

MUSC scientist from Ukraine worries about family as Russia invades

By HELEN ADAMS

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It's been a dangerous and dramatic week for friends and family of Oleg Palygin, Ph.D., an associate professor in the College of Medicine at MUSC. The Ukrainian-born scientist is trying to concentrate on his work, but it's difficult. "We're calling all of our friends and hearing explosions in the city of Kyiv booming," he said.

Russia invaded Ukraine on Feb. 24 in what's being called a full-scale attack.

Russian President Vladimir Putin said his goal was to defend Russian speakers in Ukraine, especially in two self-declared republics. But Ukraine says it's not trying to take those republics back. Putin also doesn't like the idea of Ukraine joining NATO, something Ukraine has shown an interest in. And Putin has called Ukraine, a former Soviet republic, inseparable from Russia.

But Palygin has a very different point of view. "Ukraine is a nice country. There's a lot of culture and a lot of good people, natural wonders, authentic foods and restaurants. Kyiv is a very beautiful city.

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Palygin



Photo by Sarah Pack

Occupational therapist Genevieve Lagonera works with patient Eric Kinard as his daughter Sarah takes notes. Watching his movements in the mirror helps Kinard to relearn movement.

New clinic offers comprehensive rehab therapy geared to neurological conditions

By LESLIE CANTU

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"Out to the side."

"Turn this off," occupational therapist Genevieve Lagonera instructs, gently touching patient Eric Kinard's pectoral muscle. "And turn this on," she says, touching the muscles around his shoulder blade. Kinard concentrates on his reflection in the mirror, working to move his right arm out and in, out and in, and then forward and back, forward and back, to Lagonera's calm encouragement.

Kinard suffered a stroke in August 2020. As with many stroke patients, he's been left with a muscular imbalance around his right shoulder — one set of muscles is tight and stiff while the other is loose and weak. This in turn has led to a painful partial dislocation in his shoulder joint. Lagonera aims to loosen the pectoral muscles and build strength in the scapular muscles to reduce instability and regain some function of the right arm.

But first, the pain must be dealt with. Lagonera began

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Letter from the
Office of the

PROVOST

Dear university colleagues and students,

Throughout the pandemic we have ensured our MUSC COVID-19 response evolved in keeping with updates from the CDC and SC DHEC and to maintain alignment with the MUSC Health system guidelines. Based on new CDC guidelines, the current number of positive cases per day, and the positivity rates in our area, the university is removing the current mask mandate for all university employees and students as well as visitors effective Tuesday, March 1.

Our university directives are updated, and you can read those in full on the University Updates on COVID-19 page at <https://web.musc.edu/coronavirus-updates/directives>. Included in the revised directives is the option to hold university events with food. Please note, MUSC public transportation will continue to require passengers to mask until further notice.

We continue to encourage unvaccinated individuals and those with pre-existing conditions who may be adversely affected by COVID-19 to wear masks for their own protection.

As always, we are grateful for your patience and understanding as we continue to navigate COVID-19 and its challenges, and we thank you for your continued commitment to excellence.

Respectfully,

Lisa K. Saladin, PT, Ph.D.

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We have the Black Sea and cities like Odessa, and we have very old historical cities like Lviv. So there's a diverse population of Ukrainians with different languages, dialects and religions."

Palygin left Ukraine after earning his Ph.D. in biophysics to do postdoctoral training in the U.K. and the U.S., where he saw better scientific opportunities. He's now a U.S. citizen, working in the Division of Nephrology at MUSC. But he stays in close touch with loved ones in Ukraine. That includes his parents, who live in a village near Kyiv.

"They're staying home. They're trying not to panic. Right now, there's very high traffic on the roads. And Russian forces are attacking from different directions. So probably the best way right now is to sit home and not travel."

But not panicking isn't easy. "We're worried because the situation with Russia is out of control. Russia is using all of their forces and bombing not only military targets, but targeting civilian areas and infrastructure, including the Chernobyl nuclear power station."

Chernobyl, in northern Ukraine, melted down in the 1980s. The area is still considered highly radioactive. Russian troops have taken control of it.

That adds to Palygin's worries about Ukraine's future. "Ukraine is the biggest country in Europe in the sense of size and includes 40 million people. The invasion of Ukraine will have a major impact, not only for the Ukraine, but the world, I think."

That impact is being felt at MUSC's Center for Global Health. Executive director Kathleen Ellis said her team is working on a possible support session for people directly and indirectly affected by the war.

"We are deeply concerned about Russia's attacks on Ukraine and its impact on many in our own MUSC community. We are continuing to monitor the rapidly evolving situation. Over the last 24 hours, we've been reaching out to individuals with connections to Ukraine to offer our continued support and guidance during this challenging time," Ellis said.

Palygin is already surrounded by people who understand just how

troubling the situation is. Not only are some of the colleagues in his MUSC lab from Ukraine, he also has a Ukrainian friend who brought his family to visit Charleston for the Presidents Day weekend - who's now in limbo.

"I'm helping them to change their tickets. But not only their tickets - also their life plans. They need to decide what to do. And with small kids, that's not an easy situation."

Why did they decide to travel at such an uncertain time? Palygin said until now, a Russian invasion didn't seem to make sense. "When you're thinking logically with a normal mind, you don't understand the point of starting to bomb cities and attack. This is absolutely a nightmare. That's why he probably believed it wouldn't happen. It's just barbaric. It looks like we live in a previous century, not the modern era."

