MEDICAL UNIVERSITY OF SOUTH CAROLINA

TEAM UP FOR BETTER HEALTH

QUALITY ENHANCEMENT PLAN | 2017

MUSC
MEDICAL UNIVERSITY
of SOUTH CAROLINA

Changing What's Possible

January 10, 2017

Southern Association of Colleges and Schools
Commission on Colleges
1866 Southern Lane
Decatur, GA 30033

On behalf of the Medical University of South Carolina (MUSC), we are delighted to submit our Quality Enhancement Plan (QEP), "Team Up for Better Health" as a key component of our 2017 SACSCOC reaffirmation.

Team Up for Better Health addresses an important need in the health care and health sciences communities - to have a workforce well-trained to perform as an integrated team. There is a national push for improving the quality of healthcare delivery and scientific discovery in the United States through more coordinated, collaborative, team-based models.

Through our QEP, we aim to graduate students from all six of our colleges with practice-relevant teamwork skills and experiences. The QEP will also improve the learning environment at MUSC to facilitate students' acquisition of these essential skills As you will see from the proposal, our QEP is the result of a rigorous, inclusive and representative process. It was informed by both internal and external data. MUSC is proud of – and committed to – this five-year Quality Enhancement Plan. In fact, it is fundamentally aligned with MUSC's Strategic Plan, Imagine MUSC 2020. We seek to be innovators in teaching and learning, and through Team Up for Better Health, we will provide MUSC students with the kind of experiential educational opportunities that will differentiate them from their peers and offer them exceptional educational value.

We look forward to the careful review, insights and advice that the On-Site Reaffirmation Committee will provide us during their visit, March 7th - 9th, 2017.

Sincerely

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

David J. Cole, M.D., FACS

**President,
Medical University
of South Carolina**

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Executive Summary

There is a national push for improving the quality of healthcare delivery and scientific discovery in the United States through more coordinated, collaborative, team-based models.

We implemented an institutional process to identify key issues relevant to the plan using data emerging from institutional assessment.

MUSC's prior QEP focused on interprofessional education and successfully improved students' knowledge and appreciation of the different roles and responsibilities of various health professionals. However, our institutional data clearly show that these educational efforts, while important and valuable, do not appear to transcend the classroom environment and reach the applied arenas such as clinical rotations, practica and research laboratory experiences.

Currently, students at MUSC lack applied team-skills training opportunities, and there is a general paucity of teamwork training and experience during their education at MUSC.

Thus, a great opportunity exists to enhance student learning at MUSC in a manner consistent with 1) National health-delivery-model recommendations, and 2) institutional data-derived gaps in student learning by providing direct training and experience in teamwork and applied collaboration.

After review of our previous QEP activities, and examination of institutional data, key constituent stakeholder groups at MUSC selected applied interprofessional teamwork training as our next QEP topic.
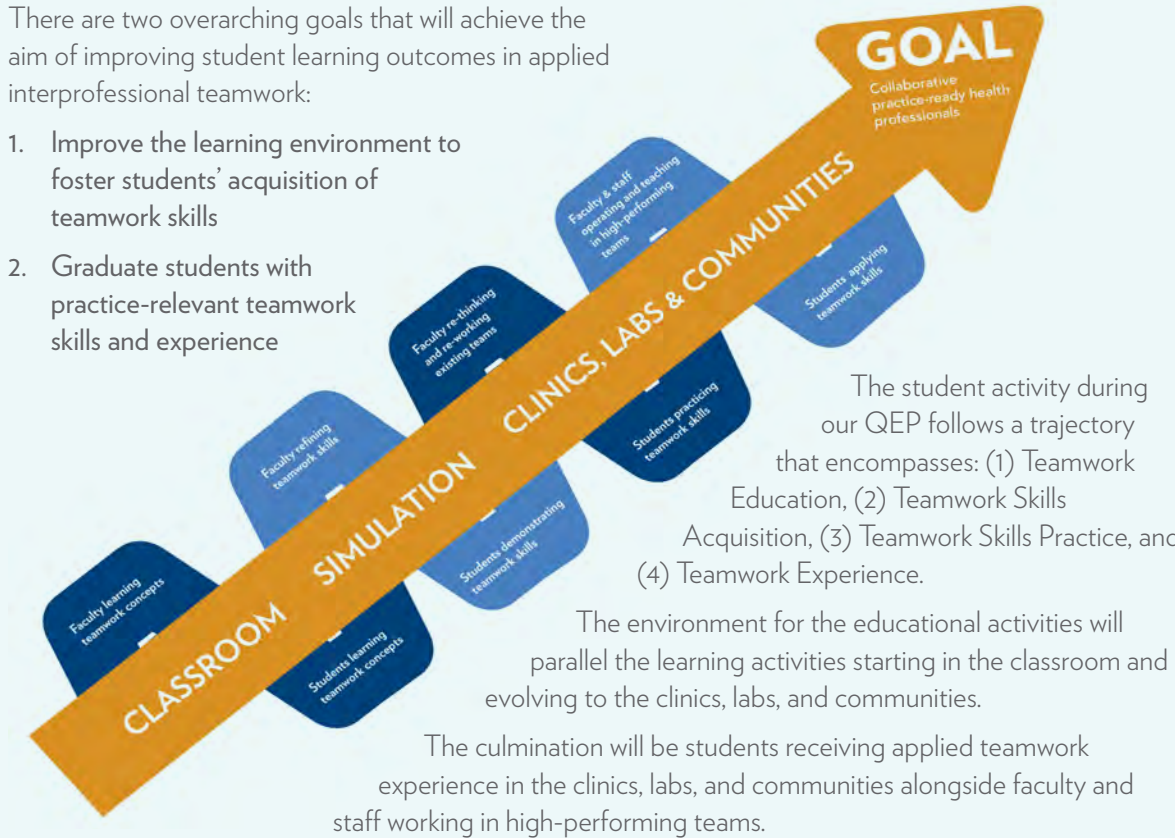
We identified a significant issue that focuses on learning outcomes and the learning environment while accomplishing and enhancing the mission of MUSC

The QEP committee named our QEP:

TEAM UP FOR BETTER HEALTH

There are two overarching goals that will achieve the aim of improving student learning outcomes in applied interprofessional teamwork:

1. Improve the learning environment to foster students' acquisition of teamwork skills

2. Graduate students with practice-relevant teamwork skills and experience

The student activity during our QEP follows a trajectory that encompasses: (1) Teamwork Education, (2) Teamwork Skills Acquisition, (3) Teamwork Skills Practice, and (4) Teamwork Experience.

The environment for the educational activities will parallel the learning activities starting in the classroom and evolving to the clinics, labs, and communities.

The culmination will be students receiving applied teamwork experience in the clinics, labs, and communities alongside faculty and staff working in high-performing teams.

One of the major advancements at MUSC that will support and facilitate this QEP is the development of a student Applied Teamwork Competency portfolio (ATC).

The Office of Interprofessional Initiatives (OII) will construct and maintain a centralized menu of approved applied teamwork experiences that are available to students from all six colleges at MUSC. Students will complete a collection of applied teamwork experiences during their training at MUSC.

Upon completion of each experience, a faculty preceptor will conduct Teamwork Performance Evaluation (or other OII-approved teamwork skills metric) on each student in order to quantify the quality of the students' teamwork skillset.

Students will be able to electronically export descriptions of their experiences at MUSC in a format that can be used to supplement their professional curriculum vitae (CV) under a subheading of "Applied Interprofessional Teamwork Experience" to enhance the visibility of their teamwork competencies, and consequentially, their unique value to potential employers.

Several other innovative strategies will support our Team-Up for Better Health student learning outcomes and improvement of our learning environment including: 1) overhaul of our required IP curriculum, 2) institutional-wide faculty and staff training in TeamSTEPPS®, 3) a new Team Science small grants program, 4) our novel TeamWorks program, 4) "Teamwork Tuesday" institutional quality and safety emails, 5) our new "Team-Up for Better Teaching" program, 6) our new faculty-driven clinical rotations development program, along with many other new initiatives.

We ensured our capacity to initiate, implement, and complete our QEP

By aligning our QEP with MUSC's new strategic plan (Imagine MUSC 2020), leveraging team-science resources from our federally funded South Carolina Clinical and Translational Research Institute (SCTR), and by operating the QEP through the Office of Interprofessional Initiatives, we have secured allocation of the personnel, financial, and technological resources necessary to implement and sustain this QEP.

We garnered broad-based involvement of institutional constituencies

By directly involving institutional leadership in the process of determining the QEP topic as well as in the plan for its implementation, we are ensuring successful institution-wide execution of the plan. The Interprofessional Student Advisory Board, Dean's Council, Faculty Senate, Hospital Quality Operations Group, the Interprofessional/Interdisciplinary Advisory Council, and the Associate Deans for Education from all six Colleges all participated in the developing our QEP concept. Members from each of these groups serve on the QEP Committee thereby ensuring broad institutional involvement across all aspects of this QEP from conception to implementation.

We have developed a thorough plan to evaluate achievement of our QEP Goals

The Office for Institutional Effectiveness at MUSC assist the OII to evaluate progress in and outcomes of QEP. We will track student learning outcomes using MUSC's Teamwork Performance Evaluation scale(s), availability of ATC programs at MUSC (environment), student participation, student utilization of the ATC Portfolio, and faculty learning outcomes (environment). We will compare these results against a priori explicit targets. These and several other relevant and meaningful metrics will be systematically collected and evaluated throughout the QEP.

The Medical University of South Carolina

The Medical University of South Carolina has served the citizens of South Carolina since 1824. It has expanded from a small private college for the training of physicians to a state university with a medical center and six colleges for the education of a broad range of health professionals, biomedical scientists and other health related personnel.

COLLEGE OF MEDICINE | Dr. Raymond DuBois, Dean

When the Medical College of South Carolina was chartered by the South Carolina legislature on December 20, 1823, it became the 10th medical school in the United States. Founded as a private, proprietary institution by members of the Medical Society of South Carolina, the college's early faculty bore full financial and curricular responsibility for the institution until 1913 when the state assumed ownership of the school.

The Medical College opened in 1824 with a faculty of seven Charleston physicians and thirty students. The first students graduated on April 4, 1825. The institution has served continuously since its founding, except for a four-year cessation during the Civil War, 1861-1865.

Following the Civil War, the college was reorganized and continued to operate, at one point with as few as two students. In late 1913 the state legislature was successfully petitioned to transfer ownership of the school to the state. Incorporation of the medical college as a state institution brought public funding, and allowed teaching and service roles to expand steadily.

Today, the MUSC College of Medicine offers admission to approximately 160-170 students each year. The students are awarded a Doctor of Medicine (M.D.) degree upon completion of the college's academic requirements. A four-year integrated curriculum includes basic science instruction in all of the core disciplines and a wide range of clinical educational opportunities, which are closely supervised by full and part-time faculty members.

In addition, the College of Medicine, in conjunction with the College of Graduate Studies, offers the Medical Scientist Training Program which leads to an M.D./Ph.D. degree. The college has 25 departments that independently and collectively contribute to the education of future physicians.

The opening of the Ashley River Tower in 2008 has provided students at the college with the opportunity to train at one of the most innovative and technologically advanced academic medical centers in the nation.

Housing the MUSC Heart and Vascular Center, Surgical Oncology and the MUSC Digestive Disease Center, Ashley River Tower is changing what's possible in health care in our state.

COLLEGE OF PHARMACY | Dr. Philip Hall, Dean

By faculty resolution, resulting in an amendment to the charter in 1881, the Medical College created a Department of Pharmacy, one of the first in the south. The School of Pharmacy admitted its first students in 1882, discontinued after two years, then resumed on a permanent basis in 1894, offering the degree of graduate in pharmacy (Ph.G.). The program leading to a degree of bachelor-of-science in pharmacy began in 1936. The post-B.S. doctor of pharmacy (Pharm.D.) degree program began in 1973. In the mid-90's, the MUSC College of Pharmacy transitioned from bachelor-of-science in pharmacy to the Pharm.D. as its sole professional degree. In 2004, with the approval of the MUSC and USC Boards of Trustees, the MUSC College of Pharmacy integrated with the USC College of Pharmacy to form a joint program through the South Carolina College of Pharmacy, which matriculated its first class in 2006. In 2015, the MUSC Board of Trustees approved an initiative for the MUSC College of Pharmacy once again to pursue individual accreditation. The college continues participation in the joint SCCP program until its matriculated students graduate while concurrently working closely with SACSCOC, the South Carolina Commission on Higher Education and the Accrediting Council for Pharmacy Education to re-establish independent accreditation.

Today, the MUSC campus of the SCCP boasts a student body of more than 300 students in the Pharm.D. program. In addition, the MUSC Medical Center and College of Pharmacy Residency Program offers one of the largest and most respected pharmacy residency programs in the country with 12 specialty tracks and typically 25-30 residents.

COLLEGE OF NURSING | Dr. Gail Stuart, Dean

The College of Nursing at the Medical University of South Carolina had its origin in 1882 when the City Council of Charleston approved a request by the City Hospital for $2,000 to establish a "Training School for Nurses." The school was opened in 1883 (first students accepted in 1884) and continued operating at the City Hospital until it was destroyed by an earthquake in 1886. It was reestablished as "The Charleston Training School" in 1895. A two-year program of instruction was offered, with some lectures given by the Medical College faculty.

In 1904 Roper Hospital took over administration of the program until 1916, when the Board of Commissioners of the Roper Hospital proposed the incorporation of the Training School with the Medical College. In 1919 the Roper Training School for Nurses became the School of Nursing of the Medical College of the State of South Carolina and expanded to a three-year diploma program. In 1966 the School of Nursing began to phase out the three-year program and established a four-year baccalaureate program leading to the B.S. in Nursing. In 1976 the College of Nursing began to offer a Master of Science in Nursing program. In conjunction with the College of Graduate Studies, College of Nursing faculty launched a Doctor of Philosophy in Nursing in 2001. The College of Nursing also began offering a Doctor of Nursing Practice in 2009.

