangerous level or stop altogether. Without this lifesaving intervention, it can be impossible to wake a person from this state, making naloxone a remarkably valuable arrow in an otherwise empty quiver.

It's most commonly administered via a nasal spray or intramuscular injection — like an EpiPen — and quickly gets into the bloodstream. Once there, it immediately attaches to opioid receptors in the brain, blocking the opioids. The respiratory system is also involved, and by removing the opioids attached to receptors, naloxone enables the person to start breathing again, which brings the victim out of sedation.

Another important advantage of the prescription drug naloxone is that it only reverses an overdose. In other words, it



Photos by Sarah Pack

Dr. Kelly Barth explains how Narcan works during an overdose. Left photo: People magazine covers Lovato's struggle.

cannot be used to "get high." If given to a person who has not taken opioids, it will not have any effect, since there is no opioid overdose to reverse.

Naloxone reverses 93 percent of overdoses — that's the good news. The bad news is many recipients don't survive a year after their overdoses, Barth said. As beneficial as naloxone is for reversing overdoses, the bottom line is it does not treat the underlying problems, meaning there are many challenges still ahead for Lovato and others who return to using drugs.

After nearly two weeks in the hospital following her overdose, Lovato was released on Aug. 6. Sources close to the star say she entered rehab straightaway. In her Instagram post, she expressed to fans that she needs time to focus on her sobriety and road to recovery. Barth said that sounds positive. After someone makes it through an overdose, getting her or him immediately into treatment is the

most important step, she said. Therein lies a patient's greatest opportunity for survival.

NOT WHO YOU THINK

Every day, more than 115 people in the United States die of opioid overdoses, according to the National Institutes of Health, approximately 43 from heroin. Unlike the myriad celebrities who succumbed to their drug use, Lovato is fortunate. She's alive. And by every measure that defines success, she seems to have it all — not your stereotypical heroin user.

Or is she? Barth said today's heroin user can be young, white, suburban. Or not. Drug addiction doesn't necessarily have a definitive look anymore, Barth added. Because heroin use has been increasing in recent years among men and women, most age groups and all income levels, some of the

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Health and Well-being

AROUND CAMPUS

PEOPLE

Raymond DuBois



Raymond N. DuBois, M.D., Ph.D., dean of the College of Medicine and professor in the Department of Biochemistry and Molecular Biology, was named co-editor in chief of

Research, as of July 1. Cancer Prevention Research is one of eight journals published by the American Association for Cancer Research. He is a past president of the AACR, chairman and president of the AACR Foundation and a Fellow of the AACR Academy. DuBois is an internationally renowned expert in the molecular and genetic basis of colorectal cancer.

Jesse S. Goodwin



Jesse S. Goodwin, Ph.D., was named chief innovation officer at MUSC as of July 2. Goodwin was formerly vice president of development for the Zucker Institute for Applied

Neurosciences. Goodwin will help build a culture of innovation and create an effective and efficient pipeline for innovation at MUSC.



Photo by Jonathan Coultas
James B. Edwards College of Dental Medicine Dean Dr. Sarandeep Huja, left, congratulates third-year dental student Eduardo Lopez, one of 74 students, during the school's White Coat Ceremony held June 15.

Leonie Gordon



Leonie L. Gordon, M.B.Ch.B., professor in the Department of Radiology and Radiological Science, was honored with the Society of Nuclear Medicine and Molecular Imaging Distinguished Service Award during

the society's annual meeting in June. Gordon was also named one of 14 new SNMMI fellows. The SNMMI Fellowship recognizes distinguished service to the society as well as exceptional achievement

in nuclear and molecular imaging.

Jerry Mansfield



Jerry A. Mansfield, Ph.D., RN, executive chief nursing officer and chief patient experience officer, was selected as a Leader to Watch in an upcoming feature in the journal Nurse Leader. The bi-monthly journal

covers both nursing management and leadership.

EVENTS

Summer Movie Nights

The Tides Folly Beach, located at 1 Center St., will host free movie nights on Wed., Aug. 15 (Jaws) and Wed., Aug. 22 "Moana" The event is free and open to the public. Call (843) 588-6464. Mount Pleasant Memorial Waterfront Park will host "Guardians of the Galaxy, Vol. 2" at 8:15 p.m., Friday, Aug. 24. Festivities will begin at 6:30 p.m. Bring blankets or chairs. Food trucks and other treat vendors will be there. Free admission and parking

Heroes on the Water

The 4th annual Bowen's Island Heroes on the Water event will be held from 8 a.m. to 1 p.m., Sunday, Aug. 26. The program, sponsored by the Lowcountry SC HOW Chapter, helps veterans, active duty military and first responders relax, rehabilitate and reintegrate into society through kayak fishing and the outdoors. Contact Lowcountry.sc@heroesonthewater.org.

Diaper Drop Off Drive

The Junior League of Charleston is sponsoring a diaper drop off drive through Aug. 10. The effort is part of South Carolina's inaugural diaper bank to distribute diapers to children in need. Drop off diapers, of all sizes, to Handsome Properties, 285 Meeting Street, downtown Charleston, weekdays from 9 a.m. to 5 p.m. For information, call 843-727-6460.

MUWC Annual Scholarships: applications due Sept. 5

The Medical University Women's Club is offering its annual scholarships to MUSC students for the 2018-2019 academic year. More than \$18,000 in scholarship money is available. All full-time MUSC students (second year and higher) are eligible to apply. The deadline to complete and submit MUWC scholarship applications is Wednesday, Sept. 5 at 4 p.m.

For further information and a link to the online application, visit <http://academicdepartments.musc.edu/womensclub/scholarship.htm>. Completed applications should be submitted via email to muwcscholarship@gmail.com.