But this era could be shaped by what's happening in Ukraine, Palygin said. "After Ukraine, it could be other countries in Europe, like Baltic countries. Finland, which already had an invasion. Romania and Slovakia. This is just moving us closer to a possible third world war."

He's hoping the U.S., which he now calls home, will help prevent that. "Ukraine values the support of the United States for the Ukrainian army and the Ukrainian people. That's a very strong feeling from a lot of Ukrainians. They just feel strong support from United States."

2022 Earl B. Higgins Leadership nominations due March 7

The Department of Diversity, Equity, and Inclusion proudly hosts the annual Earl B. Higgins Achievement in Diversity Award to honor the former MUSC director of Minority Affairs and acknowledge the outstanding contributions, persistence and dedication of the MUSC community to enhance and advance diversity and inclusion at MUSC. All nominations are due at the close of business on March 7. To nominate, visit <https://web.musc.edu/about/leadership/institutional-offices/diversity/earl-b-higgins-award>.

Colorectal cancer research reveals promising targetable pathway for prevention, treatment

BY CAROLINE WALLACE

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An MUSC Hollings Cancer Center study sheds light on better ways to prevent and treat colorectal cancer, which often is found at advanced stages when it's much harder to treat.

MUSC Hollings Cancer Center director and researcher Raymond DuBois, M.D., Ph.D., discovered the connection between a series of pathways, actions among molecules that lead to a change in the cell, which showed how cancer cells and the immune system interact. This work, published online on Feb. 2 in *Cancer Prevention Research*, provides strong evidence for a new therapeutic approach to aid the immune system in fighting cancer.

Colorectal cancer (CRC) is one of the most common types of cancer and the second leading cause of cancer deaths. Colorectal cancer cases have been increasing in young people across the U.S., but researchers are not quite sure why. "The rise in CRC cases in younger individuals is an area of concern for South Carolina and Hollings. In general, this region has a large number of sedentary individuals with high rates of obesity and smokers, which are known to promote cancer," said DuBois, who is also a Distinguished University Professor in MUSC's College of Medicine.

DuBois said that the low five-year survival rate is unacceptable for colorectal cancer patients with stage 4 (advanced) disease. Despite promising improvements in cancer treatments, immunotherapies, which help the immune system to fight cancer, such as checkpoint inhibitors, have had disappointing clinical results in many solid tumors, including colorectal cancer.

To find more effective options for patients, scientists have studied several molecular pathways to find new drug targets. However, much of this research is done with late-stage colorectal cancer, when there is already metastasis, or spread of the disease. "Looking at cancer and immune cell interactions in the early stages of cancer development may provide more answers for the field. Currently, there is very little understanding of what is going on in the immune system in the premalignant stage," said DuBois.

Last summer, DuBois published data that identified how a certain gene mutation, or change, allows tumors to evade detection by the immune system in colorectal cancer patients. This new publication builds upon that foundation and adds pieces to the "big-picture" puzzle that will ultimately lead to better solutions for cancer patients

PIECING TOGETHER IMMUNE EVASION IN CRC

Cancer cells can thrive in a person's body when they hide from the immune system. The immune system is designed to kill and remove mutated cells: cytotoxic CD8+ T-cells kill the cancerous cells, and phagocytic macrophages clean up cellular debris. However, cancer often outsmarts the intricate immune system mechanisms. In a journey through signaling pathways, DuBois and colleagues pieced together the mechanism underlying immune evasion in early colorectal cancer.

"The mechanisms of how PD-1 is regulated in CD8+ T-cells and macrophages in the tumor environment is still mostly unclear," said DuBois. Using mouse models of CRC and complex genetic techniques, DuBois' team and his collaborator Jessica Lang,



Photo by Cliff Rhodes

Dr. Raymond N. DuBois led a Hollings study that sheds light on better ways to prevent and treat colorectal cancer, which often is found at advanced stages when it's much harder to treat.

Ph.D., at the University of Wisconsin-Madison, identified that the EP4-PI3K-NF κ B-PD-1 pathway was responsible for CRC immune evasion.

First, the researchers found a novel role of the prostaglandin PGE2 in tumor immune evasion. Prostaglandins are hormone-like fatty molecules that are released early in response to inflammation. PGE2 is the most abundant prostaglandin found in human cancers, including colorectal cancer. Additionally, high levels are associated with a poor prognosis.

"We discovered that the inflammatory mediator PGE2 turns on PD-1 expression by a series of intermediary pathways. The result is that the CD8+ T-cells and macrophages do not effectively attack the developing cancer cells," said DuBois.

IDENTIFYING A NEW CANCER TREATMENT TARGET

Next, the research team identified that blocking the molecule EP4 could "free" the immune system and restore the cancer-fighting functions. "In a mouse model of CRC, we found that blocking EP4 with a new class of receptor inhibitor restored the CD8+ T-cell cytotoxicity," said DuBois. He explained that interrupting the pathway through

EP4 reduced the levels of PD-1 on both CD8+ T-cells and macrophages, which increased the immune cells' cancer-fighting functions in the intestines.

In colorectal cancer and other cancers, high levels of specific molecules, such as PD-1, are associated with worse survival. However, the biological reason was previously not apparent. "Our data shows that the proof of concept is there, and the negative PD-1 effect can be reversed," said DuBois. In the future, there may be several options for the use of EP4 inhibitors, including combining them with checkpoint inhibitors in patients with more advanced cancers.