Today, a complete renovation of the College of Nursing building was completed in January 2015. Also in 2015, MUSC's College of Nursing was ranked 1st in the US News & World Report for best online graduate program. The College also received funding in federal stipends for Advanced Education Nursing Traineeship (AENT), Advanced Nursing Education Expansion (ANEE) and Nurse Faculty Loan Program (NFLP) during 2014-2015 year. Our online RN-BSN program was opened with 53 students and the College transitioned to and opened a three-year Accelerated PhD in Nursing Science program in fall 2015.. The College of Nursing is ranked 14th in NIH funding among Colleges of Nursing across the country securing $6.63 million in total funding, and recently integrated 198 (BSN, MSN, DNP) student experiences in CON practice-related activities.

COLLEGE OF GRADUATE STUDIES | Dr. Paula Traktman, Dean

Graduate instruction in the basic sciences was offered for the first time in 1949 with programs in anatomy, chemistry, pathology, pharmacology, and physiology. A program in microbiology was added the following year. The first Master of Science degree was conferred in 1951; the Doctor of Philosophy degree was awarded for the first time in 1952. A Committee on Graduate Studies managed graduate training programs until 1965 when the School of Graduate Studies was formally organized as the fourth branch of the institution (joining Medicine, Pharmacy and Nursing).

Today, the college remains committed to the graduate training of tomorrow's biomedical research scientists. There are a variety of areas for training in cutting edge research for students pursuing a Master of Science or Doctor of Philosophy degree in the biomedical sciences. We also offer an NIH funded MD/PhD program with the College of Medicine and a DMD/PhD program with the College of Dental Medicine for students interested in careers in medical, dental or pharmaceutical research.

JAMES B. EDWARDS COLLEGE OF DENTAL MEDICINE | Dr. Patricia Blanton, Interim Dean

In 1952 the South Carolina Dental Association recommended that a school of dentistry be established as a unit of the Medical College of South Carolina. The state legislature authorized the development of the School of Dental Medicine the following year, but it was not until 1964 that the legislature provided the funds to implement the 1953 authorization. In 1964 John Buhler was appointed dean of the school of dentistry and the school operated in temporary quarters, primarily in Colcock Hall. The school's new building, the Basic Sciences/College of Dental Medicine building, was ready for occupancy in December 1970. The first students were admitted in 1967, and the first class of twenty-one students received D.M.D. degrees in June 1971.

Today, the mission of the James B. Edwards College of Dental Medicine is to develop principled, skilled and compassionate practitioners and leaders in oral health care, to expand the body of knowledge about oral and related diseases, and to serve the citizens of the state of South Carolina and beyond by providing exemplary oral health care. The College seeks to be a national leader in dental education, service and research, and to be an outstanding place to learn, teach, expand knowledge, work and serve. The College provides a high quality educational environment for dental students and provides continuing education programs for life-long learning to meet the changing needs of the dental community. Our new 120,000 square-foot facility provides an innovative learning environment for clinical practice while forging a distinctive physical identity for the College of Dental Medicine. The facility houses 190 dental operatories, which were designed through careful collaboration with faculty and staff to provide rich learning environments, flexibility for growth and change, and comfortable, efficient clinical spaces. Each floor has break-out seminar spaces for group instruction and resident study areas provide convenient student spaces within the clinical environment. Special consideration was given to patient, student, and faculty movement in the center, helping to provide a patient-focused environment with clear way-finding, while maintaining efficiency and functional circulation for students, faculty and staff.

COLLEGE OF HEALTH PROFESSIONS - Dr. James Zoller, Interim Dean

In 1966 the School of Allied Health Sciences, now the College of Health Professions, was formally organized from the Division of Technical Training, a separate branch of the Medical College, to prepare allied health professionals for careers in the growing health care industry. In 1968 the new school awarded its first bachelor of science degrees to one Cytotechnology and four medical technology candidates.
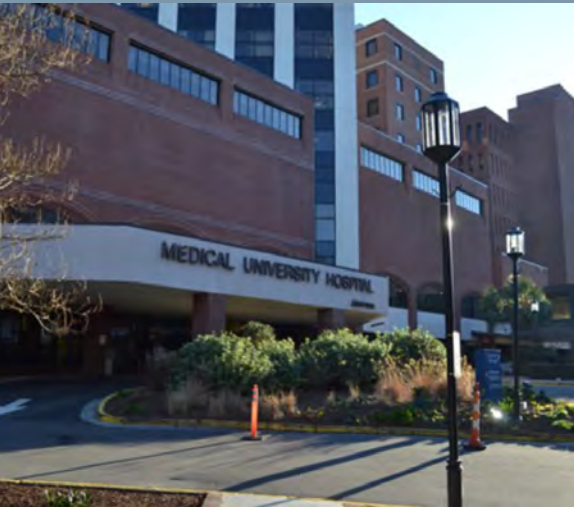
Established around the fields of medical technology, radiologic technology, Cytotechnology, inhalation therapy, and a nurse anesthetist program, the school expanded to offer over twenty different training options in the paramedical field.

In 1984 lower division certificate and associate degree programs were transferred administratively to Trident Technical College (with the College of Health Professions functioning as the primary clinical affiliate). In 1986 the name was changed to the College of Health Related Professions, and in 1993 the name changed again to the College of Health Professions. Our history of greater than 45 years as a College of Health Professions has enabled us to mature and develop into one of the top Colleges of Health Professions in the country. Today, the College offers numerous different academic degrees, and has the largest student enrollment on campus. The College is committed to excellence in education, research, and service. There are three departments in the College of Health Professions: Department of Health Professions, Department of Health Sciences and Research and the Department of Healthcare Leadership and Management. The academic programs offered through the College are: Bachelor of Science in Cardiovascular Perfusion, Bachelor of Science of Healthcare Studies, Master in Health Administration, Doctor of Nurse Anesthesia Practice, Master of Science in Occupational Therapy, Master of Science in Physician Assistant Studies, Doctor of Health Administration, Doctor of Physical Therapy, and a Doctor of Philosophy in Health and Rehabilitation Science in conjunction with the College of Graduate Studies.

Among the College's most significant developments is the building of a new state-of-the-art complex that allows us to take advantage of recent advances in educational technology and growth opportunities for research by faculty and students. Our classrooms are designed to enhance student learning through the use of cutting edge educational technologies. The College of Health Professions leads the way in the use of advanced technology. Also distinctive is the College's research and scholarship by its faculty through the establishment of research centers and the formation of laboratories critical to determining the knowledge base for establishing optimal heath care delivery. Our faculty members are nationally recognized for their creative work in discovery and application.

College of Medicine

College of Pharmacy

College of Nursing

College of Graduate Studies

James B. Edwards College of Dental Medicine

College of Health Professions

The Medical University of South Carolina

This comprehensive facility comprises three separate hospitals (the University Hospital, the Institute of Psychiatry, and the Children's Hospital). The Medical Center includes centers for specialized care (Heart Center, Transplantation Center, Hollings Cancer Center, Digestive Diseases Center, Storm Eye Institute). Numerous outpatient facilities include the Family Medicine Center and affiliated faculty practice ambulatory care centers.

MUSC MEDICAL CENTER
Dr. Pat Cawley, Chief Executive Officer

The Medical College of South Carolina was one of the first medical schools in the United States to establish an infirmary specifically for teaching purposes. In the 1840s the college also entered into agreements for clinical training opportunities at the Poorhouse, the Marine Hospital, and the local "dispensary." In 1856, Roper Hospital was opened, and for 100 years Roper was the Medical College's primary teaching hospital.

The Medical College recognized the need for its own facilities to expand clinical teaching opportunities, as well as to serve as a major referral center in South Carolina for diagnosis and treatment of disease. The ten-story Medical University Hospital accepted its first patients in 1955. In 1985 the name of the hospital and its clinics was changed to MUSC Medical Center, reflecting its function in an academic health institution and its wide range of services to the public. The MUSC Medical Center, including its Charleston Memorial Hospital facility, is licensed for 709 beds. During 2005-06 there were over 31,500 inpatient admissions and 730,000 outpatient registrations. In 2007, the MUSC Medical Center completed a 156-bed, 641,000 square foot expansion of its medical center. This additional facility allows the institution to continue providing a growing and aging patient population with the most advanced care available anywhere.

Among our newest buildings is the Ashley River Tower (ART), Phase I Replacement Hospital with 156 beds, focusing on delivering quality heart, vascular, oncologic surgical, and digestive disease services. This brings the total number of beds to 709. The first of its kind on many levels in the Southeast, ART added 641,000 square feet of clinical space and feature a diagnostic and treatment building, patient hospitality tower, and a conservatory designed to connect the two spaces while offering a comfortable gathering place for patients, families and employees.

UNIVERSITY STATUS

In 1950 the title of the chief executive officer was changed from dean to president, with separate deans for each of the schools. By the late 1960s, with six fully operational schools of professional education in the health sciences, the Medical College of South Carolina had become an institution of university size and scope. In 1969, the state legislature changed the name to the Medical University of South Carolina. By this act it established MUSC as the state's only free standing academic health sciences center, exclusively providing a full range of professional education, clinical services and biomedical research.

In 1970 the six schools of the university were designated as colleges, each with its separate administration and faculty organization. Each college awards appropriate degrees along standard academic lines connected with its educational activities. All professional education programs and the MUSC Medical Center are accredited by the appropriate professional accrediting agency.

OFFICE OF INTERPROFESSIONAL INITIATIVES
Dr. Jeff Borckardt, Assistant Provost Interprofessional Initiatives

The Office of Interprofessional Initiatives (OII) at MUSC was originally formalized through our last QEP (Creating Collaborative Care) under the direction of Dr. Amy Blue. At the time, OII was focused on development of educational opportunities, activities and resources to promote student appreciation and understanding of different professionals' roles in the healthcare system. These aims were met with overwhelming success; however, the application of the IP educational concepts and IP teamwork in the health system remains under-developed at MUSC (see Institutional Data section).

Under its new Director (July 2014), OII has evolved its mission and purpose. The new OII is responsible for creating opportunities and implementing programs to improve patient health and clinical outcomes, reduce excess healthcare costs, enrich educational experiences, and enhance research collaboration through the implementation of interprofessional, synergistic, team-based clinical, educational and research initiatives at MUSC.

The Office aims to integrate students and professionals across Colleges with the goal of improving satisfaction, efficiency, profitability, value, innovation, marketability and scientific rigor in all educational, clinical and research activities. The Office of Interprofessional Initiatives is served by a board of appointed Associate Directors as well as a Student Advisory Board and the Interprofessional/Interdisciplinary Advisory Council (Chair: Dr. Pilcher). The charge of the Interprofessional/Inter-Disciplinary (IPID) Advisory Council is to build upon and strengthen the mission of the Office of Interprofessional Initiatives by creating, evaluating, and propagating University-wide interprofessional (IP) endeavors in collaboration with the Office. Responsibilities of the Advisory Council are to advise the Directors of the Office of Interprofessional Initiatives on matters pertinent to its mission as well as generate ideas and develop programs to be evaluated and prioritized by the Office Directors. Members of the Advisory Council are appointed by the Chair and the Assistant Provost for Interprofessional Initiatives. Council members hold one-year appointments, but there are no limits on consecutive terms served.

Each Advisory Council member represents interests related to specific Interdisciplinary foci and works to support the intended growth and advancement of MUSC as a national leader in interprofessional education, research and clinical practice. Our new QEP and its required resources will be administered through the OII and through its reach will impact all six Colleges at MUSC. The Associate Directors of OII each serve a unique function and have the responsibility of oversight and accountability for programs, activities and resource allocation pertaining to their purview.

Dr. Mary Mauldin is the Associate Director for Education and oversees all IP course listings and our annual IP-day event. She works with curriculum committees from all of the colleges to ensure content-relevance and accreditation-relevance of the required IP710 course and IP-day. She will be responsible for overseeing curriculum modifications of IP710 pertaining to the addition of teamwork skills training and educational materials pertaining to the application of IP education in practice and research.
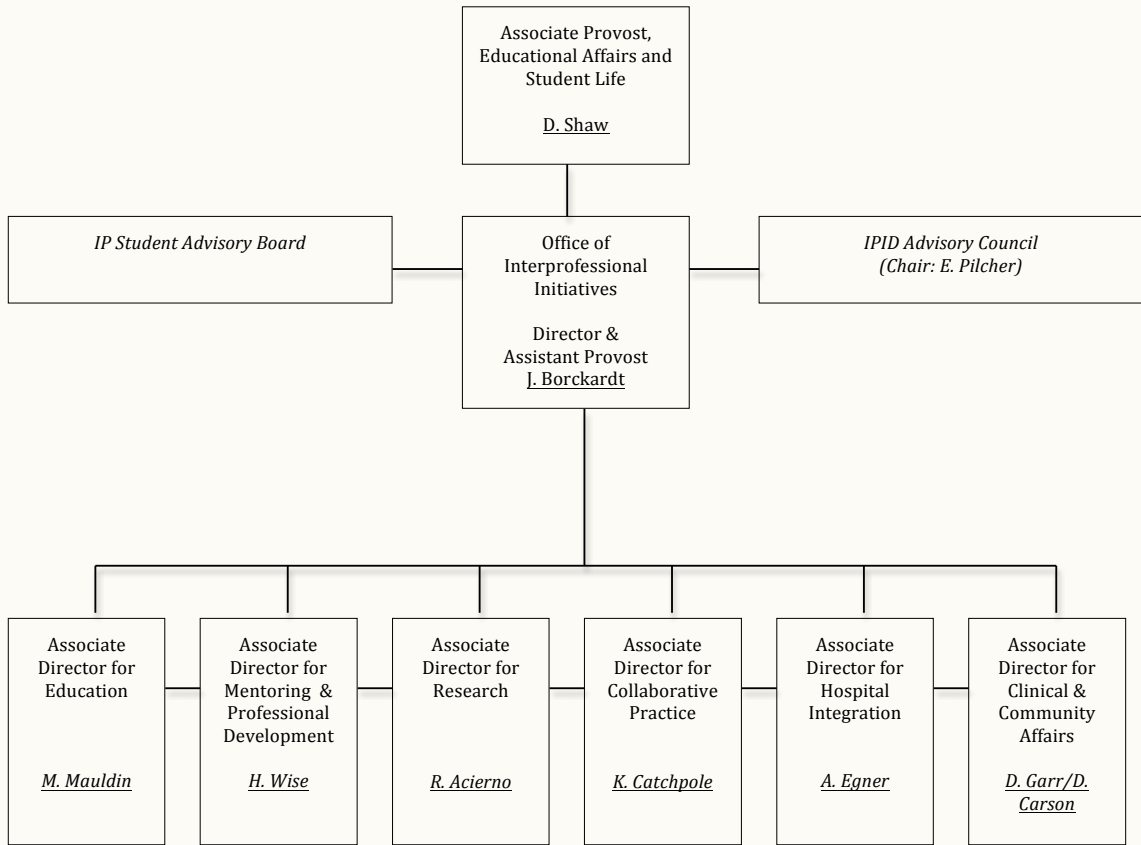
Dr. Holly Wise (College of Health Professions) is the Associate Director for Mentoring and Faculty Development. She oversees IP training and evaluation of faculty and staff at the institution that are involved as IP teachers, facilitators, mentors and clinical supervisors. She will be involved with the development of educational planning and resources surrounding faculty and staff skills pertaining to teamwork, communication and collaborative practice.