MUSC CATALYST news

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@musc.edu

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Convocation speaker to discuss importance of resiliency

By LESLIE CANTU

cantul@musc.edu

When registered nurse Teresa “Tese” Stephens, Ph.D., associate professor in the College of Nursing, started studying resiliency a dozen years ago, she got some perplexed looks.

“It was viewed as fluff. It wasn’t of critical importance,” she said. “I believed it was, and that’s why I stuck with it.”

Now, as organizations come to understand how clinician burnout and moral distress can affect patient outcomes, provider turnover and even the health and lives of clinicians themselves, the study of resiliency has picked up momentum.

It’s important for health care providers to develop personal resiliency to deal with the stress and chaotic nature of health care, but it’s just as important for organizations to build resilient cultures and resilient teams, she said.

She’ll be discussing these twin topics as the keynote speaker during convocation on Aug. 21.

Stephens said health care is facing a burnout epidemic. Studies show physicians die by suicide at twice the rate of the general population. There’s little information about nurses who die by suicide, although a recent review in the United Kingdom determined that female nurses’ risk of suicide was 23 percent higher than the national average.

Moral distress – internal conflict caused when one cannot do the right thing due to organizational constraints – used to be something that accumulated over the years and showed up later in people’s careers, but that conflict is now showing up in students, Stephens said.

Stephens started her research focused on nursing students and new nurses. She began exploring the narratives of Holocaust survivors, trying to discern the personal qualities that allowed the survivors to be resilient, and wondered whether resiliency was something that could be taught.

She now talks about the “Four Ps” of resiliency: priorities, purpose, perspective and personal responsibility.

During her convocation address, she’ll explain how those factors come into play at the individual level but also at the organizational level.

Organizations, she said, must focus on “walking the walk” in terms of living out stated values.

“We do what we can to increase personal resilience, but we also have to be willing to change our mind about what health care is supposed to look like,” she said. “We have found the old ways of doing things and those old philosophies that are very hierarchical in nature –



Photo provided

they do not work.”

Stephens said that soft skills like humility and compassion that were once viewed as a sign of weakness are actually associated with better outcomes.

Faculty members, as seasoned members of the health care community, have an opportunity to model for students how to embrace MUSC’s five values of compassion, respect, innovation, collaboration and integrity while also providing excellent care, she said. Students and residents need to see that they can change the culture of health care, because many will find themselves taking positions in organizations with unhealthy cultures, she explained.

Stephens, who’s entering her second year at MUSC, praised MUSC’s culture. As a consultant for several years, she worked with a variety of organizations and began searching for a place that lived out its values, something she said is hard to find in academia and health care, because those fields are so entrenched in precedent.

“It became a quest, really, to find a place that did what was recommended,” she said.

She heard about MUSC, and on paper, the university looked good. But Stephens wanted to test the waters before committing, so she asked Gigi Smith, Ph.D., RN, executive associate dean for academics in the College of Nursing, if she could teach as an adjunct for a year. After that year, she signed on as an associate professor.

“What we have here, it’s truly a gift,” she said. “We have made those advances in embracing a values-based culture. We have the opportunity not just to provide that for ourselves, but we have so many people coming through here that are experiencing very unhealthy cultures that need that nurturing and mentoring. How do they go back and change their own cultures?”



Lisa K. Saladin, PT, Ph.D.
Executive Vice President for
Academic Affairs & Provost

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to celebrate the new academic year
and
honor faculty award recipients

Tuesday, August twenty-first
four-thirty o’clock

Keynote Speaker
Teresa Stephens, Ph.D., MSN, RN
College of Nursing

Drug Discovery Building
Room 110

Reception to follow in
Drug Discovery Building Lobby



Ed
HUNNICUTT

Hope in a handful of ‘magic’ cells

Lupus expert explains beneficial effect of cells with potential life-changing implications

BY ANDREW LIPKE

lipke@musc.edu

“Was there ever a time I thought ‘I’ll never get better?’ Lashanda Wiggins asked pensively. “Like this is the rest of my life? Yes. Every day before April 27, 2017. Every single day. But this treatment, Dr. Gilkeson and MUSC gave me my life back.”

There are times when life is overshadowed by elements outside our control. For Wiggins, that included a devastating diagnosis of lupus. But thanks to a clinical trial led by MUSC’s Gary Gilkeson, M.D., and Diane Kamen, M.D., there is hope on the horizon – not just for Wiggins but perhaps lupus patients everywhere.

For many mothers, taking a newborn home from the hospital is exciting and feels like the final step of a 10-month journey. But for Wiggins, it signaled the beginning of a new road she would traverse – one so difficult, in fact, it would last for more than three years.

It all began with back pain one morning in October of 2013.

“The pain was so excruciating, I kind of laid on the floor and told my other son to watch the baby,” she explained. “He called his dad, he was only 3, but we had pictures in the phone. Then he called 911. They took me to the hospital by ambulance.”

After three successive visits to various hospitals in a period of 48 hours, Wiggins continued to experience immense discomfort. She was diagnosed with a bladder infection and sent home. Unfortunately, that wasn’t the problem. On her third trip to the hospital, a doctor discovered something disturbing.

“They did MRIs, and they found lesions on my brain and on my spine. The doctor there said they weren’t equipped to handle it, so they brought me to MUSC, where doctors ended up diagnosing me.”

Wiggins, a wife in her early 20s and mother of three, was told she had neuromyelitis optica, a manifestation of lupus.

“Forty-eight hours later, I was paralyzed from the waist down, and I was blind 24 hours after that – all from lupus.”

Wiggins was terrified and began to fear not only for her life but that she might never be a real mother to her children again.

