



2017 Annual Report

SOUTH CAROLINA
Telehealth
ALLIANCE





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Mission

Improving the health of all South Carolinians through telehealth.

Values

- > Patient Centered
- > Quality
- > Collaboration
- > Sustainability
- > Accountability

Vision

Telehealth will grow to support delivery of health care to all South Carolinians with an emphasis on underserved and rural communities.

It will facilitate, coordinate and make more accessible quality care, education and research that are patient centered, reliable and timely.

Our state will become recognized nationally for telehealth that is uniquely collaborative, valuable and cost effective.

Value Proposition

Telehealth in South Carolina will deliver high value through productive collaboration.

SCTA Strategies and Expected Deliverables

1. Deploy a coordinated, open-access telehealth network in South Carolina.

In 2018, IT personnel from different SCTA organizations will implement systems to coordinate telehealth implementation and technical support provided to over 400 sites.

2. Understand & effectively respond to the health needs of SC citizens with an emphasis on those living in underserved & rural areas.

Led by Palmetto Care Connections, the SCTA will continue its focus on increasing broadband connectivity and expanding telehealth in South Carolina's rural communities.

3. Build and scale telehealth clinical services and programs that expand access to care.

In 2018, the SCTA regional hubs will be developing telehealth services that expand specialty support to community hospitals, primary care clinics, and non-traditional clinical settings as well as services that allow patients on-demand, direct access to providers.

4. Broaden mental health and related telehealth clinical services and programs to increase access to care.

Spearheaded by the SC Department of Mental Health, the SCTA has taken up a new strategy for 2018 focused on coordinating and expanding statewide telehealth efforts that address mental health and addictive disease.

5. Conduct statewide education, training, and promotion to providers and the public to accelerate and spread adoption of telehealth.

The SCTA will continue its commitment to telehealth education, focusing on both current health care professionals as well as trainees in health care programs.

6. Develop a telehealth organization structure that encourages and facilitates statewide collaboration among providers in the delivery of health care, education, & research.

As the SCTA matures, it remains committed to ensuring all its statewide stakeholders have opportunities to participate in the shaping the SCTA's telehealth initiatives.

7. Establish the value case for telehealth through robust assessment and rigorous analysis of telehealth outcomes.

In 2018, the SCTA will be taking up a new strategy focused on developing the means to produce short- and long-term outcomes that demonstrate the value of telehealth.

8. Demonstrate to legislators, payers, providers, and the public the impact of telehealth on improving access, quality, and affordability.

The SCTA will continue its work engaging payers to improve telehealth reimbursement policies. Additionally, under the leadership of SCETV, the SCTA will continue its successful MyTelehealth campaign, which showcases how telehealth positively impacts the lives of South Carolinians.

James McElligott, M.D., MSCR
MUSC Health
Co-Chair, SCTA Advisory Council

Kathy Schwarting, MHA
Palmetto Care Connections
Co-Chair, SCTA Advisory Council

Senator Thomas Alexander
SC General Assembly

Amelia Bischoff, MHA
Palmetto Health

Richard Foster, M.D.
SC Hospital Association

Don Godish
SC Educational Television

John Magill, MSW
SC Department of Mental Health

Danette McAlhane, M.D.
Bamberg Family Practice

Meera Narasimhan, M.D.
University of SC School of Medicine

Matt Reich
McLeod Health

Blix Rice, MBA
Greenville Health System

Representative Murrell Smith
SC General Assembly

Amanda Q. Williams, MHA
SC Department of Health and Human
Services

Fellow South Carolinians,

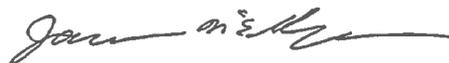
Collaboration continues to drive telehealth innovation and growth in South Carolina, and 2017 was a milestone year for solidifying partner relationships to accomplish this. The South Carolina Telehealth Alliance (SCTA) is developing more programs in more places to ensure all South Carolina residents are within a reasonable range to quality health care.

We could not accomplish this without all of our partners working together. We are led by four hospital system hubs, Greenville Health, McLeod Health, MUSC Health, and Palmetto Health; one specialty hub, the South Carolina Department of Mental Health (SCDMH); and three support organizations, the Area Health Education Consortium (AHEC), which oversees provider education and training, South Carolina Educational Television (SCETV), which promotes telehealth awareness, and Palmetto Care Connections (PCC), which advocates for rural and underserved communities and focuses on rural connectivity. In addition to these organizations, there are many other community hospitals, clinics, and providers all connected and collaborating for quality telehealth programs for South Carolina's citizens.

In this 2017 annual report, you'll find an overview telehealth in SC, including basic "Who, What, and Why" information for some of our major programs. In reading this report, we hope you see that the SCTA is working on behalf of all types of patients. From the busy teacher who needs to contact a provider for a sinus infection to the much more serious patient who arrives at their community hospital with stroke symptoms, the SCTA is developing and operating programs with everyone in mind. We are striving for the right care, in the most efficient setting, for everyone.

We hope you'll take the time to find out more about SCTA programs and services, as we take a look back at 2017 in this annual report and forward to continued growth in 2018.

Sincerely,



James T. McElligott, M.D., MSCR, Co-Chair

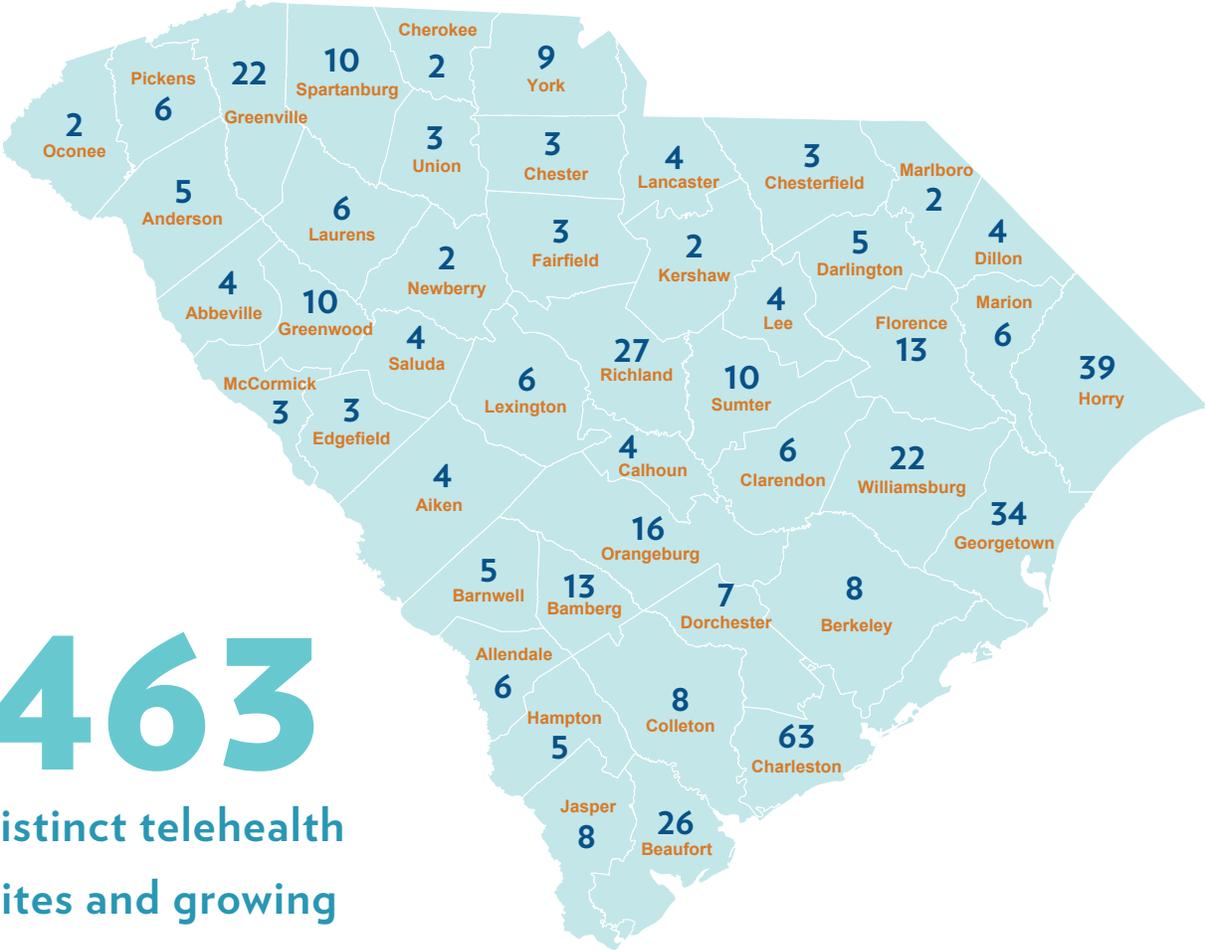


Kathy Schwarting, MHA, Co-Chair

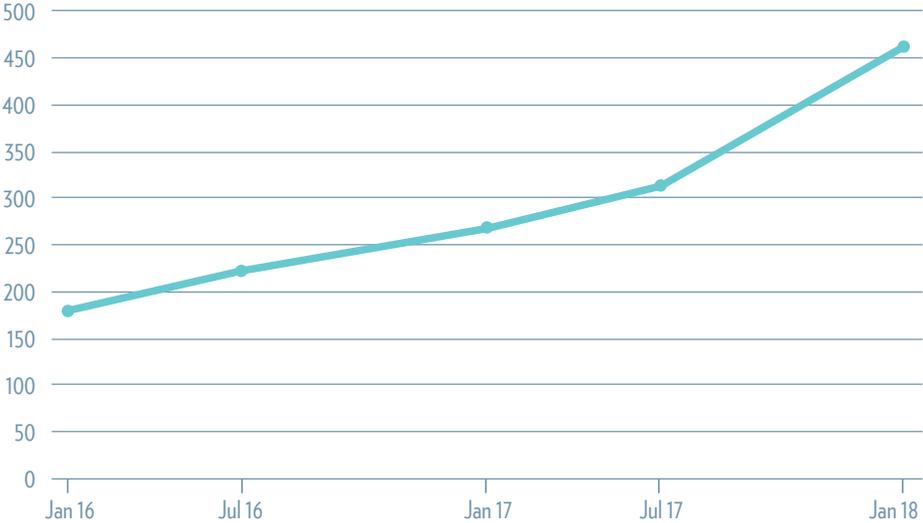


Expansion of Telehealth in South Carolina

Telehealth Service Connections by County



Number of South Carolina Telehealth Sites



Telehealth Services Offered in South Carolina

Correctional Institutions and Jails

- › Acute condition management
- › Chronic disease management
- › Intake health assessments

Home Monitoring and Management

- › Diabetic blood pressure
- › Diabetic blood sugar
- › Weight monitoring

Hospital-based Consultations

- › Hospitalist consultation for admissions
- › Mental health consultations to inpatient facility
- › Mental health consultations to the emergency room
- › Neonatology
- › Neurology
- › Pediatric burn
- › Pediatric critical care
- › Pediatric gastroenterology
- › ICU Innovations (quality improvement & educational outreach)
- › Intensive care unit patient monitoring
- › Tele-EEG
- › Telestroke

Outpatient Connections Directly to the Patient

- › Asthma monitoring
- › Asynchronous virtual visits for acute conditions
- › Congestive heart failure monitoring
- › Diabetes home monitoring
- › Home neonatal visits
- › Post-trauma mental health symptom monitoring
- › Tobacco cessation
- › Video visits for acute and chronic conditions
- › Video visits for lactation support
- › Video visits for mental health counseling
- › Video visits for prenatal visits
- › Video visits for weight management

Outpatient Specialty Consultations in a Clinical Setting

- › Dermatology (pediatric)
- › Diabetes education
- › Endocrinology (pediatric)
- › Ear, nose, and throat (adult and pediatric)
- › Genetics counseling
- › General surgery (adult and pediatric)
- › Healthy lifestyle counseling (pediatric)
- › Infectious disease for obstetrics
- › Lactation support to clinics
- › Maternal fetal genetics
- › Maternal fetal medicine
- › Mental health medication management
- › Neurology
- › Nutrition (adult and pediatric)
- › Opioid addiction management for obstetrics
- › Orthopedics
- › Patient-Child Interactive Therapy
- › Pediatric development rapid triage service
- › Pharmacy services
- › Post-stroke follow-up
- › Sickle cell (pediatric)
- › Social work
- › Sports medicine
- › Urology (pediatric)
- › Virtual Tumor Board
- › Weight management group visits

School-based

- › Acute sick care and chronic disease management
- › Mental health counseling, general
- › Mental health counseling, trauma focused
- › School-based telehealth education and adult programs

Skilled Nursing Homes

- › Mental health
- › Wound care

Telehealth is happening every day, all the time in South Carolina.

