The Medical University of South Carolina is the state’s only comprehensive academic medical center. MUSC is Changing What’s Possible in health care through our ongoing mission to provide excellence in education, research, and patient care.

DAVID J. COLE, M.D., FACS, President, MUSC

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TO THE SOUTH CAROLINA CONGRESSIONAL DELEGATION

February 2018

On behalf of the faculty, students, and staff of the Medical University of South Carolina (MUSC), I am pleased to present the South Carolina delegation with MUSC’s federal priorities for FY 2019.

As our state’s only comprehensive academic medical center, we recognize and embrace our responsibility to continue to innovate in every area of our tripartite mission of education, patient care, and research.

There is a critical need for innovation in health care to address the national challenges of access, quality, and affordability. Health care entities like MUSC must foster innovation, not just allow it, but actively encourage it at every level from the laboratory, to the classroom, to the bedside, and in our clinics. That’s why you’ll see the common theme of innovation throughout many of this year’s federal priorities.

As a collaborator in innovative research, health care, and education efforts across the state, MUSC also has the unique privilege to serve as a driving agent for the knowledge-based economy. Education and innovation foster economic development in the areas of life sciences, IT, and biotech, all of which contribute to the diverse South Carolina economy.

MUSC’s strength has always been found in the quality and commitment of its faculty, staff, and students.

We continue to embrace a culture of compassion, respect, innovation, collaboration, and integrity; it is these institutional values that keep us focused on reaching our strategic goals:

1. Commit to Patients and Families First
2. Foster Innovative Education and Learning
3. Build Healthy Communities
4. Embrace Diversity and Inclusion
5. Advance New Knowledge and Scientific Discoveries

At MUSC, we will continue to lead in the midst of the challenges and opportunities that lie ahead in the world of health care. We sincerely appreciate the support we have received from the South Carolina Congressional delegation and hope you will continue to call on us when we can assist you or your constituents.

Yours in service,

David J. Cole, M.D., FACS
President, Medical University of South Carolina
FACTS AND FIGURES

- SC’s only comprehensive academic medical center
- Oldest medical school in the South; founded in 1824
- Six colleges with 3,000 students in all areas of health professions. Colleges include Dental Medicine, Graduate Studies, Health Professions, Medicine, Nursing, and Pharmacy
- 793 bed medical center
- More than 13,400 employees
- 1,310 active volunteers at MUSC in FY2017
- 63.5% of all living MUSC alumni reside in S. C. and contribute to the state’s economy
- 1+ million patient visits per year
- Member of the prestigious National Institutes of Health (NIH) consortium which only includes the 60 best biomedical research institutions in the U.S.

Home to:

- Hollings Cancer Center, one of only 69-National Cancer Institute (NCI) designated centers in the U.S.
- SC’s only nationally ranked children’s hospital that will open a new facility in 2019
- One of only two National Centers for Excellence in Telehealth in the United States.
- South Carolina’s only transplant program
- Level 1 trauma center

- Only pediatric Level 1 trauma center in the state; 25,000 visits annually to the emergency room
- Perform nearly 10,000 pediatric surgeries annually

Unique to SC:

- Advanced pediatric heart center with a 99% survival rate for complex surgeries
- Extracorporeal Life Support Center
- Pediatric Burn Center
- Only solid organ transplant program (kidney, liver, heart)
- Bone marrow transplant program

RECENT ACCOLADES AND MILESTONES

- MUSC Health was named by U.S. News & World Report for the third year in a row as the number one hospital in South Carolina.
  - Four MUSC Health specialties ranked: ear, nose & throat; gynecology; cancer; and urology
  - Six children’s specialties ranked in the top 50 nationally: cancer; cardiology and heart surgery; gastroenterology and GI surgery; nephrology; neurology and neurosurgery; and urology
  - SC’s only nationally ranked children’s hospital

- MUSC has been awarded a $600,000 grant from the Health Resources and Services Administration, an agency of the U.S. Department of Health and Human Services. The award marks MUSC as one of only two national Telehealth Centers of Excellence in the United States.
MUSC cancer researcher Chanita A. Hughes-Halbert, Ph.D., has been elected into the National Academy of Medicine (NAM). She is the first woman and first African-American from South Carolina to attain that distinction.

The team at the National Crime Victims Research & Treatment Center, part of MUSC’s Department of Psychiatry and Behavioral Sciences, received an $18 million grant from the Office for Victims of Crime (OVC) to establish a Mass Violence and Victimization Resource Center.

A team of researchers from 10 universities across the state, including some from the Medical University of South Carolina, has received a $20 million, five-year grant from the National Science Foundation’s Established Program to Stimulate Competitive Research (EPSCoR). The money will help establish a new initiative: Materials Assembly and Design Excellence in South Carolina, or MADE in SC.

MUSC broke ground for a new pediatric medical campus in North Charleston in June. The MUSC Children’s Health Ambulatory Campus in North Charleston, a pediatric-dedicated, 100,000-square-foot facility, is scheduled to open in early 2019 on the corner of Rivers Avenue and Mall Drive.

MUSC launched Phase 1 of the Charleston Medical District Greenway in collaboration with the City of Charleston, Roper Hospital, and the Ralph H. Johnson VA Medical Center.

MUSC received the 2017 Health Professions Higher Education Excellence in Diversity (HEED) Award from INSIGHT Into Diversity magazine, the oldest and largest diversity-focused publication in higher education. This national honor recognizes U.S. medical, dental, pharmacy, osteopathic, nursing, and allied health schools that demonstrate an outstanding commitment to diversity and inclusion.

During its 38th Annual Summit, the South Carolina Chamber of Commerce named MUSC the recipient of the 2017 Excellence in Workplace Diversity Award in the category for medium and large businesses.

In 2017, the Forbes list of America’s Best Midsize Employers ranked MUSC No. 74 out of 301 companies with at least 1,000 employees. Within that list, MUSC ranked No. 11 out of 35 organizations in the education industry.

MUSC and Beaufort Memorial Hospital have announced plans to form a joint venture that will expand health care services to the Bluffton community. Through a joint venture between their affiliates, MUSC and BMH will open a microhospital with an estimated 20 beds to serve both pediatric and adult patients.

Volunteer advisors now sit on our Patient and Family Advisory Councils (PFACs). PFACs are a partnership of family representatives and hospital staff working together to meet the needs of patients and families. Issues discussed include patients, the environment, and health care policies and procedures. Families provide advice and are part of the decision making process with the main goal being to provide a collaborative environment that will enhance the experience for all patients and families at MUSC Health.

MUSC was honored in Becker’s Hospital Review: 100 hospital & health systems with great women’s health programs – 2017.

EXPERTISE

MUSC has clinical strengths in the following areas: Cardiology, Gastroenterology, Neurosciences, Orthopedics, Pediatrics, Pulmonary, Psychiatry, Oncology (Hollings Cancer Center), Rheumatology, Stroke, Sickle Cell, Telehealth (SC Telehealth Alliance), and Transplantation. However, you would be hard pressed to name an area of medicine that MUSC does not practice. MUSC also has considerable expertise in the area of health innovation in many disciplines that are areas of national focus. MUSC is leading and investing in the following, which help build the knowledge-based economy in the Lowcountry:

- Drug discovery
- Medical devices
- Regenerative medicine
- Bioinformatics
- Health IT
- Immunology and immunotherapy
ECONOMIC IMPACT

- MUSC accounts for 12% of the Charleston area economy
- Nearly $4 billion economic impact on the tri-county area
- More than 13,400 employees
- An additional 14,000 jobs are supported by MUSC in other sectors – bringing the total to nearly 28,000 jobs, which add more than $1.8 billion in income to the local economy
- 1 in 12 jobs in the Charleston region is directly or indirectly tied to MUSC
- MUSC attracts ≈$260M/year in research funding, making the institution the biggest magnet for biomedical extramural research funds in South Carolina (see graphic below)
- Two-thirds of all MUSC alumni (nearly 20,000) currently work as health care providers in the state
- As construction is underway on the new children’s hospital facility, an average of 984 additional jobs will be supported by MUSC annually, pouring about $52 million in income and $171 million in economic activity into the tri-county economy

MUSC’s annual economic impact on the Charleston area:

27,711  $1,813,024,579  $3,847,646,066
Total employment impact  Total labor income impact  Total output or value of economic activity

ECONOMIC IMPACT BY MUSC ENTERPRISE SECTORS

<table>
<thead>
<tr>
<th>MUSC enterprise sectors</th>
<th>Total employment impact</th>
<th>Total labor income impact</th>
<th>Total economic activity</th>
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Source: Economic Impact Study for the Medical University of South Carolina, April 2016, by the Charleston Metro Chamber of Commerce’s Center for Business Research

MUSC research funding:

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<thead>
<tr>
<th>Year</th>
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<th>Total Funding</th>
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<td>$232.6M</td>
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<tr>
<td>2014</td>
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<td>$218M</td>
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<tr>
<td>2017</td>
<td>$112.6M</td>
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Source: Medical University of South Carolina
FY 2019 Priorities

CLINICAL PRIORITIES:

Health Innovation Institute
The MUSC Health Innovation Institute will establish South Carolina as a leader in building and maintaining healthy communities. The institute will further link medical research, clinical science, and health informatics in order to encourage innovation in translational medicine and health care delivery. The Health Innovation Institute will focus on serving South Carolina’s most vulnerable populations and addressing community health needs.