“My nerves were kind of crazy,” she said with a laugh, “because my husband was at home with this new small baby who came home at 4 pounds, 4 ounces. My son was born prematurely at 34 weeks. So I’m scared, because he was scared to hold the baby in the hospital. I was just

“MUSC is amazing. Any time my kids or I get sick, we always come here first. I feel that’s because MUSC is always studying and researching. They know a lot about a lot.”

Lashanda Wiggins

worried about my baby more than anything.”

Paralyzed from the waist down for six months and blind for three, she remained bedridden for more than six months while she slowly recovered her vision, then her mobility. MUSC became her home for three of those months.

While her family continued to support her over a period of almost three years, she suffered nearly a dozen lupus flares, where her symptoms overwhelmingly increased. Systemic lupus is an autoimmune disease that causes the body’s immune cells – the defense system that usually protects against disease – to attack healthy organs and tissue. Lupus is not only more prevalent but also more severe in African-American and Hispanic women.

Wiggin’s family searched desperately for any possible solution.

“My mom took a leave of absence from work for the three months while I was at MUSC. My dad worked especially hard on researching clinical trials. We even thought about going to Chicago to enroll in a bone marrow transplant trial, but when we learned that program has like a 15 percent mortality rate, we backed out really quick.”

After suffering through years of lupus flares, Wiggins was exhausted. Finally, in early 2017, she and her family learned of a study led by Chinese scientist Lingyun Sun, M.D., Ph.D., who used stem cell infusions to treat lupus flare-ups. Even more remarkably, a similar study was taking place at MUSC. Gilkeson, a renowned rheumatologist and lupus expert, and Kamen, a highly regarded lupus clinical trials expert, were using mesenchymal stem cells harvested from umbilical cords to treat the disease. Wiggins’ rheumatologist, Jim Oates, M.D., contacted Gilkeson and Kamen, the co-principal investigators of the study, and referred her. She was the first patient enrolled in the study, and in late April of 2017, she became part of a group of six patients being treated in the phase 1 trial to determine the safety of the treatment.



Photo provided

Lowcountry native Lashanda Wiggins, far right, celebrates with her husband and children after graduating from the Charleston Cosmetology Institute.

MAGIC CELLS

Gilkeson was intrigued by Sun’s work after visiting the Affiliated Drum Tower Hospital of Nanjing University Medical School in China in 2010. There he heard Sun present his work about the groundbreaking use of mesenchymal stem cells (MSCs) to treat lupus. That visit paid off in spades. The techniques for stem cell derivation were transferred to MUSC.

After preclinical work at MUSC, funded by the Lupus Foundation of America (LFA), which demonstrated potential efficacy of the cells, the necessary FDA regulatory requirements for performing a phase I trial were completed. The results of the phase 1 trial, also funded by the LFA, are considered promising, with none of the patients having a serious adverse reaction and five of the six patients treated experiencing significant improvement in their lupus symptoms after receiving the therapy.

Gilkeson and Kamen recently were awarded a \$3.8 million grant from the Lupus Foundation of America and \$4 million grant from the National Institutes of Health to perform a five-year phase 2 multicenter placebo-controlled trial, which will allow them and their team to determine the efficacy of MSCs in patients with lupus resistant to treatment. MUSC, through the office

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MEET JOHN



John Simeone

Department; How long at MUSC
Information Solutions; eight months

How are you changing what's possible at MUSC
By assisting people with their various IT needs and questions.

What music is in your player now
Chevelle

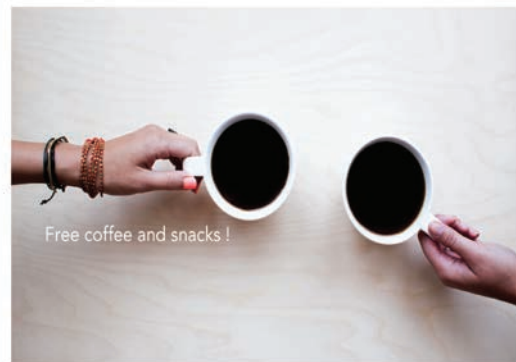
A unique talent you have
I'm an encyclopedia of useless and/or historical information

Your idea of a dream job
One that provides both challenge and growth

Last book read
Five Weeks in a Balloon by Jules Verne

Your idea of a dream vacation
Traveling overseas

How would you spend \$1 million
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WestEdge taking shape

By LESLIE CANTU

cantul@musc.edu

The life sciences play an outsize role in South Carolina's economic plans. Though small compared to other sectors the state is targeting, the life sciences have huge potential.

A 2017 report commissioned by the S.C. Biotechnology Industry Organization and the S.C. Research Authority found employment in the life sciences — companies like AmbioPharm, Nutramax Laboratories, and Bausch + Lomb — grew by twice as much as overall state employment since 2005. For every 10 jobs in the life sciences, 19 jobs in other sectors are created.

The city of Charleston and MUSC want those life sciences jobs to come here.

It's the main idea behind WestEdge, the development taking shape between Riley Park and the Crosstown. Though the development includes apartments,

office space, retail and restaurants, the heart of the project is its relationship to the medical district and economic development, said Michael Maher, CEO of WestEdge Foundation. MUSC and the city of Charleston founded the WestEdge Foundation to shepherd the development and they hold a majority of the seats on the board.

"This was never simply about redeveloping this side (of town)," Maher said.

In a presentation he gives around town, he reminds people that Charleston was originally settled on the banks of the Ashley River at Charles Towne Landing. But the settlers' main purpose was to develop a working port, so they soon picked up and moved to the peninsula to take advantage of the deep Cooper River, he said.

