

October is Breast Cancer Awareness Month

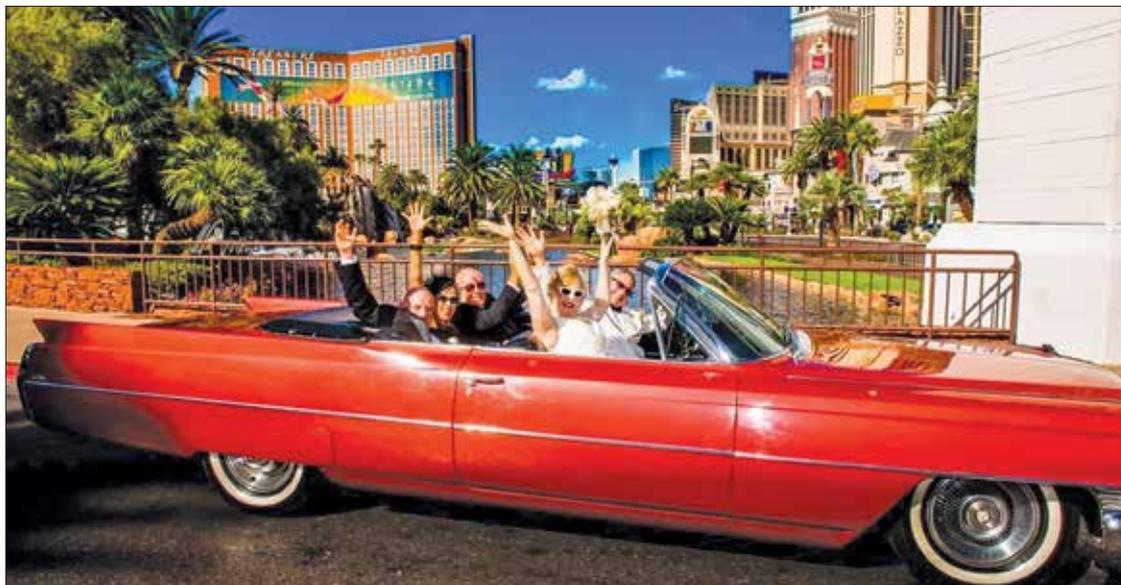


Photo Provided

Jennifer and Mike Attisano went with a vintage '50s theme for their Las Vegas wedding, complete with a cherry red convertible.

## Patient reveals how she adds joy to life despite metastatic breast cancer

BY DAWN BRAZELL

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Jennifer Hill Attisano felt as healthy as a horse. Life couldn't have been better.

Her career was going well, and she had lost close to 50 pounds because her sugar level had gotten a bit too high. "I was feeling great. I let my hair grow long because I thought this will be one last time before I get too old to have long hair. I was feeling really good."

Then she went in for a routine exam with her gynecologist in October 2017, and her doctor paused while doing her breast exam. "I had this one pea-sized tumor in the breast that was way up under the tissue.

I would have never found it on a self-exam, but she was able to because of the way my arm was pulled back. All of a sudden, she said 'Wait a minute,' and she rolled it around like a little ball."

Attisano tried not to worry. She had big plans to go to Las Vegas with her husband, Mike. Having been married for just a few years, they still were like newlyweds, their love story reading like something out of a Hallmark movie. She had a biopsy, and they decided to keep their travel plans, so they boarded a plane for Las Vegas. Shopping in a Louis Vuitton store, she was eyeing an expensive purse that her husband was insisting he would buy.

See **SURVIVOR** on page 10

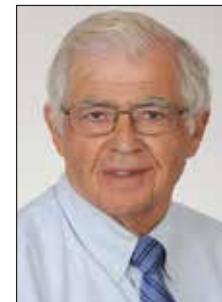
## Expert explores possibility of 'bradykinin storm' in lungs of people with COVID

BY HELEN ADAMS

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A nationally known expert on the inflammatory molecule bradykinin hopes clinical trials will show that attacking it with two medicines already approved by the Food and Drug Administration can help fight severe lung problems linked to COVID-19.

Allen Kaplan, M.D., a professor in the College of Medicine, has been studying bradykinin for decades. His focus has been on bradykinin's role in hereditary angioedema, a condition that causes severe swelling in the arms, legs, face, stomach and throat.



Kaplan

"Bradykinin acts on small blood vessels, causing them to open up – dilate – but very importantly, become leaky. Fluid leaks into the surrounding tissue," Kaplan said. That causes swelling in people with angioedema.

But Kaplan now suspects bradykinin may also play a role in the dangerous lung problems that have cropped up in some people with COVID-19. "Sometimes, they say they feel like they're drowning – they actually have a fluid-like sensation," he noted.

So what is bradykinin? "It's a small molecule made up of nine amino acids contained in a larger molecule,

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Back2Business

Program assists S.C.-based companies.

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Brains in space

Scientists take to the skies to study the brain.

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# Cultivating connection, purpose, culture of well-being during isolation

If you feel like the world has turned on its head, you're not alone. With the sudden and overwhelming switch to remote work and remote schooling, many of us are finding ourselves trying to recreate the environments of our jobs, children's schools and community groups from our homes.

It goes without saying that while the transition to a remote professional and personal lifestyle is an essential part of combating the COVID-19 pandemic, it has proved to be an unexpected well-being challenge for many. While it might seem like remote work and learning are largely disconnected from our physical and mental health, there are many reasons why cultivating a sense of connection and purpose are more imperative for good health than you may think.

Countless studies have shown that humans have a fundamental need to connect with others that can be seen in the way societies have been shaped throughout all of history. It's not surprising, then, that positive social connections can have a positive impact on many health metrics from immune function to body composition to blood pressure and more. Social connectivity has even been linked to increased longevity, as seen as a tenant in the "Blue Zone" communities around the globe. According to a 2010 meta-analysis of over 300,000 people, strong social relationships were just as influential for longevity as the avoidance of tobacco use or excessive alcohol consumption.

Given the current restrictions in place due to the pandemic, in-person socialization is often not possible. Because of this, we have had to reinvent the way in which we maintain and foster our professional and personal relationships. To accomplish that, the following are a few strategies you can employ to cultivate connections with your colleagues, as well as at home, as we continue to navigate the COVID-19 pandemic.

## HOST VIRTUAL GATHERINGS:

Pre-pandemic, many departments and teams hosted

regular in-person lunch meetings or after-work social gatherings, which are excellent opportunities to connect outside the typical workday and learn more about each other.