The exponential growth of telehealth in South Carolina has resulted in innovative changes across the state, all aimed to improve the access, quality, and affordability of healthcare for South Carolinians. Whether its real-time video visits, remote interpretations of EEGs, or continuous patient monitoring in tele-ICU, telehealth is happening every day, all the time.

267,000+

Telehealth patient interactions in 2017

95,000+

Real-time video interactions

8,000+

Asynchronous telehealth interactions

Asynchronous interactions can include physician-patient online interactions (e.g., recorded video messages, SmartExam/E-Visit, SMS) for the rapid care of common conditions.

17,500+

Remote patient monitoring interactions

Continuous tracking of a patient's clinical conditions, either at another clinical setting or from the patient's home.

84,000+

Tele-ICU monitoring interactions

Within the tele-ICU program audio-video evaluations, direct patient interventions, and clinician-to-clinician communication enable a multi-disciplinary team of experts to assist in the care of South Carolina's sickest patients.

66,500+

Remote specialty interpretations

Secure electronic transfer of patient information to a specialty clinician for interpretation (e.g., EEG, transcranial doppler, and radiology studies).



School-Based Telehealth

WHAT

is School-based Telehealth?

School-based telehealth provides healthcare to children in the school setting by connecting them to a physician or advance practice provider via telehealth with the assistance of a school nurse or a telepresenter. Services provided by school-based telehealth vary by county and include acute care and chronic disease management, mental health, group health education, medical supervision, and individual education plan consultation.

WHO

benefits from the program?

Children across the state benefit from this program. By providing preventative care and expedited access to treatment, this program is designed to help children remain healthy and receive treatment when sick. By decreasing the time students miss from class due to illness, this program also enables children to be more able learners. Additional benefits include reducing unnecessary emergency room or department visits and reducing missed worked time for parents. Currently, the South Carolina School-Based Telehealth program is operating in 11 counties across the state, in over 80 schools.

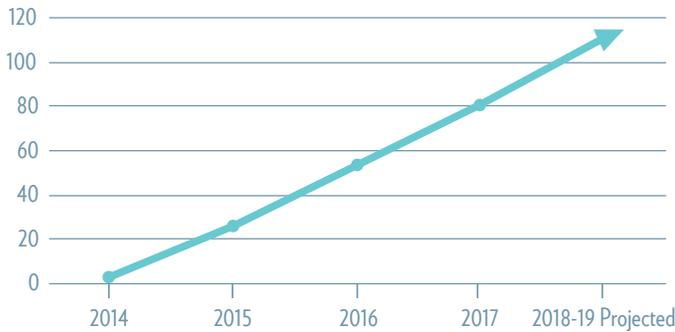
WHY

is the program needed?

There are children in the state unable to receive the medical care they need because of where they live. Many families across the state struggle to access healthcare for their children due to barriers like transportation, limited healthcare providers in their area, and job inflexibility to leave work to travel to a provider's office. School-based telehealth offers a solution to that problem, allowing children to receive medical care at their school through telehealth.

Number of South Carolina schools with telehealth capability*

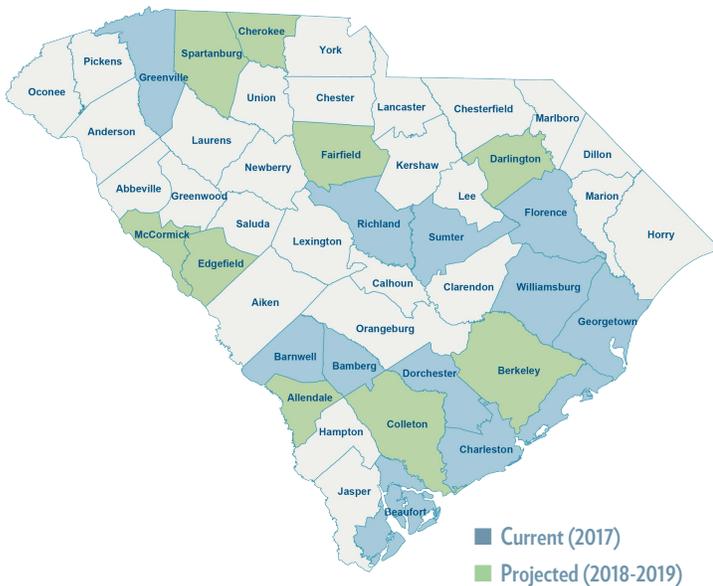
The program has more than doubled its consult volume in each of the last 3 years.



*Services vary by county to include acute care and chronic disease management, mental health, group health education, and individual education plan consultation.

Counties with School-Based Telehealth

In 2017 the program expanded to 20 new schools and into 3 new counties.



South Carolina's School-Based Telehealth program is one of the fastest growing school-based telehealth networks in the nation

School-Based Telehealth Highlights

School-Based Telehealth Workgroup



The SCTA School-Based Telehealth Workgroup began meeting in 2017, and it includes representatives from the major SC health systems, community health centers, pediatric practices, school districts, and the Department of Education. The group formed the long-term vision of enhancing overall health and wellness of children in South Carolina through school-based telehealth. Short-term goals were also defined, including establishing best practices for telehealth and a centralized location where these resources can be accessed. The group also began to establish plans for expansion to high priority districts.

Focusing on asthma: Williamsburg County

The School-Based Telehealth program in Williamsburg County continues to focus on treating children with asthma. The program has increased access to care for all children who attend public schools in Williamsburg. Children with asthma who participate in the program are now receiving expert pediatric care from pediatric nurse practitioners, pediatricians, and respiratory therapists. Access to these experts, working in tandem with the school nurses, has contributed to improved health outcomes including reports of fewer emergency room visits, improved confidence in managing asthma among families, and better asthma control— allowing children to achieve academically and to participate in sports and gym class.

Tackling obesity: Palmetto Health and DHEC's Telehealth Education program



With obesity being a major issue in South Carolina, Palmetto Health and the Department of Health and Environmental Control (DHEC) partnered in educating children early on about how to improve their diets. Using telehealth, students from three different schools are able to simultaneously interact with a dietitian located at a medical center. To the students, these video segments are similar to a “cooking show” demonstrating to them things like how to make nutritional snacks, how to measure foods properly, the difference between the food groups, and more.

Addressing ADHD and trauma: Charleston County

The School-Based Telehealth program in Charleston County has grown rapidly over the last year. In addition to providing acute care and chronic disease management, children are treated for ADHD and trauma-focused cognitive behavioral therapy in select schools. One student who had been treated for ADHD, and who had previously been failing classes, recently learned that he made the honor role.

Student Stories

James, elementary student participating in School-Based Telehealth



Before



After

James was recently diagnosed with ADHD in the School-Based Telehealth program. Prior to his diagnosis and treatment, he had repeated a grade and could not read. When asked to draw a picture of a ship, it was barely legible. Since beginning treatment, his academics have improved greatly. He has started to learn to read, been able to identify site words, and worked with a reading specialist. He was asked to draw a picture of the same ship just a few months later, and the change between the two images was remarkable.

Maria, high school student participating in School-Based Telemental Health

Maria was referred to a School-Based Telemental Health program for treatment of posttraumatic stress disorder. Her barriers to receiving care included distance from the clinic (approximately 1.5 hours away) and the lack of evidenced-based trauma treatment and Spanish-speaking providers in her location. Through the School-Based Telemental Health program, she was able to receive treatment with a bilingual therapist. Maria reported the following with regard to how therapy impacted her:

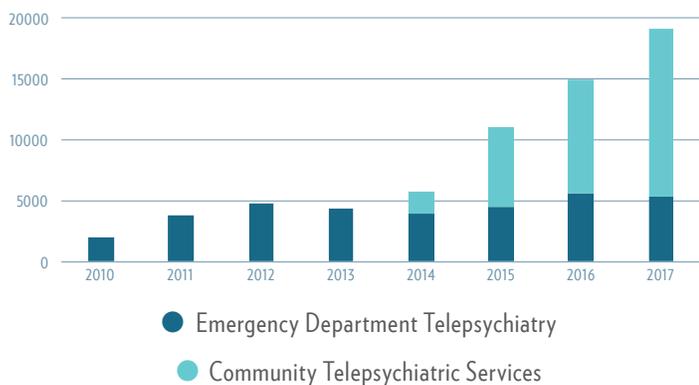
“Before I thought this was all my fault. Therapy helped me realize that the abuse was not ok and that it wasn’t my fault. This really helped me a lot. Before I couldn’t talk about it and now I can. Therapy has helped me control myself (with the deep breathing) and to help me feel more confident and share my feelings in a more open way. Therapy helped me move forward. Thank you for helping me.”

-Maria, patient treated via School-Based Telemental Health



Telepsychiatry Program

Growth in SCDMH Telepsychiatry Services



5,860

ED comprehensive evaluations in 2017

37,850

ED comprehensive evaluations since inception

15,400

Community telepsychiatric services in 2017

40,000+

Community telepsychiatric services since inception

WHAT
is telepsychiatry?

Telepsychiatry is a service that allows patients to connect with mental health providers, psychiatrists, psychologists and counselors, using remote technology from hospitals, clinics, schools, and even EMS vehicles. While there are multiple health systems providing telepsychiatry in South Carolina, the SC Department of Mental Health (SCDMH) has been a statewide leader in the use of telepsychiatrists to expand access to psychiatric care through its Emergency Department Telepsychiatry and Community Telepsychiatry programs.

WHHO
benefits from telepsychiatry?

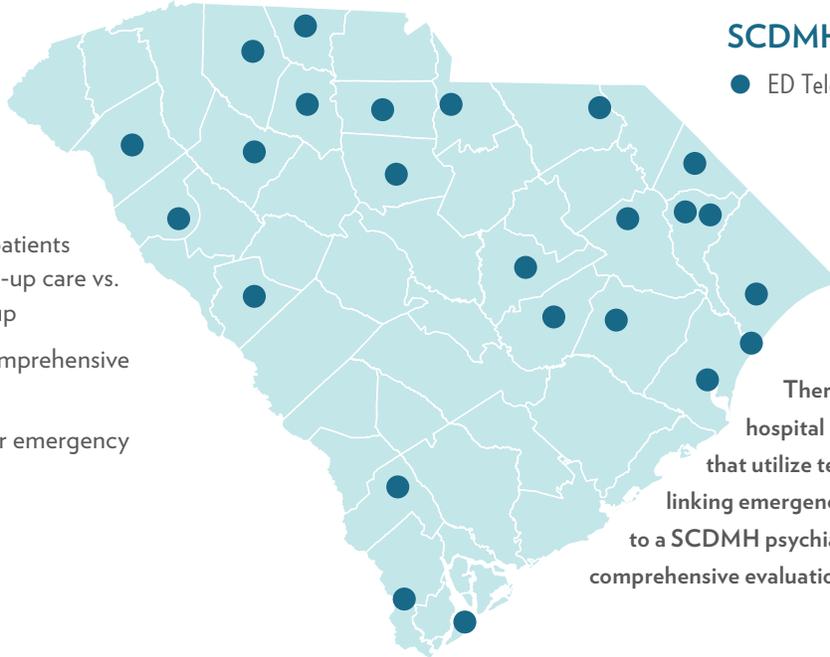
By increasing access to psychiatric care, patients throughout South Carolina in need of mental health treatment benefit from telepsychiatry programs. This is especially true for those living in more rural areas. In addition to increasing access to care, by reducing wait time in emergency departments and more efficiently utilizing provider time, telepsychiatry programs provide cost savings to health systems and taxpayers.

WHY
is the program needed?

As with the rest of the country, there is a shortage of psychiatrists and other mental health providers here in South Carolina, especially in rural areas. This shortage can lead to delays in how quickly patients are able to receive quality psychiatric assessment and treatment. Telepsychiatry helps solve these problems.