Telehealth
MUSC’s Center for Telehealth was recently named one of only two national Centers of Excellence and serves as the headquarters of the South Carolina Telehealth Alliance (SCTA). The SCTA brings together an unprecedented collaboration of academic medical centers, community hospitals and providers, existing telemedicine systems, government leaders, and other entities that believe all South Carolina residents should and can have access to quality health care, while effectively managing the cost of providing care. MUSC has identified a number of federal budget and policy initiatives that would help foster the continued growth of telehealth in South Carolina.

Organ Donation Legislation
MUSC and other transplant centers in the South and Midwest believe it is time to explicitly direct HRSA and the United Network for Organ Sharing to shift their focus away from organ allocation toward generating more organ donors and saving more lives, and therefore have proposed amendments to the National Organ Transplant Act (NOTA).

MUSC-Clemson State Health Extension
MUSC is working with Clemson University to help fill health care needs in Anderson, Barnwell, and Williamsburg Counties. The MUSC-Clemson State Health Extension will address such issues as children’s wellness, infant mortality, cancer screenings, and opioid addiction in order to close the gap on health disparities faced by rural and underserved communities.

State/Regional Surgery Quality Demonstration
BlueCross BlueShield of South Carolina provided $4 million over three years to help support clinical practice transformation. Given this state-level support, MUSC would welcome matching funding opportunities to expand this program in South Carolina.

South Carolina Opioid Reduction Program
The state of South Carolina is uniquely poised to implement novel interventions to reduce unwarranted opioid use given the robust network of continuous quality improvement (CQI) programs. The overall goal of this initiative is to reduce the amount of opioids prescribed to surgical patients by 50%, reduce new chronic postoperative opioid use by 50%, and reduce opioid diversion into our communities.

Disproportionate Share Hospital (DSH) Payments and the Children’s Health Insurance Program (CHIP)
Disproportionate Share Hospital (DSH) payments and the Children’s Health Insurance Program (CHIP) are critical to our ability to provide care to South Carolina’s most vulnerable populations. MUSC appreciates the South Carolina delegation’s support of the CHIP program and asks Congress to pass a delay in Medicaid DSH cuts through at least FY2020.

Health Care Reform
At MUSC, we continue to believe that any health care legislation must first be measured by the number of people that will gain or lose access to care. A Medicaid block grant or per-beneficiary capitated payment alternative to the current Medicaid program would need to take into account the fact that Medicaid operates differently in almost every state.
RESEARCH PRIORITIES:

Health Equity
South Carolina ranks 42nd in the country in overall health, and 45 of 46 counties in South Carolina are designated as Medically Underserved by HRSA. MUSC has the expertise, research, and clinical capacity to address health disparities in South Carolina and nationally. The Center for the Advancement of Health Equity, Training, and Diversity (AHEAD) will be established to promote and advance health equity across the MUSC Health enterprise.

Sickle Cell Disease
Because of the high prevalence of sickle cell in South Carolina, the MUSC pediatric community has had extensive practice and significant success with a preventive medical regimen for children with sickle cell. NIH should make sickle cell research and treatment a higher priority for health disparities programs.

Opioids Research and Training Center of Excellence
MUSC proposes a Center of Excellence to help the Southeastern medical community deal with addiction-related issues in a more proactive manner by developing and promoting training materials for health care providers and trainees in the area of opioids and other addictive disorders.

Mass Violence and Victimization Resource Center
The National Crime Victims Research & Treatment Center (NCVC) at MUSC was recently awarded an $18 million grant to establish the Department of Justice Mass Violence and Victimization Resource Center. The Mass Violence Center will support the comprehensive needs of victims of mass violence and domestic terrorism and assess the needs of victims of other large-scale criminal incidents.

Post-Traumatic Stress Disorder Clinical Research Center
MUSC is an international leader in research on post-traumatic stress disorder and its treatment and has identified a need for an integrated center for PTSD research that would maximize synergy across researchers and studies.

Increased funding for the National Institutes of Health
MUSC appreciates the successful efforts of Congress to provide a $4 billion total increase for the NIH over the previous two fiscal years. This was a tremendous victory for the many thousands of Americans and their families who are affected by health challenges and disease. MUSC urges the South Carolina delegation to continue to support increased funding for medical research through the NIH.

Support for the Hollings Cancer Center
The MUSC Hollings Cancer Center (HCC) is one of only 69 National Cancer Institute (NCI)-designated cancer centers in the nation, and it is the only one in the state. The more than 4,800 patients treated at HCC yearly have access to the latest cancer treatments through an extensive network of clinical trials. The work done at Hollings Cancer Center has a tremendous impact on South Carolinians, as will continued funding for National Cancer Institute initiatives.

EPSCoR/IDeA Program
MUSC supports full funding for the EPSCoR/IDeA program. MUSC and other research universities in South Carolina receive substantial funding to increase research infrastructure and train new generations of investigators through this program at five federal agencies.
EDUCATION PRIORITIES:

Graduate Medical Education (GME)

As health systems have come under increasing budget pressure from reductions in Medicare and Medicaid payments and lost revenue from providing uncompensated care to the poor and uninsured, the expansion of residency slots for medical students has been drastically limited. GME is the primary federal program that supports educating new physicians, and reductions in funding for GME could make the current physician shortage even worse. South Carolina ranks 37th in the nation in physicians per 100,000 people, according to the AAMC (2014).

Rural Student Loan Repayment

MUSC has identified a need to expand the national rural student loan repayment program to include physical therapists, occupational therapists, and additional dental students who opt to serve rural communities. Further, repayment funds should be applied to the ‘front end’ of school debt so as to reduce payment amounts, rather than its current form which only reduces the loan terms.

National AHEC Program

The AHEC Program improves the health of rural and underserved populations through the development and expansion of pipeline programs in medicine, nursing, dentistry, and other health professions by creating and expanding primary care rotations for residents and students and by providing education and support in rural and underserved areas of South Carolina. MUSC appreciates Congress’ continuing support for the AHEC program.

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Health Innovation Institute

The biggest challenges in health care include access, quality, and affordability. Health care institutions like MUSC have been challenged to lower the cost and increase the quality of care, improve patient satisfaction, and create healthier populations. Health innovation can fast-track those goals by discovering and delivering new methods, products, technologies, and medications to treat patients more effectively and efficiently. MUSC’s strengths in innovation include:

- Drug discovery
- Regenerative medicine
- Health IT
- Medical devices
- Bioinformatics
- Telehealth

The state of South Carolina falls near the bottom of the list when it comes to the healthiest states in the country. Therefore, investing in health innovation through biomedical research and clinical delivery is a tremendous opportunity to positively affect our citizens.

One successful example of health innovation in action is the MUSC-led SC Telehealth Alliance, which provides critical and specialty care to citizens in rural areas, inmates, and children in underserved schools. Further investment in health innovation ensures that future innovations are discovered and delivered in South Carolina under the leadership and expertise of the state’s academic medical center.

The MUSC Health Innovation Institute would allow SC to be a leader in building and maintaining healthy communities. The institute would further link biomedical research, clinical science, and health informatics to encourage innovation in translational medicine and health care delivery. The support and structure of an institute also makes MUSC more attractive to outside partners like corporations and non-profits that want to help leading health care institutions tackle important national and SC-specific health needs. An integrated institute means more impact on the lives we touch at MUSC. The Health Innovation Institute would focus on serving South Carolina’s most vulnerable populations and addressing community needs. Areas of concentration would include:

- **Children’s Health** – MUSC has the only Advanced Fetal Care Center in SC. MUSC will partner with hospitals and other entities across the region to increase access to our nationally recognized maternal-fetal medicine and pediatric specialists. This area will bridge prenatal and postnatal care for babies and families to reduce infant mortality rates. SC is currently ranked 42nd in the country for infant mortality, and in some counties of the state the rates are worse than in developing nations.

- **Cancer** – MUSC has the only NCI-designated cancer center in the state, placing MUSC in the top 4% of all cancer centers in the country. These centers are instrumental in the development of clinical trials and outreach and educational activities, empowering MUSC to continue to reduce South Carolina’s disproportionately large cancer burden. The Hollings Cancer Center will submit its reapplication for NCI designation in spring 2018 and appreciates the delegation’s continued support.

- **Mental/Behavioral Health** – In order to respond to a national mental and behavioral health crisis, MUSC strives to further develop statewide partnerships to address opiate and alcohol addiction as well as behavioral medicine. Our Center for Drug and Alcohol Programs (CDAP) is ranked in the Top 10 in the country, and new methods and care plans that are developed there can be deployed in local communities to positively impact the substance abuse and behavioral health crises.

- **Chronic Disease** – MUSC has strengths in the areas of stroke, hypertension, and diabetes – all areas of health where many South Carolinians suffer. SC is known for being the buckle of the stroke belt and ranks in the Top 10 in the nation in the percentage of the adult population with diabetes. Along with other innovative partners, MUSC can continue to develop and deploy low-cost health technologies to help manage chronic disease among underserved populations. Chronic disease has a disproportionately high economic impact on the state.
Health innovation will lead to new breakthroughs in biomedical research and fundamentally change health care by increasing access and quality of care and decreasing costs. Several factors and trends have led MUSC to propose a Health Innovation Institute to promote:

- increased spending on health care as a percentage of GDP;
- increased support for medical research at NIH;
- the move toward more managed care by federal and private health care providers;
- the need to address health care disparities and chronic disease in order to reduce health care spending;
- the need to break barriers between research and clinical care so that more people can truly benefit from translational medicine;
- the need to position South Carolina for the nation’s precision medicine initiative;
- the need for a multi-disciplinary approach to national and statewide health care challenges.