A simple way to boost connection through the pandemic is to host these gatherings virtually. Many teams have been hosting virtual "happy hours" or trivia games, using digital platforms such as Zoom, WebEx, etc. This will provide a fun and safe way to connect and provides the much-needed opportunity to de-stress.

Simply create a meeting time, send out invites to friends, family or colleagues, include an agenda, if any, and get started!

## PARTICIPATE IN A VIRTUAL FITNESS EVENT:

Many local races and events have transitioned to a virtual format, enabling participants to complete their mileage or activities and log them onto a digital platform while engaging with other race participants. One great way to do this is to participate in this year's LOWVELO virtual experience, raising money for MUSC's Hollings Cancer Center.

Participants in this year's event have the option to walk, run or cycle and will simply log their miles using a digital app while raising funds and awareness for Hollings Cancer Center.

To learn more about the LOWVELO virtual experience or to register, visit <https://lowvelo.org/> registration

## ENGAGE IN VIRTUAL LEARNING:

Studies show that individuals who identify as lifelong learners are twice as likely to report a higher sense of purpose and overall sense of satisfaction. Particularly in a time where we are so physically disconnected, the pursuit of new knowledge can prove to be a very helpful strategy in improving our well-being.

Consider participating in the "Visit a Digital or Physical Exhibit at the Waring Historical Library" Imagine U Challenge. This particular Imagine U

## MUSC Health & Well-Being

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



challenge connects the participant with The Waring Historical Library, which is the special collections and rare-book library at MUSC.

The Historical Library prepares exhibits, both physical and online, on subjects pertaining to the history of the health sciences and MUSC. There are curated exhibitions for the College of Nursing, the College of Dental Medicine and others. The exhibits are prepared using manuscripts, archival records, photographs and artifacts from the collections. This would not only be an excellent opportunity for MUSC employees to take advantage of a unique opportunity to learn digitally but is also an activity that can be shared with family members while at home. Consider doing a virtual "historical library visit" to involve your family or close friends to make the experience even more impactful.

At a time when more and more of us are isolated and trying to stay productive, it's crucial that we intentionally connect with our colleagues, friends and family. Whether your team continues to work remotely or simply places more emphasis on connection during your time together at work, all will be healthier and more fulfilled as a result.

For more ideas about how to cultivate connection at MUSC and beyond, sign up for the MUSC Office of Health Promotion's "Wellness This Week" e-newsletter at <https://lp.constantcontactpages.com/su/GE7zrBM/> MUSCWellnessThisWeek.

## MUSC CATALYST news

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MUSC Libraries



# S.C.-based company with global reach looks locally for pandemic protection

BY HELEN ADAMS

adamshel@musc.edu

Serving as corporate safety director for a South Carolina-based company with global reach is a big, challenging job in the best of times. Then came the coronavirus pandemic.

"It was terrifying," said Chris Worley of Zeus Industrial Products, referring to the moment he realized that COVID-19 was a real threat to the more than 1,700 employees whose safety he oversees.

"I mean especially when you realize this isn't - you're not worried about somebody catching the flu. You're worried about somebody possibly dying when they get this."

Many of Zeus' employees work in close quarters building medical and industrial tubing, along with optical fiber, wire and other materials. Along with its corporate headquarters in Orangeburg, the company has several facilities in South Carolina, one in New Jersey, one in Ireland and a sales office in China. Zeus also owns the Orangeburg Country Club and a wedding facility.

The last thing Worley wanted was employees or members of the public getting sick from the contagious coronavirus. So he and his team quickly put together a plan, creating a COVID-19 task force, figuring out who could work from home, installing thermal scanners to take employees' temperature as they come to work, moving machinery to create more space between people working in plants and putting up barriers, among other things.

But they didn't stop there. They decided to reach out to public health specialists with the MUSC Health Back2Business program to see what else they could do. MUSC Health launched the program to help businesses operate as safely as possible during the pandemic, with experts who make recommendations tailored to each

organization's needs.

"We've had a long relationship with MUSC. Our founder and owner of our company really has embraced MUSC," Worley said. Frank P. Tourville and his wife, Pearl, recently made a donation to help build what became known as the Pearl Tourville Women's Pavilion, which is part of the MUSC Shawn Jenkins Children's Hospital. There's also a Frank P. Tourville Sr. Arrhythmia Treatment Center at MUSC Health.

So it was an easy decision to extend that relationship to workplace safety during the coronavirus pandemic. "Our initial thought was, 'Let's get MUSC involved and get them to look at our facilities and tell us what we're doing well and what we need to work on,' especially in areas dealing with the public every day. That kind of led to, 'We should bring them in and have them also look at our production facilities and give us an idea of what we can do better.'"

Aynsley Birkner of the Back2Business team became his MUSC Health liaison. She said Zeus was already off to an excellent start. "It was evident how much they care about their work environment and prioritize health and wellness. They just really went above and beyond. They were eager to find out what else they could be doing."

Worley said he quickly learned they could be doing even more to keep employees and the public safe. "Aynsley was extremely helpful in pointing out things we had missed, especially when it came to high-touch areas." High-touch areas are surfaces that are frequently touched, often by multiple people.

"She was also extremely helpful with our food service, telling us proper protocols for handling food. A lot of it we were doing, but she pointed out quite a few things."

For example, Birkner suggested that a payment system in Zeus' employee breakroom shift from requiring a



Screen Grab Provided

This screen grab from a Zeus video on YouTube shows an employee at work before the pandemic.