Emergency Department Telepsychiatry Program

This program provides participating emergency departments remote access to SCDMH's psychiatrists, whenever a psychiatric evaluation is required.



SCDMH Scope of Services

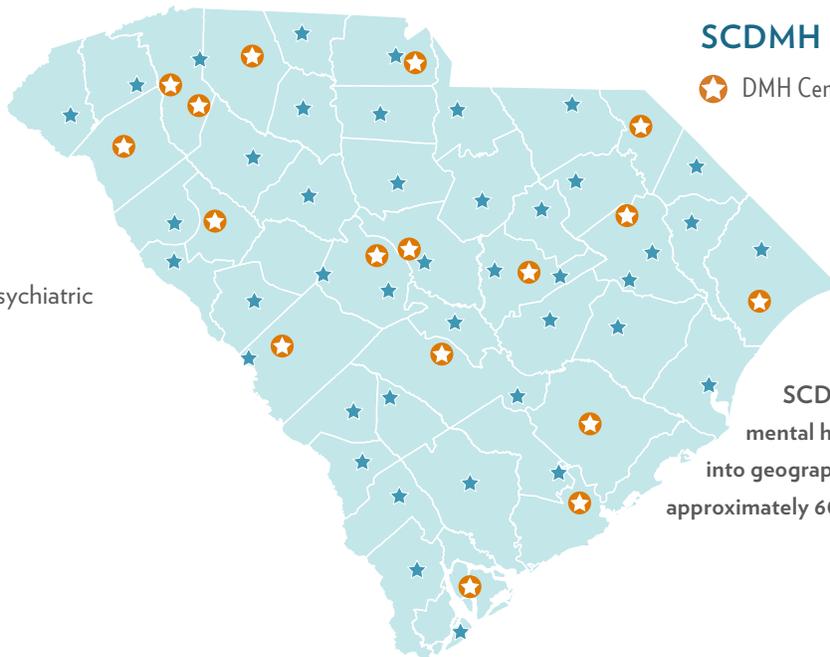
● ED Telepsychiatry

- 31% of telepsychiatry patients received 30-day follow-up care vs. 14% in the control group
- Approximately 450 comprehensive evaluations per month
- \$2,300 cost savings per emergency department visit
- 14 telepsychiatrists

There are 24 community hospital emergency departments that utilize technology directly linking emergency department patients to a SCDMH psychiatrist for face-to-face comprehensive evaluation via video.

Community Telepsychiatry Program

Many SCDMH community mental health centers operate clinics in rural counties that are distant from the main center. Telepsychiatry allows psychiatrists based at the main centers to serve outlying clinics without having to travel to those locations.



SCDMH Scope of Services

★ DMH Centers ★ DMH Clinics

- Approximately 1,150 psychiatric services per month
- 48 telepsychiatrists

SCDMH's community mental health system is divided into geographic areas, and includes approximately 60 outpatient sites.

Mobile Crisis Fills Gap in Emergency Mental Health Care

By: Julia Shillinglaw | SCETV My Telehealth



Every minute counts in an emergency. First responders are trained to arrive to an emergency scene and deliver life-saving treatment as quickly as possible. They're trained to recognize the difference between a medical emergency and a mental health crisis, because the two scenarios require different modes of treatment. In Charleston County, the SC Department of Mental Health (SCDMH) and Emergency Medical Services (EMS) have partnered to get mental health patients to the correct facilities faster than ever before.

Together they operate the Mobile Crisis program, which gives paramedics the ability to connect to a mental health clinician on a computer in the EMS vehicles. Once connected, the clinician can see the patient and assess their mental state. SCDMH administrators say this program's goal is to keep mental health patients out of the emergency room, where they could have to wait for several hours, even days, before receiving the care they need. Mobile Crisis also cuts down on paramedics' time at the scene, releasing them for response to the next call.



Direct-to-Consumer (DTC) Telehealth

Virtual Exams

All of the SCTA hub health systems are now offering patients DTC virtual exams for non-emergent needs. Unlike many of the commercial industry apps, patients have access to their local providers from the convenience of their phone, tablet, or computer. Over the past year, these programs have grown considerably.

Total Number of SmartExams* and E-Visits** where Patient Received Care Greenville Health System, McLeod Health, MUSC Health, and Palmetto Health

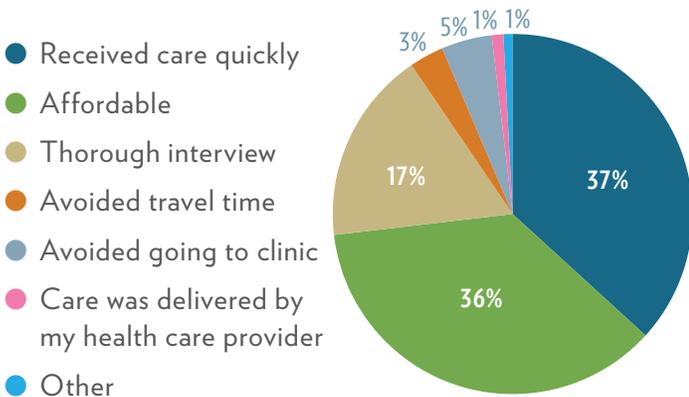


* Greenville Health System and Palmetto Health use the same DTC solution called SmartExam.

**McLeod Health & MUSC Health use different DTC solutions, but both refer to their solutions as E-Visits.

What Patients Value Most about SmartExam*

*Based on GHS and Palmetto Health data



6,364

SmartExams/E-Visits conducted since these DTC programs began

is direct-to-consumer (DTC) telehealth?

WHAT

Direct-to-consumer (DTC) or direct-to-patient telehealth refers to a wide range of telehealth technologies that involve patients directly connecting to health care providers via online or mobile applications. A wide range of services can fall under the DTC umbrella, including:

- Asynchronous virtual visits (e.g. recorded video messages and physician/patient online interactions for rapid care of common conditions)
- Face-to-face video visits for acute and chronic conditions, lactation support, prenatal visits, weight management, etc.
- Mobile remote patient monitoring (RPM), i.e. tracking patient clinical conditions outside of conventional clinical settings like at home

benefits from DTC telehealth?

WHO

With most of the major health systems in South Carolina now providing virtual visit solutions to patients, anyone in the state can take advantage of the affordability and convenience these DTC services offer. Through DTC video visits, patients are able to access certain specialty services at home, and in the case of RPM, those with chronic conditions such as diabetes or congestive heart failure can significantly improve their chronic disease management with the support of RPM technology.

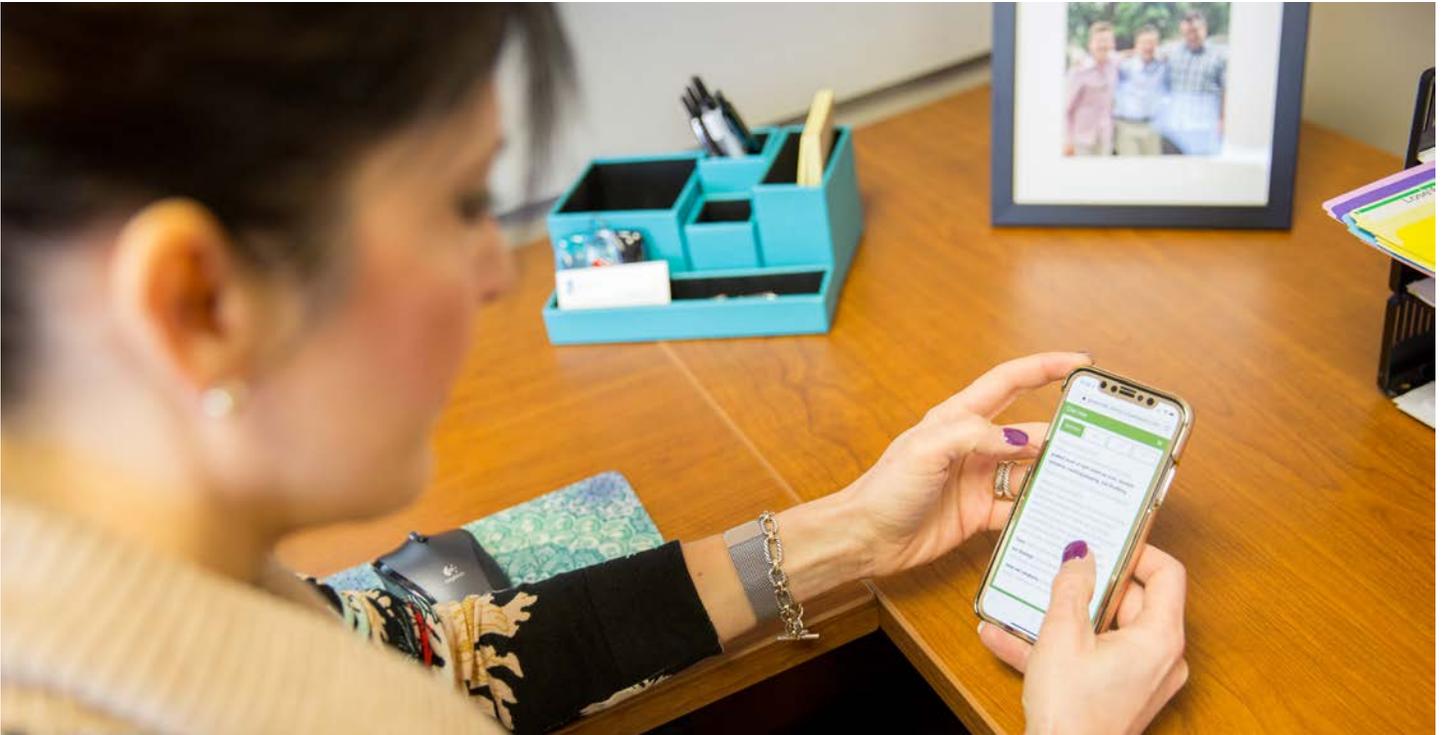
is DTC important?

WHY

DTC telehealth technologies allow patients to access health care in a secure, efficient manner either from their homes or another location of their choice. These methods can save time and money for the patient and his or her family. In addition to the savings, it helps ensure the patient is receiving the best quality of care, in the most appropriate and efficient manner.

Teacher Saves Time and Money with Virtual Doctor Visit

By: Taylor Crouch | SCETV My Telehealth



In an effort to improve access to care, hospitals across the state offer virtual exams for non-emergent needs.

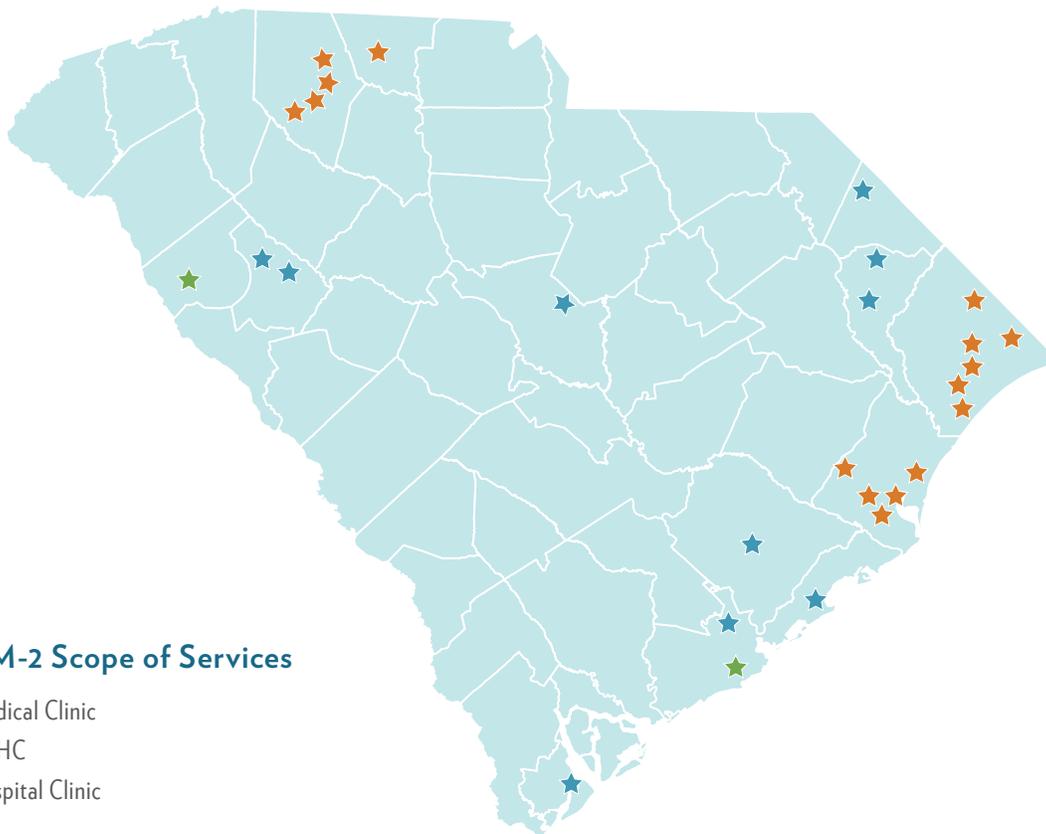
Virtual exams, like Greenville Health System's (GHS) Smart Exam, enable patients to register and complete a guided questionnaire, to be reviewed by a local provider who then offers a treatment plan.