Angela Egner (Chief Learning Officer, MUSC Medical Center) is the Associate Director for Hospital Integration. She oversees the institution's new learning system MyQuest, and, in collaboration with Dr. Wise, will be involved with the development of faculty and staff educational modules in areas pertaining to teamwork skills, communication, and collaborative practice.

Dr. Ron Acierno (College of Nursing) is the Associate Director for Research. He will work with the Office of Institutional Effectiveness to ensure relevant and appropriate metrics are used to evaluate the success of our QEP.

Dr. Kenneth Catchpole (College of Medicine) is the Associate Director for Collaborative Practice. He will work with Dr. Mary Mauldin as well as Dr. Wise and Angela Egner to ensure coordination between student educational experiences and faculty/staff skills for teaching applied teamwork, communication and collaborative practice at MUSC.

Drs. David Garr and **Deborah Carson** (College of Medicine; College of Pharmacy) are the Associate Directors for Clinical and Community Affairs. Dr. Garr is the Executive Director for South Carolina's Area Health Education Consortium. They will coordinate educational efforts for students, faculty, staff and residents in MUSC's community-based clinical rotations across the State.

Associate Provost, Educational Affairs and Student Life

D. Shaw

IP Student Advisory Board

Office of Interprofessional Initiatives

Director & Assistant Provost
J. Borckardt

IPID Advisory Council
(Chair: E. Pilcher)

Associate Director for Education	Associate Director for Mentoring & Professional Development	Associate Director for Research	Associate Director for Collaborative Practice	Associate Director for Hospital Integration	Associate Director for Clinical & Community Affairs
M. Mauldin	H. Wise	R. Acierno	K. Catchpole	A. Egner	D. Garr/D. Carson

BUILDING UPON OUR PREVIOUS QEP

Our previous QEP "Creating Collaborative Care (C3)" responded to the growing push in 21st-century healthcare for expanded, coordinated interprofessional service delivery. C3 sought to improve students' knowledge, values, and attitudes regarding interprofessional collaboration principles and standards. Via the resources availed by MUSC through C3 (including development of the Office of Interprofessional Initiatives, the IP710 course, IP electives, and IP-Day) we hoped that students would acquire knowledge, including the values and beliefs, of health professions different from their own discipline that would enable them to define interprofessional health care delivery. C3 was highly successful to these ends.

However, with respect to the development of students' applied teamwork skills and the application of those skills in collaborative interprofessional healthcare delivery and research settings, C3 fell considerably short (see Institutional Data section below).

After review of the institutional data surrounding C3, key relevant stakeholders at MUSC indicated that our next QEP should build on the successes of C3 and the institutional resources availed by it by focusing specifically on developing, fostering and evaluating students' applied teamwork skills in clinical and research settings.

INSTITUTE OF MEDICINE (IOM) REPORT

In the April 2015 Institute of Medicine Report entitled "Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes"[1], critical issues pertaining to the future of interprofessional education and collaboration practice were addressed. Interprofessional education (IPE) occurs when learners of two or more health and/or social care professions engage in learning with, from, and about each other to improve collaboration and the delivery of care. Although the value of IPE has been embraced around the world—particularly for its impact on learning—many in leadership positions have questioned how IPE affects patient, population, and health system outcomes.

The IOM committee highlights four areas that, if addressed, would lay a strong foundation for evaluating the impact of IPE on collaborative practice and patient outcomes:

(1) more closely aligning the education and health care delivery systems;

(2) developing a conceptual framework for measuring the impact of IPE;

(3) strengthening the evidence base for IPE; and

(4) more effectively linking IPE with collaborative behavior.

To address the current lack of broadly applicable measures of collaborative behavior, the report recommends that interprofessional stakeholders, funders, and policy makers commit resources to examine the association between IPE and collaborative behavior, including teamwork and performance in practice.

Development of our QEP Topic:

Applied Interprofessional Teamwork in Healthcare Delivery and Scientific Research

Due to the complexity of IPE and the environments in which it takes place, and given the wide array of confounding variables that could affect validity of the results, the committee also recommends that health professions educators and academic and health system leaders should adopt a mixed-methods research approach for evaluating the impact of IPE on health and system outcomes. When possible, such studies should include an economic analysis and be carried out by teams of experts that include educational evaluators, health services researchers, and economists, along with educators and others engaged in IPE.

Figure 1. The interprofessional learning continuum model (IOM, 2015)
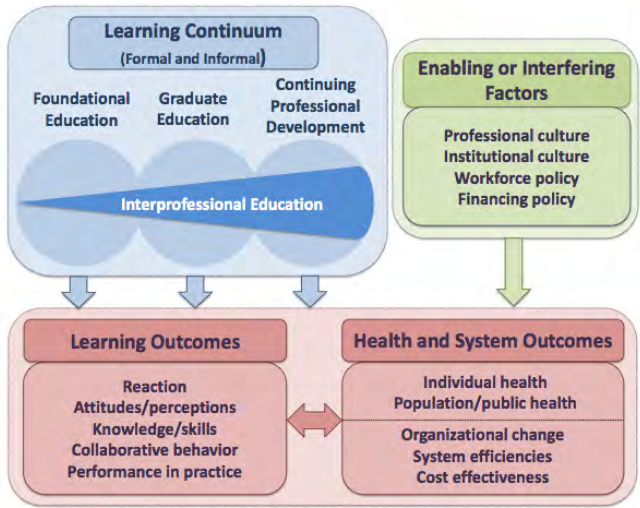
NOTE: For this model, "graduate education" encompasses and advanced formal or supervised health professions training taking place between completeion of foundational education and entry into unsupervised practice.

After determining that no existing models sufficiently incorporate all of the necessary components to guide future studies, the committee developed a conceptual model (Fig. 1) that includes the education-to-practice continuum, a broad array of learning, health, and system outcomes, and major enabling and interfering factors. This model is proposed with the understanding that it will need to be tested empirically and may have to be adapted to the particular settings in which it is applied.

The Medical University of South Carolina is well positioned to engage in formal efforts to enhance student learning outcomes in areas directly relevant to the IOM-report recommendations.

MUSC is a national leader in interprofessional education and is an incubator site for the National Center for Interprofessional Practice and Education. Over the past decade we have focused on the development of rich interprofessional curricula, courses, programs, and activities, and we have positioned ourselves again to be national leaders as we move to the next level of student engagement in the national trends in interprofessionalism.

Specifically, we are ready to move interprofessionalism from the classroom to the clinic. MUSC's QEP will move interprofessionalism from the theoretical to the applied, by focusing our student learning outcomes on applied skills in collaborative teamwork in clinical care and health research.

Data collected from our last QEP suggest outstanding institutional success and numerous accomplishments in interprofessional education (IPE). One area representing major growth was the development of several University-wide course offerings through the Office of Interprofessional Initiatives.

These courses include:

- IP 710   Transforming Healthcare
- IP 700   Caring for the Community
- IP 707   Addressing Childhood Obesity – Jr. Doctors of Health
- IP 722   Medical Mission/International Health
- IP 724   Introduction to Public Health with Global Context
- IP 732   Topics in the History of the Health Sciences
- IP 736   Introduction to Ultrasound
- IP 740   Clinical Breast Care: Diagnosis and Management of Breast Diseases
- IP 744   Study of Autism Spectrum Disorders and Neurodevelopmental Disabilities II
- IP 746   Community Engagement: Strategies for Success
- IP 750   Medical Humanities Research
- IP 752   Independent Studies

MUSC Institutional Data

Core Requirement 2.12

Together these courses have reached over 4,800 students at MUSC, and the IP710 course is the University's first interprofessional required course for students in the College of Medicine, College of Pharmacy, College of Dental Medicine, College of Health Professions and the College of Nursing. Additionally, MUSC has implemented a University-wide Interprofessional Day wherein students from all six Colleges attend presentations, keynote addresses and interactive break-out sessions together. MUSC developed the Presidential Scholars program in which students from different Colleges to work together as interprofessional groups on community and service-learning projects. MUSC students also form small interprofessional groups to compete in the National CLARION competition which involves critical thinking and collaborative problem solving to address significant public health concerns.

Data from the 2011-2014 (Association of American Medical Colleges) AAMC survey of graduating seniors (n=~160 each year) suggest that MUSC has excelled nationally in providing required interprofessional extracurricular opportunities to students. Since 2011, 95% or more MUSC medical students answered yes to the question "Have you participated in any required extra curricular activities where you had the opportunity to learn with students from different health professions?" While other schools in the AAMC have been improving on this item over time, MUSC is still a clear leader. (Fig.2)
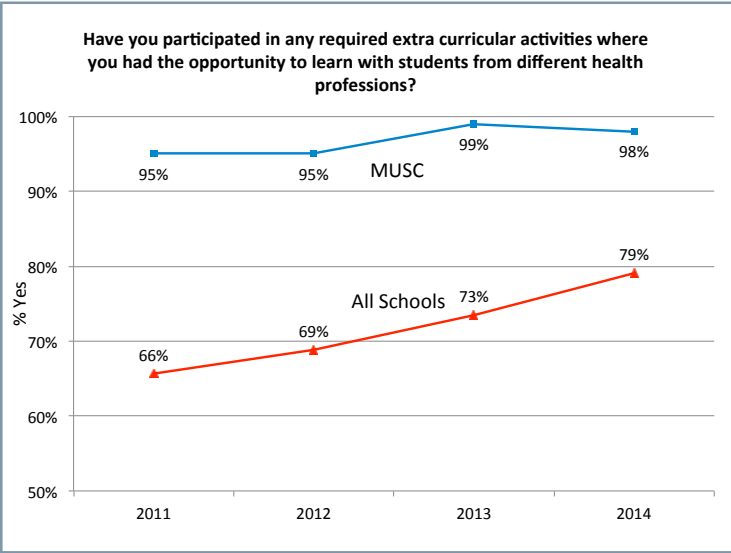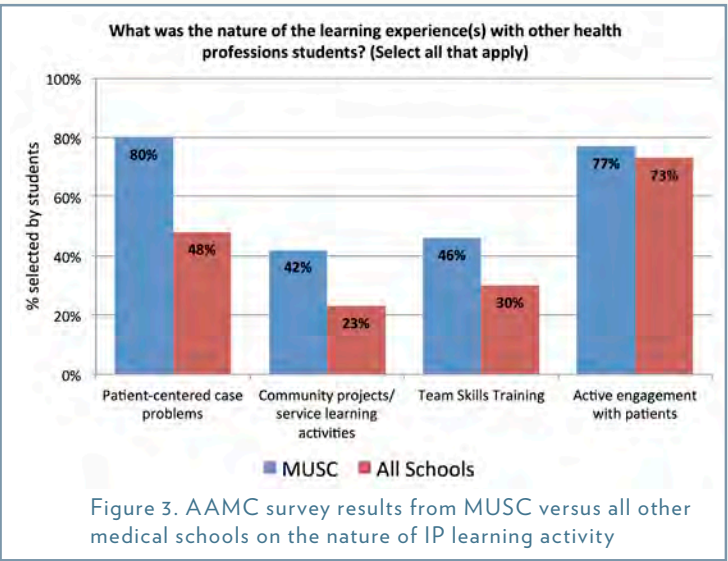

Figure 2. AAMC survey results from MUSC versus all other medical schools.