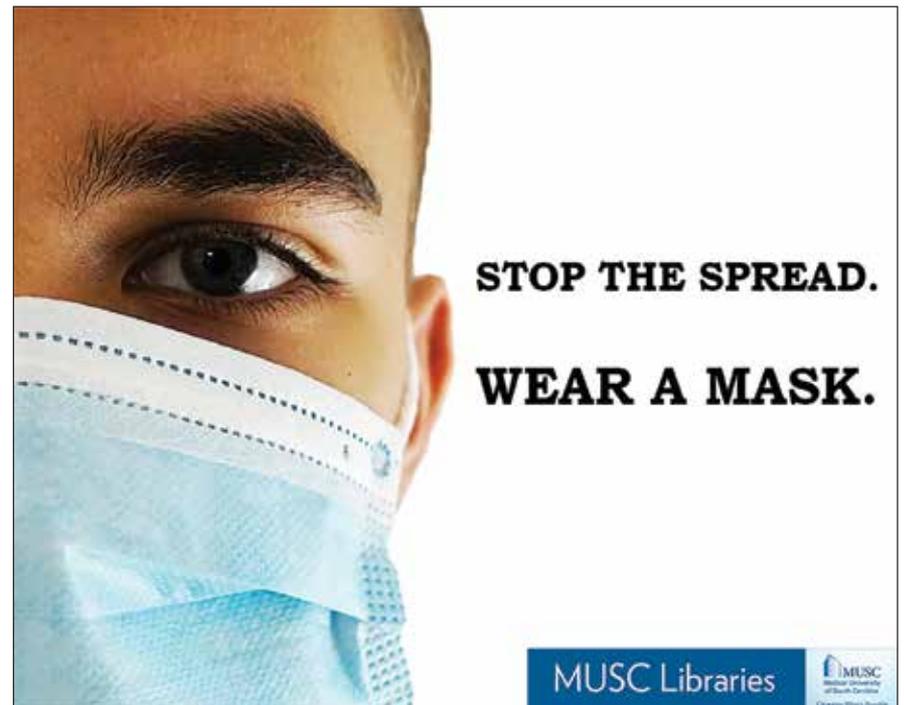
thumbprint to requiring a swipe of the employee's badge to reduce the amount of contact.

Birkner also scrutinized Zeus' production rooms, where a lot of people work together. Among other things, she noticed that special gloves for working with Teflon products were being used by multiple people. That worried her. Zeus responded by buying each worker his or her own pair.

The Back2Business team's

recommendations are detailed in a manual now in Worley's hands at Zeus. It contains everything from general information about COVID safety to really specific steps and processes tailored to Zeus' sites.

Birkner also stays in touch with Zeus, updating recommendations as new information comes in. Worley is pleased with the results. "For us, it's been extremely beneficial," he said.



# Cross-national collaboration shows negative effects of low levels of alcohol in pregnancy

BY LESLIE CANTU

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Even low levels of alcohol use during early pregnancy are associated with greater risks of anxiety, depression and behavior problems in children. Slightly higher use, gauged at 36 drinks in the first six to seven weeks of pregnancy, is associated with a 25% increased likelihood of attention deficit hyperactivity disorder, according to a study by collaborators at MUSC and the University of Sydney in Australia.

Lindsay Squeglia, Ph.D., associate professor in the Department of Psychiatry and Behavioral Sciences at MUSC, said most studies of alcohol use during pregnancy



**Squeglia**

have focused on heavy drinking that can result in fetal alcohol spectrum disorders, which affect the central nervous system and can lead to problems with learning, communication, impulse control and daily life activities. Fetal alcohol syndrome is the most extreme outcome, however.

“There aren’t a ton of kids with fetal alcohol syndrome,” Squeglia said. “But there are a lot of people who use alcohol at low levels during pregnancy.”

For Squeglia’s collaborators in Australia, the findings bolster the argument in favor of warning labels on alcoholic beverages in Australia and New Zealand, where a joint food regulation ministry voted earlier this year to make such warning labels mandatory.

The collaboration began in February 2019 when Briana Lees, then a graduate student, came to study for one month at MUSC from Australia. Squeglia introduced her to the national Adolescent

Brain Cognitive Development (ABCD) longitudinal study. The study, conducted at 21 sites across the U.S., including MUSC, includes comprehensive questionnaires that cover everything from diet to sleep to schooling as well as regular brain scans of the children in the study. Children entered the study at ages 9 or 10 and will be followed for 10 years. The resulting data is available to researchers anywhere in the world.

Coming from Australia, where 25% of pregnant women continue to drink alcohol, Lees was interested in what the ABCD data could show about the effects of prenatal exposure to alcohol. It was a good complement to Squeglia’s work.

“Almost my whole career since graduate school, I’ve been looking at how alcohol affects the developing adolescent brain. Having a better understanding of how it’s affecting the brain prenatally is the other end of the age spectrum,” Squeglia said.

Squeglia said the brain scans showed that children who had been prenatally exposed had larger brains. And while that might sound like a good thing, it could mean that these children’s brains haven’t been properly engaged in pruning, the process by which the brain gets rid of redundant or unnecessary connections in early childhood and again in adolescence to create more efficient neural pathways.

Lees was lead author on the current paper, published in the *American Journal of Psychiatry*, as well as on a previous paper in the journal *Drug and Alcohol Dependence* that found that children who were prenatally exposed to alcohol were more likely to experiment with alcohol at ages 9 and 10.

The collaboration isn’t ending with these papers, however. Squeglia was awarded a Fulbright Research Award earlier this year and will use it to further develop the transnational relationship between MUSC and the Matilda Centre for Research in Mental Health and Substance Abuse at the University of



*Photo by Joao Paulo de Souza Oliveira via Pexels*

**Researchers found that even low levels of alcohol use during early pregnancy can affect the developing brain.**

Sydney.

Squeglia said they found that the Matilda Centre and MUSC’s Youth Collaborative were working along the same lines on so many projects that it made sense to start working more closely together.

She will be traveling to Australia at some point to work with the Matilda Centre faculty in person, although the COVID-19 pandemic has pushed back travel plans.

In the meantime, she’s excited that the

next wave of data from the ABCD study is about to be released. Now, in addition to the cross-sectional data available by comparing trends across almost 12,000 children, there will be longitudinal data allowing for the tracking of growth and development over time. Squeglia said she’d like to uncover the resilience factors that protect children.

“What predicts which kids who are prenatally exposed but didn’t have bad cognitive outcomes, versus those who did?” she said.



- 1. Lather away.**
  - back of your hands
  - between fingers
  - under the nails
- 2. Scrub.**
  - Count to 20.
- 3. Rinse well.**
- 4. Dry completely.**
  - using a clean paper towel or an air dryer.

**MUSC Libraries** 

## MEET MATTHEW



**Matthew Thomas**

**College and Program; Year**  
*College of Health Professions – Physician Assistant Studies; first year*

**Hometown**  
*Lumberton, North Carolina*

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

*As the PA class president, I encourage my classmates to continue to persevere and demonstrate resiliency. Truthfully, they are the ones that will continue to change what is possible at MUSC.*

**Family, pets and their names**

*Wife, Leigh Ann; son, Major (3); and daughter, Jordyn (6 months)*

**Favorite fall sports team**

*Carolina Panthers*

**Your idea of a dream vacation**

*A chartered yacht in the Mediterranean with my family*

**Famous quote**

*"Passion has a funny way of trumping logic."  
 — Anonymous*

Sports Medicine

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 Address: 2060 Sam Rittenberg Boulevard, Charleston, SC 29407  
 Dates: Saturdays, September 12-November 7, 2020  
 Times: 9:00 to 11:00 a.m.  
 Details: [MUSChealth.org/sports](https://MUSChealth.org/sports)

MUSC Health  
 Medical University of South Carolina

IRB Number: Pro0007943  
 Date Approved: 4/28/2020

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Contact Laura Lohnes at (843) 792-7709 or [Lohnes@MUSC.edu](mailto:Lohnes@MUSC.edu)

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Applications open December 1st

# MUSC researchers test brain stimulation in zero gravity

By LESLIE CANTU

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“It’s exciting. I love this stuff!” said Bashar Badran, Ph.D. “This is so fun.”