The Health Innovation Institute is an important part of the new paradigm for health care that MUSC is embracing through our strategic plan, Imagine MUSC 2020, and its goals, which include committing to patients and families first and building healthy communities.

MUSC would greatly benefit from a federal funding mechanism for capital projects such as the Health Innovation Institute. The FY2016 Senate Labor, HHS, Ed Appropriations Report recommended that $50 million be set aside in a competitive fund to provide grants for new and renovated facilities as a first step in addressing this issue. In FY2017, the Senate Labor, HHS, Ed Appropriations Report included $25 million for biomedical research facilities. Most recently, in FY2018, the Senate Labor, HHS, Ed Appropriations Report included the following language:

**Research Facilities** — Much of the nation’s biomedical research infrastructure, including laboratories and research facilities at academic institutions and nonprofit research organizations, is outdated or insufficient. For taxpayers to receive full value from their considerable investments in biomedical research, scientists must have access to appropriate research facilities. Therefore, $25,000,000 is provided for grants or contracts to public, nonprofit, and not-for-profit entities to expand, remodel, renovate, or alter existing research facilities or construct new research facilities as authorized under 42 U.S. C. section 283k. The committee urges NIH to consider recommendations made by the NIH Working Group on Construction of Research Facilities, including making awards that are large enough to underwrite the cost of a significant portion of newly constructed or renovated facilities.

MUSC supports a renewed federal commitment to providing matching funds for building new biomedical facilities to make way for innovation at aging academic medical centers.

**Telehealth**

Telehealth is meeting the needs of increased access, providing care sooner and in some cases, more efficiently. When appropriately applied, telehealth can reduce overall costs, especially when faster care prevents costlier care down the road. Telehealth can be particularly effective in addressing the health care needs of patients who are located in medically underserved areas and be beneficial for all populations as we improve care delivery efficiency.

**MUSC Center of Excellence in Telehealth**

In September 2017, MUSC was notified by HRSA that the MUSC Center for Telehealth had successfully competed for one of two national awards to develop a Telehealth Center of Excellence. The award is for $600,000 in the first year and up to $2 million per year for an additional two years. The application was developed by a multi-disciplinary, 16-member team consisting of key personnel from three of our five University colleges and our clinical
health system. MUSC’s compelling track record in telehealth program development and leadership throughout 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, MUSC’s COE will apply rigorous scientific evaluation to COE objectives and advance knowledge regarding how to achieve ‘next level’ telehealth. We ask that the delegation support continued funding for HRSA’s Telehealth Center of Excellence program.

**MUSC Leading Statewide Collaboration**

MUSC’s Center for Telehealth serves as the headquarters of the South Carolina Telehealth Alliance (SCTA). The SCTA is a unique collaboration of academic medical centers, community hospitals and providers, existing telemedicine systems, government leaders, and other organizations that believe all South Carolina residents should have access to quality health care, regardless of where they live. With substantial funding from the state legislature, the SCTA is now offering telehealth services to over 300 connected sites across South Carolina. Specifically, MUSC is connected to 26 hospitals, and its tele-stroke program has consulted on over 10,000 patients in potentially life-saving situations where every minute counts. With the MUSC tele-stroke program, EVERY citizen in South Carolina is now less than an hour from expert stroke care. In collaboration with a national tele-ICU company, MUSC has partnered with 6 additional hospitals to provide 24/7/365 tele-ICU monitoring. Data related to this program shows that over 140 lives were saved in 2016.

In addition to hospital-based programs, MUSC has several outpatient programs delivering urgent, primary, and specialty care to patients from their primary care offices, clinics, schools, skilled nursing facilities, prisons, and even their homes, using our mobile health technologies.

South Carolina is primarily a rural state with pockets of densely populated urban areas with multiple large health systems and health care professionals. For residents in the rural areas, this is not the case. This is why statewide collaborations are imperative. These collaborations also allow in-state providers to remain competitive, serve as the stewards of quality, and move toward equitable distribution of care for all South Carolinians. As SCTA headquarters, MUSC provides operational funding to a number of health care providers and support entities including the Greenville Health System, Palmetto Health/USC, McLeod Health, the Department of Mental Health, the SC Area Health Education Consortium, the rural-focused non-profit Palmetto Care Connections, and SC Educational Television (ETV).

**KEY INITIATIVES**

- **School-Based Telehealth**
  School-based telehealth is an innovative program that overcomes barriers and provides high-quality care to children while decreasing absenteeism and missed work time for parents. This program has been successful in several communities along the I-95 corridor. The school-based telehealth team at MUSC has collaborated with the partners in the SC Telehealth Alliance and the SC Department of Education to identify regions of highest need in the state to expand this program. This plan particularly focuses on addressing childhood asthma and behavioral health needs in order to improve health and educational attainment while decreasing overall costs.

- **Direct-to-Patient Telehealth**
  Direct-to-consumer or patient technologies are showing promise in the delivery of care to patients in the most appropriate settings for certain conditions and levels of acuity. Some of these technologies are providing efficient care to low acuity conditions such as sinus problems and eczema, while remote patient monitoring and direct-to-consumer applications are essential to managing chronic conditions. One of the more recent remote patient monitoring programs launched at MUSC is the heart valve program that monitors patients after heart valve replacement. Patients engage in self-care by taking their vital signs, including their heart rate and oxygen
saturation. This information is transmitted directly into their electronic medical records, allowing the attending physician to set parameters to be notified if the patient is not within the accepted range. When appropriately applied, these direct-to-patient technologies can reduce readmissions, emergency room visits, and hospital lengths of stay, all while improving patient satisfaction.

FEDERAL BUDGET AND POLICY RECOMMENDATIONS
As telehealth is rapidly becoming more widely integrated into the South Carolina health care delivery system, reimbursement rates through Medicare and Medicaid should be at a sufficient level to support the growth of this important health care model.

Expanding federal funding through HRSA to enhance and match state-level investments would allow academic medical centers such as MUSC to continue to build this effective network, thus making the overall health care delivery system more efficient and focused on quality care for all. This is especially important in the rural areas of South Carolina and other states where access to specialized medicine is limited.

In addition, we propose that Congress address how CMS reimburses providers of care through telemedicine to ensure that economic incentives are in place, so that telemedicine lives up to its potential as an essential part of America’s health delivery system.

REMOVE GEOGRAPHIC RESTRICTIONS
Medicare rurality rules remain a barrier to expanding telemedicine services. While they attempt to address geographical barriers, they do not address socioeconomic barriers in our communities. To receive telemedicine services, current Medicare laws dictate patients be located in a rural area that is designated as:
- a rural health professional shortage area under section 332(a)(1)(A) of the Public Health Service Act (42 U.S. C. 254e(a)(1)(A))
- in a county that is not included in a Metropolitan Statistical Area (MSA); OR
- from an entity that participates in a Federal telemedicine demonstration project that has been approved by (or receives funding from) the Secretary of Health and Human Services as of December 31, 2000.

As in many states, in South Carolina the telehealth policies of some private payers and Medicaid do not have geographic restrictions. In addition, restricting the development of telehealth programs to those that only serve rural areas creates barriers to efficiency and scalability. Therefore, MUSC recommends removing all geographic restrictions.

PROVIDER TYPE RESTRICTIONS
Provider types covered by current Medicare telemedicine reimbursement laws include only a limited list of practitioners: physicians, nurse practitioners, physician assistants, nurse midwives, clinical nurse specialists, clinical psychologists, and clinical social workers. There is a serious shortage of qualified health care providers, and expanding the list of telemedicine-eligible providers to include additional practitioners will address this shortage and assist in lowering the cost of treatment while maintaining a high quality of care.

MUSC recommends expanding the list of currently eligible providers to include certified diabetes educators, audiologists, occupational therapists, physical therapists, and speech language pathologists. Many clinical applications can be performed with the same quality via telehealth. Rules that are based upon adequate documentation of quality care should apply to telehealth in the same manner as that of in-person care. For this reason, MUSC recommends that provider-type restrictions be lifted for Medicare reimbursement.
PATIENT LOCATION RESTRICTIONS

Current originating sites (patient sites) may receive a facility fee under the Medicare program:

- Office of a physician or practitioner
- Critical access hospital
- Rural health clinic (RHC)
- Federally qualified health center (FQHC) (as defined in section 1861(aa)(4))
- Hospital
- Hospital-based or critical access hospital-based renal dialysis center (including satellites)
- Skilled nursing facility
- Community mental health center

Expanding originating sites, or the types of sites where patients may receive care, will help address access to care and health care disparity concerns while facilitating cost savings. The Center for Telehealth has developed programs to effectively bring care to patients in schools, jails, work places, and homes. MUSC recommends eliminating the restriction on originating sites in order to bring care to expanded health care facilities and directly to places where patients live, work, and learn.

Organ Donation Legislation

The United Network for Organ Sharing (UNOS) is charged with managing organ transplantation under a contract with HRSA/HHS. For more than a decade, UNOS has focused on allocation policy: how to distribute a finite number of organs to a growing number of patients waiting on organ transplant lists around the country. Not surprisingly, each attempt to redistribute this finite supply created winners and losers, resulting in fierce resistance from within the transplant community. This historical and continuing focus on allocation from HRSA/UNOS wastes time and resources and detracts from the primary problem facing patients with life-threatening organ failure: the scarcity of donors. Transplant surgeons across the country, including those at MUSC, believe it is time to explicitly direct HRSA/UNOS to shift their focus away from allocation and toward generating more donors and saving more lives.