Since the data shows that blocking EP4 is potentially effective as an early treatment for colorectal cancer, the research team plans to further these findings by looking at subsets of the pathways and performing studies in metastatic disease. They also plan to look at the role of this pathway and inhibitor in other cancers.

CANCER PREVENTION

While the current study focused on understanding the pathway for cancer treatment, the EP4 inhibitor could also be pursued as a cancer prevention

*See **CANCER** on page 10*

Understanding treatment options for children with severe COVID-19

By MAXWELL COOK

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More than 11 million children have contracted COVID-19 during the course of the pandemic, making up over 18% of all COVID-19 cases, according to the American Academy of Pediatrics (AAP). That percentage has ticked yet higher during the Omicron surge.

The vast majority of children do not experience severe symptoms, but a small percentage will go on to develop severe, sometimes life-threatening, illness and require intensive care, according to Elizabeth Mack, M.D., division chief of Pediatric Critical Care Medicine at MUSC and a spokeswoman for the AAP.

“Thankfully most children’s bodies are resilient, and they won’t end up in the ICU,” she said. Although there are few severe COVID-19 cases in children, those who do end up needing intensive care are “somebody’s everything,” said Mack.

For children with severe disease treated in the pediatric intensive care unit, the choice of treatment is limited. In the absence of therapies approved for pediatric use, doctors rely on treatments approved in adults for the sickest of children.

“People think that there are a lot of options, but there aren’t,” said Mack, “whether it is because they are not

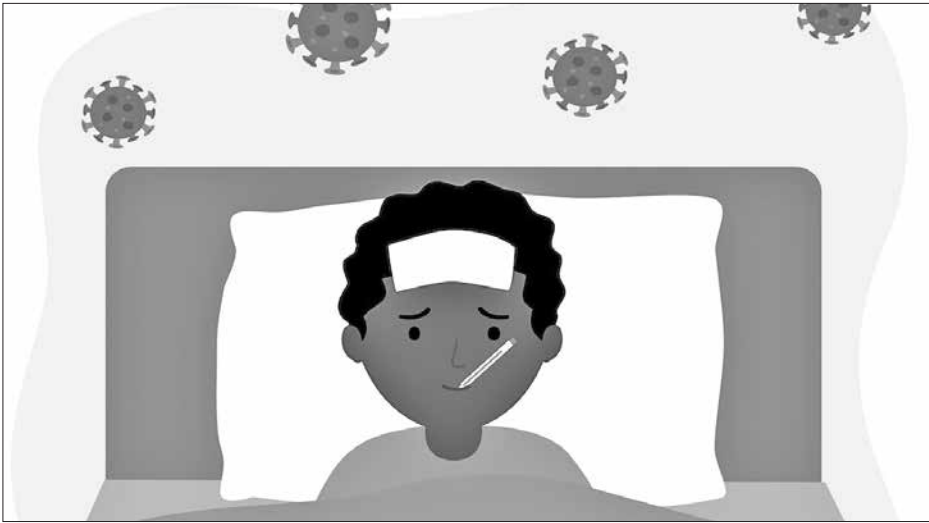
studied, the data is not there or there are scarce resources.”

To obtain insight into how therapies are being used in children, the Overcoming COVID-19 study team analyzed data from children receiving intensive care in its 43 participating pediatric hospitals. Mack led the MUSC site. The study’s findings are published in the Journal of the Pediatric Infectious Diseases Society.

The study found that more than half of the children with life-threatening COVID-19 received some type of COVID-19 directed therapies, the most common being steroids and remdesivir. Mack explained that these two therapies had significant positive data in adult clinical trials and were accessible when treating life-threatening COVID-19 cases in children. Also, the data showed that therapies were most commonly used in children between 13 and 17 years old and were used in 80% of children with at least one preexisting condition, such as obesity, diabetes or asthma. Those conditions put children at higher risk of developing severe disease.

Although various COVID-19 directed therapies have been approved for adults, they have not been as well studied in children. That’s because it’s much harder to recruit for pediatric clinical trials of any therapy, including those for COVID-19.

As a result, even outside of a pandemic,



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Photo by Sarah Pack

Dr. Elizabeth Mack, division chief of Pediatric Critical Care Medicine, in the ICU.

doctors frequently have to treat children off-label, using drugs approved for adults but not for children.

“In pediatrics, treating off-label is our bread and butter,” said Mack. “About one third of the therapies that are used in children are off-label.”

Without such “off-label” use of drugs that have been shown to be effective in clinical trials in adults, critically ill children would have far fewer treatment options.

The Overcoming COVID-19 study has been crucial to understanding the impact of COVID-19 in children and evaluating prevention and treatment strategies. The study team collects data on the severity of

illness in these children, their vitals, what kinds of tests they had done, how they were treated and how they responded.

Since there are not as many clinical trials in children as in adults, this type of national collaborative effort provides a large population of patients to study and serves as “a nice surrogate in the absence of trials,” said Mack.

While this study provides valuable data on COVID-19 therapies in children, Mack emphasizes the importance of preventing COVID-19 in the first place.

“Pediatricians have known for decades that prevention strategies, such as vaccines, are the best medicine.”

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Forgotten Clones:
The Birth of Cloning
And the Biological
Revolution



MEET SHERI



Sheri Harmon

College; Years at MUSC *Office of Communications and Marketing; Almost a month, but 25 years in various areas of MUSC*

How are you changing what's possible at MUSC

Through customer service: I try to make everyone feel important.