Figure 3. AAMC survey results from MUSC versus all other medical schools on the nature of IP learning activity

Figure 4. Absolute difference between MUSC and all other AAMC schools in percent of students responding positively to each of the four interprofessional learning activities measured

Figure 5. Least-square regression trend-lines of student survey ratings over time on 3 key items from the IP710 course evaluation

When we examine the specific nature of the learning experiences shared between different health professions, MUSC offers substantially more opportunity than other AAMC schools for shared learning around patient-centered case problems and community projects/ service learning activities (Fig. 3). However, as the content shifts to the more applied arena such as team skills training and active engagement with patients, our margin begins to shrink. In fact, when absolute margins between MUSC and all other AAMC schools are examined on a continuum from "classroom/conceptual" to "practical/applied" (as shown in Fig. 4), it reveals that MUSC students need more experience in the practical application of interprofessional teamwork skills.
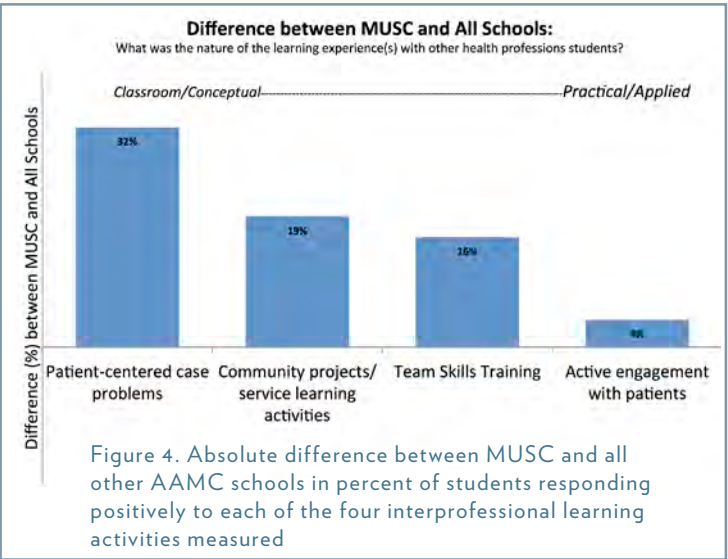
A similar trend emerges in student ratings of the required IP710 course (n=~400 students per semester). Over time, we observe upward trends in student ratings of their "knowledge about specific professions", and their "appreciation of IP collaboration". However, the more applied element "teamwork skills" is consistently poorly rated and on the decline. This further supports that there is an institutional need to improve student learning in the applied arena of interprofessional teamwork skills (Fig. 5).

To examine the impact of clinical training on interprofessional learning, the Readiness for Interprofessional Learning Scale (RIPLS) was administered to all medical and pharmacy students in 2011 prior to their clinical rotations (i.e., after the majority of classroom/lectures were completed), and immediately following them (i.e., after students had opportunities to put their coursework into practice; n=~200).

We hypothesized that factors from the RIPLS pertaining to "teamwork and collaboration" and to "IP roles and responsibilities" would increase after completion of their clinical education activities because they would have the opportunity to learn about interprofessional collaboration in action. However, our data suggest that the impact of the clinical rotations on IP teamwork, collaboration, roles and responsibilities was virtually unchanged pre- to post-clinical training (Fig. 6).

This underwhelming finding again suggests that MUSC has an opportunity to improve student learning in the application of IP teamwork and collaboration.
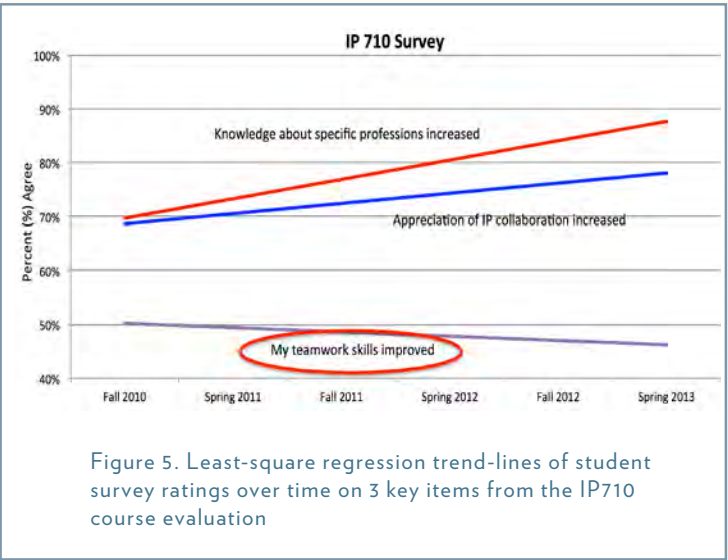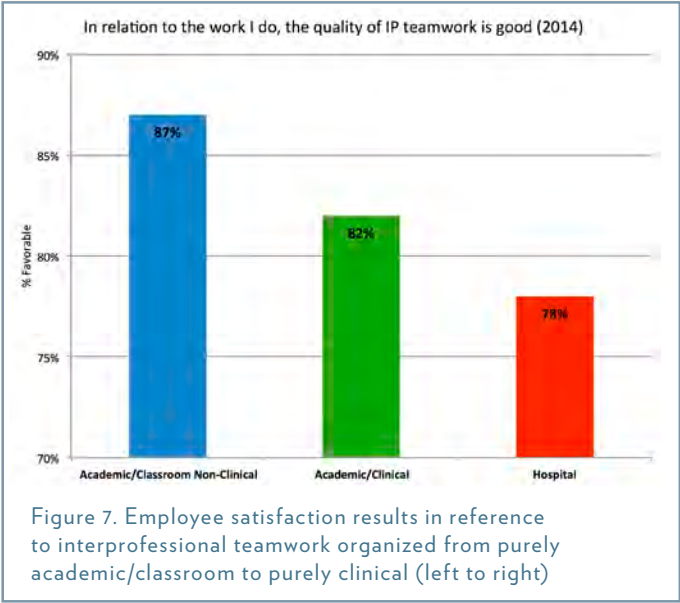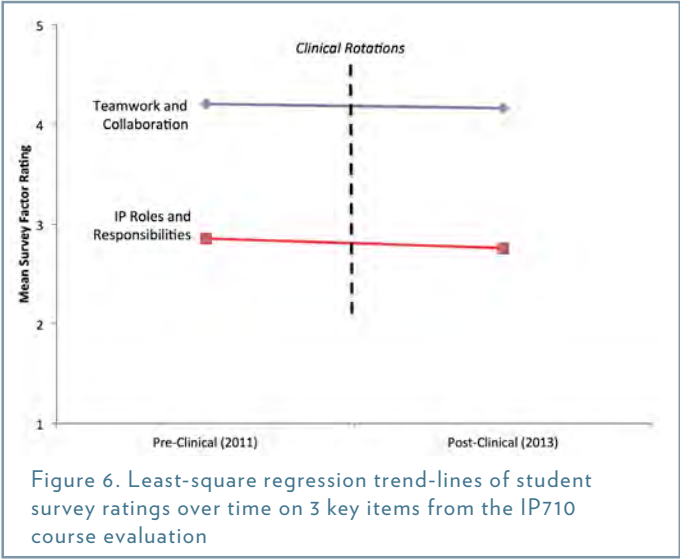
From 2012 to 2014, MUSC and the Medical Center, in conjunction with Press Ganey (a national consulting group in the healthcare industry), administered an employee satisfaction survey.

One of the items of interest used was "In relation to the work I do, the quality of interprofessional teamwork is good." When we divide the respondents into three categories representing the continuum from classroom to clinical (total n=~5000), a familiar trend emerges. There is a high degree of favorable responses to the interprofessional teamwork item among employees in the academic/classroom/non-clinical areas, but as we move to the integrated academic/clinical and to the purely clinical service-delivery areas, rates of favorable responses decline (Fig. 7).

These findings support that interprofessional teamwork has impacted the academic domains of the institution but there is work to do when it comes to the application of teamwork in the clinical settings at MUSC. While these results do not directly represent student perspectives per se, these findings are of great importance because they reflect the nature of the clinical learning environment and its current (limited) capacity to support and facilitate teamwork among students.

Lastly, to determine the impact of interprofessional education at MUSC on patient satisfaction with clinical services, we examined data from our Avatar Patient Satisfaction Survey from 2010-2014 (n=414). We focused on one specific item, "There was good teamwork among the doctors, nurses, therapists, and other staff who cared for me." Data suggest a relatively stable trend over time with a mean score of 90.75 out of 100. Although this seems to suggest reasonably positive perceptions of teamwork by patients, when all of the items from the Patient Satisfaction Survey are rank-ordered from best (MUSC's highest scoring items) to worst (areas that patients were highly dissatisfied with), the interprofessional teamwork item falls in the 35th percentile. Teamwork is in the bottom half of all of the things patients see as strengths of clinical services offered by MUSC. Given the University's emphasis on developing interprofessional educational initiatives, it is disappointing that these efforts are not yet having a positive impact on the community we serve.

Overall, we have successfully established a rich academic environment for exposing students to interprofessional concepts and ideas at MUSC, and student ratings of their educational experiences suggest excellent knowledge about, and appreciation for interprofessional concepts. However, opportunities exist for the development of applied teamwork skills and real-world interprofessional clinical and research experiences as our data suggest that we fall short of adequately transitioning IP concepts from classroom to clinic. From the faculty and staff perspective, perceptions regarding the application of interprofessional teamwork concepts appear strong in academic/classroom settings, but there is a relative weakness in interprofessional applications in the clinical arena. And, despite our interprofessional classroom and academic efforts, patients do not view the services they receive at MUSC to be especially strong with respect to coordinated, interprofessional, team-based care concepts.

Figure 6. Least-square regression trend-lines of student survey ratings over time on 3 key items from the IP710 course evaluation

Figure 7. Employee satisfaction results in reference to interprofessional teamwork organized from purely academic/classroom to purely clinical (left to right)

Involvement of relevant stakeholders at MUSC in QEP Development

Comprehensive Standard 3.3.2

Dr. Jeff Borckardt (Director of the Office for Interprofessional Initiatives) and Dr. Suzanne Thomas (Director of the Office of Institutional Effectiveness) approached numerous leadership teams representing all relevant stakeholders in the QEP process at MUSC. All constituent groups were given an overview of the SACSCOC accreditation process, timeframe and detailed requirements for the development of a successful QEP. Data from the previous QEP was reviewed. Each member of each stakeholder group was given a 4X6 note card (color-coded for each group). Participants were asked to write down their ideas for MUSC's next QEP.

Several MUSC stakeholder groups were involved in the QEP topic selection process. A list of the meetings along with the date, a description of each committee's charge (when available), and members present are provided.

EDUCATION AND STUDENT LIFE ADVISORY COMMITTEE MEETING
MARCH 23, 2015 | COLCOCK BOARDROOM AT 10:30AM

The purpose of the Education and Student Life Advisory Committee is to keep the colleges apprised of what is happening in the student support services and to receive colleges' input about supporting students. The Associate Deans of students in each college also use this meeting to inform each other and student services directors of relevant activities and needs in their college.

In attendance:

- Dr. Darlene Shaw – Associate Provost for Educational Affairs and Student Life

- Ms. Wendy Littlejohn – Executive Director Education and Student Life Administration

- Dr. Jeff Borckardt – Director, Office of Interprofessional Initiatives

- Dr. Suzanne Thomas – Director, Office of Institutional Effectiveness

- Dr. Roger Poston – Information Services, OCIO

- Dr. Cynthia Wright – Associate Dean for Admissions and Career Development, College of Graduate Studies

- Dr. Karen Wager – Associate Dean for Student Affairs, College of Health Professions

- Dr. John Freedy – Associate Dean for Student Affairs, College of Medicine

- Dr. Cathy Worrall – Assistant Dean for Student Affairs and Experiential Education, College of Pharmacy

- Dr. Lindsey Hamil (for Dr. Tariq Javed, Associate Dean for Academic & Students Affairs)

- Ms. Mardi Long – Director, Student and Alumni Relations, College of Nursing

- Mr. Kevin Smuniewski (for Willette Burnham, Executive Director of the Office of Student Programs and Student Diversity)

- Dr. Jennie Ariail – Director, Center for Academic Excellence and the Writing Center

- Mr. George Ohlandt – Executive Director, Office of Enrollment Management

- Dr. Alice Libet – Director, Counseling and Psychological Services

- Dr. Shannon Jones - Assistant Director of Libraries for Program Development and Resource Integration

- Dr. Larry Blumenthal – Director, Student Health Services

- Ms. Janis Newton – Director, Student Wellness Center

- Dr. Mary Mauldin – Executive Director, Instructional Technology and Faculty Resources

INTERPROFESSIONAL / INTER-DISCIPLINARY ADVISORY COUNCIL MEETING
APRIL 6, 2015 | BSB 451 AT 11AM

The charge of the Interprofessional/Inter-Disciplinary (IPID) Advisory Council is to build-upon and strengthen the mission of the Office of Interprofessional Initiatives by creating, evaluating, and propagating University-wide interprofessional (IP) endeavors in collaboration with the Office. Responsibilities of the Advisory Council are to advise the Directors of the Office of Interprofessional Initiatives on matters pertinent to its mission as well as generate ideas and develop programs to be evaluated and prioritized by the Office Directors. Members of the Advisory Council will be appointed by the Co-Chairs of the IPID Advisory Council and the Assistant Provost for Interdisciplinary Initiatives. Council members shall hold one-year appointments, but there will be no limits on consecutive terms served. Each Advisory Council member will represent interests related to specific Interdisciplinary foci and will work to support the intended growth and advancement of MUSC as a National leader in interprofessional education, research and clinical practice.

In attendance:

- Betsy Pilcher, DMD - Associate Dean for Institutional Effectiveness, College of Dental Medicine

- Kelly Ragucci, Pharm. D. - Chair, Department of Clinical Pharmacy and Outcomes Sciences

- David McNair - Facilitator, IPID Advisory Council

- Jeff Borckardt, PhD. - Assistant Provost, Interprofessional Initiatives

- Stephen Hargett - Chief Financial Officer, MUSC Medical Center

- Mark Lyles, MD, MBA - Chief Strategic Officer, MUSC Heath

- Judy Dubno, PhD - Professor, Department of Otolaryngology - Head and Neck Surgery

- Mulugeta Gebregziabher, PhD - Associate Professor, Department of Public Health Sciences

- Royce Sampson, MS - Research Assistant Professor, SCTR Institute (CTSA)

- Nancy E. Carson, PhD, OTR/L - Assistant Dean of Academic and Faculty Affairs

- Phil Smeltzer, PhD. - Program Administrator, Population Health

STUDENT GOVERNMENT ASSOCIATION MEETING
APRIL 8, 2015 | HARPER CENTER AUDITORIUM AT 5:30PM

The SGA is the unified voice of MUSC's six colleges, ensuring that student concerns are addressed at a university level in order to improve the educational environment of all students. Students represent their respective classes as an SGA Representative in order to address student concerns and get involved in the university community. The SGA also provides outstanding extracurricular activities to all MUSC students. They work closely with the Student Programs Office to offer intramural sports as well as cultural, service and social events.