The National Organ Transplant Act (NOTA), which became law in 1984, outlined 15 objectives for the Organ Procurement and Transplantation Network.

Only three even mention organ donation:

“(K) work actively to increase the supply of donated organs,

(H) provide information to physicians and other health professionals regarding organ donation,

(N) carry out studies and demonstration projects for the purpose of improving procedures for organ donation procurement and allocation, including but not limited to projects to examine and attempt to increase transplantation among populations with special needs, including children and individuals who are members of racial or ethnic minority groups, and among populations with limited access to transportation…”

The remainder concern allocation, logistics, data collection, and studies. Since NOTA is the legal basis upon which HRSA/UNOS decides policy, it is not surprising that there has been a misalignment of emphasis by HRSA/UNOS on organ allocation rather than donation.
Each day thousands of people suffer on transplant waiting lists, many of whom will die. It is imperative the NOTA be updated to prioritize increasing organ donation and making the best use of donated organs. Over the 13-year period from 2003 to 2015, the number of organ donors unfortunately increased by only 13%, from 13,285 to 15,068. Much of this increase was due to advances in transplant science that allowed more marginal donors to be utilized by transplant programs. Efforts to improve donation over this time can therefore only be thought of as a failure. Review of current donation rates reveal a threefold difference across communities, suggesting implementation of new techniques, policy adjustments, and best practices across the country could dramatically increase the number of organs transplanted.

In order to increase the number of organ donors and the number of organs available for transplant, the objectives of the NOTA should be reordered and amended. These new rules reflect four important principles. 1) Donation is a local effort and local communities must be prioritized to benefit from these efforts. 2) Organ procurement organizations (OPO) and centers must have support to increase donation and use and be held accountable for performance. 3) Vulnerable and rural populations must be assured access to transplantation services. 4) Federal regulation of transplantation must be coordinated between HRSA and CMS to maximize organ use.

MUSC transplant surgeons have worked with colleagues around the country to draft amendments to the NOTA designed to increase the number of organs available for transplant, and we would appreciate the South Carolina delegation’s consideration of this legislation.

MUSC-Clemson State Health Extension

MUSC is working with Clemson University to help fill health care needs in Anderson, Barnwell, and Williamsburg counties. The MUSC-Clemson State Health Extension will address the following priorities in order to close the gap on key health disparities that these rural and underserved communities face:

1. Children’s Wellness
   a. MUSC will establish a school-based program, Docs Adopt School Health Initiative (DASHI), which is housed under the MUSC Boeing Center for Children’s Wellness. DASHI uses an approach to lead schools to assess their current wellness efforts and then address the needs they have identified by selecting from evidence-based strategies listed on the School Wellness Checklist, while competing in a wellness competition with other schools. So far, this program has been deployed in 260 schools in 12 school districts across South Carolina, affecting approximately 160,000 students. The state’s ranking for obesity has improved for every age category, but there is still work to do that could be accomplished with additional reach.
   b. MUSC will establish SC Farm to School. Farm to School uses local produce, hands-on nutrition education, and school gardens in its program.

   MUSC will utilize the DASHI program to deploy Farm to School and to strengthen the relationship between existing agricultural/nutrition services and schools. Educating children in a hands-on approach about nutrition and where their food comes from helps promote healthy living.

2. Infant Mortality
   a. MUSC will continue to establish Mother’s Milk Bank of South Carolina (MMBSC) Donor Milk Depots (collection sites). South Carolina has set an innovative standard of care that when mother’s milk is not available, all preterm infants receive donor human milk during birth hospitalization. In that way, there will be no racial or socioeconomic disparity in preterm infants receiving donor milk. However, South Carolina does have a disparity in who can be a milk donor due to the lack of milk depots in rural counties. In fact, despite Anderson County not having a milk depot, at least three women have driven over an hour to the MMBSC milk depot in Greenville. Establishing donor depots in these counties will allow nursing
mothers to contribute to the milk banks and help save lives.

b. MUSC will establish Safe Sleep Messaging in hospitals and physicians’ offices. Over 70 South Carolina infants annually die in sleep-related deaths. Additionally, 17 South Carolina counties experience infant mortality rates well above the state average. We believe that South Carolina families need to know the high risk of unsafe sleep. This program seeks to train health care professionals and advocates on safe sleep methods so they can educate expecting and new parents on best practices that can save lives. Safe sleep methods should be as standard as car seat safety, but education is essential to achieving that level of awareness.

c. MUSC will establish innovative infant health care support and perform a needs assessment to identify the barriers and facilitators to sustain breast-feeding and improve infant survival in racially, socioeconomically, and geographically diverse South Carolina. We will respond to the needs assessment by implementing tailored innovations in these counties such as community-based Baby Cafes (breast-feeding drop-in centers to support moms), revision of infant medical care with health care providers, and telehealth lactation support.

3. Cancer/Preventative Care

This initiative will increase the Hollings Cancer Center Mobile Health Unit service sites to include Anderson and Barnwell counties. The mobile unit is an MUSC/Clemson/DHEC partnership that already serves Williamsburg County. The unit works to reach adults living in target areas of South Carolina who have difficulties accessing health care and who are at risk of developing cancer. Current screening services include breast health, skin cancer, and cervical health. Prevention and early detection of cancer saves lives and decreases costs of treatment.

4. Opioid Addiction

We will establish the MUSC Intensive Program for Pain and Opioid Rehabilitation (IPPOR), directed toward patients who are on high-dose opioid pain medications and do not have an addiction, yet are at high-risk for addiction, and rehabilitate them over three weeks while discontinuing their opioids. This will prevent them from developing addiction. This program is an intensive outpatient program that incorporates psychology and physical and occupational therapy. It is different from all other state initiatives, as all other initiatives are treating patients who have already progressed to opioid addiction. Already, there is a huge unmet need for this population, which will increase as we decrease opioid prescribing across the state.

Clemson University and MUSC have already committed to a robust collaboration to enhance the health and welfare of South Carolina’s citizens, including underserved rural communities. As a land-grant university, Clemson lends the support of its agriculture extension network and mobile clinic outreach programs and assets. Clemson Extension has existing personnel and physical infrastructure in the served counties.

Most importantly, Clemson Extension has existing community relationships in these counties, which provide a means to immediately introduce these health care programs into the served communities.

We believe that this collaboration provides an excellent opportunity to align the Cooperative Agriculture Extension’s national framework for health and wellness with the health care expertise and innovative health care delivery systems at MUSC to improve the health of the citizens of South Carolina. By utilizing the existing trusted relationships of Clemson and MUSC, the health innovation plan will be more effective in a reduced amount of time. Using the Cooperative Agricultural Extensions in Anderson, Barnwell, and Williamsburg counties as a focal point, MUSC and Clemson will launch collaborative efforts to promote health, prevent chronic disease, eliminate disparities, and build a culture of health in these communities.
State/Regional Surgery Demonstration

The South Carolina Surgical Quality Collaborative is funded through a grant from the BlueCross BlueShield Foundation. The collaborative combines the knowledge, skills, and resources of multiple diverse hospitals, BCBS, Health Sciences South Carolina, SC Hospital Association, and MUSC. The primary goal of the collaborative is to improve surgical outcomes and improve health care value (quality/cost). This unique partnership supports the quality improvement efforts of surgical and nursing leaders across the state.

Since its inception, outcomes data on over 14,000 surgical cases has been entered into the collaborative database. These cases represent a wide swath of surgical cases from basic to extremely complex, from small rural critical access hospital, to large academic medical centers. The collaborative is a web-based system that allows individual surgeons to look at their outcomes very soon after the episode of care. Providers can dissect the data to focus on any area of interest such as readmission, wound infection, transfusion rate, length of stay, and many others.

In addition to the web portal for surgeons, SCSQC’s focus on quality and value engages patients and surgical trainees in quality improvement efforts. This aspect is unique to the South Carolina collaborative effort. The goal of the collaborative is to learn from patients about what non-clinical factors may contribute to quality outcomes. It will also address disparities in care across the state. SCSQC strives to engage the next generation of surgical leaders and help them develop continuous quality improvement skills that will serve them and residents of SC for many years.

The hospitals involved in this innovative initiative represent a significant portion of the state and are diverse in terms of geography and type of facility. There are critical access facilities, midsize facilities, and large academic medical centers involved. Easley and Spartanburg represent the Upstate; the Midlands are represented through Greenwood, Camden, and Florence; and the Lowcountry with Georgetown, Orangeburg, and Charleston. Monthly calls and quarterly face-to-face meetings take place so each facility can share its knowledge and quality improvement efforts. Each hospital has started projects across a wide range: Examples of targets include lower surgical site infections after colon surgery, reduction in blood transfusions, reduction in hospital admissions, and reduction in reoperations. The initial data has been promising, and its impact on the Medicare population and low socioeconomic status patients is impressive and has been submitted to national meetings for consideration for presentations. While the collaborative is focused on general surgery, the overall improvements in care will be felt throughout each hospital.

As the collaborative matures, we hope to obtain additional funding through HHS/CMS. Additional funds would allow us to:

- add more hospitals to the collaborative which will allow more South Carolinians to be impacted by this quality improvement work;
- learn ways to incorporate telehealth and mobile health solutions into higher value care;
- develop and implement “pre-habilitation” programs which help patients prepare for elective surgery (stop smoking, lose weight, improve nutrition);
- expand enhanced recovery efforts to multiple surgical procedures;
- improve post-discharge recovery by supporting recovery efforts of patients at home;
- improve patient education and expectations so patients know how to plan for and recover from surgical procedures.