Family and pets *Husband, David Blick; daughter, Sydney Thomas, and son-in-law, AJ Thomas; and grand-dog, Tallulah*

Favorite springtime memory *My sister was born on Easter Sunday morning – what an Easter egg!*

Favorite spring sports teams *Clemson Tigers baseball and Atlanta Braves*

Favorite TV or cable series to binge watch *“Sex and the City” and “Yellowstone”*

Something I've accomplished this year *Building a house with my husband and not going to jail!*

Favorite quote *“I've learned that people will forget what you said or what you did but not how you made them feel.” — Maya Angelou*

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With immense gratitude to our mobile clinic funders: MUSC Health, MUSC Storm Eye Institute, and MUSC Children's Health

With your support, in just 6 months, over 5,000 CCSD students in need have been given vision screenings, more than 1,200 have received a screening exam, and 1,000+ have been provided new, prescription glasses! Thank you for helping to create a bridge to a lifetime of eye care for these children!



Ask Me About



Allison Broomall, OurDay Change Champion and Nursing Professional Development Specialist II

What is the hardest part about a change like this?

With anything new, there is a learning curve. For those who have been working at MUSC for a long time, there may be grieving over the familiar systems even though it may have been fragmented. I have been at MUSC for over 20 years and have learned to be a novice over and over again when it comes to improving our processes. Be patient as change and comfort with a new system will take time. Keep in mind how this will improve our processes once we learn to navigate the system.

OurDay will become a hub for many of our needs, allowing staff to go to one system to access resources and systems related to finance, human capital, and supply chain. It will improve day-to-day tasks to have a one-stop shop in place of our current, disparate systems.

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**First Annual
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Tobacco Treatment Specialists (TTSs) are health care professionals that possess the skills, knowledge, and training to provide effective, evidence-based interventions for tobacco dependence across a range of treatment intensities. The 4-day MUSC Tobacco Treatment Specialist training is designed to train multidisciplinary clinicians who work in various healthcare and community settings including primary care, behavioral health, addictions and rehabilitation settings, public housing, oncology settings, and worksite wellness.

The TTS training meets all of the requirements set forth in the US Public Health Service Guidelines as well as the standards for competencies for tobacco treatment specialists developed by the Association for the Treatment of Tobacco Use and Dependence (ATTUD) and is currently working with the Council for Tobacco Treatment Training Programs (CTTTP) to obtain "Pending Accreditation Status," which is the first step toward having a fully accredited program.

In addition to completing your TTS training in the beautiful, historic city of Charleston, we will have national experts providing unique and cutting-edge training on the following topics:

- Acceptance and commitment therapy (ACT) for smoking cessation
- Evidence-based practices and recommendations for e-cigarettes
- New and alternative tobacco products
- Culturally competent counseling for tobacco treatment

CME's available for the following:

- Physicians
- Nurses
- Respiratory Therapists
- Psychologists
- Social Workers
- Certified Alcohol and Drug Counselors
- Certified Health Education Specialists (CHES)
- Family and Marriage Counselors

Who should take this training?

Health care professionals working in various settings are uniquely positioned to treat people for tobacco dependence. These include and are not limited to nurses and nurse practitioners, physicians, dentists, pediatricians, psychologists, physician assistants, respiratory therapists, mental health professionals, health educators, addiction professionals, certified counselors and therapists, social workers, and others with an interest in decreasing tobacco use in their community.

This training will present up-to-date research on topics such as public health and tobacco, behavior change, and program evaluation to aid in all trainees to best serve their patients and community members.

Remote COVID-19 study adds new ivermectin arm

By LESLIE CANTU
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A clinical trial studying how well drugs already approved for other ailments might work against COVID-19 has opened a new arm to test the antiparasitic drug ivermectin.

The study started last year with the dosage already approved by the Federal Drug Administration, said Leslie Lenert, M.D., director of the Biomedical Informatics Center at MUSC and the principal investigator for the MUSC study site.

Now, having met its enrollment goal for that dosage, the trial will begin studying a higher dosage while investigators crunch the numbers from the first round.



Lenert

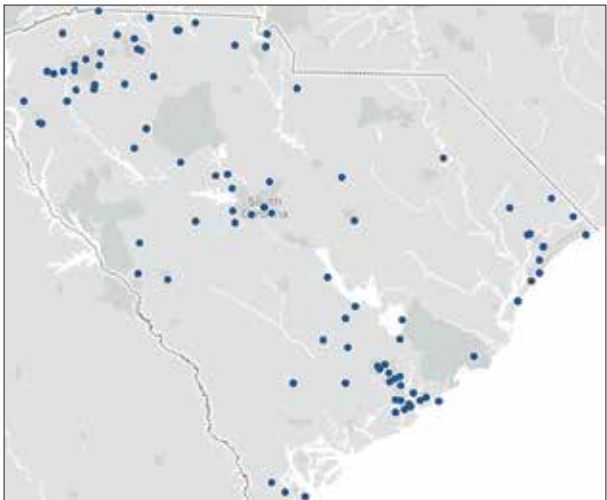


Image Provided

One of the benefits of remote studies is that people from across the state can participate in research. This map indicates participation in the ACTIV-6 clinical trial.