Patients can access these exams from their phone, tablet or computer, allowing them to connect with a doctor wherever they are, at an affordable rate. GHS reports the average patient wait time is just over ten minutes, while patients estimate their time saved at almost three hours.

“I had a sinus infection. I thought it was a cold, and then three weeks later it still hadn't gone away so I decided I needed to do something about it. And I didn't have time to go to the doctor...I went through questions and it just took ten minutes. I was able to do it while sitting at my desk. I told other teachers about it because it's super convenient and only costs twenty dollars...The thing that made me try it was that this was a work day that I needed the prescription. It would have been a really long night, and I needed to go to bed at a reasonable hour and I knew that wouldn't happen if I went to the doctor.”

-Sandra Estrada, SC high school teacher who used GHS's SmartExam

Technology Assisted Case Management (TACM-2) Program for Diabetes



Using a combination of nurse case management and remote patient monitoring, the TACM-2 program helps patients with uncontrolled Type 2 diabetes improve their glycemic and blood pressure control in a practical and sustainable way.

Using a telehealth monitoring device, TACM-2 participants are provided materials to test their blood glucose and blood pressure levels on a daily basis. These daily readings are automatically uploaded and stored to a secure server, which the TACM-2 case managers can access in real time. The advantages of using this model include:

- › Accurate and timely data transfer, for quicker decision-making
- › Enhanced patient adherence due to direct feedback provided by case managers
- › Opportunities to adjust medications bimonthly.

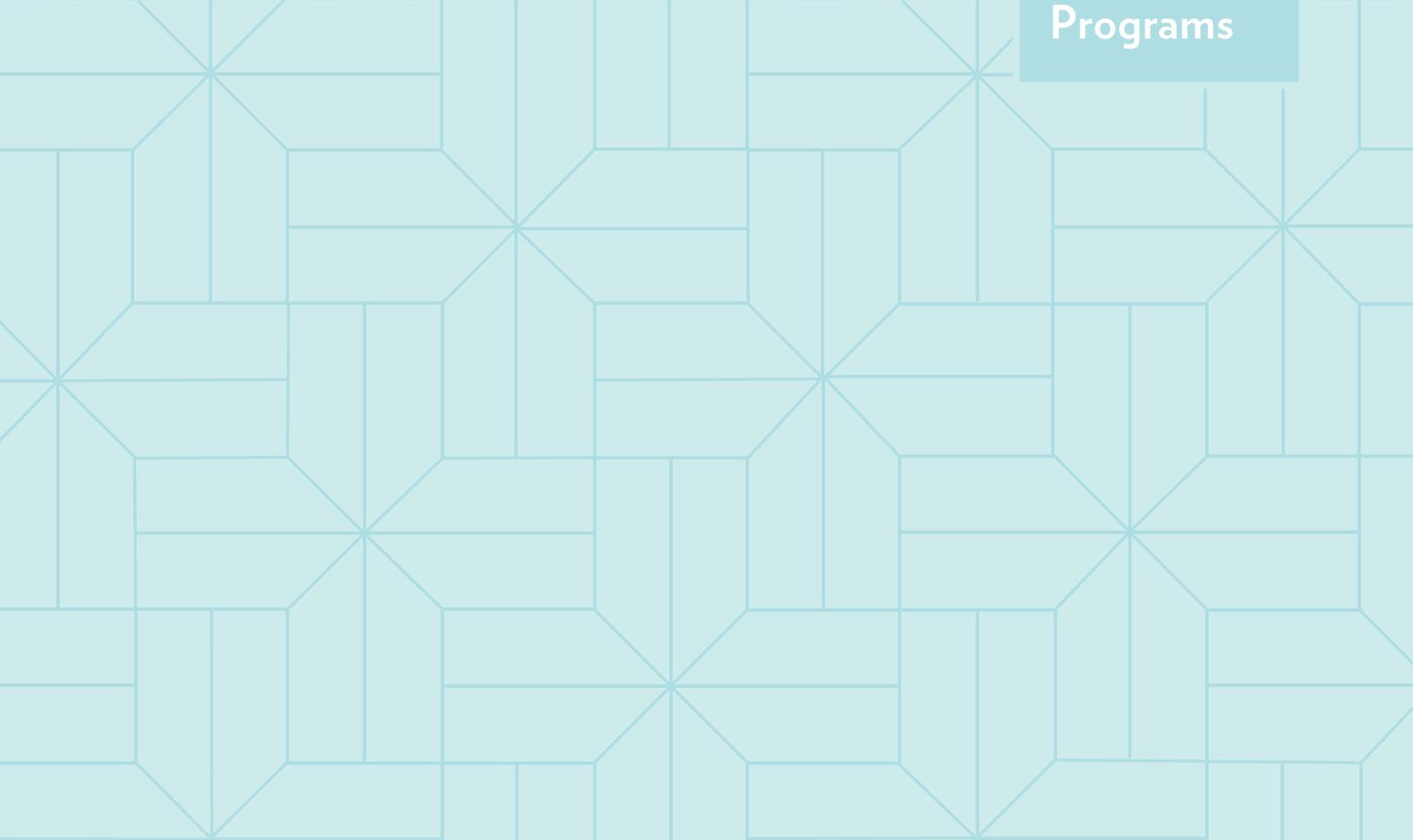
Benefits from the program include:

- › Enhancing the efficiency of care
- › Implementing effective treatment plans
- › Generating sustained improvements in glycemic control
- › Decreasing the morbidity, as well as early mortality, associated with Type 2 diabetes
- › Generating significant reductions in overall health care costs are being realized

To date, 12 sites comprised of 28 different clinics are participating in the TACM-2 program. Over 250 patients are currently enrolled in the program.



Telestroke Programs



is telestroke?

WHAT

Telestroke Consults by Year

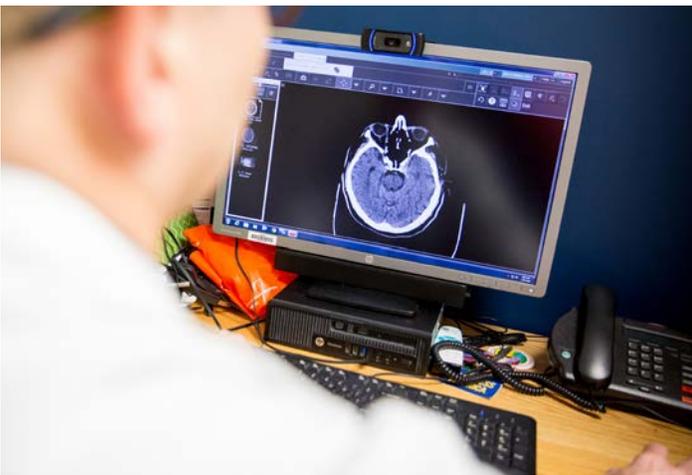
Greenville Health System, MUSC Health, Palmetto Health, Roper St. Francis



Telestroke programs connect local hospitals across the state to round-the-clock, expert stroke care. Through the SCTA telestroke networks, telestroke providers at Palmetto Health, Roper St. Francis, Greenville Health System, and MUSC Health are able to provide urgent consultations for patients being cared for at partner hospitals. From consult recommendations, local providers can initiate treatment for the ischemic stroke patients as soon as possible. The SCTA telestroke networks continue to provide one of the most comprehensive systems of stroke care in the country, with some of the best door-to-needle times (DTNs).*

*Door-to-Needle (DTN) time is the amount of time from when an ischemic stroke patient enters the emergency department to when they receive the life-saving drug tPA.

Collaboration of South Carolina providers has become one of the largest telestroke networks in the country.



“We got to the hospital, the doctor was there. Within a few minutes they were talking to a neurologist at MUSC.”

~ David Hughes, Garden City, SC

Telestroke Patient at Tideland-Waccamaw

benefits from the program?

WHO

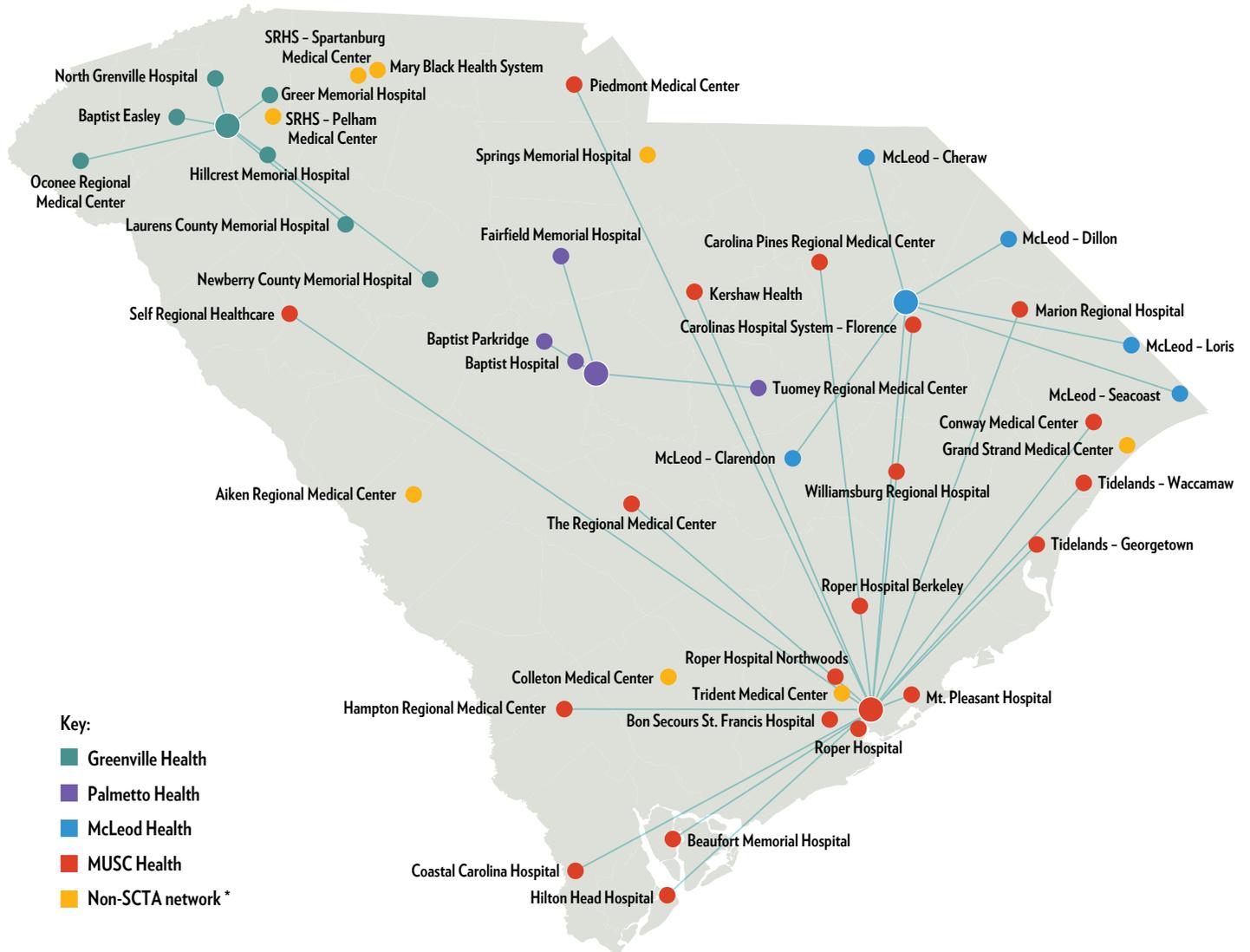
Prior to implementing telestroke in South Carolina, only 38% of South Carolinians lived within an hour of a stroke specialist. Because of the telestroke program, every South Carolinian now lives within an hour of expert stroke care. Any patient that presents at one of the connected hospitals with stroke symptoms now has access to stroke specialists within minutes for a consultation to determine if it is a stroke, and if so, what type of stroke it is and what treatment is recommended.

is the program needed

WHY

When it comes to stroke, “time is brain”! It is imperative that patients be evaluated as soon as possible to determine the best course of action to mitigate long-term damage and in some cases, prevent death. Stroke is one of the leading causes of death and disability in the United States, and South Carolina has particularly higher levels of stroke. For patients, access to immediate care is critical. Many community-based hospitals and medical centers do not have access to round-the-clock expert neurology consultation for stroke evaluation and treatment.