BlueCross BlueShield Foundation of South Carolina provided $4 million over three years to help support this initiative, and given this state-level support, MUSC would welcome matching funding opportunities to expand this program in South Carolina.
South Carolina Opioid Reduction Program (SCORP)

Opioid misuse and abuse is a national epidemic. The number of deaths from prescription opioid pain relievers in the United States has quadrupled since 1999, with 16,000 deaths occurring in 2013. Since 1999, the annual number of South Carolina drug-related deaths has increased by 250%. Five hundred and fifty South Carolinians died of heroin and opioid poisonings in 2015 alone. In 2016, 4,641,302 opioid prescriptions were written in SC (population = 4,900,000).

Surgery plays a significant role in the development of opioid addiction and poisoning with an estimated 5-19% of opioid-naïve patients continuing to use opioids beyond 30 days after common surgeries. Medicaid is important to addressing the crisis because vulnerable populations are particularly affected. Three in 10 people with opioid addiction were covered by Medicaid in 2015. Medicaid recipients represent approximately 17% of the surgical patients but represent 20-30% of the patients to develop opioid dependence following surgery.

Opportunities for Medicaid patients to receive pain relief, with a potential for diversion, are significant. Opioid dependence correlates with illegal heroin use and death. Existing public health measures currently focus on palliative strategies that target chronic opioid use and prescription opioid diversion into the communities. A strategy that focuses on the prevention of opioid dependence requires targeting opioid-naïve patients prior to opioid dependence.

The vast majority of individuals who become opioid-dependent receive their first dose of opioids following surgical care (elective surgery, emergent surgery, and trauma). Between 5 and 20% of opioid-naïve patients who have “successful” surgery remain opioid-dependent following surgery. This is likely related to the fact that surgeons prescribe nearly 40% of opioids, but there are no guidelines to direct postoperative pain management, and the degree to which prescribing is driven by convenience, knowledge, or evidence is unknown. Therefore, changing clinical care among opioid-naïve patients in the settings has the greatest potential to reduce the number of chronic opioid users and minimize diversion of prescription opioids from patients into the communities.

THE SOUTH CAROLINA OPIOID REDUCTION PROGRAM

The state of South Carolina is uniquely poised to implement novel interventions to reduce unwarranted opioid use, given the robust network of Continuous Quality Improvement (CQI) programs. The South Carolina Surgical Quality Learning Collaborative is a unique collaboration between HSSC, SC Hospital Association (SCHA), BlueCross BlueShield of SC (BCBS, SC) currently funded by the BlueCross and BlueShield (BCBS) Foundation. Surgeon-led networks are devoted to improving the care of patients in South Carolina and represent major health systems in urban and rural SC. This integrated network of relationships, data infrastructure, and platform for change is unique and has positioned our state as the gold standard for high-quality surgical care.

The goals of this initiative are to reduce the amount of opioids prescribed to surgical patients by 50%; reduce new chronic postoperative opioid use by 50%; and reduce opioid diversion into our communities. Over five years, we will leverage the South Carolina CQIs to transform statewide practices. We will build upon a data infrastructure that enables detailed clinical data collection, best practice identification, and rapid dissemination. We will create a patient-centered care bundle that provides information regarding opioid use and alternatives and will examine opioid prescribing trends, health outcomes, and care utilization using BCBS SC, CMS, and Medicaid claims of patients undergoing surgery across the state of South Carolina. The CQI network in South Carolina has an established culture of trust and cooperation that will enable transformational change in opioid abuse intervention and reduction.
DSH and CHIP

DISPROPORTIONATE SHARE HOSPITAL (DSH) PAYMENTS

One of the biggest challenges faced by MUSC is the budget cuts that are required by the ACA for important programs like Disproportionate Share Hospital (DSH) payments. President Ronald Reagan and Congress created Medicaid DSH payments to sustain hospitals like MUSC that serve a disproportionate number of low-income and uninsured patients. In treating those who have nowhere else to turn, we incur substantial uncompensated costs and operate on very narrow margins.

Under the ACA, Congress established a schedule for reducing federal DSH allotments to account for an anticipated decrease in uncompensated care expected to occur as a result of the increased number of people with insurance due to Medicaid expansions and the availability of subsidized exchanged coverage. These reductions have since been delayed five times.

Originally set to take effect beginning in FY 2014, the reductions began in FY 2018 in the following annual amounts:

- $2.0 billion in FY 2018
- $3.0 billion in FY 2019
- $4.0 billion in FY 2020
- $5.0 billion in FY 2021
- $6.0 billion in FY 2022

South Carolina receives about $350 million in DSH funds per year. A delay in Medicaid DSH cuts through at least FY 2020 will allow hospitals like MUSC to continue serving vulnerable patients until a more sustainable, permanent solution is reached.

CHILDREN’S HEALTH INSURANCE PROGRAM (CHIP)

The CHIP program was created by Congress with bipartisan support as part of the Balanced Budget Act of 1997. The program extends health coverage under the Medicaid program for children and pregnant women who do not qualify for Medicaid but have no health insurance. Nationwide, CHIP has cut the number of uninsured children by 50% since its inception. Between 73,000 and 80,000 children in South Carolina are enrolled in CHIP.

CHIP, just like Medicaid, is a joint federal-state program in which the federal government matches state dollars to fund the program. States manage the program with federal oversight and CHIP benefits vary by state. The federal government provides an enhanced match (eFMAP) which is higher than the match (FMAP) for the regular Medicaid program.

In January 2018, Congress re-authorized the CHIP program for six years as part of its deliberations over the continuing resolution. Under this new provision, the FMAP for CHIP is scheduled to be reduced over a period of years from the current rate of 100% to the pre-ACA rate of 80%. Given the budget constraints we face in South Carolina, it will be increasingly difficult for the state to provide the increased funds to match the federal CHIP funding. We appreciate the South Carolina delegation’s support of this important program and hope that Congress will revisit this policy in the future, so that children do not lose their coverage due to increased match requirements.
Health Care Reform

MUSC understands the need to reduce the deficit and spending; we have taken steps to reach the same goals within our institution. However, within those parameters, we must maintain our ability to provide health services to South Carolinians, particularly through the special programs only available through MUSC. As an academic medical center, MUSC provides advanced care for the sickest patients in the state who would otherwise have to seek treatment out of state. MUSC provides South Carolina with access to advanced clinical trials for the most difficult diseases, so that treatment can be provided close to home. MUSC is the only Level 1 trauma center in the state and has one of the only neonatal intensive care unit for sick babies. MUSC also provides South Carolina with a first-class organ transplant program. All of this advanced care is costly and is only available through an academic medical center like MUSC.

Many of the budget proposals reviewed by MUSC tend to focus on cuts to the very programs that allow MUSC to exist as a highly regarded medical center in South Carolina. There are 5,000 hospitals in the United States, but only 10% are academic medical centers/teaching hospitals. MUSC asks that academic medical centers not be singled out to carry a disproportionate share of the deficit-reduction burden.

MEDICAID REFORM

At MUSC, we continue to believe that any health care legislation must first be measured by the number of people that will gain or lose access to care. A Medicaid block grant or per-beneficiary capitated payment system alternative to the current Medicaid program would need to take into account the fact that Medicaid operates differently in almost every state. If the block grant formula is based on the number of Medicaid enrollees in each state, then states that have expanded Medicaid under the ACA would have a great advantage over non-expansion states. States with more selective eligibility requirements would also be treated unfairly compared to states with a more liberal eligibility standard. In order for South Carolina to be treated fairly under any Medicaid reform proposals, Congress needs to look closely at how each state conducts its Medicaid program to ensure every state is treated equally.

REGULATORY REFORM

We believe that Congress should look at ways the administrative burden of providing health care can be reduced to make the system more efficient while maintaining the same high standards of care for our patients. Medicare and Medicaid regulations grow every year without any “look-back” requirements to determine if the new regulations increase the quality and efficiency of the health care delivery system or simply add more layers of administration and costs. This burden has become particularly excessive due to the Centers for Medicare and Medicaid and other agencies of the Department of Health and Human Services releasing 21,000 pages of proposed and final rules affecting hospitals and health systems.

Adhering to these regulations means less time for MUSC physicians and care team members to focus on their primary purpose of caring for patients. As experienced providers, we can tell you firsthand that excessive red tape is a barrier to more patient-centered care. Reducing administrative complexity in health care would save billions of dollars. We need to continue to spur innovation so that we can do more with fewer dollars, but innovation should also create a more streamlined system for approving patient treatment and reimbursement for services of providers.

We understand that the administration and many members of Congress are aware of the administrative complexity imposed by the government on health care and that initial steps have been taken to begin to relieve some of those burdens. We want to thank the South Carolina delegation for your focus on this critical issue, and we look forward to continuing to work with you to deliver the best patient-centered care possible.
Health Equity

Despite the availability of more effective strategies for early detection, prevention, and treatment, racial and ethnic minorities and individuals from other medically underserved groups, continue to experience significant disparities in morbidity and mortality from chronic and acute diseases. MUSC has invested in the reduction of disparities in health care and outcomes by promoting population, community, and patient health through initiatives in community and public health partnerships, quality improvement strategies, and workforce diversity.