Called ACTIV-6, the trial is a nationwide study under the umbrella of the National Institutes of Health's Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) public-private partnership. ACTIV-6 is led by the Duke Clinical Research Institute, with MUSC serving as the study site in South Carolina through collaboration in the National Patient-Centered Clinical Research Network.

The trial has multiple "arms" so that it can investigate different drugs at the same time. It began with fluticasone furoate, a corticosteroid often used for asthma or chronic obstructive pulmonary disease that is delivered via inhaler; fluvoxamine, an antidepressant in pill form; and ivermectin at a dosage of 400 mcg/kg for three days.

The fluticasone furoate and the initial ivermectin arms are now closed. The new ivermectin arm will test the drug at 600 mcg/kg for six days.

All of the drugs are being tested in people who have mild to moderate COVID – in other words, people who have tested positive and are symptomatic but haven't had to be hospitalized.

So far, more than 3,000 people have volunteered for the study, with MUSC enrolling the third-highest number of people among the 87 participating sites across the nation.

Lenert said that, thanks to the remote design of this study, MUSC has been able to include people from across the state. People can sign up through a phone call or online, and the central pharmacies will send the medication and a pulse oximeter to patients' homes.

Study coordinator Elizabeth Szwast said the patients she's spoken to have been happy to see studies underway to treat COVID.

"They're excited to collaborate in research, especially

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Photos by Sarah Pack

MUSC speech language pathologist Kirby Gooding works with stroke patient Sean Reed on a reading comprehension program during a therapy appointment.



Dr. Eric Monsch watches as MUSC physical therapy resident Sara Hamre helps Eric Kinard on a specialized treadmill. The treadmill supports the user's weight so that he can relearn proper gait.

REHAB *Continued from Page One*

the session by working on the pectoral muscles to get them to relax.

"I always try to address pain first because no one wants to move if it's painful," Lagonera explains.

Kinard has gone through multiple therapies since the stroke, his daughter, Sarah, says. Recently, the family began coming here, to the MUSC Health Neurologic Rehabilitation Institute in West Ashley.

The institute, a partnership between MUSC Health and the MUSC College of Health Professions, quietly opened in the fall. Leaders who have been working to develop the institute for the past three years say it fills a niche in the region by offering comprehensive therapy services geared toward neurological conditions, all under one roof.

"Our Comprehensive Stroke Center is one of the best in the country. So then, what we need to be able to do is offer that care long term," said David Comeau, DPT, director of Therapeutic and Rehab Services at MUSC Health.

Until now, physicians have been limited in their ability to refer patients to a single facility that offers comprehensive neurological rehabilitation from a multi-disciplinary team approach,

said Mark Bowden, PT, Ph.D., director of the Division of Physical Therapy, Department of Rehabilitation Sciences, in the College of Health Professions.

Bowden has been gathering ideas for this clinic for some time. As part of a distance-learning physical therapy residency for neurological conditions, overseen by CHP, his team has conducted three to four site visits per year for the last eight years in 13 facilities across seven states.

"We thought about this a whole lot. If we ever had a chance to run a clinic, what would it look like?" Bowden said. "So, when the opportunity presented itself, that was how we pitched it to MUSC Health — that this is an opportunity to do something very different that MUSC doesn't currently have."

The institute includes physical, occupational and speech therapy as well as a seating and positioning clinic. Another goal is to add a specialized wellness center for those who have gone through their therapies and increased their mobility.

"Some of these folks can't just go to Planet Fitness and exercise because they still have limitations and safety concerns in a traditional gym environment," Comeau explained.

Although stroke is one of the most common conditions for patients in the program, the institute can also assist people with spinal cord and brain injury, Parkinson's disease, multiple sclerosis, balance problems due to inner ear issues or adults with congenital issues like spina bifida or cerebral palsy.

And because of the partnership between the college and the health system, the institute includes opportunities for research and student training.

"I think the thing that makes it really special is not just that it's comprehensive outpatient therapy, but it really does represent the true tripartite mission of an academic health center of being able to do clinical care, education and research all in the same facility," Bowden said.

The facility includes a classroom, private rooms for speech therapy and specialized equipment to assist patients in relearning to walk. A body weight-supported treadmill system is in place and a weight-supported walking track, which will allow patients to walk around the room while in a safety harness to prevent falls, is due to be installed.

After the session working on his shoulder mobility, Kinard tries out the body weight-supported treadmill. Although he's pretty active around

the house and the neighborhood — he clocked 12,000 steps the day before this therapy session, and he does laundry, dishes and other housework — his gait is off. His right leg turns outward, partially due to muscle tightness. When a therapist tries to get his toes pointing forward, he doesn't have the range of motion to allow for a full step. That's something they're going to work on, says Eric Monsch, PT, DPT, a board certified neurologic clinical specialist.

Kinard goes home with an assignment, too. Lagonera wants him to prop a pillow under his arm when he's sitting and watching TV, to keep the arm out to his side, instead of letting it drift back to the center of his body as it wants to do. Keeping it in a more open position will stretch the pectoral muscles, which will help with the immobility.

Kinard looks skeptical but promises to try it and report back.

"We'll see," Lagonera says. "Sarah and you can try it out, and you and your wife can tell me on Thursday if it worked. OK?"

"I'm proud of you today," she adds. "You've got some stuff in there that we can work on. I can't wait to see what else comes through."

Program combines technology with humanity to help ease pain, suffering

By **BRYCE DONOVAN**
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Annalise Gunn was the second person to believe the girl.