"They had the audacity and ambition to say, 'Let's move our settlement from there to here,' and to me that is a very clear indication of what makes



Photo by BL Harbert International

An aerial view shows 10 WestEdge taking shape at the intersection of Spring Street and Lockwood Boulevard in Charleston.

Charleston 'Charleston.' They didn't move there to find a quaint southern town that would be a great place to retire to and a great place to travel to.

They were trying to create an economic powerhouse," Maher said.

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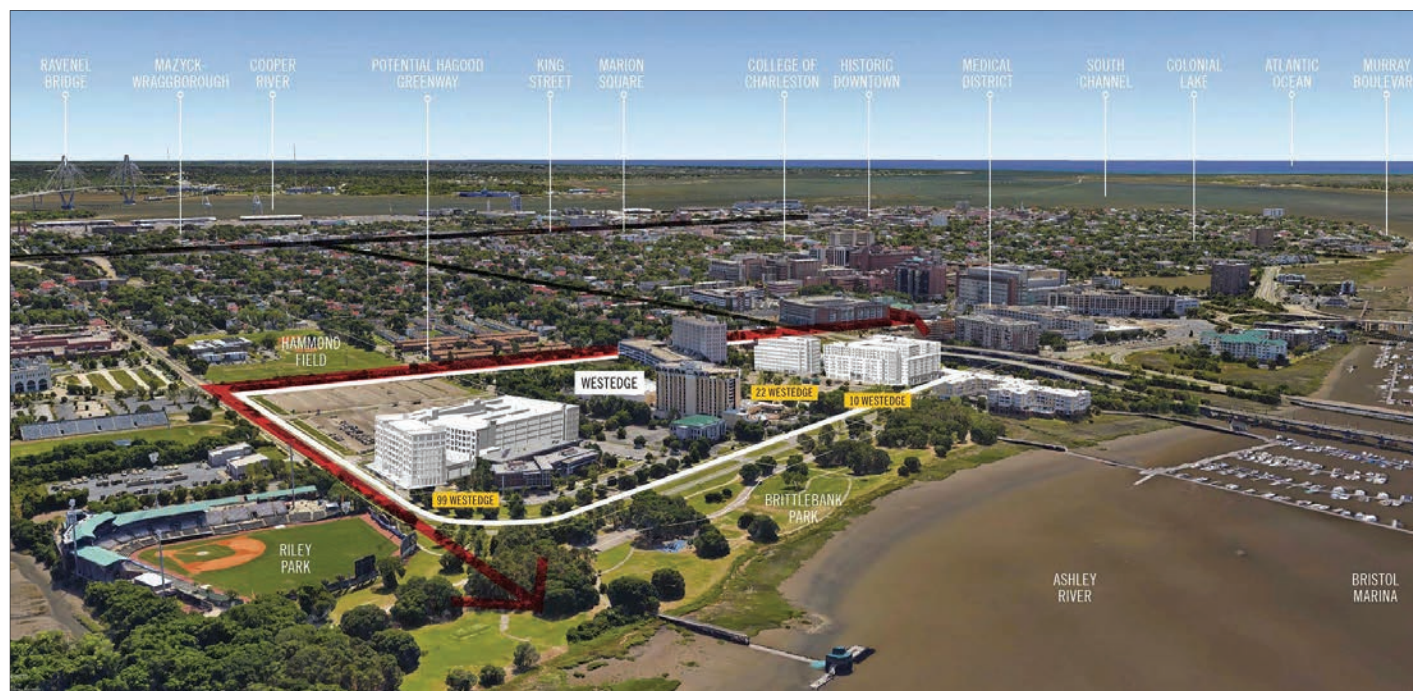
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Graphic provided

FOSTERING INNOVATION

Today, innovation must be woven throughout the heart and soul of MUSC — being a good medical school and a good hospital isn't enough, leaders say.

Michael Rusnak, executive director of the MUSC Foundation for Research Development, said innovation speaks to MUSC's mission of patient care. Lots of people here have good ideas that would improve patient care. However, the key is to get those ideas to the bedside. As federal research dollars continue to shrink, the university must find those dollars elsewhere. Start-ups are one possibility. Finally, innovation begets innovation. To be known as a top university and to recruit and retain the best people requires an innovation mindset, Rusnak said.

"The best faculty are going only to those universities that are innovative," he said.

As a bonus, every once in a while, a university hits the jackpot. The University of Florida, according to ESPN.com, has netted more than \$280 million since 1967 in royalties from Gatorade, which was developed by researchers there for use by the football team. That example, though, is far from the norm, Rusnak cautions.

Instead, as he considers WestEdge, Rusnak looks to Georgia Tech's Tech

Square and the Cambridge Innovation Center in Massachusetts as inspiration.

Tech Square, opened in 2003, now boasts a whos-who of companies with innovation offices — the Panasonic Innovation Center, the Boeing Manufacturing Development Center and an AT&T Foundry, among others. It has the "highest density of startups, corporate innovators and academic researchers in the entire southeastern United States," which encourages interaction among researchers, venture capitalists, students and entrepreneurs, according to its website. It is no coincidence that the lead developer at WestEdge, Gateway Development, was an instrumental player in the creation of Tech Square.

Density and interaction are also key to the Cambridge Innovation Center. The center offers office and coworking space to hundreds of companies that want to work in a space buzzing with creativity. A one-person company can rent a single cubicle if that's all that's needed, Rusnak said.

"Everybody wants to go in there because they get to talk to other innovators; they get to talk to other folks that are in the same business," Rusnak said.

It's that sort of cross-fertilization of ideas — with a biotech and life sciences emphasis — that leaders are hoping to

create at WestEdge.