Not many researchers get the chance to float, weightless, 32,000 feet above the Earth. MUSC scientists usually conduct research in labs — controlled settings where they can carefully repeat experiments to double-check results. But with an eye toward what real astronauts might experience in future space travel, a few scientists recently took to the skies to do brain research in zero gravity.

Neuroradiologist Donna Roberts, M.D., and neuroscientist Badran collaborated on the project to conduct transcranial magnetic stimulation, or TMS, on themselves and a group of volunteer assistants, mostly from the Department of Psychiatry and Behavioral Sciences in the MUSC College of Medicine.

Roberts has spent years studying how zero gravity and microgravity affect the human brain — in fact, that was her motivation for going to medical school. This experiment was primarily a test case to show that TMS could be safely used in zero gravity and to compare participants’ results under the force of Earth’s gravity to their results in zero gravity.

During a TMS procedure, a magnetic pulse is sent through the skull into the brain to stimulate electrical activity. The pulse is highly localized — it doesn’t reach the entire brain. The TMS administrator places a coil over the subject’s head; when the subject’s thumb twitches, the administrator knows the TMS coil is in the right spot.

Here on Earth, TMS is FDA approved for hard-to-treat depression. Scientists at MUSC and elsewhere are also investigating using TMS for post-traumatic stress disorder; to treat cravings and pain in people under treatment for opioid use disorder; and in physical and mental rehab for stroke patients. Depression could be a concern for people on long-term missions far from Earth who don’t expect to set foot on solid ground for years, and Roberts and

Badran said TMS could be a useful and space-saving tool to pack on long-term space missions, rather than an entire pharmacy’s worth of medications.

“Ultimately, you don’t want to go to Mars or an interplanetary mission with all these medications. And you can’t easily set up a chemistry lab to synthesize all of them. So TMS would be a very clear, easy solution for neuropsychiatric issues. That’s the long 20-year vision,” Badran said.

It also has the potential to keep astronauts in good shape cognitively on long-term flights so they’re ready to get to work when they land on the moon or the red planet.

But first, researchers must figure out what a “normal” reading in zero gravity should look like.

It’s already known that medications metabolize differently when a person is in space. Astronauts who take sleeping pills, for example, have to figure out through trial and error the proper dosage in space, Roberts said.

And Roberts’ previous research, comparing astronauts’ brain MRIs before and after a trip to the International Space Station, showed physical changes in the brain that correlated to changes in the astronauts’ motor skills and cognitive performance.

“If there were a way to keep the brain in shape on the way to Mars, that would be very useful. That’s why NASA is interested in this technology. But in order to use it in space, we have to understand, ‘Is there a difference in the way astronauts respond to it here on Earth versus up in space?’ just like the difference they experience in medications. So that was what this study was really based on,” she said.

And this is where the scientists got to have a little fun. To test TMS in zero gravity, they would board a special plane operated by Zero Gravity Corporation, which offers zero gravity flights for personal adventure, media productions and research.

The plane, dubbed G-Force One, flies a series of arcs, heading upward at 45 degrees and then back down



*Photo Provided*

**The team of researchers checks equipment and settings before setting off on a Zero Gravity Corporation flight.**



**Drs. Bashar Badran and Donna Roberts used their diverse expertise to pull off an experiment in zero gravity.**

*Photo by Sarah Pack*

at 45 degrees. For the brief 20 to 30 seconds between going up and coming down, everyone in the plane becomes weightless. Anything not bolted down floats up. And that mere 20- to 30-second window was the time during which Roberts and Badran had to run their TMS test.

They would have a total of 30 arcs, or parabolas, to work with. There were 10 people in their group, split between men and women, and each person needed to do the test at least twice to get a good sample.

But first, there were some logistics to

overcome. In the lab, there can be a lot of fussing with the equipment to get the coil to the exact right spot on someone’s head. With such a short window for performing the test on the plane, there wouldn’t be time to futz with the machinery. They needed a foolproof way to ensure the coil would be in the right place at the right time.

“We all really focused on the small things,” Badran said. “This study was really a one-shot deal. The flight was prebooked. Everything was set. We had a fixed start date, a fixed time period to

**See WEIGHTLESS on page 7**



Photo Provided

The team preps before the experiment begins.

## WEIGHTLESS *Continued from Page Six*

do the experiment and everything had to go perfectly – and everything hinged on creating this thing that didn't exist.”

So Badran got hold of a motorcycle helmet and a Dremel saw and got to work. He found he could fit a TMS coil into a niche he cut into the helmet, but the contraption was too heavy and wobbly to be practical.

Next, he turned to using fiberglass casting tape, the same material used to make casts for broken bones. Each participant sat for a fitting, and Badran crafted a lightweight, durable helmet that fit the individual's head, with an attachment area for the TMS coil that ensured the magnetic pulse would reach the right spot on that individual's brain – no tinkering required.

Roberts and Badran's volunteer team consisted of people from the Department of Psychiatry and Behavioral Sciences with experience administering TMS, since they all would need to take turns as both subjects and administrators. They wanted people who were roughly the age of actual astronauts, so the average age was in the 30s.

“Everyone that was a flier, they didn't just get to come and fly and have fun. They were actively part of the research team, too,” Badran said.

Roberts and Badran knew they had

one chance to make the experiment work. These flights are costly, and the bulk of the research grant was going toward that expense. In each 20 to 30 seconds of weightlessness, they would need to start the software on their computers, which would send a signal to the coil, register a thumb twitch and then report back that the TMS had worked. If it didn't register a thumb twitch, then the system would increase power and send another signal until a thumb twitch registered. But if it didn't work at all, they would have to troubleshoot on the fly – or face the possibility of the entire experiment being a complete failure.