For months, the teenager sitting across from the seasoned therapist had been repeatedly sexually abused by her mother’s boyfriend. When she finally got up the nerve to tell her mom, she was laughed at, told she needed to stop making up stories for attention.

How does something like that not break a human being?

It was a family friend who finally took the girl seriously. Together, they reported the man to the authorities, and the teenager moved in with the friend. Eventually, her path would lead her to the Dee Norton Child Advocacy Center,

where she would find herself sitting across from Gunn, the woman entrusted with the near impossible task of helping to put this girl back together.

“I just remember she wasn’t responding much at the beginning,” Gunn recalled. “Maybe an occasional ‘yes’ or ‘no,’ but that was about it.”

And why should she? After all, what had adults ever done for her but bring pain and humiliation?

Ask any therapist who regularly works with kids who have experienced trauma, and they will tell you the same thing: Traditional methods rarely work.

“Something I’ve discovered over the years is, oftentimes, getting too cerebral with a child can hinder any of sort of progress you might be able to make,” Gunn said. Approaching things



Photo courtesy iStock

Mixing traditional methods with technology – like SPARK, a kid-focused app that integrates games and videos to the otherwise formal process of evaluating mental health – can often help kids to open up more during therapy.

differently, she explained, creating a more relaxed environment, that’s usually the way to go.


“If you think about how kids learn in school, they don’t just sit there and listen to the teacher talk all day,” she said.

“They do activities, worksheets, go to

learning centers. So when you’re working with traumatized youth, it makes sense that a similar approach might be the best way to go.”


Thanks to programs like SPARK

See TACHL on page 10




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Psychologist working on app to help parents of injured children

By LESLIE CANTU

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Between 20% and 40% of trauma patients will develop significant mental health problems, like post-traumatic stress disorder or depression, in the year after the incident that brought them to the hospital.

The Trauma Resilience and Recovery Program, based out of the College of Nursing at MUSC, helps those patients struggling with the mental aftereffects of traumatic injury. Last year, 161 of its patients were under the age of 18.

Now, Leigh Ridings, Ph.D., associate director of child and family services at the TRRP and an assistant professor in the College of Nursing, is developing an app to meet the needs of parents or other caregivers whose children under age 12 have been injured. Some 20% of caregivers also experience PTSD or depression



Photo by Sarah Pack

Dr. Leigh Ridings works with families whose children have undergone a traumatic injury.

after their children are injured, she said.

She's received a grant from the National Institute of Child Health and Human Development to undertake this project, which builds on the existing work of the TRRP. While the TRRP has an existing text messaging

service that checks in on patients after they're discharged, that system doesn't meet the needs of the youngest patients, Ridings said.

See APP on page 11

DALSPIZZA.COM WORD SEARCH AGRICULTURE

This is the word search puzzle for the first week of March.
Find the words hidden vertically, horizontally.

WORDS

ANNUAL	FERTILIZER	MAIZE
AWN	FRUIT	NURSERY
BIENNIAL	GERMINATE	PRESERVATION
BULB	GRAINS	RIPE
CAPSULE	GREENHOUSE	ROOTS
DIPLOID	HERBACEOUS	TUBER
DOMINANCE	HUSK	VEGETABLE
FERMENTATION	LEAFLETS	WOODY

U	I	N	L	F	R	U	I	T	K	B	F	W	U	O	W	A	N	O	E
K	L	V	O	W	N	E	Z	I	A	M	B	I	B	I	D	R	P	R	S
S	P	S	U	I	U	G	N	S	B	N	T	I	E	A	O	I	R	W	U
D	U	R	H	P	T	B	P	R	A	T	K	S	U	H	M	I	A	M	O
M	D	O	E	I	F	A	V	E	G	E	T	A	B	L	E	Y	T	W	H
H	I	Z	E	S	A	Z	T	L	C	M	L	F	B	C	B	I	C	R	N
B	V	S	P	C	E	W	I	N	G	E	K	B	L	L	R	R	P	T	E
I	I	F	H	G	A	R	C	U	E	Y	K	G	U	E	O	E	S	B	E
S	Z	E	Y	M	D	B	V	Z	U	M	Z	B	Z	T	L	I	T	D	R
W	D	R	N	B	V	M	R	A	Y	W	R	I	P	Y	G	S	E	I	G
Y	S	L	O	N	R	U	L	E	T	F	L	E	D	P	F	I	L	O	L
R	I	O	L	O	I	Y	R	W	H	I	I	O	F	F	P	P	F	L	S
E	M	H	N	G	T	A	M	I	T	O	O	A	Y	N	N	M	A	P	E
S	H	W	M	Y	S	S	L	R	P	W	T	N	H	B	W	O	E	I	W
R	A	S	B	N	F	Z	E	N	B	E	D	N	U	C	R	P	L	D	V
U	M	V	I	I	C	F	H	L	T	Y	R	U	C	A	P	S	U	L	E
N	B	A	G	E	R	M	I	N	A	T	E	A	W	F	H	U	O	D	P
B	R	E	Y	B	K	Y	N	T	R	S	B	L	C	R	Y	O	G	M	U
G	L	H	M	Z	E	D	U	L	E	B	U	V	V	T	T	W	G	V	B
I	C	E	C	N	A	N	I	M	O	D	T	S	R	B	E	U	W	A	U

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TACHL *Continued from Page Eight*

(Supporting Providers and Reaching Kids) – an initiative that utilizes technology in the form of interactive touch-screen games, drawing tools, trivia, relaxation activities – therapists like Gunn now have more of those types of resources at their disposal.