We are now at a critical juncture where coordinated efforts are needed at an institutional level to ensure that previous and new investments that are made across the clinical, educational, and research missions at MUSC are leveraged effectively to maintain the progress that has been made in delivering quality health care to all patients, families, and communities and to continue to advance health equity. The Center for the Advancement of Health Equity, Training, and Diversity (AHEAD) will be established under the leadership of Dr. Chanita Hughes-Halbert to promote and advance health equity across the MUSC Health enterprise.

The AHEAD Center will advance health equity in patient care and outcomes by providing strategic direction of efforts in minority health and health disparities across clinical, research, and educational entities. We will coordinate health disparities research, workforce development and training, and community and clinical engagement across scientific, clinical, and educational entities in the MUSC Health enterprise and in the state of South Carolina. MUSC will monitor and track the outcomes of research, clinical, and community-based efforts in minority health and health disparities at MUSC Health.

This initiative will further facilitate transdisciplinary research in minority health and health disparities through the development of competitive applications for extramural funding, and the identification of foundations and philanthropic resources to support initiatives in health care equity. We will identify opportunities for extramural funding in minority health and health disparities, develop resources, coordinate submission of applications, and evaluate the effects of this research to demonstrate the cumulative benefits to population health and health care outcomes.

We believe that the work of the AHEAD Center will increase the diversity of the health disparity workforce (e.g., researchers, clinicians, students) through education and training in disparities research, methods, and culturally competent care. We aim to increase access to professional training in medicine, nursing, health professions, graduate studies, and dentistry by enhancing the development, dissemination, and implementation of evidence-based pipeline programs to underrepresented minority students at MUSC and in South Carolina. We will also establish a Health Equity Certificate Program to provide training in disparities research and methods and culturally competent clinical care.

Lastly, the AHEAD Center will support the engagement of diverse stakeholders in research, health care delivery systems, and educational efforts to promote the development of best practices and enhance the translation of evidence-based interventions into clinical and public health practice and community advocacy. It will provide oversight of the engagement of community, clinical, and public health stakeholders in initiatives for minority health and health equity at MUSC Health and will allow us to work collaboratively with community, clinical, and public health partners to develop, implement, and evaluate health equity initiatives.

There has been significant growth in the amount of research funding at MUSC that addresses minority health and health care disparities; clinical programs that target increasing access to quality health care services; educational efforts that focus on training the next generation of health care providers in social determinants and cultural competency; and strategies that are designed to increase the diversity of the clinical, research, and educational workforce.

The AHEAD Center will coordinate transdisciplinary, research, and clinical initiatives to improve minority health and reduce health disparities.
Sickle Cell Disease

Sickle cell disease is the most common inherited blood disorder in the United States. The disease affects all ethnicities, although in the U.S., it is most often seen in African-Americans. Due to red blood cell breakdown, inflammation, and blood vessel occlusion, this disabling disease causes extensive bone and organ damage. Frequent, chronic, and progressive pain crises, along with other medical complications of the disease, make living a normal existence for afflicted individuals very difficult. Despite improvements in disease management, many individuals with sickle cell disease have difficulty completing schooling or maintaining employment. In addition to economic disparities created by sickle cell, the disease itself is life-limiting.

Advances in medical care have increased the average life expectancy to 45 years, but many individuals succumb to the disease long before. There are many pediatric providers for individuals with sickle cell disease; however, affected adults often have difficulty finding a medical home or disease specialist. Many adults are only seeing primary care doctors because there is an insufficient number of adult SCD providers. To meet this need within the community, we have established the Lifespan Comprehensive Sickle Cell Center at MUSC to care for persons of all ages. The center is focused on providing continuity of care to all individuals with SCD and offering cutting-edge research therapies as well as curative options. We are also working closely with our local sickle cell foundation, COBRA, to continue raising awareness for this disease.

In 2014, we opened the Sickle Cell Center on the second floor of Rutledge Tower that includes exam rooms and an infusion center for individuals needing transfusions, pain medications, or other therapies. We expanded the center to include four nurses, three physicians, a med-peds physician, three-advanced care providers, and a social worker. We also have a psychologist who specializes in developmental assessments of our young patients.

We have assembled a large research team to ensure our patients have access to cutting-edge research therapies and the opportunity to improve disease outcomes. With a focus on studying new therapies and improving access to care for patients, our sickle cell team has successfully participated in over 10 multicenter trials.

To help ensure all adults with sickle cell disease have access to a specialist, Dr. Julie Kanter (Director of the Lifespan Center) applied for and received funding from the Duke Endowment in 2015 to establish SC2 (Sickle Cell South Carolina) to help improve access to care for individuals throughout the state. Since SC2 was funded, we have had a large number of referrals for individuals needing adult SCD care from all over the state. This novel statewide sickle cell network is a “hub and spokes” model to bring disease-modifying therapy and individual treatment plans closer to patients.

In addition to the funding above, Dr. Kanter created an interprofessional team from throughout MUSC, including the colleges of Nursing, Medicine, and Health Professions and the Department of Public Health to design an implementation plan to enhance the outreach and success of SC2. This team, co-led by Dr. Kanter and Dr. Cathy Melvin, recently received NIH funding as one of the eight Sickle Cell Disease Implementation Centers in the U.S. Through this collaborative, we hope to identify optimal ways of ensuring all patients have equal access to quality care for SCD. In addition to this exciting project, Dr. Kanter and Dr. Melvin also received a multicenter R01 grant from the NHLBI to better evaluate barriers to stroke screening in children with sickle cell disease.

MUSC remains committed to a national effort to raise awareness of sickle cell disease and bring together private and government sources to focus more funding on research and treatment. Support is needed at the national level to:

- prevent the loss of insurance coverage on reaching age 18. Options could include giving states the option to expand Medicaid eligibility for adults with sickle cell or through the creation of a waiver program to allow states to develop demonstration projects. Preventative care will mean better quality and more savings.
- support sickle cell disease as a research priority for the National Institutes of Health, Agency for Health Care Research and Quality (AHRQ), and Patient Centered Outcomes Research Institute (PCORI).
- support FDA efforts in their Patient-Focused Drug Development Initiative for sickle cell disease therapies.
increase awareness of sickle cell disease.

facilitate through public policy and public forums the sharing and development of evidence-based care management protocols for medical and other professionals involved in the continuum of care for sickle cell disease.

support the Sickle Cell Treatment Act to enhance federal funding for specialized sickle cell disease centers.

Resources for sickle cell disease remain extremely limited for affected individuals, and we hope to work together to increase awareness and decrease these inequalities.

Opioids Research and Training Center of Excellence

MUSC faculty have tremendous expertise in research, treatment, and education concerning opioid-use disorders (OUDs) and other addictions. This is reflected in the fact that MUSC is the only institution in the Southeast that has been ranked in the Top 10 in the nation for excellence in training in addictions in the US News & World Report rankings for the last 10 years.

The opioid epidemic has been recognized as a public health emergency in the United States. In response to this public health crisis in South Carolina, MUSC partnered with the South Carolina Department of Alcohol and Other Drug Addiction Services (DAODAS) in a statewide effort to educate physicians across the state about best practices in opioid prescribing, pain management, and screening and linkage to care for individuals with OUDs and other addictions. In addition, the MUSC/DAODAS partnership has focused on increasing access to medication-assisted treatment (MAT) for OUDs in South Carolina by providing trainings to providers statewide and linking local non-physician addiction treatment providers with clinicians trained to prescribe MAT. Another initiative has been the provision of MAT and linkage to care for individuals with opioid overdose who present to emergency rooms throughout the state.

All of these initiatives have been enabled by the South Carolina Telehealth Alliance, headquartered at MUSC, which was recently awarded a Center of Excellence in Telehealth from the Health Resources and Services Administration. The South Carolina Telehealth Alliance has facilitated expansion of training, coaching, and treatment of OUDs to rural parts of the state where there is inadequate access to medical providers. Researchers at MUSC have also partnered with SC DHEC, Bureau of Drug Control, and the CDC’s Prescription Drug Overdose Prevention for States Program to analyze a variety of state data to help define “hot spots” for opiate prescribing for targeted intervention. As such, MUSC has become a valuable resource for the state of South Carolina and the nation in addressing the opioid crisis.

MUSC will create a regional Center of Excellence in Opioid Research and Training to assist other states throughout the Southeast. The use of telehealth and other online resources we have developed (www.scmataccess.com) makes many of our ongoing efforts easily scalable. Addictions are a chronic problem in the United States and have never been adequately addressed in U.S. medical schools and residency training programs. This lack of attention is, in part, responsible for the current opioid crisis. A Center of Excellence could help the Southeastern medical community deal with addiction-related issues in a more proactive manner by developing and promoting training materials for health care providers and trainees in the area of OUDs and other addictive disorders.
Mass Violence and Victimization Resource Center

The National Crime Victims Research & Treatment Center (NCVC) at MUSC was established in 1977 and has achieved an international reputation for its innovative research, education, and training; evidence-based mental health treatment; prevention services; collaboration with victim service agencies; and consultation with public policy makers. The NCVC was recently awarded a prestigious $18 million grant to establish the Department of Justice Mass Violence and Victimization Resource Center.

The Mass Violence and Victimization Resource Center will support the comprehensive needs of victims of mass violence and domestic terrorism and assess the needs of victims of other large-scale criminal incidents that are not necessarily mass violence or domestic terrorism but result in a large number of victims. The goal of this project is to develop a national victim-centric framework that addresses best practices in preparing for and responding to incidents of mass violence and domestic terrorism with timely, diverse, and comprehensive approaches from planning to long-term recovery. The MV Center, working closely with the DoJ Office for Victims of Crime, will develop tools and strategies, engage communities and the nation, and build the capacity to support victims, their families, and communities affected by mass violence and domestic terrorism through training and technical assistance, identifying and creating best practices, and expanding expertise in the field.