The MUSC group shared the flight with three other organizations conducting space research. Because the TMS machines pulled power from the aircraft, Badran had to run a test on the ground first, at full power, to ensure they wouldn't overload the plane. It was pretty close, he said, but the flight crew gave them the go-ahead. So up they went.

The handcrafted helmets performed beautifully. They got at least three measurements for each person, which they could compare to multiple measurements taken on the ground before and after the flight. And as a bonus, the experiment was way more fun than your typical lab experiment.

Their paper, published Sept. 21 in

See **WEIGHTLESS** on page 11



Dr. Donna Roberts, center, Drs. Alex Stahn, far left, Rachael Seidler, fourth from left, and Floris Wuyts, second right, wrote an editorial featured in the October edition of *Lancet Neurology*.

## Neuroscience researchers advocate for standardized agency protocols in studying the brain in space

BY CINDY ABOLE

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For 20 years, men and women from the United States and 18 other countries have continuously worked aboard the International Space Station (ISS). The ISS represents an ambitious international collaboration between the United States, Russia, Europe, Japan, and Canada to conduct long duration space-based research to expand human knowledge through new scientific discoveries, provide benefits to people on Earth, and support future exploration even further out into the solar system.

Keeping humans healthy in space requires keeping the brain healthy. Scientists are only beginning to study how the brain responds to extended periods in space. Emphasizing the need for an international collaborative approach to understanding the effects of spaceflight on the human brain is the aim of an editorial appearing in the October issue of *The Lancet Neurology* titled “Towards understanding the effects of spaceflight on the brain.” The piece is co-authored by Donna R. Roberts, M.D., professor in the Department of Radiology and Radiological Sciences; Alexander C. Stahn, Ph.D., University of Pennsylvania-Perelman School of Medicine; Rachael D. Seidler, Ph.D., University of Florida; and Floris L.

Wuyts, Ph.D., University of Antwerp in Belgium.

The authors study changes which occur to the brain during missions on the ISS by taking brain MRI exams of astronauts and cosmonauts before and after spaceflight. The authors feel as an international community, it would be better to work together to collect and analyze data using the same imaging protocols. They also are recommending that MRI studies be uniformly performed for crew members both pre-flight and early post-flight as well as within one, six and 12 months after a return to Earth. According to the authors, this suggested timetable of imaging sessions will facilitate the comparison of behavioral and clinical measures with imaging data to characterize the re-adaptation process. Other data to collect and consider is age, sex, body-mass index, previous flight experience, medical logs, exercise histories, among other factors.

“This is such an exciting time,” said Roberts. “The long-term work aboard the International Space Station demonstrates an extended human presence in space and represents a collaboration between many nations. It's parallel to what we're doing – working as partners – to understand what's happening to the brain in space. I'm so fortunate to have met these colleagues who work with the various international space agencies and who are all interested

# Commentary: To avert 'twindemic,' get a flu shot

*Editor's Note: The following column was published in the Sept. 29 issue of The Post and Courier. It is reprinted with permission.*

BY DANIELLE SCHEURER & HERMES J. FLOREZ

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October is almost here, and so is the beginning of the annual flu season, which will run through the spring. The advent of seasonal influenza in the midst of the COVID-19 crisis could lead to what some public health officials have called a "twindemic" or "syndemic," which reflects a synergistic epidemic, with potentially devastating consequences.

That's why this year, more than ever, health care authorities are calling for everyone to take preventive measures and get a flu vaccination. According to the Centers for Disease Control and Prevention, everyone 6 months of age and older should get a flu vaccine every season.



Scheurer

The CDC estimates that every year since 2010, influenza has resulted in 9 million to 45 million illnesses, 140,000 to 810,000 hospitalizations, and 12,000 to 61,000 deaths, many of them from the same high-risk groups impacted by COVID-19, including older adults and those with chronic conditions. The impact of flu varies from year to year. But it consistently places a significant burden on the health and well-being of Americans.

There's clear evidence that flu vaccinations reduce the severity of the flu and prevent hospitalizations. Thus, making time to get a flu shot not only protects yourself, your family and our community, but it also cascades to protect and support our over-burdened health-care providers and health systems, which have been stressed and tested at unprecedented levels by the raging novel coronavirus.

Seasonal influenza and COVID-19 are two separate, serious respiratory viruses. Soon, they will be circulating simultaneously in our state. That could make an already dangerous and too-often deadly pandemic that much worse. At this writing, COVID-19 has infected more than 32 million people around the globe, racking up a death toll of almost 1 million people, including more than 200,000 Americans.

While multiple scientific trials are under way to find an effective vaccine for the novel coronavirus, Americans have had access to effective, annual flu



*Photo by Heather Hazzan, SELF Magazine*

**The flu shot is being recommended for everyone, six months and older. MUSC employees, students and the public can now get the flu shot at MUSC Health on campus at satellite events and Tri-county locations.**

vaccinations for decades. Yet in the 2018-2019 flu season, only 45% of U.S. adults and 63% of children were vaccinated. For that same season, the flu shot rate was only 48% among young and middle-age adults with high-risk conditions such as asthma, diabetes, heart disease, chronic obstructive pulmonary disease and most cancers. Many in this latter group are particularly vulnerable to the effects of the flu, and the novel coronavirus.



Florez

In light of the potential double whammy of the pandemic and the flu, public-health agencies and influenza vaccine manufacturers are working to raise awareness and availability of flu vaccines. Through the CDC, an additional \$140 million has been distributed nationwide to state agencies and jurisdictions to promote the importance of the flu vaccine. Particular emphasis is being placed on reaching people with chronic illnesses, racial and ethnic minority groups,

and long-term care workers who, along with older people, are at a higher risk of suffering serious health consequences if they contract influenza or COVID-19.

During the 2020-21 flu season, vaccine makers are expected to supply more than 194 million doses, with the understanding that more could be ordered, if needed.

As the pandemic continues, many people feel overwhelmed and powerless. Now is the time to act and take some measure of control for your own health. The flu vaccine is inexpensive, sometimes free depending on your health-insurance coverage, and widely available. Make an appointment for yourself and your family members to get the flu shot this year. What we each choose today will make a difference for our community in the months ahead.

*Danielle Scheurer, M.D., is a professor of medicine and chief quality officer with MUSC Health System. Hermes Florez, M.D., Ph.D., is a professor and chair of the Department of Public Health Sciences, MUSC College of Medicine, and associate dean for Population Health.*

# Flu shots now available on campus at MUSC Health Primary Care offices

## Staff Report

MUSC faculty and staff can receive flu shots now through December at a number of locations, including MUSC Employee Health Services, on-campus satellite events, various MUSC Health Primary Care offices and drive-thru events. Flu shots will also be available at outpatient pharmacy and clinic locations. MUSC students can receive the flu shot at Student Health Services at 30 Bee Street. No appointment is necessary.