In attendance: • Officers and approximately 45 members headed by Stephen Thompson, President of SGA.

FACULTY SENATE MEETING | APRIL 14, 2015 | GAZES AUDITORIUM AT 8:00AM

The mission of the MUSC Faculty Senate is to represent the views, needs, and interests of faculty in the educational, research, and service programs of the university. As the representative body of the Medical University of South Carolina faculty, the Faculty Senate is the faculty voice whose recommendations reflect and advocate the faculty's collective interests to further the university's mission.

In attendance: • Members of the Faculty Senate lead by Dr. Tom Smith, President.

EDUCATION ADVISORY COMMITTEE MEETING | MAY 5, 2015
COLCOCK BOARDROOM AT 11:00AM

The group comprises the associate deans for education, a library representative, an OCIO representative, an institutional effectiveness representative, and an interprofessional initiatives representative. The group oversees MUSC's course evaluation software, renders initial approval of new programs and program modifications, and acts as liaison to the deans on educational matters that would affect all colleges.

In attendance:

- Dr. Jennie Ariail, Director, Center for Academic Excellence and the Writing Center
- Dr. Jeff Borckardt, Director, Office of Interprofessional Initiatives
- Dr. Larry Blumenthal, Director, Student Health Services
- Dr. John Freedy, Associate Dean for Student Affairs, College of Medicine
- Dr. Lindsey Hamil, For Dr. Tariq Javed, Associate Dean for Academic & Students Affairs
- Ms. Shannon Jones, Assistant Director of Libraries for Program Development and Resource Integration
- Dr. Alice Libet, Director, Counseling and Psychological Services
- Ms. Wendy Littlejohn, Executive Director for ESL Administration
- Ms. Mardi Long, Director, Student and Alumni Relations, College of Nursing
- Dr. Mary Mauldin, Executive Director, Instructional Technology and Faculty Resources

- Ms. Janis Newton, Director, Student Wellness Center
- Mr. George Ohlandt, Executive Director, Office of Enrollment Management
- Dr. Roger Poston, Information Services, OCIO
- Dr. Darlene Shaw, Associate Provost for Educational Affairs and Student Life
- Mr. Kevin Smuniewski, for Willette Burnham, Director of Office Diversity
- Dr. Suzanne Thomas, Director, Office of Institutional Effectiveness
- Dr. Karen Wager, Associate Dean for Student Affairs, College of Health Professions
- Dr. Cathy Worrall, Assistant Dean for Student Affairs and Experiential Education, College of Pharmacy
- Dr. Cynthia Wright, Associate Dean for Admissions and Career Development, College of Graduate Studies

MUSC HOSPITAL QUALITY OPERATIONS MEETING
MAY 7, 2015 | CLINICAL SCIENCE BUILDING ROOM 300 AT 9:40AM

The purpose of the meeting is to review and evaluate the MUSC Organizational Performance Measures and Medical Center Operations.

In attendance:

- Carol Balabushka, CAUTI Prevention Nurse
- Jim Brook, Service Line Administrator: Hollings Cancer Center
- Kay Burke, Chief Nursing Information Officer
- Leigh Darby, Spine Center Service Line Administrator
- Andrea Coyle, Dir., Clinical Excellence and Magnet Program
- Sharon De Grace, Admin, Med. Acute Critical Care/Surgery

- Acute Critical Care
- Mike Denham, Admin, Perioperative Services
- Betts Ellis, Institutional Relations, Hospital Administration
- Heather Easterling, Dir., Pharmacy Services
- Melissa Forinash, Epic Training and Support
- Linda Formby, Mgr., Infection Prevention/Control

- Amy Hauser, Service Line Administrator: Transplant
- Dan Handel, Chief Medical Officer, MUSC Medical Center
- Darcy Kalles, Service Line Administrator: Heart Transplant
- Mark Lyles, Chief Strategic Officer, MUSC Medical Center
- David McLean, Sr. Health Care Counsel
- Robin Mutz, Administrator, Women's Health
- Tracie Porter, Sr. Exec. Admin Coord. to Chief Quality Officer
- Sally Potts, Dir., Therapeutic Services
- Steve Rublee, Service Line Administrator: Neurology and Psychiatry
- Bart Sachs, Director, MUSC Center for Innovation
- Cassie Salgado, Dir., Infection Prevention/Control

- John Sanders, FMR Dean, College of Dental Medicine
- Sheila Scarbrough, Dir., Quality/Risk Mgt.
- Marilyn Schaffner, Chief Nursing Officer, MUSC Medical Center
- Danielle Scheurer, Chief Quality Officer, MUSC
- Brian Sloan, Service Line Administrator, Digestive Disease Center
- Robert Warren, Chief Medical Information Officer
- Elizabeth Williams, Blood Marrow Transplant Program Quality Coordinator
- Amy Wilson, Dir., Value Institute

DEAN'S COUNCIL MEETING
MAY 18, 2015 | COLCOCK BOARDROOM AT 9:00 AM

The purpose of the Deans' Council is to facilitate periodic direct meetings between the academic deans and Provost. The group approves all academic programs, and all University-wide policies pertaining to students. The group has recently been renamed the Provost's Council.

MEMBERSHIPS: Nine (9) voting members, all ex-officio, shall consist of the Vice President for Academic Affairs and Provost, the six academic deans (colleges of Dental Medicine, Graduate Studies, Health professions, Medicine, Nursing and Pharmacy), the Associate Provost for Educational Affairs and Student Life, and the Director of Libraries and Learning Resources Center.

In attendance:

- Dr. Mark Sothmann, Vice President and Provost, MUSC
- Dr. Darlene Shaw, Associate Provost for Educational Affairs and Student Life
- Dr. Jeff Borckardt, Assistant Provost for Interprofessional Initiatives
- Dr. Karen Wager, Associate Dean, Student Affairs, College of Health Professions
- Dr. Philip Hall, Dean, SC College of Pharmacy
- Dr. Thomas Basler, Director, Libraries and Learning Resources Center
- Dr. Deborah Deas, Interim Dean, College of Medicine
- Dr. David Garr, Director, South Carolina AHEC

- Ms. Loretta Lynch-Reichert, Director, Office of Strategic Initiatives and Policy Management
- Dr. Jakie McGinty, Interim Dean, College of Graduate Studies
- Dr. Roger Poston, Chief Operating Officer, Information Services
- Dr. John Sanders, Dean, College of Dental Medicine
- Dr. Gail Stuart, Dean, College of Nursing
- Ms. Cynthia Teeter, University Compliance Officer
- Dr. Suzanne Thomas, Director, Office of Institutional Effectiveness
- Mr. Bart Yancey, Director of Business and Administrative Services, Office of the Provost

COM UNDERGRADUATE CURRICULUM COMMITTEE MEETING
JUNE 19, 2015 | CSB 628 AT 12-1:30PM

The College of Medicine Undergraduate Curriculum Committee is responsible for the content, quality, and effectiveness of college curricula and exercises jurisdiction over all matters pertaining to the curricula.

In attendance:

- Mr. Kemp Anderson, Student, College of Medicine
- Dr. David Bernanke, Faculty, College of Medicine
- Dr. Courtney Brady, Faculty, College of Medicine
- Dr. Thomas Brouette, Faculty, College of Medicine
- Dr. Philip Costello, Faculty, College of Medicine
- Dr. Deborah Deas, Interim Dean, College of Medicine
- Dr. Deborah DeWaay, Faculty, College of Medicine
- Dr. Terry Dixon, Faculty, College of Medicine
- Dr. John Freedy, Assoc. Dean, Faculty Affairs
- Dr. Debra Hazen-Martin, Assoc. Dean for Curriculum in the Basic Sciences, College of Medicine
- Dr. Yi-te Hs, Faculty, College of Medicine
- Dr. Jeanne Hill, Faculty, College of Medicine
- Dr. John Hildebrandt, Faculty, College of Medicine

- Dr. Chanita Hughes-Halbert, Assoc. Dean for Assessment & Evaluation
- Dr. Laura Kasman, Faculty, College of Medicine
- Dr. Lee Leddy, Faculty, College of Medicine
- Dr. Mary Mauldin, Faculty, Department of Library Science and Informatics
- Dr. Paul McDermott, Assoc. Dean for Faculty Affairs and Faculty Development
- Ms. Mallory Roberts. Student, College of Medicine
- Dr. Myra Haney-Singleton, Assoc. Dean for Student Affairs and Student Wellness
- Dr. Dan Smith, Assoc. Dean, Faculty Development, College of Medicine
- Dr. Cynthia Welsh, Faculty, College of Medicine

TOPIC SELECTION PROCESS

The QEP topics suggested at each of these meetings via the color-coded notecards were collected and compiled. The hand-written suggestions were transcribed into an electronic data-sheet for content analysis. In total 91 QEP ideas were submitted during the stakeholder meetings. Once transcribed, each of the 91 QEP idea was reviewed by two independent judges and placed into one or more of 15 different content categories that were created based on the range of suggestions submitted. Each idea could fall into more than one category. Inter-judge concordance of content area assignment was 95.71%. The content areas, along with the percentage of submitted ideas falling into each are presented below:

These results suggest a high degree of institutional stakeholder agreement and enthusiasm for building upon our last QEP and moving interprofessionalism from the classroom to the clinic by focusing on teamwork in healthcare and research settings. Specifically, the majority of respondents indicated that focusing our student learning objectives on the development of applied interprofessional teamwork skills would make for an outstanding next QEP at MUSC.

Teamwork and Interprofessionalism in Practice	**53%**	TeleHealth	2%
Community Outreach:	11%	Evidence-Based Practice	2%
Technology Resource Integration	9%	Self-Care	2%
Clinical Research	8%	Diversity	2%
Alignment of Shared Classroom Resources	8%	Ethics	1%
Population Health	7%	Ultrasound Education	1%
Simulations	7%	Humanities in Health	1%
Quality Improvement	3%		

TEAM UP FOR BETTER HEALTH

OUR QEP FOCUS | FORMING OUR QEP COMMITTEE

On July 14th 2015, Dr. Jeff Borckardt (Assistant Provost and Director of the Office of Interprofessional Initiatives), Dr. Suzanne Thomas (Director of the Office for Institutional Effectiveness) and Dr. Darlene Shaw (Associate Provost for Education and Student Life) met to review the results of the tabulated QEP topic-suggestions collected at the stakeholder meetings.

Since a clear majority of institutional stakeholders at MUSC suggested applied interprofessional teamwork skills training as our next QEP topic, these leaders discussed QEP committee membership in a strategic effort to ensure all relevant institutional constituents would be represented. Additional considerations used to recommend QEP committee membership were the unique skillset(s), experience(s), and expertise of individuals in the area of teamwork education and interprofessional collaborative practice.

A list of potential members for the QEP committee was then submitted to the Provost for approval and solicitation of membership (Fig. 8).

- Willette S. Burnham, Ph.D., Executive Director, Student Programs and Diversity
- Deborah Deas, M.D., Interim Dean, College of Medicine
- Angela Egner, Chief Learning Officer, MUSC Medical Center
- David Garr, M.D., Executive Director, South Carolina AHEC
- Philip D. Hall, Pharm.D., Dean, College of Pharmacy
- Tariq Javed, D.M.D., Associate Dean for Academic and Student Affairs, CDM
- William P. Moran, M.D., Director, General Internal Medicine & Geriatrics
- Lisa Saladin, Ph.D., Dean, College of Health Professions
- Danielle Scheurer, M.D., Chief Quality Officer, MUSC Medical Center
- Gail W. Stuart, Ph.D., Dean, College of Nursing
- Paula Traktman, Ph.D., Dean, College of Graduate Studies
- Matt Wain, Chief Operating Officer, MUSC Medical Center

Figure 8. Letter from the Provost soliciting participation in the MUSC QEP Committee

Invitees were encouraged to appoint a back-up QEP committee member from their particular area in the case that they were not available to serve personally.
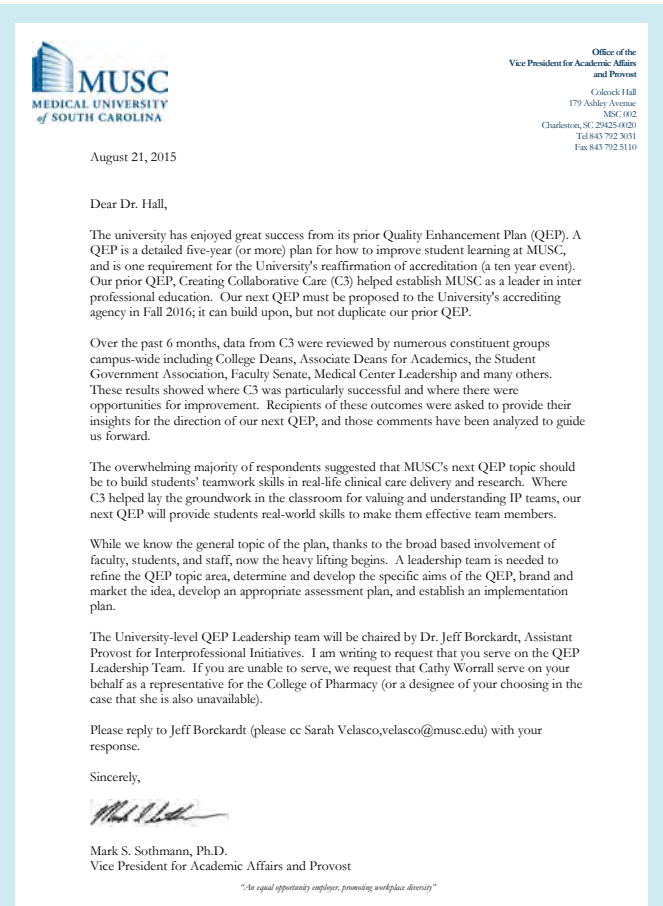
OUR QEP THESIS AND BROAD GOALS

Our overall goal is to provide students real-world skills to make them effective team members in complex evolving healthcare and scientific research teams. Our QEP, "Team-Up for Better Health," will provide the foundation for students to excel in applications of interprofessional teamwork in healthcare delivery and research. The specific goals of Team-Up for Better Health are twofold:

1. Improve the learning environment to foster students' acquisition of teamwork skills

2. Graduate students with practice-relevant teamwork skills and experience

By providing students with hands-on, applied experience and training in team-based care and research, we will enhance the quality of future healthcare by teaching students how to improve clinical outcomes, patient safety, and innovative scientific discovery in an age where healthcare delivery is moving steadily toward patient-centered, team-based collaborative care models.