Created by MUSC’s College of Nursing, SPARK falls under the umbrella of the college’s Technology Applications Center for Healthful Lifestyles, or TACHL. The mission of the now-decade-old program is simple but powerful: leverage technology to improve population health.

Back in 2011, the state immediately saw its value and adopted it as one of the S.C. SmartState Centers for Economic Excellence. Today, TACHL is a behemoth – a giant umbrella that services a range of needs, from families displaced due to a natural disaster to firefighters dealing with depression.

Program director Kenneth Ruggiero, Ph.D., said the program seeks to lend a hand to anyone willing to accept it: the couple who lost their house in a hurricane and are living out of their car. The man who fell out of his deer stand 30 feet above the ground and broke his back. The teenager who was abused by her mother’s boyfriend. These are the faces of TACHL. The people Ruggiero and his team want to keep helping.

According to the National Center for PTSD, about 15 million adults in the US are battling post-traumatic stress disorder during a given year.

“Many of those adults do not get the help they need due to access and quality of care barriers. With better reach through technology, we want to cut that number in half,” Ruggiero said.

“Bottom line, our goal is to improve access and care through the use of technology,” he explained. “Whether it’s through an app on your smart phone or something as simple as text-based

instruction, everything we do is designed to reach a high volume of individuals to give them tools to improve their health and connect them to best practice care. It starts right here in South Carolina, but our goal is to go beyond that.”

TACHL isn’t just cool apps and fancy websites. In addition to technological innovation, the program also mentors and lends its expertise to researchers. Say someone has a great idea but might not be the most tech savvy or know the first thing about how to write a grant to get funding for their idea: TACHL is there to help.

Program liaison Jessica Chandler, Ph.D., remembers the transplant surgeon who wanted to do post-transplant research, focusing on outcomes, but didn’t know the best way to go about capturing the data. Chandler and her team came up with a Bluetooth-enabled remote monitor for transplant patients who consented, which he could use to track how they were doing in real time.

“Not only that, we walked him through the entire grant application process – something he had no experience with,” Chandler said.

Currently, she’s working on a project that uses technology to monitor and improve blood pressure in patients with hypertension and diabetes. Yes, there will be an app, but the real heavy lifting comes from working closely with the clinician to figure out specifically what data he or she needs and in what format.

Tonya Hazelton, the program manager for TACHL, works directly with end users – sometimes it’s the clinicians, but more often than not, it’s the regular, everyday people who are using the tools created by TACHL.

“Jessica. Ken. Me. We all come at a problem from different perspectives,” Hazelton said. “But what we all have in common is, at the end of the day, we’re all focused on reaching – and ultimately helping – the people who might not normally get access to these kinds of services.”

Here is just a sampling of the areas in which TACHL is rooted:

- Disaster mental health: Apps, like Bounce Back Now (available both in English and Spanish), address post-disaster PTSD, depression and sleep difficulties as well as connect people with

the resources they might need during very difficult times.

- First responder well-being: The Center for Firefighter Behavioral Health offers a multitude of tools, apps and online resources that provide assistance to and advocacy for first responders addressing suicide prevention, mental health discrimination and alcohol misuse, among other areas of need.

- Mental health care: SPARK, as well as S.C. Safe Seniors – a training program to teach health care providers how to identify elder abuse – are just two of the tools available to both providers and patients.

- Emotional recovery after trauma: The MUSC Trauma Resilience and Recovery Program, a model of care that is gaining national attention, addresses the mental health needs of traumatic injury patients at the bedside, but also with text messaging, chatbot and telehealth-based follow-up long after they have left the hospital.

Ruggiero believes that as more providers, institutions and states see what MUSC is doing with TACHL, they’re

going to want to emulate it. But even more important to him and his team is how the program affects individuals – the people who utilize the tools TACHL has created to make their lives better.

“A lot of patients who need help don’t get it because of cost, stigma, transportation, you name it,” he said. “TACHL has made it easier for people to access the mental health care they need, often in their own homes.”

For Gunn, the child therapist, sometimes it’s approaching things differently that yields the most satisfying results. Thanks to TACHL and SPARK, the teenager she was working with ended up making tremendous progress.

“It took some time, but eventually she opened up to me. She started excelling in school again. She regained hope for her future,” Gunn said. “It was just so amazing. She even started to talk about what she wanted to be when she grew up – a doctor.”

As it turns out, with the right tools and the right people, sometimes you can begin to put a human being back together again.



Ruggiero

CANCER *Continued from Page Three*

agent. “People who have a very high risk for cancer are put on aspirin since it has been shown to delay cancer. The problem is that aspirin can be bad for the GI system. If EP4 receptor pathways work as we saw in our research, then perhaps this approach could be used instead of aspirin,” said DuBois.

Cancer prevention is a central theme at Hollings, where, as director, DuBois creates the vision for the center’s future. “We are really interested in growing our cancer prevention team. This includes cancer screening. Drs. (Marvella) Ford and (Gerard) Silvestri play lead roles with that work. Finding a pan-cancer blood test with proper sensitivity and specificity would be amazing.”

Hollings’ current goals are also in line with the recently announced Cancer Moonshot initiative, which aims to reduce the death rate from

cancer by at least 50% over the next 25 years.