MUSC Health-Charleston and MUSC Physicians care team members are required to have the influenza vaccine or submit a declination by midnight, Dec. 14. To view a schedule and list of locations, visit <https://www.musc.edu/medcenter/influenza/flu-shots.html>.

Additionally, MUSC mobile unit-based rounding will occur at various locations beginning Oct. 20 through Nov. 5. To view the schedule, visit <https://www.musc.edu/medcenter/influenza/flu-shots-unit-based-rounding.html>.

To schedule an appointment for a flu shot at any of the 21 Tri-county primary care locations, participants can schedule an appointment in advance via MyChart or by calling the clinics directly <https://www.musc.edu/medcenter/influenza/Flu-Shot-Locations.pdf>. Due to COVID-19 pandemic, clinics will require participants to wear masks and practice social distancing.

Those interested in getting the vaccine must bring their MUSC photo IDs and insurance cards. Participants will be registered in Epic, and their insurance will be billed. Many insurances cover the shot with no out-of-pocket expense.

MUSC Health departments are encouraged to coordinate their own flu clinics for staff by requesting the vaccine from MUSC Pharmacy Services, noting that it is for employees at [pharm-dc@musc.edu](mailto:pharm-dc@musc.edu).

Health care teams are reminded, if they receive their flu shots at off-campus locations, they will need to upload their vaccine consent documentation to MUSC Health-Charleston's tracking system at <https://www.musc.edu/medcenter/influenza/flu-shots-off-site-documentation.html>. Forms can be uploaded to the DMS server for employee compliance records.

[musc.edu/medcenter/influenza/flu-shots-off-site-documentation.html](https://www.musc.edu/medcenter/influenza/flu-shots-off-site-documentation.html). Forms can be uploaded to the DMS server for employee compliance records.

## MUSC Health-Chas. Satellite flu shot events

- ❑ MUSC Employee Health Services (57 Bee Street)
  - Walk-ins for employees are available weekdays from 7:30 a.m. to 3:30 p.m.
- ❑ Rutledge Tower Flu Clinic (First Floor – at the old Family Medicine Clinic) Beginning Monday, Oct. 12, the Flu Clinic will be open one week per month through December. Oct. 12-16; Nov. 16-20; and Dec. 7-11, weekdays from 7 a.m. to 3 p.m.
- ❑ SouthPark and Parkshore – Thursday, Oct. 22; Monday, Oct. 26 and Thursday, Nov. 5
- ❑ WestEdge – Wednesday, Nov. 4, 10 a.m. to 2 p.m. MUSC Tent Events (Dates TBD)

## Flu shot FAQs

### Who should get a flu shot?

Everyone, six months and older, should get a flu shot. Immunocompromised patients should avoid getting live influenza vaccines – the kind that are sprayed up the nose and not given via injection. Healthy people who live around immunocompromised people should definitely get their flu shots, as they may be more likely to develop protection than the at-risk patient themselves.

### What is the difference between influenza (flu) and COVID-19?

Influenza (flu) and COVID-19 are both contagious respiratory illnesses caused by different viruses. COVID-19 is caused by the new coronavirus (SARS-CoV-2), and flu is caused by infection with influenza viruses. Because some of the symptoms of flu and COVID-19 share many characteristics, it might be hard to tell the difference between them based on symptoms alone, and testing could be needed to help to confirm a diagnosis. Check with your primary care provider.

### Can someone have flu and COVID-19 at the same time?

Yes. It is possible to have flu, as well as other respiratory illnesses, and COVID-19 at the same time. Health experts are still studying how common this can be.

Some of the symptoms of flu and COVID-19 are similar, making it hard to tell the difference between them based on symptoms alone. Diagnostic testing can help determine if you are sick with flu or COVID-19.

### Because they can occur simultaneously throughout flu season, are there extra precautions?

The same social distancing, mask-wearing and hand hygiene measures that work for COVID-19 should also work for influenza.

### Can I get the flu from the flu vaccine?

No, flu vaccines cannot cause flu illness. Flu vaccines given with a needle are currently made in two ways: The vaccine is made either with flu viruses that

have been 'inactivated,' and that therefore are not infectious, or by using only a single gene from a flu virus in order to produce an immune response without causing infection. For more information, visit the Centers for Disease Control and Prevention website.

### What if I have had a previous allergic reaction to a flu shot in the past. Can I still get one?

Yes, MUSC brings in two types of flu vaccines for employees and patients who have a history of hypersensitivity:

- Flucelvax – for employees/patients with a hypersensitivity (e.g. hives).
- FluBlok – for employees/patients with a documented anaphylactic reaction to flu vaccine.

If you require one of the above flu shots, you will need to receive the vaccine from one of the pharmacies or Employee Health Services. MUSC does not carry the above vaccine types at the tent events or on the mobile rounding units.

### What if I do not want the flu shot?

For MUSC Health care team members, per policy C-166, all employees need to get a flu vaccine unless they have:

- A medical contraindication (requires written documentation by a medical provider and submitted to employee health services), or;
- A religious belief that does not permit vaccines

Charleston Division – If either of the above are applicable, MUSC Health care team members must submit an online declination at <https://www.musc.edu/medcenter/influenza/flu-shots-declination.html>

### Is it safe and should I get a flu shot if I'm pregnant?

Yes, in fact the Advisory Committee on Immunization Practices, the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention all recommend receiving a flu vaccine during any trimester of pregnancy. For more information, visit the CDC website.

Source: MUSC Health and the CDC

**SURVIVOR** *Continued from Page One*

“I told him if he was going to buy me a Louis Vuitton, he must think I was going to die. This was before I even knew that I had cancer.”

Shortly after she said that, her phone rang. It was her doctor’s office. Attisano, a manager of a historic hotel in downtown Charleston with more than 170 employees in her care, didn’t want to wait. “I said, go ahead and give it to me straight. And they said, ‘It’s cancer.’”

The couple considered canceling their dinner plans at the Eiffel Tower restaurant on the top of the Paris Las Vegas hotel that evening, but true to how they’ve handled the rest of this journey, they opted instead to keep their plans. He donned black tie, she a gown.

“We had a fabulous time. It was one of the best meals I’ve ever had.”