INSTITUTIONAL IMPORTANCE OF OUR TOPIC

Interprofessional education is tremendously important at MUSC and interprofessional collaboration is one of our core institutional values . MUSC made great progress in the area of Interprofessional Education during our last QEP and we were highly successful in improving students' knowledge, attitudes, and beliefs about the importance of interprofessionalism and teamwork in healthcare. Nevertheless, our last QEP failed to yield tangible, applied, teamwork skills among our students, and these skills will be instrumental for the success of our students as they enter the healthcare workforce. Many of the assets developed during our last QEP, including the Office of Interprofessional Initiatives (OII), the IP710 course, and IP-Day will serve as the backbone for our new QEP. Building on the institutional data collected and utilizing the direct input and feedback from institutional constituents representing all Colleges, students, faculty, and the MUSC Medical Center, our new QEP will refocus MUSC's efforts in interprofessionalism towards the development of applied teamwork skills.

TEAMSTEPPS® 2.0 FRAMEWORK

The Agency for Healthcare Research and Quality (AHRQ) and the Department of Defense developed TeamSTEPPS®, a teamwork program offering improved collaboration and communication within healthcare institutions. Studies have demonstrated that teamwork is one of the key patient safety initiatives that can transform the culture of healthcare systems. TeamSTEPPS® is an evidence-based program aimed at optimizing performance among teams of healthcare professionals, enabling them to respond quickly and effectively to whatever situations may arise. This curriculum was developed by a panel of experts incorporating more than 25 years of scientific research conducted on teams and team performance. Teamwork has been studied extensively over the past 30 years and is defined by a set of interrelated knowledge, skills, and attitudes that facilitate coordinated, adaptive performance, supporting one's teammates, objectives, and missions.[10-14] These studies indicate that good teamwork depends upon team members' ability to: 1) anticipate needs of others, 2) adjust to each other's actions and the changing environment, and 3) have a shared understanding of how a procedure or plan of care should happen.

In health care, there has been significant progress in defining team requirements since the release of the Institute of Medicine (IOM) report[15] and the early research that led to TeamSTEPPS®.[16] This research has generated a significant evidence base for a set of core competencies that Salas and colleagues contend apply to virtually all teams.[17] Further, Salas, et al.'s (2008) meta-analysis on the science of team training illustrates that positive relationships exist between team training interventions like TeamSTEPPS® and health-related outcomes.[18] According to this body of research, the critical aspects of teamwork include: team structure, team leadership, mutual performance monitoring (i.e., situation monitoring), backup behavior (i.e., mutual support), and communication.

These core skills lead to important team outcomes such as enabling the team to adapt to changing situations, achieving compatible shared mental models among team members, and maintaining a stronger orientation toward teamwork. In addition to studies of team performance, there has been a growing interest in the effectiveness of team training interventions in health care. A recent review identified more than forty peer-reviewed articles detailing health care team training evaluations.[19] It is evident from these recent examinations that team training is being implemented across a wide spectrum of providers and is targeting important competencies such as communication, leadership, role clarity, and situational awareness.[19] In addition to improving team performance, team training has been found to improve the use of appropriate medical technical skills among health care professionals.[20] Research has also shown that TeamSTEPPS® leads to increases in desirable teamwork and safety attitudes, as well as improved communication, teamwork behaviors, clinical process compliance, efficiency, and overall performance in a variety of medical settings.[19, 21-27] Given the rich empirical background supporting the TeamSTEPPS® framework, MUSC has adopted the TeamSTEPPS® model to guide our development of applied teamwork skill acquisition opportunities for students, faculty, and staff at our institution.

INTERPROFESSIONAL EDUCATION COLLABORATIVE (IPEC)[29]

The intent of the 2009 Interprofessional Education Collaborative (IPEC) was to develop core competencies for interprofessional collaborative practice building on each profession's expected competencies. In 2016 the IPEC Board sought to reaffirm the original competencies, ground the competency model firmly under the singular domain of Interprofessional Collaboration, and broaden the competencies to better integrate population health approaches across the health and partner professions so as to enhance collaboration for improving both individual care and population health outcomes.

The 2016 update was based on the premise that interprofessional collaborative practice is key to the safe, high-quality, accessible, patient-centered care desired by all. It also reflects the changes that have occurred in the health system since the release of the original report, one of the most significant of which is the increased focus on the Triple Aim (1-improving the experience of care, 2-improving the health of populations, and 3-reducing the per capita cost of health care).

Achieving this Triple Aim requires the continuous development of interprofessional competencies by health professions students and students in other professional fields as part of the learning process so that they enter the workforce ready for collaborative practice that helps to ensure health. The four core IPEC competencies are as follows:

1) Work with individuals of other professions to maintain a climate of mutual respect and shared values (Values/Ethics for Interprofessional Practice),

2) Use the knowledge of one's own role and those of other professions to assess appropriately and address the health care needs of patients, and to promote and advance the health of populations (Roles/Responsibilities),

3) Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease (Interprofessional Communication) and

4) Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable (Teams and Teamwork).

Team-Up for Better Health is built upon the TeamSTEPPS® framework, and the IPEC core competencies are central to our educational mission at MUSC. Fortunately, the IPEC competencies and the TeamSTEPPS® framework are well-aligned. Our QEP team has developed a crosswalk to demonstrate the alignment of each of the TeamSTEPPS® principles with unique IPEC competencies.

TeamSTEPPS		IPEC	
Team Structure	Identification of the components of a multi-team system that must work together effectively to ensure patient safety	TTCore	Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable.
	Assembles team.	TT1	Describe the process of **team development** and the roles and practices of effective teams
	Assigns or identifies **team members' roles and responsibilities.**	RR1	Communicate one's **roles and responsibilities** clearly to patients, families, community members, and other professionals.
		RR6	Communicate with team members to **clarify each member's responsibility** in executing components of a treatment plan or public health intervention.
	Holds team members **accountable.**	TT7	Share **accountability** with other professions, patients, and communities for outcomes relevant to prevention and health care.
	Includes **patients and families** as part of the team.	CC2	Communicate **information with patients, families**, community members, and health team members in a form that is understandable, avoiding discipline-specific terminology when possible.
		VE6	Develop a trusting **relationship with patients, families,** and other team members (CIHC, 2010).
Communication	Structured process by which information is clearly and accurately exchanged among team members	CCCore	Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease.
	Provides brief, clear, specific, and **timely information.**	CC5	**Give timely,** sensitive, instructive feedback to others about their performance on the team, responding respectfully as a team member to feedback from others.
	Seeks information from **all available sources.** Uses check-backs to verify information that is communicated.	TT10	**Use available eviden**ce to inform effective teamwork and team-based practices.
	Uses SBAR, call-outs, check-backs, and handoff techniques to **communicate effectively with team members.**	CC1	Choose **effective communication tools and techniques**, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function.
Leadership	Ability to maximize the activities of team members by ensuring that team actions are understood, changes in information are shared, and team members have the necessary resources	TT5 CC4	Apply leadership practices that support collaborative practice and team effectiveness Listen actively, and encourage ideas and opinions of other team members
	Identifies team **goals** and vision.	TT6	Engage self and others to constructively manage disagreements about values, roles, **goals,** and actions that arise among health and other professionals and with patients, families, and community members.
	Utilizes resources efficiently to maximize team performance.	RR3	Engage diverse professionals who complement one's own professional expertise, **as well as associated resources**, to develop strategies to meet specific health and healthcare needs of patients and populations.
	Balances workload within the team.	RR4	Explain the roles and responsibilities of other providers and how the team **works together to provide care,** promote health, and prevent disease.
		RR9	Use unique and complementary abilities of **all members of the team** to optimize health and patient care.
	Delegates tasks or assignments, as appropriate.	TT4	Integrate the knowledge and experience of health and other professions to **inform health and care decisions**, while respecting patient and community values and priorities/preferences for care.
	Conducts briefs, huddles, and **debriefs.**	TT8	**Reflect** on individual and team performance for individual, as well as team, performance improvement.
	Role models teamwork behaviors.	TT11	Perform effectively on teams and in **different team roles in a variety of settings.**
Situation Monitoring	Process of actively scanning and assessing situational elements to gain information or understanding, or to maintain awareness to support team functioning Monitors the state of the patient.	CC3	Express one's knowledge and opinions to team members involved in patient care and population health improvement with confidence, clarity, and respect, working to ensure common understanding of information, treatment, care decisions, and population health programs and policies
	Monitors fellow **team members to ensure safety** and prevent errors. Monitors the environment for safety and availability of resources (e.g., equipment).	RR5	Use the full scope of knowledge, skills, and abilities of professionals from health and **other fields to provide care that is safe,** timely, efficient, effective, and equitable.
	Monitors progress toward the goal and identifies changes that could alter **the care plan.**	RR6	Communicate with team members to clarify each member's responsibility in executing components of a **treatment plan** or public health intervention.
	Fosters communication to ensure a **shared mental model.**	TT3	Engage health and other professionals in **shared patient-centered** and populationfocused problem-solving.
Mutual Support	Ability to anticipate and support team members' needs through accurate knowledge about their responsibilities and workload	RRCore	Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations.
	Provides task-related **support and assistance.**	TT5	Apply leadership practices that **support collaborative practice** and team effectiveness
	Provides **timely and constructive feedback** to team members. Effectively advocates for the patient using the Assertive Statement, Two-Challenge Rule, or CUS.	CC5	Give **timely, sensitive, instructive feedback** to others about their performance on the team, responding respectfully as a team member to feedback from others.
	Uses the Two-Challenge Rule or DESC script to **resolve conflict.**	CC6	Use respectful language appropriate for a given difficult situation, crucial conversation, or **conflict.**
		CC7	Recognize how one's uniqueness (experience level, expertise, culture, power, and hierarchy within the health team) contributes to effective communication, **conflict resolution,** and positive interprofessional working relationships (University of Toronto, 2008)

LEGEND	
VECore	Competency 1: Values and Ethics
RRCore	Competency 2: Roles/Responsibilities
CCCore	Competency 3: Interprofessional Communication
TTCore	Competency 4: Team & Teamwork

Our QEP seeks to improve the learning environment at MUSC as well as to foster students' acquisition of applied teamwork skills so that we will graduate students from all six Colleges with practice-relevant teamwork experience, thereby improving their value in today's workforce. Further, we seek to contribute to the development of an improved healthcare workforce by providing MUSC students with direct, relevant skills and experience in team development, team evaluation, conflict resolution, collaborative problem-solving, and interprofessional communication.

Team-Up for Better Health is an initiative that will be one of the first of its kind to link didactic interprofessional teamwork knowledge with hands-on skills training and applied experiences in graduate healthcare education. Further, it will include the implementation of a standardized teamwork-skills evaluation rubric to ensure that students have acquired the desired skills before entering the healthcare workforce. The student activity during our QEP follows a trajectory that encompasses (1) Teamwork Education, (2) Teamwork Skills Acquisition, (3) Teamwork Skills Practice, and (4) Teamwork Experience.

The environment for the educational activities will parallel the learning activities starting in the classroom and evolving to the clinics and labs. The culmination will be students receiving applied teamwork experience in the clinics, labs and communities alongside faculty and staff working in high-performing teams.

One of the major advancements at MUSC that will support and facilitate this QEP is the development of student Applied Teamwork Competency portfolios (ATC's). The Office of Interprofessional Initiatives (OII) will provide a centralized menu of approved applied teamwork experiences available to students from all six colleges at MUSC. Students will have opportunities to complete numerous ATC's during their training at MUSC. Upon completion of each ATC, a faculty preceptor will complete a teamwork skills evaluation on each student in order to quantify the quality of the students' teamwork skillset.

Students will be able to electronically export descriptions of their ATC experiences at MUSC (i.e., their ATC Portfolio) in a format that can be used to supplement their professional curriculum vitae (CV) under a subheading of "Applied Interprofessional Teamwork Experience" to enhance the visibility of their teamwork competencies, and consequentially their unique value to potential employers.

Overall, our QEP, Team-up for Better Health, will bring together students and faculty from all six Colleges and the Medical Center at the Medical University of South Carolina to enhance student's applied interprofessional teamwork skills using the empirically supported TeamSTEPPS® framework, which is grounded in the IPEC Core Competencies. Collaborative teamwork skills are imperative as the healthcare and biomedical science fields in the United States continue to evolve rapidly in such a way that collaboration and coordination are of the highest priority to improve the quality of scientific discovery, clinical outcomes, safety and cost-effectiveness of care.

Our QEP topic is one that bridges across all six Colleges and the Medical Center, thereby reaching all of our students. The Office of Interprofessional Initiatives is well-positioned to manage the institution-wide implementation of our QEP.