The current colorectal cancer screening guidelines recommend testing beginning at 45 years of age. “Patients can choose colonoscopy, CT colonography or stool tests,” DuBois explained. “Any test is better than no test, especially since CRC is now affecting younger individuals.” Hollings researchers Marvella Ford, Ph.D., and Kristin Wallace, Ph.D., are studying this troubling finding.

As MUSC works to change what is possible in cancer prevention and treatment, leaders have launched the community health research program In Our DNA SC. In partnership with Helix, a leading population genomics company, the program aims to enroll 100,000 participants in genetic testing to develop a secure genetic and research database. DuBois said this sequencing would help us to find those most at risk for developing cancer.

APP *Continued from Page Nine*

Ridings has been working with Bernard Jansen in MUSC Digital Health Solutions on the technological aspects of the app, which is now at the point of usability testing – determining if it’s easy to navigate and provides information where the user expects to find it. The app will be dual-pronged. It will include a check-in for the child’s emotional recovery and provide information about the recovery process, as well as a check-in for the adult’s emotional recovery.

It’s common for parents to berate themselves or ruminate over the “if onlys” after a child is injured. The app normalizes such feelings, Ridings said. “It’s normal to feel guilty, to feel relief, to feel anger – all of these things,” she said.

The app will also include some “what to expect”-type information. For example, after a car crash, a young child may become distressed whenever the parent attempts to buckle her into a car seat. Ridings had a patient who became distressed whenever attorney commercials featuring loud car crashes came on TV. A child may not want to return to a home where he was injured. Young children may become extra clingy or may start throwing temper tantrums after a trauma.

“How do they know what’s normal? What’s a normal acute stress response? And then, when does it cross that line into really problematic? And what do you do if it does cross that line?” Ridings said.



Photo by Sarah Pack

A sample screen from the app under development.

The app will include resources to connect with mental health providers. It will also include resources for parents, like tips on mindfulness, deep breathing and progressive muscle relaxation – skills that will help caregivers to address their own needs so they can be there for their children.

Ridings said this work to address mental health is gaining recognition as an important part of recovery. The TRRP was established in 2015, and grants from The Duke Endowment have allowed the team to replicate the model at Trident Medical Center, Prisma Health Greenville Memorial Hospital and Prisma Health Richland Medical Center.

Nationally, however, follow-up with trauma patients is spotty. Ridings said she just completed a project looking into this and found that about half of pediatric trauma centers do some sort of work on mental health. Even fewer adult trauma centers do.

“I think, on the pediatric side, they’re doing a better job across the country, in terms of addressing mental health, than they are on the adult side. But everybody is doing it completely differently,” she said.

That may change, as she has heard that the American College of Surgeons will strengthen a recommendation that trauma centers assess for acute stress.

“The majority of people after traumatic injury do get better, and they do OK in terms of mental health,” Ridings said. “But we want to make sure that no one’s slipping through the cracks.”

TRIAL *Continued from Page Six*

folks who may not be in Charleston specifically, but they’re in other parts of the state and would like to engage in research for the first time where they haven’t had the opportunity to do so previously. That’s one of the big things that remote clinical trials have opened a door for,” Szwast said.

An important part of Szwast’s job is educating potential research volunteers about how research works. The study is a randomized double-blind trial. That means that volunteers will be randomly assigned to receive either the study medication or a placebo, and neither the patient nor Szwast or Lenert will know which one the patient is taking.

Doing studies this way removes unconscious bias – the hope or doubt that a doctor can inadvertently convey to the patient, through tone of voice or body language, when the doctor and patient know what the patient has received.

“There are all sorts of human biases

that go in with observation of effects, particularly clearing of symptoms in patients,” Lenert said.

In addition, randomization ensures that the group of patients who receive the study medication will be similar to the group that receives the placebo. Otherwise, researchers may subconsciously give the study drug to patients who were less sick and more likely to recover anyway, Lenert said.

“That kind of bias creeps into studies unless there’s blinding and randomization,” Lenert said. “Anything less than that isn’t really science.”

Unfortunately, early studies of ivermectin haven’t all followed these scientific principles. Some of these studies have since been retracted, but those less-than-scientific studies have been included in meta analyses – analyses of all the existing studies on one subject – and have skewed the results. So far, Lenert said, credible studies haven’t shown a benefit to ivermectin.

The hope is that ACTIV-6, as well as other randomized, blinded studies, can provide solid answers about what works

To participate in the ACTIV-6 study:

- ☐ 30 years old or older.
- ☐ Tested positive for COVID-19 within previous 10 days.
- ☐ Experiencing at least two symptoms: fatigue, difficulty breathing, fever, cough, nausea, vomiting, diarrhea, body aches, chills, headache, sore throat, nasal symptoms and/or new loss of sense of taste or smell.

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and what doesn’t in the fight against COVID.

That’s important because, although infection numbers are currently dropping in South Carolina, there’s no guarantee that they won’t go up again.

“The next variant is mutating out there, and we need to know what to do,” Lenert said.

South Carolina residents who want to participate can call Szwast at 843-792-4675.

MUSC sponsored blood drive March 16 at MUSC Horseshoe

To all employees and students: The Charleston area is still in the midst of a blood supply crisis. All blood types are needed. Everyone is encouraged to donate blood from 10 a.m. to 3 p.m. on Wednesday, March 16 at the MUSC Horseshoe, 171 Ashley Avenue. Register to set up an appointment at <https://tinyurl.com/mrxkhktu>.

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