**LIFE WITH CANCER**

Since that day, Attisano, 55, has learned a lot. She found out she has dense breasts, which means she has a type of breast tissue that makes scans hard to read and can put women who have this type of tissue at a higher risk — not only of breast cancer but of cancers being missed on mammograms. She thinks her cancer was growing several years before it was discovered.

She wanted to go to MUSC Hollings Cancer Center, since she knew that it was the state’s only National Cancer Institute-designated cancer center. She began working with Hollings oncologist Antonio Giordano, M.D., Ph.D., and found that her cancer was more extensive than she thought. Instead of it being just the tumor in her breast and the involvement of one lymph node, doctors found she had about 20 tumors in her liver.

That radically changed her treatment plans. Giordano was frank with her, telling her it was one of the most advanced cases he had seen. They tried a round of chemotherapy that didn’t work for her, and Attisano mourned the loss of her hair and eyebrows. When Giordano saw the treatment wasn’t working, he consulted a colleague at Dana-Farber Cancer Institute to explore what clinical trials might be best for her. Hollings is one of 71 NCI-designated

centers in the nation and part of a network of institutions at the forefront of developing clinical trials to advance cancer care.

While she didn’t find a new trial, she did have an FSH, or follicle stimulating hormone, test that found her cancer was 100% hormone driven. Doctors found that she had an HER2-negative, ER-positive type of breast cancer and put her on Kisqali, which had just been approved.

There was a special moment when she got some scans back in late May after being put on the new therapy. Giordano, who praises Attisano’s lively and optimistic spirit, said she was one of the first patients at MUSC Health to receive this type of treatment. He came into her room and was trying to be serious and somber, Attisano recalled. “I’m like, ‘How are the scans?’ And all of a sudden, he couldn’t help himself. He’s beaming. He said, ‘You are not going to believe the scans. They are awesome. I have never seen such constant tumor reduction in my entire breast oncology career.’”

Attisano learned she had no metastatic disease in the upper torso, and her tumors had dropped down to just two. It was a day of celebration. Although she knows she’ll always be battling this disease, she said she’s surprised herself by how she’s handled her diagnosis.

She used to think that if she ever got cancer, she would wither away, get into bed and just be depressed. “I thought I would just get in my hole and say, ‘I can’t believe this,’ but it was the opposite. Let me tell you what — I came out fighting, and I have fought every step of the way. And I think the number one thing that affects your recovery is your attitude.”

**HALLMARK DREAM**

Though Attisano knows her cancer isn’t curable, she plans to do everything she can to hang on to the best quality of life that she can. She has good reason, she said, as she shows off amazing photos of her wedding in Las Vegas.

Having been single since her divorce about 20 years ago, Attisano was focused on her career. Then she attended an art walk in Charleston and went to a restaurant, where she spotted Mike. Mike remembers he had just ordered an appetizer. “She popped her little blonde



*Photo by Dawn Brazell*

**Jennifer’s husband, Mike, has been a source of comfort and support throughout her cancer treatments, and especially now, as the COVID-19 pandemic makes it tough to leave their house.**



*Photo Provided*

**After a chance meeting at a restaurant, Mike and Jennifer fell in love and tied the knot in Las Vegas a few years later.**

head over and said, ‘That looks good. What’s that?’ So I said, ‘Well, this is my favorite appetizer here. Would you like to try some?’ I’m no dummy, right?” he said, adding that he ended up joining her group of friends.

“And that was pretty much it. I was very smitten with her right away, and we struck up a conversation, and before I knew it — that was it. “I was hooked.”

They dated a couple of years, and then Mike invited her out to an art gallery to show her a special painting. There was champagne, and their special song “Feels Like Home” by Bonnie Raitt was playing. He unveiled a painting that read “Will you marry me?” Flying to Las Vegas to get married in September 2015, they decided

*See SURVIVOR on page 12*

## MOLECULE *Continued from Page One*

a protein. To release the bradykinin, you have to have an enzyme that degrades the protein and liberates the bradykinin.”

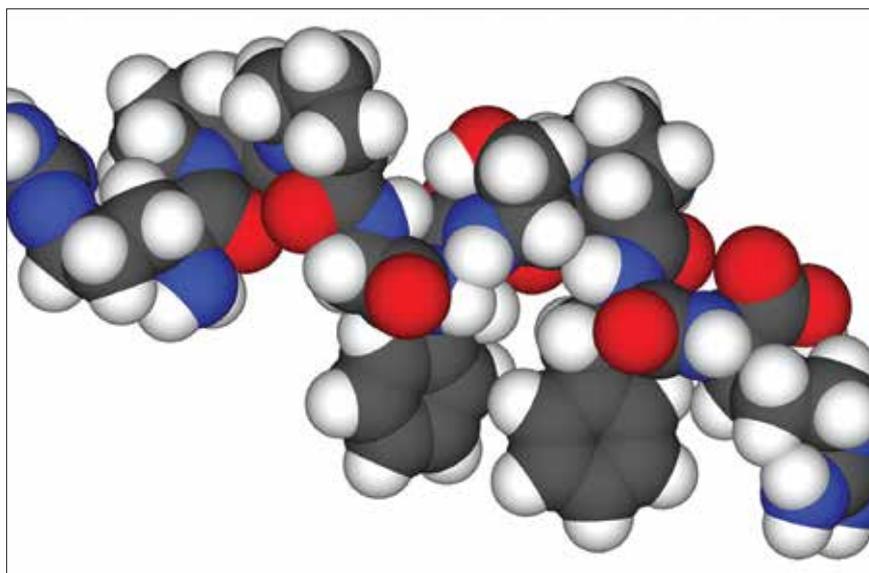
If it's liberated in the lung, the results could be disastrous, unleashing what's been called a bradykinin storm. “You're going to get fluid accumulation where you're trying to breathe in the air – take in the oxygen and get rid of the carbon dioxide. The bradykinin would cause the fluid to leak into the lung spaces including the spaces where gas-air exchange is supposed to occur. If it were bad enough, you would inhibit the transport of oxygen,” Kaplan said.

“It could really be doing a number on the people who have COVID – yet that is a far cry from saying bradykinin is causing the lung problems. Nevertheless, the assumption is really reasonable based on our knowledge of bradykinin.”

Scientific reports that have appeared since the pandemic began support that assumption. “The articles are good and really interesting. Some of them looked at lung fluid, which you can get by a procedure. And in that fluid, they found many of the things that you need to make bradykinin – the enzymes that produce it, the kininogen from which it is derived, the bradykinin receptors,” Kaplan said.