FROM HORIZON TO WESTEDGE

First dubbed 'Horizon' when it was conceived 15 years ago, WestEdge was delayed in part by the Great Recession.

Now, with the first building open and occupied, the project has picked up momentum. Maher said he expects the bulk of the district to be completed by 2030, though a special tax district to boost the development lasts through 2038.

Although the development is guided by a vision set by MUSC and the city, the buildings are being built by private developers, Maher said. Infrastructure improvements, including new roads and drainage upgrades, are being funded through the use of tax increment financing, or a TIF. Essentially, money has been borrowed to pay for those improvements. It will be repaid from the property taxes of the new buildings.

THE BUILDINGS

The initial phase consists of three buildings and infrastructure improvements. It's meant as a "live, learn, earn" space. The new WestEdge Street is modeled after Las Ramblas — wide pedestrian thoroughfares in Barcelona. There will be seating for

See **WESTEDGE** on page 10

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OPIOID *Continued from Page One*

biggest increases have been found in demographics with historically low rates of heroin use — women, the privately insured and people with higher incomes. That has surprised even the experts.

There was a time not terribly long ago when heroin use in Charleston was virtually unheard of, Barth said. It wasn't until recently that it began to claim locals as users.

What could account for that?

While the answer, Barth said, is multifactorial, a national push to get doctors to stop prescribing opioids — including to pain patients — has not decreased overdoses but has in some cases caused patients with legitimate chronic pain to turn to illicit drugs. And, because of its cheaper price, heroin has become the drug of choice for many who are addicted to opioid pain relievers.

Some of this has led to the changing face of addiction Barth explained.

"Now we see people who say they've been cut off by their physicians. I used to always think, 'I treat chronic pain patients — many are middle-aged ladies. My ladies are never going to go to heroin.' But we are starting to see a population of people who are getting cut off from their prescription opiates and who are transitioning sometimes directly to heroin and sometimes to illicit opiates and then to heroin, buying it off the streets. We used to never see that. It's shocking and concerning. We can't just cut people off. People have pain. They have addiction. There are good treatments for both of these conditions, and we have to make sure people can access those treatments."

This is one reason Barth is so passionate about getting people into addiction treatment and naloxone into the hands of those at risk. People are dying, she said, because addiction is misunderstood — even by some health care providers.

In 2014, only 12 states allowed basic EMS staff to administer naloxone for overdoses. Today, all 50 states have laws that allow for the drug to be administered by anyone, including family members, or in Lovato's case, friends she was partying with. Likewise, most states have enacted Good Samaritan drug laws,

so people will act the way her friends did — decisively.

Before these laws were in place, Barth said it was not uncommon to hear about people panicking and letting their friends die of an overdose, so as not to incriminate themselves. Laws were such that not only could friends be implicated for being around illicit drugs, but the person who overdosed could also be revived and immediately arrested.

States, including South Carolina, recognizing the implications of the epidemic, ramped up efforts to stem the rising tide, increasing funding and access to care and naloxone.

Still, even though the overwhelming upside of naloxone is widely known, some health care providers drag their heels — not eager to get naloxone into the hands that could potentially save lives.

Some of that hesitation comes from a belief that addiction is not a disease, Barth said. "There is a mindset that people are choosing to use drugs, and we shouldn't protect them from the consequences of their actions."

Another fear, she added, is that naloxone enables continued drug use — if someone knows they can be rescued, they will continue to use drugs.

Barth works day in and out with this population; is that a scenario she sees?

"No. There's a small proportion who have gotten repeated Narcan doses — who come into the ER over and over again and have been reversed multiple times, but that's certainly not the majority of people. What we do know is most people who misuse opioids have a very high mortality rate. Narcan is very effective at saving their lives, but without treatment or a change in what's going on, one in 10 of those people will die within the next year."

That statistic haunts her. It drives her work. Upward of 80 percent of those in need of opioid addiction treatment don't have access to treatment options, and still too many don't have access to naloxone.

There are currently a lot of initiatives to get Narcan in people's hands and then into treatment, Barth said. "Treatment works. Experts know it works. But more needs to be done."

MUSC is coming at the opioid crisis

from multiple directions: research, patient care and education. Naloxone features throughout.

In one program, people with opiate-use disorder coming through the MUSC Health Emergency Department are identified, and if a patient is willing, they are fast-tracked to a specialist and immediately into treatment after the ED visit. Those immediate next steps, Barth said, are critical in terms of disrupting the using-overdose cycle.

However, if a patient isn't ready for treatment, Barth said, a Narcan kit is provided, providing the closest thing to a safety net.

Barth is also part of South Carolina's first comprehensive chronic pain rehabilitation program where pain patients receive physical therapy, psychotherapy and medical management every day to address chronic pain and opioid addiction and eliminate their reliance on medication that resulted from prior treatment.

These patients are provided naloxone. Barth said it's important for anyone at risk to have the drug close at hand.

In the weeks after news of Lovato's overdose broke, fans took to social media with the hashtag #HowDemiHasHelpedMe to share how her struggles have helped them in their personal battles with addiction, mental illness and body issues. Barth said that's not only a healthy outlet, but it also brings awareness to a subject that was too stigmatizing to discuss openly.

Often, when celebrities like Lovato publicly deal with the same types of trials and tribulations as so many millions of other people suffer with privately, it serves to bring much-needed attention to relevant but complex issues like the opioid crisis, Barth explained. It's not to glorify her situation, but more to serve as a cautionary tale and sound a clarion call to action. The disease of addiction takes the lives of millions of people in all walks of life, she said, and her goal is to see as many saved through these valuable programs as possible.

At the end of "Sober," Lavato sings: "I'm sorry that I'm here again. I promise I'll get help." Barth, like so many, is pulling for her.