The SC Telehealth Alliance telestroke networks are providing expert stroke care coverage throughout the state

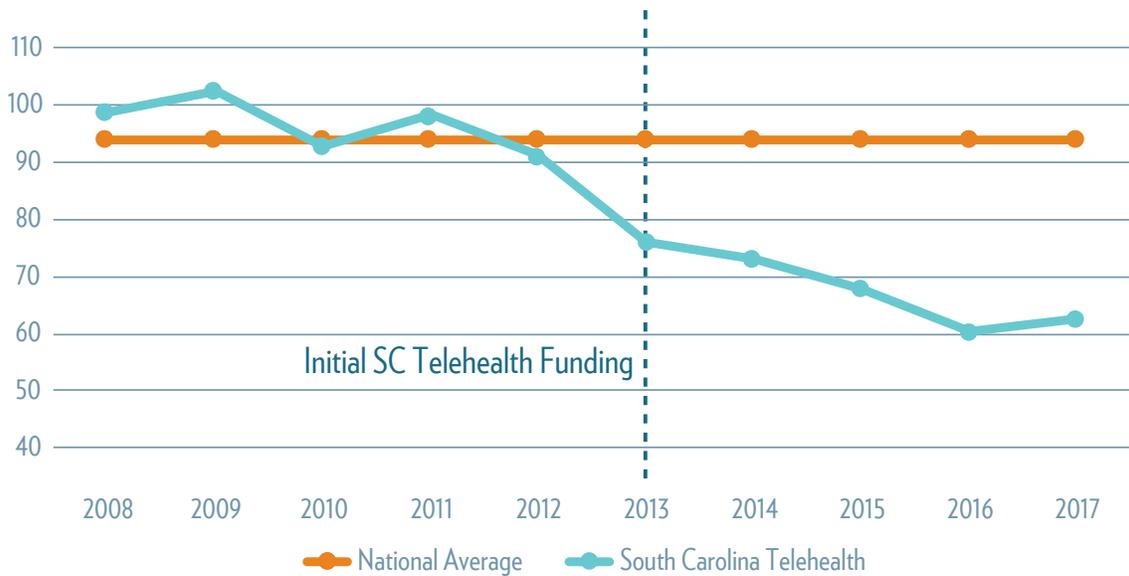


* Some hospitals have chosen to use telestroke services from providers outside the SCTA.

MUSC Telestroke Network Time to Treatment Exceeds National Guidelines

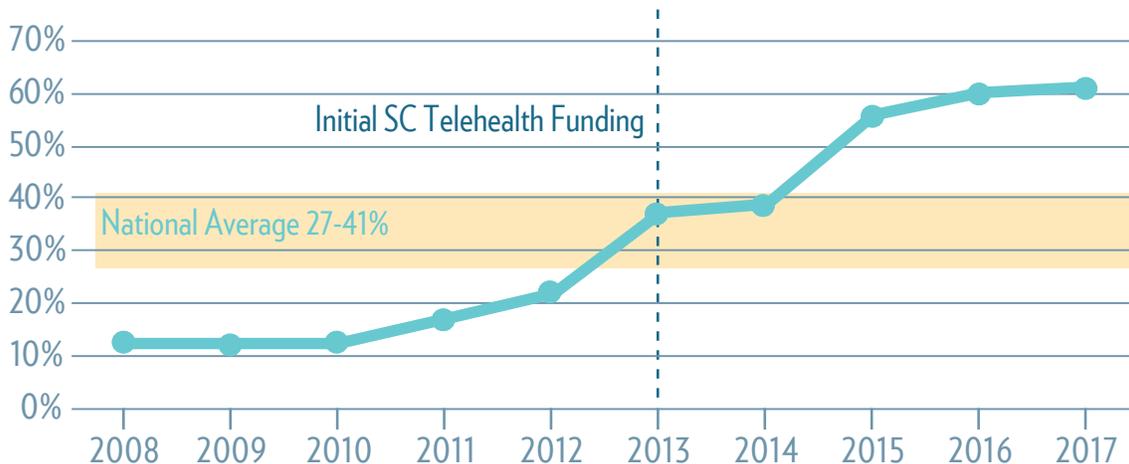
Mean Door-to-Needle Time in Minutes (lower is better)

The current evidence-based guidelines call for door-to-needle time within 60 minutes from ischemic stroke patient arrival and intravenous tPA within 3 hours of onset of ischemic stroke.



Percentage of patients receiving care within 60 minutes of arrival (higher is better)

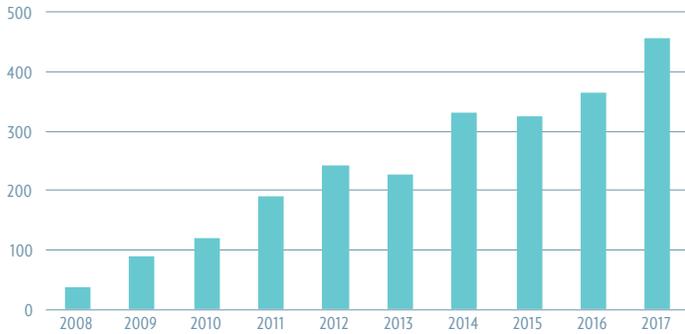
Patients admitted with ischemic stroke, who arrived in the emergency departments across the state within 2 hours of onset of their symptoms and who received tPA within 3 hours after the onset of their symptoms.



Telestroke Patients Remain in their Communities for Treatment

More patients are accessing local healthcare resources via telestroke consultations and are less frequently being transferred to centers outside of their community.

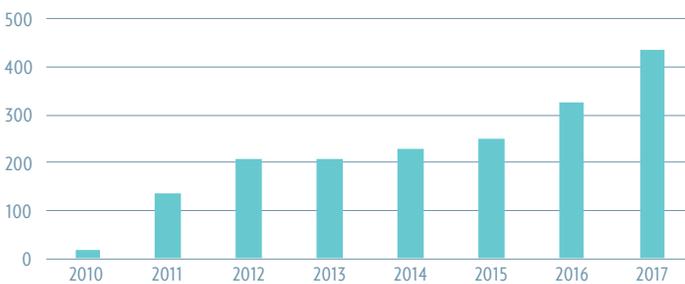
Number of Consultations by Tideland's Health



Percentage of Patients Transferred to MUSC from Tideland's Health



Number of Consultations by McLeod Health



Percentage of Patients Transferred to MUSC from McLeod Health



85% telestroke patients remain in their community for treatment

MUSC's Telestroke Bootcamp



MUSC Center for Telehealth Neuroscience team hosted a one-day Telestroke Bootcamp on Friday, October 28, 2017. Participants from over 20 of MUSC's partner hospitals attended. Topics included: Current State of Stroke in South Carolina, Technology Overview, Telestroke Data Review and Reporting Options, and Telepresenting Patient Best Practice. The program was well received with participants all strongly agreeing that the information presented would benefit their practice. Plans for a spring 2018 bootcamp are underway.

MUSC/Georgetown Telestroke Ambulance Pilot

MUSC Health is working with Georgetown County EMS and Tideland's Georgetown Hospital to explore the efficacy and feasibility of placing telestroke systems into the pre-hospital setting, with the goal of decreasing the overall door-to-needle times for stroke patients within the test area.

When Georgetown EMS identifies a potential stroke patient, they contact Tideland's Georgetown to initiate a telestroke consult with MUSC. Both the MUSC provider and the Tideland's Georgetown provider are able to log into the consult to view and begin the assessment while the patient is still in the ambulance.

For the pilot project, one ambulance was equipped with telestroke equipment, and to date the team has completed 7 telestroke consults that have originated in the ambulance, with the fastest DTN time being 30 minutes. Five additional Georgetown County ambulances have been equipped, allowing the program to expand its services to full, 24-hour coverage.

MUSC Health's Tele-Neurology program

MUSC Health's Tele-Neurology program expands on the well-established Telestroke program to meet the need for specialty consults for a wide-range of critical and complex neurologic conditions. These may include migraines, altered mental status, seizures, multiple sclerosis, and Parkinson's disease. This program provides both scheduled and urgent consultations. The evaluation also assists in determining if the patient requires transfer to a higher level of care. Providing expert consultation locally saves cost and helps keep the patient within their own community support system. Partner hospitals benefit from providing a specialty consult for complex conditions, while keeping their patients closer to home.

2,056 tele-neurology consultations took place in MUSC Health's tele-neurology program in 2017



Tele-ICU

“I was standing right outside the room door as you spoke with the patient’s daughter and son. The care and compassion you displayed to them will not be forgotten. You explained things in a way they could understand, and helped them feel confident that we were doing everything we could for their mother. Not once did you seem hurried or distracted, even though I know you were juggling a million things during that time. For those few minutes, you made them feel like their mother was the only (and most important) patient you had.”

-Charlene Brogdon, MSN, RN (Director of Nursing, Palmetto Health Tuomey),

thanking Dee Ford, M.D. (Tele-ICU Medical Director, MUSC), for the Tele-ICU care of her patient

9,683

SC patients monitored

166

lives were potentially saved!*

54,491

Tele-ICU program video assessments in conducted 2017

21,488

Tele-ICU program clinical interventions in 2017

621

Tele-ICU program emergency responses in 2017

WHAT
is Tele-ICU?

Telehealth technologies allow smaller, rural, or community hospitals to connect to larger health systems when caring for ICU patients. Typically, a critical care team made up of intensivists and nursing staff at the larger health system provides around the clock monitoring of the partner hospital ICU patients. In South Carolina, there are 8 hospitals connected with Tele-ICU. The Tele-ICU network provides around the clock patient monitoring and support from MUSC Health and Advance ICU Care intensivists and nursing staff.

WHO
benefits from Tele-ICU?