Desired impact on a significant student population

Core Requirement 2.12

TEAM UP
FOR BETTER HEALTH

Broad Implementation Plan

Core Comprehensive Standard 3.3.2(2)
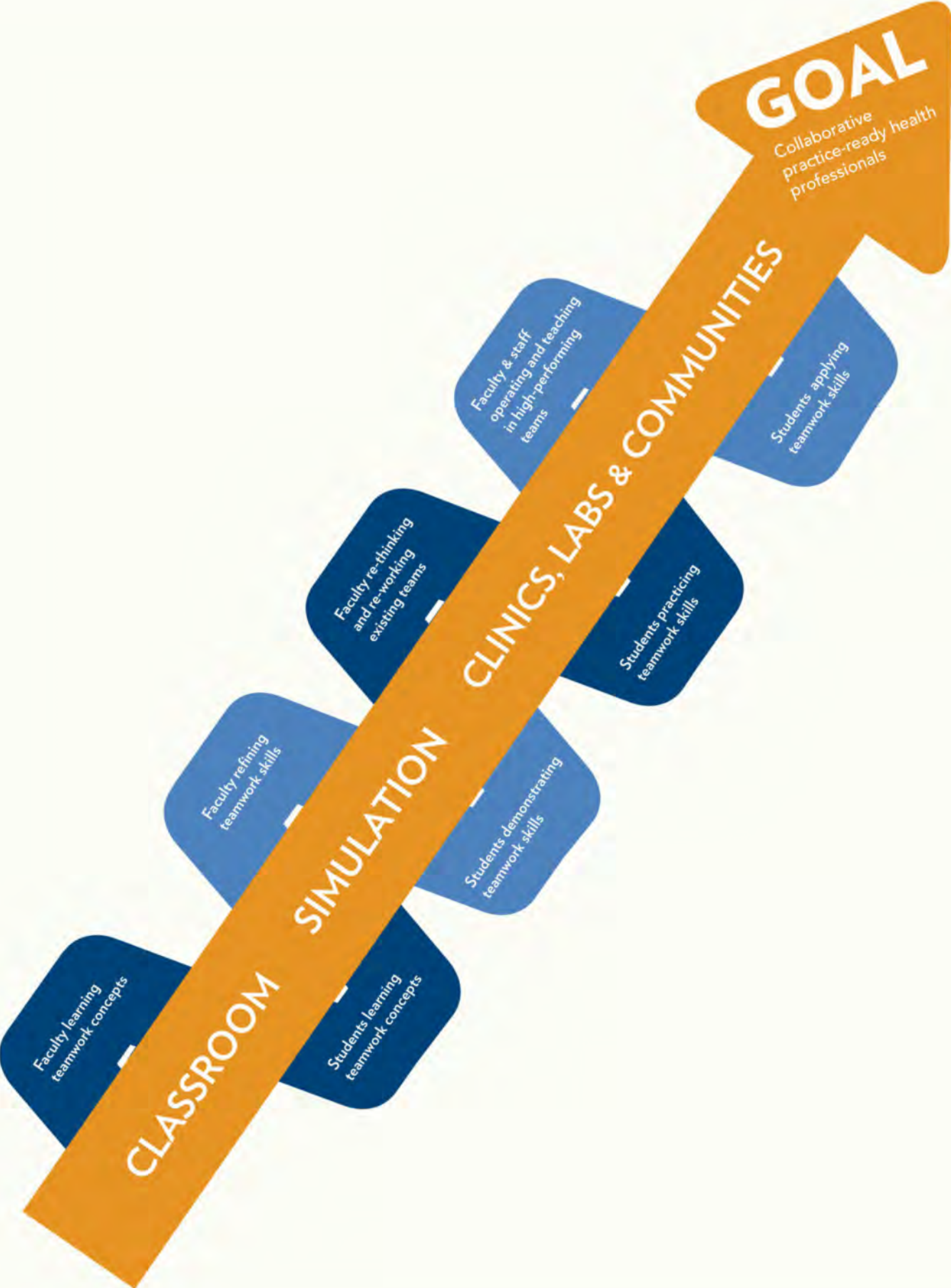
TEAM-UP FOR BETTER HEALTH GOALS AND OBJECTIVES

The goals of our QEP are:

1. Improve the learning environment to foster student acquisition of teamwork skills

2. Graduate students with practice-relevant teamwork skills and experience

The specific objectives to achieve each goal are:

1. Improve the learning environment to foster student acquisition of teamwork skills

   Objective 1a: Develop and implement applied teamwork skills curricula in formats designed to reach all students at MUSC

   Objective 1b: Improve staff/faculty knowledge, skills, and practice models to develop a richer environment in which team-based care training will occur in clinics, labs, and the community.

   Objective 1c: Increase the institutional capacity for students from different colleges and professions to work together during clinical training and research experiences at MUSC

2. Graduate students with practice-relevant teamwork skills and experience

   Objective 2a: Teach fundamentals of teamwork using the TeamSTEPPS® framework to all students at MUSC

   Objective 2b: Engage student teams in simulated scenarios to further develop and practice teamwork skills

   Objective 2c: Improve applied teamwork skills through enhanced opportunities in real-world clinical practice and laboratory experiences

   Objective 2d: Catalog applied teamwork activities at MUSC and track student participation and performance in them over time

New Programs, Strategies, and Innovations

As part of Team-Up for Better Health, we have initiated several institutional strategies and innovations that are specifically designed to meet our QEP objectives. Several of these have already launched in pilot form as part of our QEP extended roll-out plan, and several will begin in earnest after the official QEP launch date of January 20th, 2017.

Below are several of our programs, initiatives, strategies, and innovations that have stemmed from our QEP efforts and that will serve to form the institutional infrastructure in which student learning outcomes will be realized.

OVERHAUL OF IP710 "TRANSFORMING HEALTHCARE" COURSE AND IP-DAY CURRICULA

The IP710 Course, which is now a required course for all students at MUSC, will be updated to reflect the aims of the QEP. The Core Curriculum Committee of IP710 (which includes representatives from all degree programs at MUSC) is working to establish a rigorous applied teamwork skills didactic module that will serve as the center-point for the entire course. Students will review literature pertaining to the science of team-science, team-structure, formation and maintenance models, effective communication, conflict resolution skills, collaborative problem-solving models, Agency for Healthcare Research and Quality's (AHRQ) TeamSTEPPS® program, and teamwork assessment and evaluation

These elements will also be integrated into an EPIC (our Electronic Medical (and Research) Record; EMR) "playground" that will host several interprofessional clinical and research case-studies to orient students to the EMR while simultaneously teaching high-reliability models of electronic/virtual teamwork and interprofessional communication strategies. This is important as electronic communication is quickly becoming a formative and formidable aspect of healthcare in the 21st century.

Simulated patient and research lab experiences will be integrated into this updated teamwork module as well. Students will act as interprofessional teams of clinicians and researchers to address pressing real-world issues pertaining to common healthcare and research challenges to communication, conflict resolution, and collaborative problem solving principles commonly encountered in the real world. Students will be required to pass a written knowledge examination pertaining to key elements of the didactic module. Performance in the EMR and simulation scenarios will be evaluated by course preceptors as well using the MUSC Teamwork Performance Evaluation scale(s).

Students will also be required to demonstrate reliability and accuracy as a teamwork evaluator using the TeamSTEPPS® Team Observation Tool to rate simulated healthcare and research team interactions. They will be required to accurately rate team performance in 4 standardized video-taped patient care and research scenarios. To determine accuracy of ratings, a team of TeamSTEPPS®-trained expert faculty raters will evaluate the standardized scenarios and students must produce ratings that fall within one standard-deviation of the expert ratings mean scores.

All students successfully completing IP710 will have training and experience evaluating teamwork in the healthcare setting using a valid and reliable tool, and will have passed a standardized test of their accuracy in team assessment. We have piloted this system in preparation for the QEP. See section on the TeamSTEPPS® Rater-Certification system.

Interprofessional Day (IP-Day) occurs on the second Friday of January each year and all first and second year students from all six colleges attend together. Historically, invited keynote speakers presented on topics related to interprofessional education and practice, and students engaged in break-out-session activities in small groups to learn about each other's professions and roles.

Going forward, keynote speakers will be invited representing content areas pertaining to teamwork, team science, and other QEP-related topics. The break-out session for first year students will engage them in a computerized teamwork simulation game that teaches about different health professions while demonstrating the value of team-based care and research (see section on the IP Health Simulation Game). Second year students form interprofessional teams and engage with simulated patients around communication and collaborative problem-solving in the context of disclosing medical error(s). MUSC Teamwork Performance Evaluation scale(s) ratings will be conducted by small-group preceptors on all students.

EDUCATE FACULTY & STAFF ABOUT TEAMSTEPPS PRINCIPLES VIA MYQUEST

In April of 2015, MUSC selected Net Dimensions Talent Suite to be our new product for our employee learning management system. We have since achieved successful adoption of the learning management system (called MyQuest) for our more than 19,000 faculty, staff, and students. We focused on improving our educational content by meeting with subject matter experts for content validation and using newly purchased eLearning templates from Net Dimensions for content design. MyQuest is used at MUSC to deliver educational content and evaluate learner knowledge across all mandatory annual training topics for faculty, staff, and students, but can also be used by learners to develop individualized elective training curricula in areas of unique interest to individuals at MUSC.

Angela Egner (Medical Center's Chief Learning Officer and OII's Associate Director for Hospital Integration) will continue to work with OII to develop a required MyQuest module for all faculty and staff to learn principles of TeamSTEPPS®, communication strategies, collaborative problem-solving, and conflict-resolution skills in order to facilitate an institutional clinical care and research environment (and by extension, a student-learning-environment) conducive to high-quality teamwork principles in action. Additionally, building upon a foundation of high-reliability trainings for all medical center staff, Angela Egner will assist OII in developing targeted teamwork skills training modules for faculty and staff on select hospital and research units (via our TeamWorks program, see below) to further enhance the institutional foundation of collaborative teamwork skills in our real-world, operational, clinical, and research settings. These trainings will cover the basics of our QEP and TeamSTEPPS® model, and will, by far, have the greatest reach as we will use this platform to educate all of our 19,000+ faculty, staff and students at MUSC.

THIS STRATEGY ADDRESSES:

OBJECTIVE 1A:
Develop and implement applied teamwork skills curricula in formats designed to reach all students at MUSC

OBJECTIVE 2A:
Teach fundamentals of teamwork to all students at MUSC

OBJECTIVE 2B:
Engage student teams in simulated scenarios to further develop and practice teamwork skills

THIS STRATEGY ADDRESSES:

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs, and the community

THIS STRATEGY ADDRESSES:

OBJECTIVE 1B:

Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs, and the community.

THIS STRATEGY ADDRESSES:

OBJECTIVE 1C:

Increase the institutional capacity for students from different colleges and professions to work together during clinical training and research experiences at MUSC

OBJECTIVE 2B:

Engage student teams in simulated scenarios to further develop and practice teamwork skills

OBJECTIVE 2C:

Improve applied teamwork skills through enhanced opportunities in real-world clinical practice and laboratory experiences

OBJECTIVE 2D:

Catalog applied teamwork activities at MUSC and track student participation and performance in them over time

SCTR SCIENCE OF TEAMSCIENCE SMALL GRANTS PROGRAM

We will continue to engage faculty, students, and staff in contributions to the scientific literature surrounding best-practices and the value of teamwork through an intramural, investigator-initiated grant funding mechanism. South Carolina Translation Research (SCTR) Institute and the MUSC Office of Interprofessional Initiatives have developed and implemented a Team Science and Interdisciplinary/Interprofessional (IP/ID) Collaborations Small Grant Program. The purpose of this program is to promote the science of team science while enhancing interdisciplinary and interprofessional (ID/IP) collaboration to investigate the impact of teamwork on scientific productivity, patient safety outcomes, translational research, education, training, and clinical care.

Team science initiatives are designed to promote collaborative, and often cross-disciplinary approaches to answer research questions that focus on understanding and enhancing the antecedent conditions, collaborative processes, and outcomes associated with team science initiatives. These initiatives incorporate scientific discoveries, educational, training, and clinical outcomes, and translations of research findings into new practices, patents, products, technical advances, and policies. Through the scholarly scientific work of our own faculty we will continue to update our knowledge and understanding of the impact of teamwork on clinical and research outcomes, thereby enhancing the demonstrated value of our QEP. A pilot competitive RFA was released in Spring of 2016 in preparation for the QEP. Seven applications were submitted and 2 Team-Science projects were funded.

DEVELOP & MAINTAIN AN INVENTORY OF STUDENT TEAM-SKILLS & LEARNING EXPERIENCES

The QEP committee sought to implement an innovative strategy for engaging all students in applied teamwork activities during their education at MUSC. The group developed an idea for the creation of an Applied Teamwork Competency Portfolio System that would serve as: 1) a menu of applied teamwork training opportunities available to students at MUSC, 2) a system for submitting new applied teamwork opportunities by students and faculty alike, 3) a program for the evaluation of the educational value and classification of the proposed activities in the menu, 4) a system for tracking faculty preceptor evaluations of students' applied teamwork skills, and 5) a portal for students to track and display their applied teamwork competencies for use in bolstering their curriculum vitae thereby enhancing the value and marketability of MUSC students as they enter the growing interprofessional healthcare work-force.

This web-based system has been developed and implemented in pilot-form in preparation for QEP implementation. Students can view a comprehensive menu of OII approved and categorized Applied Teamwork Competency (ATC) opportunities available to them. They can view detailed information about the activities, and register for ATC's online. Upon completion of the

activity, the designated faculty preceptor for the ATC completes an evaluation of the students' teamwork skills using MUSC's Team Performance Scale (TPS) which was custom-developed using the TeamSTEPPS framework.

Students and faculty can submit applications for new activities and opportunities for consideration as new ATC's directly through the system. An ATC working group has been formed to review the applications and apply our ATC Qualification Rubric. Qualified experiences will be added to the ATC menu. Qualified programs that are already integrated into College level curricula will automatically populate in each student's portfolio.