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LUPUS *Continued from Page Four*

of the provost and College of Medicine dean's office, is providing an additional half-million dollars for the trial.

Gilkeson described the potential functions of the stem cells used in phase I of the trial. "Their job is, if somebody breaks a bone or gets a cut or any kind of injury, then these cells are mobilized out of the bone marrow, and they go to the place of injury. But it was recognized a decade or so ago that they also have potential immune effects."

While MSCs may be derived from bone marrow, his team uses cells that are derived from the umbilical cords of women who have delivered via caesarean sections at MUSC and consented to helping with the study. The cells are processed at MUSC's Center for Cellular Therapy, which houses an FDA-registered cGMC facility. There are only 15 such clean-cell facilities in the United States. MUSC will provide the MSCs for all seven medical facilities involved with the second phase of the trial.

In phase 1, all six patients knew they were receiving the cells.

"In our phase 1 trial, five out of the six patients met improvement goals, but again, we all knew they were getting 'magic' cells. They knew they were getting magic cells. The nurses knew they were getting magic cells. So everyone was hoping they'd improve."

He explained the placebo effect: a phenomenon where patients improve by sheer belief and optimism, not necessarily due to the therapeutic value of the treatments, this placebo effect was as high as 30 percent in other lupus clinical trials. In studies of the patients' immune systems during the trial, Gilkeson and colleagues at MUSC and Emory were able to show significant changes that paralleled their clinical improvement.

Phase 1 revealed that the treatment is safe and promising, but Gilkeson said phase 2 will define efficacy, and possibly show how the cells work, comparing patients that receive the cells to patients that receive a placebo infusion.

Gilkeson described their ambitious plans for phase 2.

"Everyone is going to continue their standard of care medications. We will



Photo provided

Lashanda Wiggins, who suffers from lupus, was a patient at MUSC Health and stayed for almost three months.

enroll 81 participants in the trial; 54 of them will get the cells in one of two doses and 27 will get placebo."

Phase 2 of the project differs from the Chinese trial and phase 1, in two ways. The first is that this project is a double-blind study, meaning that all participants including the patients, nurses and physicians will be unaware who is receiving the cells versus who is receiving placebo. The second difference is the dose of the cells given.

"In phase 1 and in the first cohort of patients for phase 2, we administered/ will administer 1 million stem cells per kilo of body weight, but we're going to be using 5 million cells per kilo of the patient's weight for phase 2's second cohort." This dose escalation is likely to determine if dosage level affects the effectiveness of the treatment.

Phase 2 will also delve more into how this treatment works, Gilkeson said. "It appears that the mesenchymal stem cells activate T-regulatory cells that serve to modulate the immune system and occur in lower amounts in some lupus patients. It also seems to decrease double negative B cells, a type of white blood cell that is increased in most lupus patients, to get them to a normal level."

Wiggins said regardless of exactly how the cells work, phase 1 yielded truly miraculous results for her.

"It took about four weeks, and I noticed I had a lot more energy. I wasn't as fatigued. Before I would take naps all throughout the day." There was no doubt in her mind that the lupus she had long suffered with had been dealt a

severe blow. "I got the infusion April 27, 2017, and I had my last flare in March of 2017. I haven't had a flare since."

She's enthusiastic about the phase 2 trial, which will start enrolling patients in the next four weeks and is expected to last through June 2022, with six additional academic centers involved under the leadership of Gilkeson and Kamen.

Kamen said the study recently took a large step forward with getting final

approval from the NIH for the study protocol. "I'm involved in the protocol training. Actually, today was the day we trained the other six institutions participating in the trial."

With the groundwork well underway, they hope phase 2 will begin enrollment in August or early September.

For Wiggins, hope abounds, as she remains flare free for over a year. She recently graduated from cosmetology school and works part time at a salon and loves it. What is even more incredible, she said, is to be given back the gift of motherhood.

"I can go outside and play with my kids with just sunscreen, and I'm fine. Before I'd just get dizzy and sick. I can't express what it's like to have my life back."

With her lupus under control, she expresses her gratitude to everyone involved in the study and MUSC.

"MUSC is amazing. Any time my kids or I get sick, we always come here first. I feel that's because MUSC is always studying and researching. They know a lot about a lot. Dr. Gilkeson gave me the floor to ask any questions I had and made me feel included. Honestly he and his entire staff were amazing."



CULTURALLY SENSITIVE CARE LECTURE SERIES

Save the Date

- 15-week series
- Runs August through December
- Open to all MUSC employees and students
- IP elective/certificate available
- MyQuest registration coming soon

This series is a collaboration between MUSC Health and University diversity and inclusion organizations.

Healthy Nurse, Healthy Nation challenge featured at MUSC

The Healthy Nurse, Healthy Nation™ Grand Challenge (HNHN GC) is a social movement designed to transform the health of the nation by improving the health of the country's 4 million registered nurses. The challenge engages nurses at three levels – individual, organizational and interpersonal – to improve health in several key areas. The goal is to create a healthy nurse population, and in turn, a healthy nation.

Anyone, whether a nurse or not, can join HNHN GC, and the organization that has the most staff, employees, students or members join by Oct. 15 will win \$10,000 for a well-being project. To join the no-cost program, visit <http://www.healthynursehealthynation.org/> and under "Join the Challenge" click on the blue box for "Individuals." Be sure to select MUSC as the affiliated organizational partner. After joining the challenge and completing a survey, a personal health assessment heatmap will be displayed, as will the option to engage in monthly challenges.