Critically ill patients at partner hospitals benefit from care enhanced by:

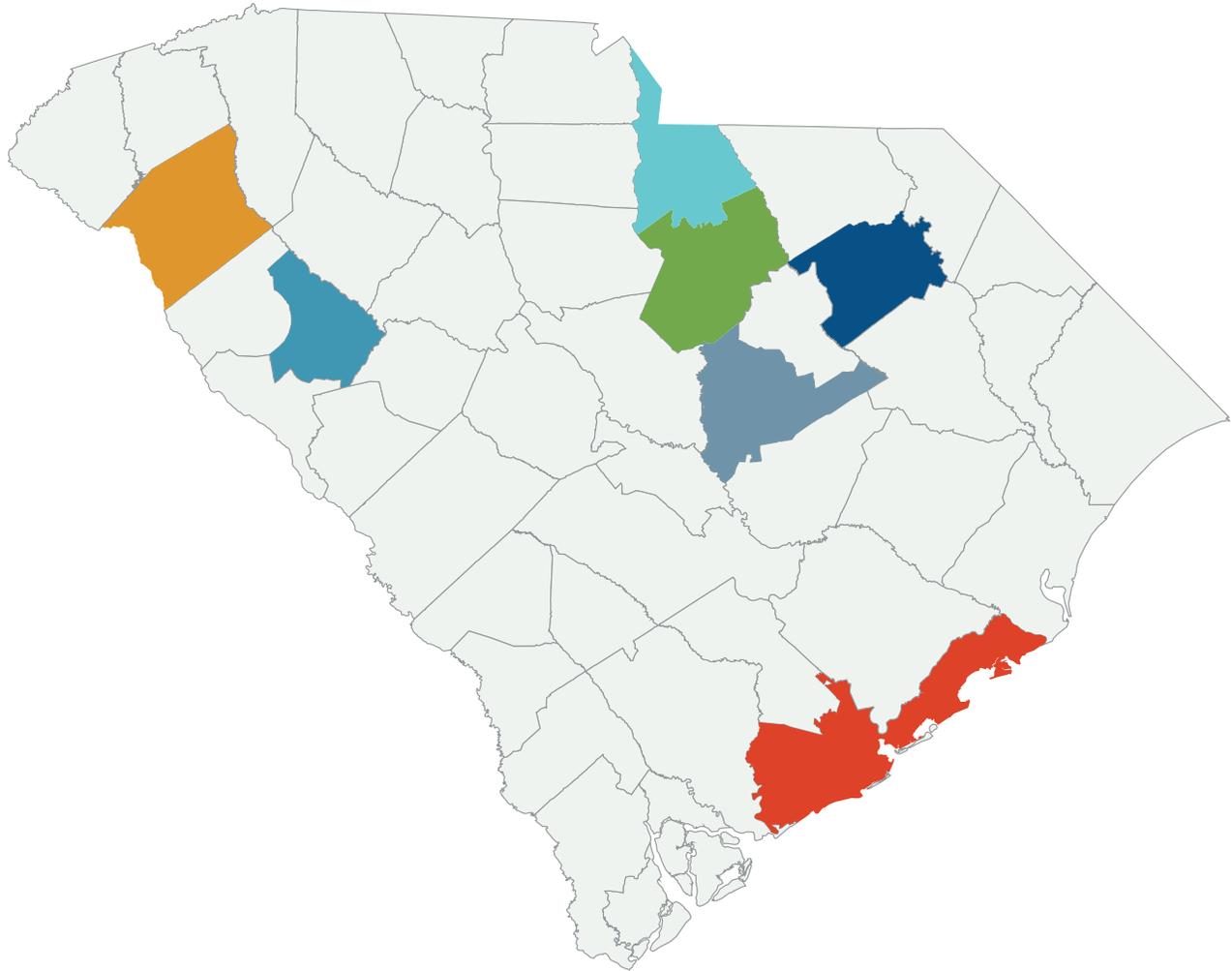
- › Providing 24/7 access to board certified and experienced intensivists
- › Real-time, two-way audiovisual communication
- › Continuous, sophisticated vital sign monitoring technology that alerts remote intensivists and nursing staff of adverse patient changes
- › In room camera with capability to zoom for better view of the patient during assessment and visualization of IV pump or ventilator settings.

WHY
is Tele-ICU needed?

Tele-ICU allows intensive care patients to remain in their home communities, while still receiving the highest quality of critical care in partnership with remote providers. Hospitals with Tele-ICUs have seen remarkable results in patient outcomes, including significant reductions in mortality rates.

*According to actual vs. predicted ICU mortality statistics.

Tele-ICU Monitoring Continues to Expand Across South Carolina



Connected Hospitals

- | | |
|-------------------------------------|---|
| ■ Anderson Medical: Anderson County | ■ Palmetto Health Tuomey: Sumter County |
| ■ Carolina Pines: Darlington County | ■ Roper St. Francis: Charleston County* |
| ■ Kershaw Health: Kershaw County | ■ Self Regional: Greenwood County |
| ■ MUSC Health: Charleston County | ■ Springs Memorial: Lancaster County |

*Data not included

ICU Innovations Program



To complement the Tele-ICU Program, MUSC Health has developed an outreach and education program to enhance critical care in South Carolina. The ICU Innovations program includes rigorous focus on patient safety and quality improvement, interprofessional team education, protocol development and implementation, and clinical case conferences.

Since the program began in 2015, ICU Innovations has provided 19 seminars and awarded over 340 continuing education credits to physicians, nurses, respiratory therapists, pharmacists, and physical therapists.

When asked what observable outcomes have grown out of the ICU Innovations program, one partner hospital noted the following benefits:

- › Doubling of their compliance with the severe sepsis/septic shock bundle over three years
- › Paired spontaneous breathing and awakening trials, with interprofessional contributions to their protocol from nursing and respiratory therapy
- › Improved compliance with delirium scoring, documentation, and treatment
- › Increased physical therapist engagement in the ICU multi-disciplinary team, with a focus on early mobility
- › Ambulation of first vented patient just two months after a seminar and post-seminar facilitation on early ICU mobility

“I think that the level of trust that has developed has really helped sell this program to the staff because they see the value in it. They see their voices being heard. They see their concerns being heard. I think they have a sense of ownership because whatever protocol or program gets developed, they are involved right from the beginning.”

-Hospital Administrator



Other Program Highlights

Children’s Telehealth Collaborative



The Children’s Telehealth Collaborative (CTC), which operates through the South Carolina Children’s Hospital Collaborative, is paving the way for improved healthcare for children across the state. At the Second Annual Children’s Telehealth Collaborative Retreat in October 2017, leaders from all four children’s hospitals in South Carolina convened to review progress and determine future directions for the program. Utilizing CTC funds provided through The Duke Endowment, Greenville Health System (GHS) successfully rolled out their pediatric critical care consultation service in December, providing emergent critical care consultations through their pediatric transport team to children presenting to rural emergency departments. The program, led by Dr. Carley Draddy, complements the existing Delivery Buddies program at GHS, which provides emergent support for neonatal resuscitation to multiple nurseries in the Greenville area. Similar programs in pediatric and neonatal critical care are being developed at Palmetto Health and McLeod Health, and are already in operation at MUSC Health. Future focuses of the CTC include services for child abuse and medically complex children.

Children’s Telehealth Collaborative Service Development

| Telehealth Services | Status |
|----------------------------|----------------------|
| Pediatric Critical Care | Active Consultations |
| Neonatology | Active Consultations |
| Child Abuse Counseling | Early Development |
| Medically Complex Children | Early Development |

Correctional Facility Tele-Urgent Care MUSC Health

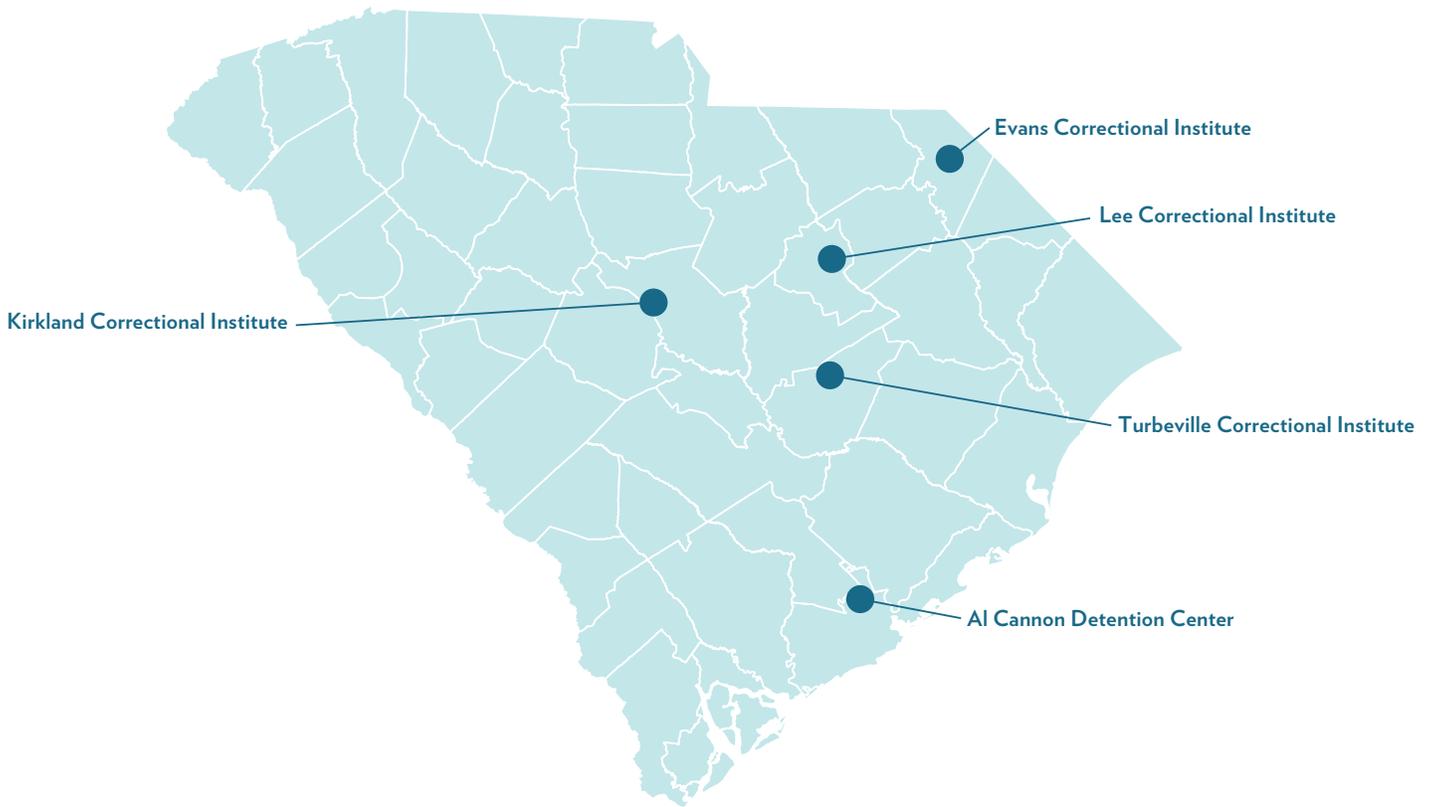


In 2017, MUSC Health began providing Tele-Urgent Care visits to inmates at contracted jails and prisons who experience an urgent care condition during the evening hours. In this program, an inmate is brought into the correctional facility's infirmary to be triaged. If the infirmary nurse finds that the patient needs to be seen by a medical provider, he or she requests a telehealth consult from MUSC Health and then connects with an MUSC Emergency Medicine provider for care.

The goals of this program are to prevent costly, unnecessary transfers to emergency departments and to provide quicker treatment to inmates. For every trip an inmate takes outside the correctional facility walls to receive care, there are associated financial costs and security risks. This telehealth addresses both concerns by keeping the inmate located in a secure place and removing the cost of an ambulance fee, correctional officer security detail, and overtime related to the transfer.

Building on the success of this program, MUSC has initiated another telemedicine service which provides follow-up HIV care to existing MUSC patients who reside at Al Cannon Detention Center.

Connected Correctional Facilities



155 Tele-Urgent Care visits since the program started in June 2016

94 of these tele-consults resulted in no transfer, keeping the inmate at the correctional facility and out of the emergency department

\$1,500 - \$2,000

estimated cost savings for every avoided transfer from a correctional facility to an emergency department.

Virtual Telehealth Consultation MUSC Health



The MUSC Health’s Virtual Tele Consultation (VTC) service facilitates specialty consultations from MUSC Health physicians to patients in primary care practices across the state. By bringing specialty care closer to home and helping patients be seen by a specialist more quickly, the VTC program reduces barriers to care and helps improve the health of South Carolina’s residents.