“For bradykinin to work, to make the vessels leak, it has to bind to a receptor on the vessel. Almost every element was sky high in those fluids. So that's exciting for those of us who do research on bradykinin.”

If bradykinin is found to be a culprit in COVID-19 lung problems, there are drugs already approved by the Food and Drug Administration to go after it.



**This illustration shows the inflammatory molecule bradykinin, suspected of playing a role in COVID-19's disastrous effect on some people's lungs.**

*Image Provided*

“One is called icatibant. For bradykinin to work, it has to hit a receptor. The receptor is called B2. Bradykinin has to bind to B2 on the cells that line blood vessels in order to make the vessels leaky. And icatibant binds to the receptor and prevents bradykinin from interacting with it,” Kaplan said.

“There's also another drug, a monoclonal antibody called lanadelumab that's given by injection.” Monoclonal antibodies are lab-made antibodies designed to target problematic molecules that trigger unwanted immune reactions.

“What's exciting to me is one injection of lanadelumab lasts at least two weeks. That's the critical period when people are sick. It inhibits an enzyme called plasma kallikrein that's critical for bradykinin formation,” Kaplan said.

He'll be watching closely as researchers test the medications to see if they're safe for people with COVID-19 and if they help patients get better.

If it turns out that bradykinin is, in fact, a key player in COVID's lung problems, that could open the door to new information about other diseases, too. “The diseases that we know bradykinin is important for very often have swelling associated with them, like hereditary angioedema. It's usually a skin manifestation, so that it's visible. But there's a host of other things that are internal in which bradykinin is suspected but not proven to be a factor,” Kaplan said.

“If this one turns out, it's not only going to be important for many lung diseases but other diseases in the body people have been studying for a long time. It could have implications far beyond COVID.”



### MUSC Department of Public Health Sciences celebrates *Mes Nacional de la Herencia Hispana*



**We invite you to join us in recognizing cultural diversity on our campus and around the world. Come visit the Art Exhibit which will display a collection from Sumaya Florez and Lauren Fanning. Collectibles and artifacts from around the world will also be on display.**

**What:** Hispanic Heritage Month Celebration  
**When:** Oct 5 - 9, 2020 (11am - 2pm)  
**Where:** Dept of Public Health Sciences  
135 Cannon Street, 3rd floor

**How:** RSVP here: <https://signup.com/go/FgYRADN>  
**Who:** share this invitation with everyone  
**Contact:** Caroline Davila; [davilac@musc.edu](mailto:davilac@musc.edu) 843-345-2545

Visit the DPHS website for a virtual tour of the art exhibit: <https://medicine.musc.edu/departments/phs>



The MUSC Alliance for Hispanic Health embraces campus diversity bringing together students, healthcare providers and community members in service projects with the goal of improving the health of the Hispanic community. Students attend local health fairs providing free screenings, dental hygiene and healthy eating recommendations.  
\* To participate in our events look in <https://admin.helperhelper.com/> or e-mail us at [ahhinfo@musc.edu](mailto:ahhinfo@musc.edu).  
\*\* For a list of Hispanic Heritage month celebration events visit <https://education.musc.edu/students/spsd/>

## WEIGHTLESS *Continued from Page Seven*

Nature Microgravity, shows that less electromagnetism was needed in zero gravity than on Earth to induce a thumb twitch. That suggests neurophysical changes happening in the brain, but there are several possible explanations, ranging from the brain physically shifting within the skull to neurons reacting more strongly to stimulation. There's more to be learned, they said.

It's an issue near to Roberts's heart, as she has argued multiple times, most recently in an opinion piece in The Lancet Neurology, for more research into brain changes in space explorers.

Having shown that TMS is possible in zero gravity, the team is well-equipped to continue finding answers to these questions.

**SURVIVOR** *Continued from Page Ten*

on a vintage '50s theme, finding special clothing and renting a red convertible for their drive-through ceremony.

They grinned like two teenagers describing the moments.

Attisano said she felt like her diagnosis, that came shortly after their two-year anniversary, was unfair to Mike. She lost her mother to lung cancer and remembered how hard it was traveling back and forth to Selma, North Carolina, to visit her mom. "I was like, 'I have looked for this wonderful man my whole life who loves me more than anything, and oh my gosh, I'm not going to be here to love him and for him to love me,'" she said.

"I thought, 'I'm like my mom, and now you're stuck. You're stuck with this broken person, you know?' And he's like, 'You're not broken. You're wonderful.'"

The couple decided to focus on what they had together instead of the diagnosis. Attisano, who went on a hormone blocker and Kisqali in February of 2018, said the toughest new challenge has been COVID-19, as the treatment

she's on makes her more susceptible to the virus. Her oncologist recommended that she stay home, which was a hard change for her. Her husband also works remotely to be able to protect her.

"I'm very much a people person, and this has been the hardest thing I've ever done in my life," she said of the impact of COVID-19. Except for walks, she hasn't been out of the house. They have their food delivered. "It's been tough, but I think you dig down and decide that you can't let it win."

Attisano researches new treatments in case her current therapy stops working or makes her immune system too weak. Her oncologists Giordano and Frank Brescia, M.D., have been critical in her care, and she wants to educate other women about the importance of screening and how important it is to know about dense breasts as that can affect how screenings are done.

"I'm surviving cancer because of my unwavering attitude, my family, friends and prayer and the amazing research that's been done in oncology and modern medicine. There's going to be something else with the great research

**Surviving cancer and a COVID-19 lockdown**

*Breast cancer survivor Jennifer Attisano shares some of her tips to help fellow cancer patients cope with being stuck at home during the pandemic.*

- ❑ Have a routine, even if you're at home, preferably something that has a purpose and where you can see you're accomplishing something — a project or activity.
- ❑ Allow yourself down days when you're not feeling well.
- ❑ Have dress-up days, even if you're not going out, where you put on some makeup and a favorite outfit that you feel beautiful in.
- ❑ Spend quality time doing fun things — playing games, watching comedies — with people (and pets) you love.
- ❑ Make time for things that bring you joy and passion. For her, it's art and time with her husband. They watch comedies together.
- ❑ Communicate about real issues. She and her husband played a 100-question game that was fun and helped them grow closer together.
- ❑ They've been together 24/7 for more than six months. If you're sheltering in place with someone, give each other space.

that's going on. I think most oncologists would tell you your attitude is a lot of the battle. If you give up, it wins in the end," she said.

"And, I'm not going to give up because

there's so much I want to live for. I think it's just an inner strength of wanting to live and wanting to have those experiences in the future."

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