MUSC will be partnering with many organizations and experts to establish the new center. Its academic partners include the Boston University School of Public Health and the University of California, Los Angeles. Several professional organizations will be involved, such as the United States Conference of Mayors and National Association of Attorneys General, as well as other major national nongovernmental organizations. MUSC asks the delegation to continue to support funding for the DOJ Victims of Crime Program in order to continue the important work of the newly established Mass Violence and Victimization Resource Center.

Post-Traumatic Stress Disorder Clinical Research Center

The faculty of the Medical University of South Carolina are internationally respected leaders in research on post-traumatic stress disorder and its treatment, both with respect to the impact of their work on treatment of this disorder, and in terms of the number and breadth of grants funded by the National Institutes of Health, Department of Defense, Department of Veterans Affairs, Office for Victims of Crime, National Institute of Justice, and a variety of private foundations. MUSC faculty have conducted more treatment outcome studies on PTSD in the past decade than any other academic institution or research entity, including the VA's National Centers on PTSD. This is because MUSC researchers are not limited to one type of PTSD victim, but instead, study PTSD across the population spectrum, including PTSD in Active Duty and Veteran populations (e.g., combat-related PTSD), as well as PTSD in civilians related to severe accidents (e.g., automobile crashes), interpersonal violence (both domestic violence and stranger violence), natural disasters (including hurricanes, earthquakes, and tidal waves), and terrorism (including that perpetrated by both citizens and foreign agents). No other research entity has such deep expertise and research funding in each of these areas of PTSD, and no other entity has been able to maximize ‘cross fertilization' of research findings across trauma type and into clinical settings with the speed of MUSC, an accomplishment due both to our integration of research into clinical services and the collaborative nature of our faculty and University administration (e.g., cross-college sharing of indirect cost funds).

To date, this extensive network of interrelated research and researchers has functioned without a formal organizing entity or infrastructure, like the proposed PTSD Clinical Research Center. As such, collaborations, while many in number, are serendipitously formed without an overarching vision or strategic plan, and the potential collective power of research is not realized. If MUSC is to continue its leadership in terms of overall number of PTSD treatment outcome grants and impact of its research findings, an organizing infrastructure will be essential to coordinate recruitment of participants, so that individual projects are not competing with one another for the same subjects.
An organizing entity in the form of a PTSD Clinical Research Center will also be essential to the strategic communication of findings to the general public.

MUSC is seeking funding for a PTSD Clinical Research Center for the following reasons:

- Largest number of PTSD treatment outcome projects of any institution or entity in the past decade;
- Only entity to conduct research in all ‘types’ of PTSD (combat, military sexual trauma, interpersonal violence, disaster, terrorism, child abuse, elder abuse, domestic violence);
- First entity to demonstrate effective delivery of evidence-based psychotherapy for PTSD via telehealth directly into veterans’ homes;
- Technology applications for Healthful Lifestyles Center is intimately involved in integrating technology into best practices PTSD treatments (Co-Director is among the Top PTSD researchers);
- First entity to study Transcranial Magnetic Stimulation in treatment of PTSD;
- Highly integrated research collaborations with VA PTSD researchers next door, using dual appointments to strategically achieve research force multiplication;
- Research spans bench-to-bedside-to-dissemination science.

To summarize, MUSC PTSD research is unique, in terms of its high volume and more importantly because it focuses on all ‘types’ of PTSD, representing research in the areas of civilian trauma (including domestic violence, stranger violence, sexual violence, elder abuse, and child abuse), combat trauma (including combat, military sexual trauma, and deployment-related accidents), natural disaster, and terrorism (both domestic and foreign). No other single site comes close to MUSC in terms of such encompassing PTSD work. Moreover, MUSC PTSD research is end-user focused and cutting edge, in that we have spent the last decade focused on conducting more best-practices treatment-outcome research, including delivering interventions via mHealth, telehealth, and the web.

We are at a stage where we have the critical mass to justify an integrated PTSD center, that would allow us to maximize synergy across researchers and studies. It will also allow us to compete for and successfully conduct large-scale center grants that have previously eluded us.

Support for the National Institutes of Health

MUSC appreciates the successful efforts in Congress to provide steady increases to the National Institutes of Health budget over the past several years. The NIH budget increased by $2 billion in FY2016, $2 billion in FY2017, and the Senate LHHS appropriations bill includes an additional $2 billion for NIH in FY2018. The House FY2018 LHHS appropriations bill includes a $1.1 billion increase for NIH.

MUSC received $112 million in funding from the NIH in FY2017. NIH’s budget averages $30+ billion a year and is the primary support for our nation’s medical research programs. NIH funding impacts the basic research that is the foundation of medical science and supports the development of new drugs to fight deadly diseases like cancer. Clinical trials that are part of the drug development and approval process give South Carolinians access to the most current science that medicine has to offer, and in many cases, can save lives that would otherwise be lost to advanced disease. Since 2015, the HCC has opened 95 NIH/NCI funded clinical trials.

In September 2015, MUSC was awarded the National Center for Advancing Translational Sciences’ coveted Clinical and Translational Science Awards (CTSA) – the largest grant mechanism at the National Institutes of Health (NIH). The CTSA national network works together to reduce the time it takes to turn research discoveries into new treatments for patients, to engage community stakeholders to take active roles in all phases of research, and to train the next generation of researchers and support staff. The South Carolina Center for Translational Research (SCTR) is led by
MUSC and has robust collaborations with affiliate members across the state, including the University of South Carolina, Clemson University, South Carolina State University, Claflin University, Greenwood Genetics Center, South Carolina Research Authority, and V.A. medical centers to expand innovative research and training activities across the state.

In addition to the discovery of new therapies and development of new medical devices, this research funding is an important contributor to the regional economy, as it is estimated that each NIH dollar generates $2.21 in new state business activity. South Carolina is home to 1,153 bioscience business establishments. In 2012, residents held 13,603 bioscience industry jobs, and the average annual wage in the bioscience sector was $21,873 higher than the private sector overall. NIH dollars also serve to power the SC economy in producing new companies and new jobs. MUSC innovation led to the formation of more than 50 startup companies over the past several years.

NIH funding also results in new licensing agreements and patents for South Carolina. This funding should continue to be prioritized as it will affect many thousands of Americans and their families who are affected by health problems and disease.

Support for the Hollings Cancer Center

The MUSC Hollings Cancer Center (HCC) is one of only 69 National Cancer Institute (NCI)-designated cancer centers in the nation and is the only one in the state. The more than 4,800 patients treated at HCC yearly have access to the latest cancer treatments through an extensive network of clinical trials. Clinical trials offer HCC patients the opportunity to benefit from interventional and non-interventional therapies not available elsewhere in South Carolina. HCC is currently enrolling patients in 117 therapeutic and 76 non-therapeutic studies, including phase I trials.

HCC has been an NCI-designated cancer center since 2009 and is currently undergoing a renewal for NCI-designation, a rigorous, highly competitive process that occurs every five years. As part of this process, HCC is required to demonstrate how it is reducing the cancer burden in the state and providing public outreach on cancer prevention and screening. The center also is dedicated to developing and implementing strategies targeting cancer health disparities and extending care to underserved and high-risk populations, such as the Sea Island communities.

In 2018, an estimated 30,450 South Carolinians will be diagnosed with cancer. HCC offers these patients the option to be treated close to home while still receiving the most advanced cancer care that is guided by a multi-disciplinary team of clinicians and backed by world-class researchers. Cancer researchers at HCC held more than $42 million in research funding in 2017. Some of HCC’s special objectives include:

- providing training opportunities to better support cancer research, such as the HCC Fellowship Program to increase training and education of graduates and post-doctoral students.
- advocating for cancer control initiatives supporting the prevention of cancer and importance of cancer screening. One such push includes efforts to increase HPV vaccination rates through the education and training of health care providers, parents and community health workers and legislators, who can impact the state’s policy on vaccinations.
- developing new standards of care in smoking cessation and addiction services, areas of national expertise for MUSC. An example of this is HCC’s Tobacco Cessation Program and inpatient smoking cessation counseling program.
- expanding HCC’s research portfolio dedicated to addressing health disparities and supporting interventional programs targeting cancer health disparities and underserved populations.
- offering community outreach to make cancer prevention screenings and cancer awareness more accessible to the public. These efforts include the HCC Mobile Health Unit that provides screening for oral, breast, and skin cancers to rural communities.

The work done at Hollings Cancer Center has a tremendous impact on South Carolinians, as will continued funding for National Cancer Institute initiatives.
EPSCoR/IDeA Program

MUSC asks the delegation to continue to support robust funding for the Established Program to Stimulate Competitive Research (EPSCoR) and the Institutional Development Award (IDeA) programs. EPSCoR/IDeA programs have become the centerpieces of the federal government’s efforts to ensure that all states and regions benefit from its science and engineering (S&E) research and education activities. In September 2017, South Carolina was awarded a $20 million five-year NSF RII Track-1 grant, which will involve collaboration between 10 research institutions, including MUSC.