As a HNHN partner, MUSC was the first

organization to be selected to participate in a HNHN pilot program that challenges nurses to eat more fruits and vegetables. Only six percent of MUSC nurses report getting the recommended five daily servings of fruits and vegetables – the national average is 14 percent. To make it easier to eat more of these health promoting foods while at work, through Aug. 13, "Simply-to-Go" items will be labeled with special stickers to easily identify the number of servings of fruits and vegetables in these quick grab-and-go options. Simply-to-Go items can be found in the coolers in the main and ART cafeterias and the Rutledge Tower cafe.

To get into the five-a-day habit, which works out to a total of about 2½ cups, plan to eat a serving or two of fruit with breakfast, then double the serving size of veggies at lunch and dinner. For snacks, harness the long-lasting energy from fresh produce, paired with a source of protein. Don't be afraid to slide fruit purees and chopped veggies into soups, casseroles and even baked goods when cooking at home. Keep in mind that

MUSC Health & Well-Being

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



while five servings per day is the minimum recommended amount, experts actually recommend getting even more than that.

The HNHN GC is just one of the many ways in which MUSC Health care team members can participate in the new enterprisewide employee wellness initiative Imagine U. As of July 1, Imagine U is accessible in MyQuest. Simply launch the Imagine U catalog, then click on the areas of well-being that are of interest. Healthy Nurse, Healthy Nation is one of the choices and includes a link to join the grand challenge.

WESTEDGE *Continued from Page Seven*

outdoor dining and a wide sidewalk to allow for strolling. Eventually, Maher said, WestEdge Street will be like a King Street for the Westside.

Already, more than 100 apartments have been leased at 99 WestEdge, now known as Caroline, and the first businesses, a donut shop and fitness studio, have opened. Located across from Riley Park, Caroline includes apartments, ground-level retail and a parking deck with spaces that will be equally allocated to the city, the building and MUSC.

Apartments are expected to be ready for lease this fall at 10 WestEdge, at the corner of Lockwood Boulevard and Spring Street, and the Publix should open in that building in October. The building will also house restaurants and a day spa.

An Aug. 2 groundbreaking celebrated the beginning of construction on the third building, 22 WestEdge. It will have retail on the ground floor, but the remainder of the eight-story building will be office and lab space, including incubator space for the S.C. Research Authority and 25,000 square feet for MUSC Bioinformatics.

"22 WestEdge is not merely a research facility or a research building or an office

space. In my mind, it's the heart of this endeavor. It will be the catalyst for a knowledge-based economy," said MUSC President David Cole, M.D., FACS.

Further, it will give Charleston a competitive edge in recruiting the brightest thought leaders, students and residents, he said.

Charleston Mayor John Tecklenburg praised 99 and 10 WestEdge but said that 22 WestEdge is where the vision for the entire development really begins.

"This is the first building that really accomplishes the mission of a knowledge-based economy in Charleston," he said.

"This will be a place that will leverage a couple of hundred million dollars of medical research that currently occurs in this city through the Medical University and leverage that to business, biotechnology and jobs in our community," the mayor added.

PARKING

Much of the land in question has been gravel parking lots for years because no one wanted to deal with the property's problems. The entire site was originally marsh. It was filled in, and between 1952 and 1972, it was used as a dump for everything from municipal trash to medical waste. And, of course, it floods.

A gravel parking lot is hardly the "highest and best" use of land on the

peninsula, Maher said. For MUSC employees, though, parking is a critical need.

The number of parking spaces for MUSC will ebb and flow throughout the life of the project as construction moves to different spots.

MUSC lost spaces at what are now 10 and 22 WestEdge. But WestEdge restriped and reorganized the Hagood lot, which increased capacity there from about 900 to 1,120 spaces. Reorganizing an adjacent city parking lot meant the city didn't need to use the Hagood lot for overflow, opening more spaces for MUSC employees.

There are 322 parking spaces in Caroline's garage allocated for MUSC. These are not free spaces like Hagood but are guaranteed paid spots, said John Runyon, director of business services at MUSC. However, parkers will be charged the off-campus rate for these spots, meaning they'll get a \$25 per month discount.

The parking garage opened June 1. Runyon expects it to be filled up by August or September.

In the long term, the Hagood parking lot will be developed as well, but whether that happens in two years, five years or 10 years, it's too early to say, Runyon said. There will be garages to allow for parking, though. "MUSC will have

substantial parking north of Spring Street for many years to come," he said.

To get employees from those parking lots to the main campus, Runyon oversees the shuttle system. But, he acknowledges, many people don't bother with the shuttles and instead cross Spring Street at their own risk. With all the one-way streets, the shuttles follow a convoluted route.

"If there were a connection at Hagood, directly across Spring and Cannon, the MUSC bus would be much more efficient," Runyon said.

So the city and MUSC are championing an idea to create an intersection at the now-vacant Wendy's that would connect Hagood Avenue to Bravo Street, which runs between the MUSC Wellness Center and the Ralph H. Johnson VA Medical Center. The connection would give people a safe path from Fishburne Street to Calhoun Street and would improve the shuttle routes, Runyon said. The WestEdge Foundation, MUSC and the city are currently funding traffic simulations to justify the intersection, Maher said.

THE TIDE IS IN

Charleston Police regularly announce that Hagood Avenue is closed because

See **WESTEDGE** on page 12

IMAGINE NATION

Goal Spotlight

MUSC is a recognized innovator in health sciences education and lifelong learning. Are you supporting our goal of Innovative Learning and Education at MUSC? We'd love to hear about what you are doing so we can share your wins with colleagues across the enterprise. Maybe you've found a new way to educate patients, or perhaps you're using a new piece of technology with students. Have you improved a learning or orientation process that's been in place? Share your Innovative Education and Learning story by emailing imagine2020@musc.edu or by posting on the Imagine MUSC 2020 Yammer page, using #innovativelearning. Below are a few of the ways innovative learning and education are being fostered across MUSC.