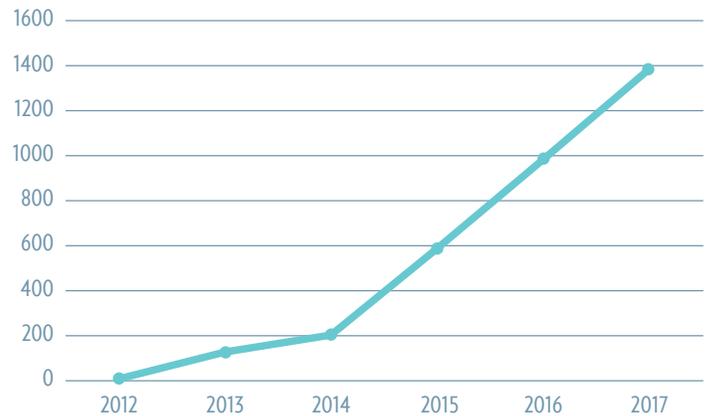
Pediatric Services

- › Dermatology
- › Endocrinology
- › Heart Health
- › Nutrition
- › Orthopaedics
- › Psychiatry
- › Sickle Cell
- › Surgery
- › Urology

Adult Services

- › General Surgery
- › Neurology
- › Nutrition
- › Psychiatry

Annual Number of VTC Outpatient Consultations



Number of Connected VTC Partners



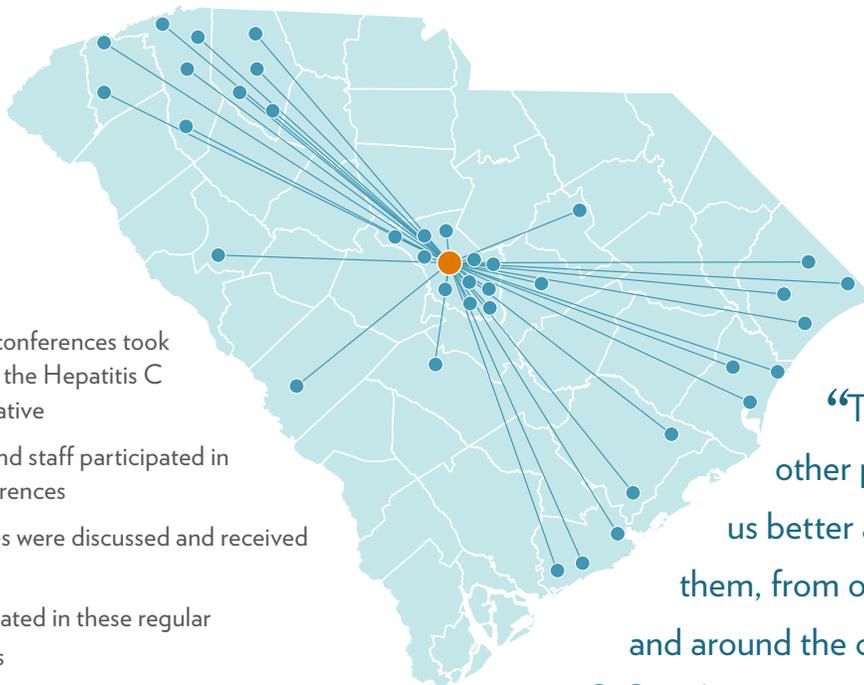
SC Hepatitis C Telehealth Initiative

Palmetto Health – USC Medical Group



Led by Dr. Divya Ahuja from Palmetto Health – USC Medical Group, the SC Hepatitis C Telehealth Initiative uses telehealth technology to conduct regular conferences with primary care providers across the state to support them as they treat patients with chronic Hepatitis C infection. Through education, training, case consultation, and co-management of patients, this program enhances the abilities for providers across the state to treat patients with Hepatitis C.

SC Hepatitis C Telehealth Initiative Participating Sites



- › In 2017, 24 teleconferences took place as part of the Hepatitis C Telehealth Initiative
- › 498 clinicians and staff participated in these teleconferences
- › 114 patient cases were discussed and received consultation
- › 39 sites participated in these regular teleconferences

“Telehealth not only helps other providers. I think it makes us better also because we learn from them, from other cases across the state and around the country.”

~ Dr. Divya Ahuja



Statewide Telehealth
Promotion & Education

Palmetto Care Connections (PCC)



Centralized Credentialing Efforts

Under the leadership of PCC, the SCTA Credentialing Workgroup developed a model for centralized provider credentialing which will be piloted in 2018. The workgroup selected a vendor ECHO to build a central database that will be maintained by PCC and will interface with other credentialing software used across the state. The program will use the Credentialing By Proxy model as the means to streamline the credentialing process for spoke hospitals, and the major telehealth hubs have agreed to create one universal by proxy contract that will be used by all five systems (GHS, MUSC, PH, McLeod, SCDMH).

Palmetto State Providers Network (PSPN)

PCC serves as the Consortium Leader for the PSPN and works with health care providers to obtain funding for their broadband services through the FCC's Health Connect Fund Program. Adequate broadband is critical for the use of video conferencing. In June 2017, PCC submitted a Funding Request to the Universal Services Administration Company (USAC) that will save health care providers in SC approximately \$3.4 M over a three-year period of time. In 2017, approximately 15 new health care providers were added to the PSPN.

Equipping Behavioral Health Centers

PCC was awarded a three-year HRSA Rural Health Network Development grant in July 2017 for \$896,000 to connect all of the Behavioral Health Centers (better known as Alcohol & Substance Abuse Centers) via telehealth in an effort to improve health care access and coordination for rural South Carolinians, reduce the prevalence of opioid addiction, and improve overall population health. As a result of this grant, PCC equipped and connected more than 37 Behavioral Health Centers in South Carolina.

15 new health care providers were added to the PSPN in 2017

37+ Behavioral Health Centers in South Carolina

South Carolina AHEC Office for Telehealth Education



This year, in collaboration with faculty at MUSC, South Carolina AHEC initiated the Interprofessional Team Case Conference (ITCC) project, providing health professions students with an opportunity to participate in collaborative, interprofessional patient case reviews. The majority of students participate during their community-based rotations while staying in AHEC regional housing or while placed in other areas of the state. The case conferences utilize telehealth technology to connect students, regardless of their individual locations. These case conferences enabled students to learn more about other health professionals' roles and to apply the knowledge of their respective fields to improve patient care. In addition to providing students with a chance to engage in interprofessional collaboration while on rotations, the experience also exposes them to telehealth technology, simulating aspects of a telehealth consultation.

The South Carolina AHEC also worked with partners at MUSC and across the state to release nine online modules through the AHEC learning system related to the provision of telehealth for use by providers and students throughout the state.

“I think it was a good example of how telehealth might work in a real setting, with people in different locations working together to help one patient. I think that it was a good exercise to help me understand that nobody has to act alone and fix everything.”

- *ITCC Participant*

Telehealth Awareness Week

Telehealth Awareness Week was held October 16-20 to raise awareness of the work the SCTA is doing to expand telehealth. Events were held across the state to demonstrate technologies, engage providers, and educate the public.

Telehealth Regional Meeting in the Pee Dee

In conjunction with Telehealth Awareness Week, Palmetto Care Connections partnered with McLeod Health and the SCTA to host the first Telehealth Regional Meeting in the PeeDee on October 17, 2017, at the McLeod Plaza Auditorium. The event drew over 60 healthcare administrators, financial managers, program coordinators, technology directors, and other telehealth professionals to learn about telehealth in South Carolina. The agenda included popular telehealth topics such as Telehealth 101, reimbursement, legal & policy updates, and local success stories. Organizers received overwhelmingly positive feedback about the event, and there are plans to do similar meetings across the state in 2018.

MUSC Health Community Awareness Day



As part of Telehealth Awareness Week, the MUSC Center for Telehealth hosted Community Awareness Day, October 17, 2017. The Center opened its doors to elected officials, community leaders and the media. They toured the Center, talked to telehealth providers, viewed live demonstrations and telemedicine and telehealth technology. The event concluded with lunch, and a question and answer session.

My Telehealth Campaign



scetv.org/telehealth

The SCTA's collaboration with SC Educational Television (SCETV) works to promote the work of the SCTA as a whole and the programs within it. The overall marketing plan includes multiple distribution channels such as a monthly e-newsletter, social media, and the My Telehealth campaign which consists of promotional videos, podcasts, and interviews. SCETV's My Telehealth campaign is geared towards increasing the awareness of what telehealth is and the understanding of the success stories and opportunities it provides within the South Carolina healthcare delivery system.

Sessions
9,092

A visit to our site

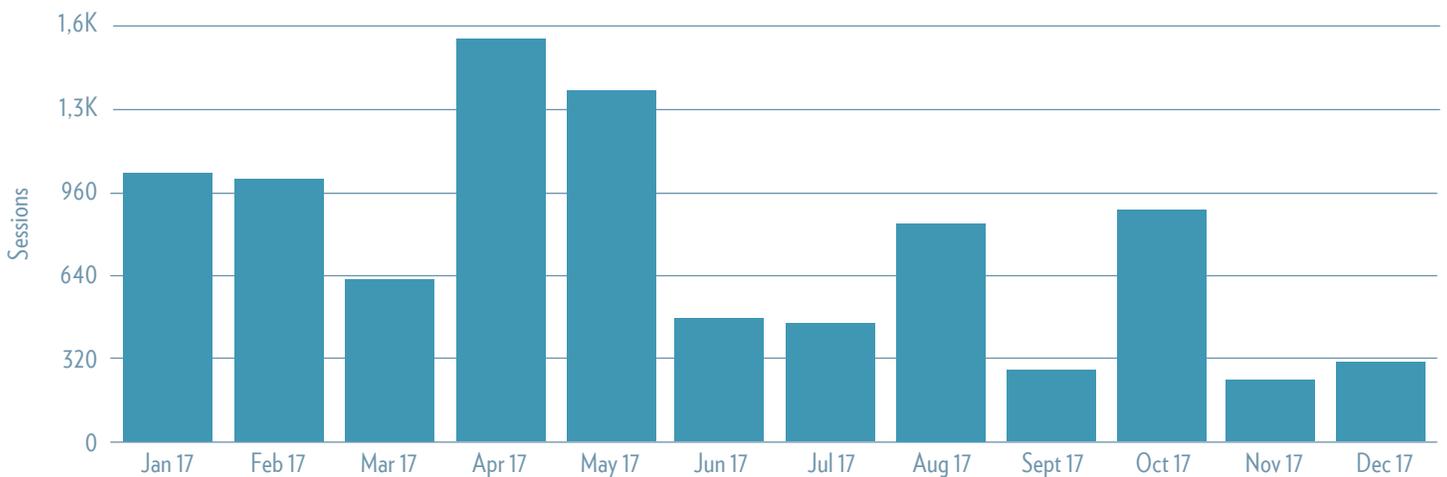
Users
7,233

Someone who visits our site

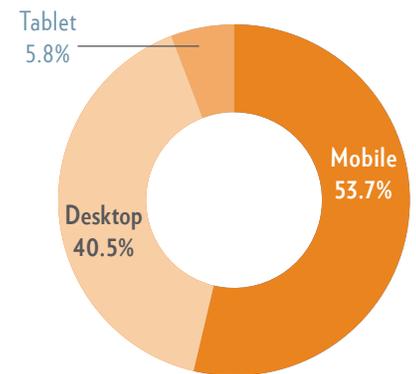
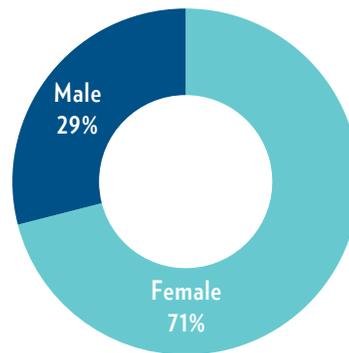
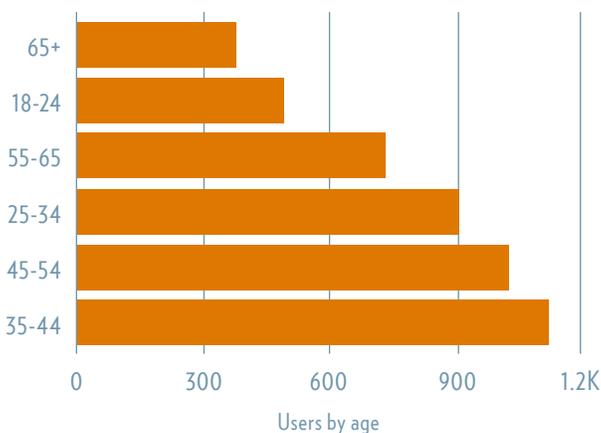
Bounce Rate
8.53%

Percentage of users who leave after one page

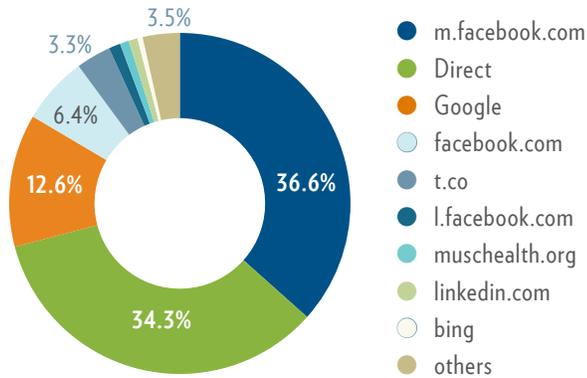
This means many people are staying on our site and finding what they are looking for



Who are our users?