The National Science Foundation established EPSCoR in 1979 because Congress was troubled by the uneven distribution of federal research and development grants. Grants gravitated toward the few states and institutions that had historically benefited. This status quo ignored the dramatic growth in regional educational and research institutions, so the nation wasn’t profiting fully from the wealth of ingenuity and skill embedded across the country. Four other federal agencies have followed the National Science Foundation in creating EPSCoR programs: the National Institutes of Health, the National Aeronautics and Space Administration, the Department of Energy, and the Department of Agriculture. The National Institutes of Health Institutional Development Award (IDeA) program is the largest.

MUSC is pleased that Congress has continued to recognize the value of the IDeA program, with the House Appropriations Committee including $373.6 million and the Senate Appropriations Committee including $344.3 million for the program in FY2018. Last year, Congress increased funding for the NIH IDeA program by $13 million over FY2016 in final negotiations of the Omnibus Appropriations Bill. Research universities in South Carolina receive substantial funding from the EPSCoR and IDeA programs, which is used to increase research infrastructure and train new generations of researchers. South Carolina research institutions currently hold 10 active IDeA awards.

In July 2014, the MUSC College of Health Professions received news that it was the recipient of a $10.8 million COBRE grant from the NIH/IDeA program, the largest such grant awarded to MUSC to date. The grant established the South Carolina Research Center for Recovery from Stroke.

The COBRE grant allows a team of senior investigators with different skills to work together to train and mentor the cadre of junior scientists involved in the grant, who will become skilled in multiple areas, providing them the multidisciplinary toolbox necessary to become the next generation of leaders in the field. They will be developing and translating new mechanism-based interventional strategies in an effort to improve functional recovery from stroke, which is a leading killer in South Carolina. Without the IDeA program, our ability to address this important health care problem would be hindered significantly.
Graduate Medical Education

Various deficit reduction proposals have focused on reducing funding for Graduate Medical Education (GME), the nation’s primary source of funding for the education of new doctors. GME funds are provided through Medicare to help offset some of the costs associated with educating residents, caring for patients who require more intense and complex care, and other special missions of teaching hospitals. Any deficit reduction plans that reduce funding for GME will inevitably make the physician shortage worse and will be especially harmful to rural communities that are already designated as physician-shortage areas.

Medicare pays supplements to teaching hospitals for Direct Graduate Medical Education (DGME) and for Indirect Graduate Medical Education (IME). IME provides a small increase over normal Medicare reimbursement rates for services provided at teaching hospitals. DGME pays hospitals on a per-resident basis based on how many residency slots they are allocated. All medical school graduates must complete a residency training program, and each year, graduates participate in a residency match which assigns them to a residency slot at a particular hospital. The Balanced Budget Act of 1997 essentially froze the number of slots Medicare would pay for on a national basis. Since that time, a hospital that decides to increase the number of residents training at their facility above what Medicare pays for has to cover the entire cost from hospital revenues. Each year, several hundred seniors in MD programs in the United States are left without a position at the conclusion of the match, which does not include international medical graduates, previous graduates, or other non-traditional applicants.

2017-2018 RESIDENT DATA

- Total number of filled residency slots: 713
- Federally funded: 365
- MUSC funded: 237
- VA funded: 102
- Departmental/Grant/Other funded: 7
- Air Force funded: 2

As hospitals across the nation, including MUSC, have come under increasing budget pressure from reductions in Medicare and Medicaid payments and increasing lost revenue from providing uncompensated care to the poor and uninsured, hospitals have limited their expansion of residency slots. In fact, as budget reductions required by the Affordable Care Act for programs like Disproportionate Share Hospital (DSH) Payments continue to be implemented, hospitals are expected to further cut the number of residency slots they can afford. While medical schools are doing their part by enrolling more medical students to meet the needs of a growing and aging population, the cost of training new doctors through residency programs, a responsibility that was once primarily supported by federal revenues, has now fallen to each of the 500 teaching hospitals.

According to the AAMC, the United States faces a shortage of somewhere between 40,800 and 104,900 physicians by 2030. South Carolina is ranked 37th in the number of doctors per 100,000 people, according to the AAMC. As of 2016, there were more than 435 total medical school graduates (allopathic and osteopathic) in the state with only around 300 first-year residency slots in the entire state. Several bills have been introduced in Congress by Republicans and Democrats to address the shortage of residency slots. MUSC encourages the South Carolina delegation to review the merits of these bills that provide for an increase in residency slots to address a national physician shortage that is especially troubling in South Carolina.
Rural Student Loan Repayment

MUSC has identified a need to expand the National Health Service Corps Student Loan Repayment Program to include physical therapists and occupational therapists. Additionally, the program currently serves dental students who opt to serve rural communities, but loan repayment funds should be applied to the front end of debt, so as to reduce payment amounts, rather than its current form, which only reduces the loan terms.

The National Health Service Corps (NHSC) is a Health Resources and Services Administration (HRSA) program that addresses the health needs of more than 9.7 million underserved individuals across the nation. The program offers financial and other support to primary care providers and sites in underserved communities, with the goal of building healthy communities in areas with limited access to care. The program has shown increases in retention, meaning that NHSC members choose to remain in underserved communities after their service commitment has ended.

The NHSC program provides an opportunity for participants to pay off student loans through continued service, as well as access to educational, training, and networking opportunities. The NHSC Loan Repayment Program allows licensed health care providers to earn up to $50,000 toward student loans in exchange for a two-year commitment at an NHSC-approved site. Currently, accepted participants include primary care medical, dental, or mental/behavioral health clinicians, and they can choose to serve longer for additional loan repayment support.

MUSC supports the addition of rehabilitation professionals, including physical and occupational therapists, to the loan repayment program. Based on current trends in the physical therapist workforce, the shortage of physical therapists could potentially reach over 27,000 in the United States by 2020, greater than other primary care disciplines recognized by the National Health Service Corps. Many physical therapists live in urban and suburban areas, creating maldistribution of physical therapists throughout the country. The inclusion of physical and occupational therapists in the NHSC Loan Repayment Program will help to ensure that rehabilitation services are available to underserved communities in South Carolina and nationally.

Adding professions to the NHSC program will not increase the money needed for the program but will allow our communities to determine their most pressing needs.

National AHEC Program

Though the Area Health Education Center (AHEC) program was not in the president’s budget for FY2018, the FY 2018 House LHHS-Ed Appropriations bills includes $30,250,000 and the Senate LHHS-Ed bill includes $32,750,000 for the program. MUSC appreciates that Congress recognizes the value of the AHEC program and asks the South Carolina delegation to lead the federal effort in assuring sustainable funding for the AHEC program. The AHEC program should be funded in FY2019 and beyond, at least at the level provided in FY2017 and FY2018 appropriations bills.

The AHEC program improves the health of rural and underserved populations in South Carolina through the development and expansion of pipeline programs in medicine, nursing, dentistry, and other health professions; by creating and expanding primary care rotations for residents and students; and by providing education and support for physicians, dentists, nurse practitioners, physician assistants, nurses, and other providers in rural and underserved areas of South Carolina.

America’s health care system is being challenged to make changes that will achieve the ambitious triple aim of better health, better care, and lower costs. AHEC centers and programs based in widely diverse communities across the nation are actively responding to this challenge with services and programs which directly address the changing health care environment.
THE SOUTH CAROLINA AHEC PROGRAM:

- helps meet the increasing demands on the primary care health care workforce.
- improves the distribution of the health professions workforce in rural and underserved areas.
- fosters a diverse health professions workforce that reflects the state’s population.
- prepares health professionals to expand collaborative practices and team models of care.

AHEC is building and supporting the health care workforce that South Carolina needs through the following initiatives:

- telehealth education provides new access for students, providers, patients, and communities through technology-enabled services. Telehealth extends AHEC’s statewide reach and partnerships to address rural health care delivery and health care workforce development needs.
- health careers programs address the need to increase the number of young people, especially those from underserved populations, who aspire to become health care professionals by promoting academic preparation and motivation for high school and college students through year-long and summer programs.
- health professions student programs provide opportunities for students to work and learn in rural and underserved communities in South Carolina by gaining real-world experience in patient care settings. These experiences increase the likelihood they will choose to practice in communities in need of health care services.
- graduate Medical Education provides support for Family Medicine residency training programs in eight South Carolina communities. More than 50% of all family doctors in South Carolina are trained in AHEC-affiliated residencies.
- recruitment and retention programs address the state’s health care workforce needs through recruitment activities, the Locum Tenens Program and grants that provide financial incentives to physicians, dentists, and advanced practice providers to practice in rural and underserved communities.
- professional education programs identify the needs of health care professionals and provide education programs designed to enhance clinical skills and maintain professional certifications. Programs are delivered through traditional methods and innovative technologies.
- the Office for Health Care Workforce Analysis and Planning generates information about health care workforce characteristics and needs in South Carolina to inform individuals, communities, educational systems, state agencies, health systems, and others in order to assist with information-based planning and decision making.
AHECs are providing services that respond to key needs of the changing health care landscape. AHEC programs:

- integrate public health and primary care and address the increased need for the placement of students in community-based primary care settings.
- participate in efforts to increase access to and coverage by health insurance.
- provide interprofessional education initiatives to develop team-based care and focus on training for improved patient safety and clinical outcomes.

AHECs have an excellent track record of recruiting, mentoring, and training students from underrepresented minority, rural, and disadvantaged populations. With more than 40 years of experience, AHECs are uniquely positioned to play a significant role in building a health care workforce to serve communities in South Carolina and succeed within the health care system of the future. Providers need to understand how to work with an increasing diverse group of patients, and AHECs have the access, diversity, capability, and capacity to help make this happen.