❑ James B. Edwards College of Dental Medicine Students — Learning with the Community They Serve

MUSC's dental medicine students are collaborating daily with the East Cooper Community Outreach, providing dental care services to uninsured adults in the Charleston community. This opportunity exposes students to the barriers of oral health care facing this population and allows the students to educate the patients on dental hygiene. In addition, many students volunteer their time at the Emergency Extraction Clinic. This collaboration strengthens the bond between students and the community they serve and also complements their overall education.

❑ MUSC's Summer Undergraduate Research Program

This innovative 10-week experience combines lab research and professional development and allows college students from across the country to come to MUSC to explore careers in biomedical science and research. Read more about their experiences and the faculty and staff who have mentored and inspired them at academicdepartments.musc.edu/newscenter/2018/surp-2018/index.html.

❑ Inspiring Tomorrow's Telehealth Champions...Today

Programs across MUSC are embedding telehealth curriculum components into individual lectures and across courses. Faculty are including lectures, online modules and resources and hands-on tours of the MUSC Center for Telehealth Learning Commons as part of their courses highlighting community and population health, systems of care, health care policy and clinical skills development. The Center for Telehealth includes an innovative learning commons for demonstration, training and troubleshooting activities. Learners of all levels and providers who are charged with delivering clinical telehealth services receive training and demonstrate their competencies with telehealth processes. Visit the Center for Telehealth Learning Commons at muschealth.org/telehealth/about/learning-commons/index.html

❑ Improving Health Care by Intersecting with the Arts & Humanities

The Office of Humanities promotes teaching, scholarship and research in the health or medical humanities in order to foster skills in critical thinking, analysis, observation, reflection, communication, self-care and mindfulness in MUSC students. See the video at academicdepartments.musc.edu/humanities.

Neurointerventionalist honored for most cited article in journal

Staff Report

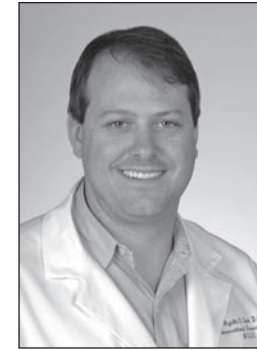
MUSC neurointerventional investigators are among the most influential in their field, according to the Society of NeuroInterventional Surgery. Aquilla Turk, D.O., a professor in the departments of neurosurgery and radiology, was honored at the society's 2018 national meeting for having the most cited article in the history of the Journal of NeuroInterventional Surgery. The JNIS is regarded as one of the most respected neurosurgery journals.

MUSC is tied with Massachusetts General Hospital with the most impact on the journal in terms of highly cited articles, with four MUSC physician-scientists included on the list. In addition to Turk, Raymond D. Turner, M.D., Mohammad Chaudry, M.D., and Alejandro M. Spiotta, M.D., are also among its most highly cited authors.

"To be listed as a highly cited researcher is a great honor and a testament to our faculty's outstanding achievements being nationally recognized by their peers," said Kathleen Brady, M.D., Ph.D., vice president for research at MUSC. "MUSC researchers are making profound advancements in their respective fields that patients will ultimately benefit from."

All of MUSC's top articles are clinically relevant from an operational standpoint of treating stroke, or they are outcome based, often setting

the highest bar in quality outcomes, Turner explained. The MUSC neuroendovascular team was also publicly honored as the most published academic group in the United States



Turk

over the past 10 years, in addition to having the most top 100 cited articles.

"This recognition directly reflects on Dr. Turk's leadership and operational ability to build a world

class research program. Through his leadership, we have also built one of the most impactful research collaborations across multiple academic medical centers in the U.S.," Turk said.

Humanitas editors needed

Humanitas, the campuswide publication that features artwork, photography, prose, poetry and music submitted by the MUSC community, is recruiting for open positions on its editorial board. To apply, contact humanitas@musc.edu or krisanit@musc.edu. Applications are being accepted until Friday, Aug. 31 at 5 p.m.

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WESTEDGE *Continued from Page Ten*

of flooding. Sometimes there's been torrential rain. Sometimes it's just because the tide is in.

Maher said WestEdge is investing substantially in fixing the flooding problem, not just within the WestEdge boundaries but on surrounding streets.

The new roads have been raised, partly to rise above flood level and partly to allow for the technical requirements of a ground stabilization system to prevent sinkage. A new system will collect all stormwater, including roof runoff, and channel it to the river.

WestEdge is also fixing a problem that's been around for decades along Lockwood Boulevard.

Maher said Lockwood was built without drainage, so stormwater ran over the private property that was Crosby's Seafood into catch basins.

When construction at 10 WestEdge began and those catch basins were removed, flooding on Lockwood got worse. Lockwood is a state road, under the jurisdiction of the S.C. Department of Transportation. Since drainage on Lockwood isn't a high priority for SCDOT, Maher said, WestEdge is taking on the expense of adding a stormwater drainage system for the road. "We should have it solved by end of August," he said.

COLLABORATIVE SPIRIT

With the pile-driving for 22 WestEdge ringing out to surrounding buildings, anticipation is building.



Photo by Leslie Cantu
MUSC President Dr. David Cole joins other city leaders at the ground breaking for 22 WestEdge.

Besides the medical district, the property is also near The Citadel and the College of Charleston. Already the college has purchased a building on Lockwood Boulevard formerly occupied by the S.C. Employment Securities Commission.

Rusnak said he could even envision the University of South Carolina and Clemson University having offices in the development. "I see 22 WestEdge as a starting point, a catalyst to start getting WestEdge to be an innovation hub for the medical university," he said.



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