Where are they coming from?



Top Five Blog Entries (in pageviews)

- Life Without Health Insurance: Finding Alternatives – 1,465
- Deaf Resident Strikes Right Note with Telemedicine – 1,194
- Telehealth Brings Comfort to Johnsonville Family – 952
- Country Doctor Finds ‘Prosperity’ in Telehealth – 945
- Collaboration Drives Healthcare Innovation in SC – 924



Twitter

- › Lifetime total followers **342**
- › Lifetime total likes **432**
- › Total tweets **670**
- › **57%** Female **43%** Male
- › Most users are **25** to **44**



Facebook

- › Lifetime total likes **288**
- › Lifetime total followers **292**
- › Video views **5,900**
- › **70%** Female **30%** Male
- › Most users are **35** to **44**

YouTube Analytics

- › Audience is **52%** Female to **48%** Male
- › Most users are **35** to **44**

Top Views

- After 5 Strokes, 7 year-old Boy “Out of the Woods” – 1,949
- Telehealth Brings “Peace of Mind” to Johnsonville Family | 1,304
- S.C. Hospital Uses Innovation to Keep Patients Safe | 1,150
- Elementary School Uses Telehealth for Student Care | 1,056
- SC Resident Uses Virtual Sleep Clinic for Good Sleep | 1,007
- Comforting Care: Telehealth for Baby in Hospice | 936
- S.C. Emergency Dept Using Telepsychiatry | 564
- Telestroke and Teamwork Go Hand-in-Hand | 532
- Third Year Med Student Practices Telehealth in Rotations | 501
- Veteran Uses Home-based Telehealth Treatment | 472

62 Videos

18,504
total video views

41,416
watch time (minutes)

304 shares

SOUTH CAROLINA

Telehealth

ALLIANCE



MUSC Health

Medical University of South Carolina



Telehealth Center for Excellence

“Innovation in health care is a critical component of how we offer forward thinking solutions to today’s challenges. The South Carolina Legislature recognized the potential for MUSC and SCTA to carve the path to better health across this state by employing advanced technology and strategic thinking. This grant gives MUSC the opportunity to share that knowledge and success on a national level, and we are proud to support this extended impact.”

- Sen. Thomas C. Alexander, South Carolina State Senator

Telehealth Center of Excellence is the first of its kind in the United States.

“The South Carolina Legislature has placed a lot of trust in MUSC and the other members of the South Carolina Telehealth Alliance to use telehealth to improve access to quality health care in our state. This achievement is a testament to the leadership, collaboration, and hard work that’s been taking place these last few years.”

- Rep. Murrell Smith, South Carolina State Representative

In the fall of 2017, MUSC received notification from the federal Health Resources and Service Administration (HRSA) that its proposal to develop a Telehealth Center of Excellence (COE) would be awarded. The award is for \$600,000 in the first year and up to \$2 million per year for an additional two years. MUSC’s compelling track record in telehealth program development and collaboration with partners across South Carolina laid the foundation for this award – the first of its kind in the United States.

As a COE, MUSC will fill important gaps in the national telehealth landscape through a combination of ongoing regional and national collaborations as well as proactive dissemination of telehealth resources. Furthermore, the COE will apply rigorous scientific evaluation to COE objectives and advance knowledge regarding how to achieve ‘next level’ telehealth. The three topics and related objectives MUSC will address during the COE project period include:

- › Impact of telehealth on federal and local healthcare spending
- › Provider and patient engagement in telehealth
- › Open access network evaluation and best practice dissemination

The COE leadership includes the COE Program Director, Dr. Dee Ford, and Associate Program Director, Dr. Kathryn Cristaldi, in partnership with the Center for Telehealth leadership including Medical Director, Dr. Jimmy McElligott, and Director, Mr. Shawn Valenta. The COE will be comprised of three teams allocated to each of the above topics, supported by four cross-cutting teams for technical support, consultation, evaluation/research, and dissemination/collaboration.

“The important thread throughout South Carolina’s telehealth programs is the people involved. Early innovators saw critical needs and viewed telehealth as one strategy to address them...These were people who cared & were smart & organized in their thought process – people who were motivated to make this work because of their backgrounds in clinical care and seeing health care disparities first hand. That’s what mattered, & that’s what continues to matter.”

- Dr. Kathryn Cristaldi, COE Associate Program Director

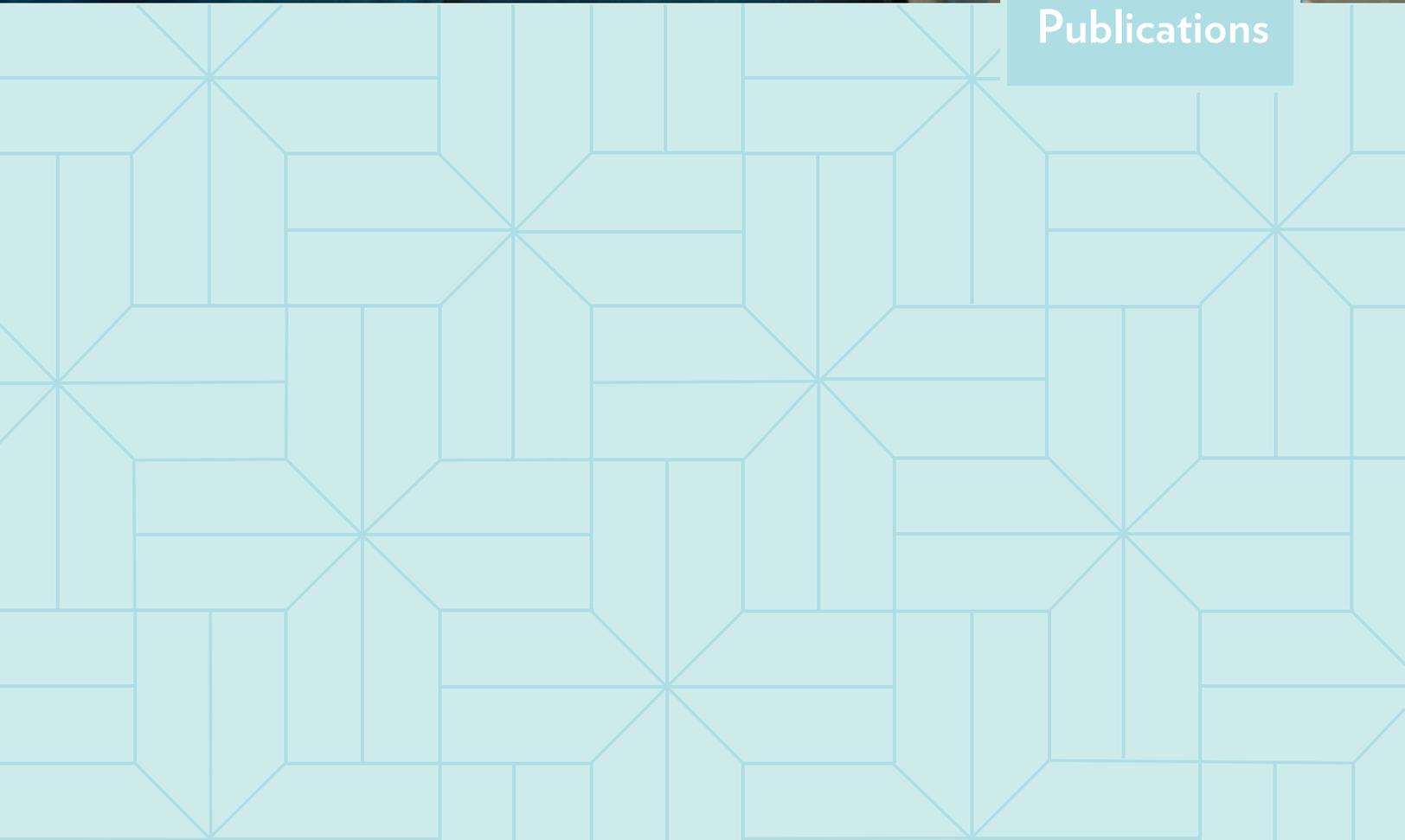


“HRSA now wants to see how telehealth can be embedded in traditional clinical practice – not an add-on. They want it interwoven and integrated, and they want to see financial feasibility. That’s where we come in. At MUSC, we have a lived experience of telehealth successes and failures. With this lived telehealth experience, we can help organizations that have gotten started and hit the inevitable stumbling blocks get to that next level.”

- Dr. Dee Ford, COE Program Director



Grants and Publications



2017 SCTA Implementation and Evaluation Grant Awardees

Each year the SCTA provides grants of up to \$20,000 awards for telehealth-based pilot projects that aim to accelerate the adoption, utilization, and investigation of telehealth interventions across South Carolina. This funding is intended to provide assistance to South Carolina clinicians and researchers in their efforts to develop, implement, and evaluate telehealth solutions.

Improving Access to Pre-Exposure HIV Prophylaxis

Investigators:

Vanessa Diaz, M.D., MSCR (MUSC)

Marty Player, M.D., MS (MUSC)

Description:

For individuals at high risk for HIV, the regular use of pre-exposure prophylaxis (PrEP) medication dramatically decreases the risk of HIV infection. However, access to PrEP for patients in South Carolina is limited, especially outside of metropolitan areas, due to a lack of providers willing or knowledgeable enough to prescribe it. This pilot project examines the feasibility of using telehealth—specifically video visits and asynchronous e-visits—to improve patient access to PrEP.

Secure Image Transfer for Child Abuse Pediatrics

Investigators:

John Melville, M.D. (MUSC)

Description:

This project proposes a smartphone-based image capture and transfer solution to aid in prompt triage of potential cases of child abuse. The goal is to streamline and make more efficient the referral and consultation process between child abuse pediatricians and the wide variety of parties seeking their consultation (e.g. emergency departments, physicians' offices, the department of social services, police).

Improving Sexual Assault Follow-up Care Through Telehealth

Investigators:

Amanda Gilmore, Ph.D. (MUSC)

Tatiana Davidson, Ph.D. (MUSC)

Description:

To ensure that sexual assault victims receive adequate care, this project proposes using telehealth to expand clinical services to sexual assault victims in two ways: (1) providing mental health services via telehealth and (2) developing an mHealth application that provides psychoeducation, brief screening, and referral to treatment for sexual assault victims who have completed a forensic exam.

Accessible Care: Utilizing Telehealth to Manage Chronic Respiratory Disease in an Underserved, Rural Setting

Investigators:

Lee Jones, M.D. (Tidelands Andrews Medical Center)

Sarah Miller, Ph.D., RN (MUSC)

Description:

This pilot project employs technology-enabled symptom tracking and telehealth-delivered care to patients with chronic respiratory disease in underserved, rural settings. Using these telehealth interventions, this project seeks to offer patients an opportunity to increase the active management of their disease and, in turn, their self-efficacy, while at the same time decreasing perceived symptom burden and disease exacerbations.

Development, Implementation and Evaluation of the Home Weight Loss Program

Investigators:

Patrick O'Neil, Ph.D. (MUSC)

Sarah Hales, Ph.D., LMSW (MUSC)

Description:

This project seeks to adapt an already existing weight maintenance program into a remotely delivered behavioral weight loss intervention for new patients. Using telehealth, this program will provide individualized, professional feedback on the most important behaviors for weight loss and provide protocol-based lifestyle change instruction.

Telehealth Member Publications

The depth and breadth of telehealth activity across South Carolina provides a unique opportunity to evaluate and disseminate evidence related to the utility, effectiveness, and efficiency of telehealth services. South Carolina's clinicians and researchers are making significant contributions to the telehealth evidence base. **The number of telehealth articles published by South Carolina authors doubled in 2017 from the year before.**

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Bunnell, B.E., Davidson, T.M., Dewey, D., Price, M., Ruggiero, K.J. (2017). **Rural and urban/suburban families' use of a web-based mental health intervention.** *Telemedicine and eHealth*, 23, 390-396.

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Cooner, S. & Gooch, V. (2017). **SCDMH Emergency Department Telepsychiatry Consultation Program.** HRSA Rural Health Information Hub. Available at: <https://www.ruralhealthinfo.org/community-health/project-examples/992>

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