Elective approved ATC experiences can be added directly by the student. Students can export their ATC portfolios in a variety of formats for reporting their progress to academic advisors and/or to create an Interprofessional Applied Teamwork Competency section for their academic vitas. Several clinical and research experiences offered at MUSC have already been qualified by the QEP committee using the ATC Qualification Rubric. These programs have all been determined to meet the requirements necessary to afford students with excellent applied teamwork skills training and the Team Performance Scale rating system has been integrated into the programs to permit demonstration of students' teamwork competencies.

MUSC's new ATC Portfolio system will serve as an innovative platform for connecting students from all six Colleges at MUSC with outstanding, career-relevant applied interprofessional teamwork experiences at MUSC. The ATC system features an interactive menu of MUSC-approved applied teamwork activities that students can browse, learn about, and register for online. This system will be available to all in-residence students as well as our on-line learners. We offer several fully online IP courses at MUSC and ATC-qualifying online courses will be registered in the ATC Portfolio system just like the residential opportunities. We anticipate qualifying numerous off-site team-based applied opportunities for students as well, and the system is capable of prompting off-site (non-MUSC) preceptors to evaluate on-line students' teamwork skills in the same way it works to capture ratings of our residential students.

Applied Teamwork Competencies
OII Student Experience Qualification Rubric

APPLICATION LEVEL QUALIFIER

i. Real world application
    (real world healthcare, research project, patient or community team experience)
ii. Simulated, role-played or standardized application
    (simulated healthcare, research project, patient or community team experience)
iii. Didactic, classroom, or hypothetical case-based application
    (didactic healthcare, research, patient scenario or community team experience)

CATEGORIES

Category A (i, ii, or iii): Applied Clinical Interprofessional Team Experience
    (1) Participate in clinical service delivery (with appropriate supervision) on a treatment team consisting of at least 3 different health professions working together
    (2) Minimum of 12-hours
    (3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric
Category B (i, ii, or iii): Applied Teamwork Assessment Experience
    (1) Complete at least 6 standardized behavioral observations/evaluations of team interactions on clinical, research or administrative teams using the TeamSTEPPS Team Performance Observation Tool (TPOT)
    (2) Complete a 1-page summary report of the quality of teamwork observed
Category C (i, ii, or iii): Applied Quality Improvement Team Experience
    (1) Participate as a team member on a performance improvement, quality improvement, root cause analysis or value-initiative project
    (2) Attend a minimum of 75% of project-specific meetings
    (3) Document the professions represented on the QI team and provide a 1-page QI project summary
    (4) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric
Category D (ii, or iii): Formal Course or Academic Applied Teamwork Experience
    (1) Passing grade in an approved IP team-skills elective or required course
    (2) Participate in an organized, applied team activity as part of the course curriculum
    (3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric
Category E (i, ii, or iii): Interprofessional Organization and Applied Service Learning Experiences
    (1) Participation in approved interprofessional program or service learning activity focusing on interprofessional teamwork approaches
    (2) Minimum of 12-hours
    (3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric
Category F (i, ii, or iii): Applied Interprofessional Research Team Experience
    (1) Participate in at least 6 research lab meetings with members representing at least 3 disciplines
    (2) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric
Category G (i, ii, or iii): Applied Interprofessional Global Health Initiative Experience
    (1) Participate in a MUSC Center for Global Health student activity (with appropriate supervision) on an implementation team consisting of at least 3 different health professions
    (2) Minimum of 12-hours
    (3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

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Applied Teamwork Competencies Portfolio

Jane Smith
College of Pharmacy
Pharm.D. Program
Class of 2020

Below is a summary of Jane Smith's applied interprofessional teamwork experiences acquired during her education at the Medical University of South Carolina (MUSC). MUSC highly values interprofessional training and healthcare-related teamwork experience, and seeks to graduate students with exceptional skills in applied clinical and scientific research teamwork. Jane Smith's applied teamwork skills were evaluated using the American Association for Colleges and Universities (AACU) Teamwork VALUE rubric for each experience and/or program listed below, and she has successfully completed all of them.

IP710 Course: Transforming Healthcare – Fall, 2016
    The course goal is to lay the foundations for professions students to understand the complexities of the health care system and the role of interprofessional collaboration to improve the system. Through an interprofessional context, students explore the art and science of teamwork and communication skills, cultural competency, ethical issues, healthcare disparities and social determinants of health.
Interprofessional Day for First-year students – Spring 2017
    On the second Friday in the spring semester for MUSC, over 1500 students, faculty, and staff come together to participate in an annual event for all first and second year students designed to establish a culture of collaborative teamwork and improve patient care and safety. The Interprofessional Day event reinforces the link between collaborative teamwork and improved patient care and safety. The year-one students participate in an activity that fosters awareness of the other professions and the value of interprofessional teamwork.
Interprofessional Day for Second-year students – Spring 2018
    Second-year students also attend IP-Day in the Spring semester. However, second-year students participate in an interprofessional teamwork activity that emphasizes the importance of team communication when facing difficult situations in healthcare and science.
Simulated Interprofessional Rounding Experience – Spring 2019
    Interprofessional student teams consisting of pharmacy, medical, and physician assistant students participated in a simulated interprofessional rounding experience in which they provided comprehensive medical care for a simulated patient in an inpatient setting.

New ATC experiences can be submitted by MUSC students and faculty alike, any time going forward, through the ATC system. The ATC working group consisting of program coordinator representatives from each College reviews the applications and applies the ATC Qualification Rubric to the applications. ATC experiences can fall into 1 of 7 different categories along with an Application Level Qualifier (e.g., real-world application vs simulation vs didactic/case-based experiences), and certain minimum experience criteria must be met within each category for a proposed activity to qualify. Once an activity has been evaluated and qualified by the ATC working group, the experience is added to the published ATC menu for all to see and register for online. Qualified programs that are already integrated into College level curricula will automatically populate in each student's portfolio. Several programs have already been qualified and appear in the ATC Portfolio System.

Evaluating Student Learning

Each qualified ATC experience requires that a faculty preceptor will evaluate student performance during the teamwork activities. The MUSC QEP Committee has developed a six-item rating scale based on the TeamSTEPPS® framework using the TeamSTEPPS® Team Performance Observation Tool (TPOT) as a guide.

MUSC Team Performance Evaluation
Evaluation of Student Performance by Preceptor

Please evaluate the performance of the individual team-member by checking the boxes below that best represent your observations and experiences related to each item.

	Never	Rarely	Sometimes	Frequently	Always
1. The individual fulfills his/her roles and responsibilities as a member of the team.					
2. The individual's communications are valuable and reflect the use of information from a variety of sources.					
3. The individual serves as a role model for the team.					
4. The individual helps make the team aware of the need for actions and resources.					
5. The individual shares constructive feedback with the team members.					

	Yes	No
6. I want this individual to be a member of my team.		
Why or Why Not?		

The MUSC scale is called the Team Performance Evaluation (TPE) and the six item-stems have been modified to yield several applicable versions:
1) Student evaluation of team performance, 2) Student evaluation of preceptor teamwork skills, 3) Student evaluation of peer/team-member teamwork skills, 4) Student evaluation of self, 5) Preceptor evaluation of team performance, 6) Preceptor evaluation of student/team-member teamwork skills, and 7) Consumer (e.g., patient) evaluation of team performance.

The first 5-items of the TPE directly map onto the 5 principle domains of TeamSTEPPS®:
1) Team-structure/roles and responsibilities, 2) Communication skills, 3) Team leadership skills, 4) Situation monitoring, and 5) Mutual support.

The Likert ratings are behavioral-frequency anchored to enhance the degree to which ratings represent observed behaviors rather than purely subjective agreement with statements. Item-six ("I want this individual on my team" – "Yes or No") was added as a simple, real-world qualifier to prompt specific comments about a team-member's suitability to operate on a team. This rubric is designed to function across all of these different settings. The set of measures available to students, faculty, and preceptors permits 360° evaluation of teamwork skills and competencies of clinical, research, and educational activities at MUSC.

When a student registers for an ATC experience, the identified preceptor receives a reminder email describing the teamwork behaviors of interest and a weblink to the online TPE measure that is uniquely tied to the registered student. Student rating data are housed in the ATC system and can be accessed by students, preceptors, and program coordinators with appropriate centrally-granted security-access. Additionally, this TPE item-set will be added to the institutional question-bank in E*Value (MUSC's primary system for student and preceptor course evaluation) so that ALL courses at MUSC that have direct relevance to Team-Up for Better Health goals can easily implement the TPE metric with minimal work or logistical complication.

Each year, all TPE data will be analyzed to determine psychometric properties and psychometric performance. We will examine reliability and validity indices and make modifications to the scale as necessary to optimize reliability and validity. Upon establishment of satisfactory psychometric performance, we will publish the scale for others to use.

Student Value of the ATC Portfolio

Students will be able to access their Applied Teamwork Competency Portfolios at any time and can format reports for use in reporting to their Colleges and program coordinators as well as for use in their curriculum vitas as a section highlighting their experience and performance with respect to applied teamwork competencies. In today's healthcare job-market where increasing value is placed on interprofessional teamwork competencies, this section can be used to help MUSC graduates stand-out among other job and residency applicants.

ATC Experiences Already Approved

Develop & maintain an inventory of student team skills & learning experiences.

In preparation for the QEP implementation, several Applied Teamwork Competency experiences have already been approved and categorized by the ATC working group. These competencies appear on the ATC Portfolio System menu. Many of these experiences represent activities that have been established at MUSC. Those that are part of College curricula or are required activities auto-populate in students' portfolios. Several identified activities at MUSC will likely qualify and will be reviewed and added, as appropriate, as the ATC Portfolio System gets rolled-out during our QEP.

The currently approved experiences are listed below:

Program	ATC Type	Preceptor	Required	Auto-Enroll
Presidential Scholars	Category-E$_i$	Dr. Breland	No	No
IP-710 Course and Pilot Sections	Category-D$_{iii}$	Dr. Bailey	Yes	Yes
Simulated Interprofessional Rounding Experience	Category-A$_{ii}$	Dr. Kern	Varies by College	Yes
Comprehensive Pain Management Program	Category-A$_i$	Dr. Barth	No	No
IP-754: Fundamentals of TeamSTEPPs (TeamWorks)	Category-B$_i$	Dr. Mauldin	No	Yes
Interprofessional Day Participation	Category-D$_{ii}$	Dr. Mauldin	Yes	Yes
C.A.R.E.S. Clinic	Category-A$_i$	Dr. Williams	Varies by College	Yes
Root Cause Analysis (RCA) Roundtable	Category-C$_i$	Dr. Egner	No	No
DART Summer Research Program	Category-F$_i$	Dr. Back	No	Yes
CLARION Competition	Category-E$_{iii}$	Dr. Wise	No	Yes
The Palliative Care Program	Category-A$_i$	Mr. Coyne	No	Yes
Interprofessional Aging in Place Program	Category-A$_i$	Dr. VanRavenstein	No	Yes
Interprofessional Team-Based Comp. Pain	Category-A$_i$	Dr. Barth	No	Yes
Primary Care and Population Health PCMH	Category-A$_i$	Dr. Schreiner	No	Yes

IP TEAMWORK SIMULATION GAME

MUSC's SimuVersity Medical Center game was designed and developed by OII to engage students and faculty preceptors from different professions in the process of developing and managing an academic healthcare system work force in order to meet the following learning objectives:

1) Know several students from another profession and college by working together on a team

2) Be able to describe how the different professions can be integrated into health systems to optimize health, wellness and overall system success

3) Be able to identify key indicators health system administrators use to evaluate the overall success of a health system including finances, patient satisfaction, patient safety, research activity, and clinical outcomes

4) Be able to identify healthcare personnel factors that influence these key indicators including: team collaboration, research productivity, visit efficiency, interpersonal skills, performance improvement, and quality improvement training, etc.

THIS STRATEGY ADDRESSES:

OBJECTIVE 2B:
Engage student teams in simulated scenarios to further develop
and practice teamwork skills

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs, and the community

This program was developed during our QEP planning stages to help engage students from all six Colleges at MUSC during Interprofessional Day in a novel and fun way as well as to meet the learning objectives outlined above. The game is an animated, interactive, online simulation that allows students to develop their own academic medical center. They determine their clinical focus, name their system, and hire virtual staff to meet their clinical and research needs. The game runs an eight-week simulation of the operation of a virtual medical center and each simulated week, student teams examine the performance of their faculty and staff across several key indicators (e.g., patient satisfaction, research productivity, patient safety, outcomes, and finance). They can make changes to the staff each week as well as invest in trainings for their faculty and staff such as: teamwork and communication training, safety and performance improvement training, and evidence-based practice. All of these decisions impact the performance of the virtual organization each week.

During Interprofessional Day at MUSC, first-year students engage in the simulation game and a campus-wide competition is held in real-time. Interactive leaderboards update in real-time displaying the highest performing virtual health systems across several categories including: Best Patient Satisfaction, Best Safety Record, Best Clinical Outcomes, Most Profitable, Highest Research Productivity, and Overall Best System. The winning teams are given certificates of achievement in their specific areas of excellence.

Students form teams of four representing different professional backgrounds and degree programs. The team must work together to name, staff and run their virtual health system. During our pilot of this new program, 242 interprofessional teams of first-year students (968 total students) competed. Student ratings of the activity's success in meeting each of the learning objectives suggest that the pilot was a success--95% agreed that the program as successful in helping them know several students from other professions and colleges; 94% indicated that, after the activity, they were able to describe how the different professions can form teams that are integrated into health systems to optimize health, wellness, and overall system success; 95% indicated that they were able to identify key indicators health system administrators use to evaluate the overall success of a health system including finances, patient satisfaction, patient safety, research activity and clinical outcomes; and 94% indicated that they were able identify healthcare personnel factors that influence key indicators including: team collaboration, research productivity, visit efficiency, interpersonal skills, performance improvement, and quality improvement training.

Based on data collected during the pilot, the program has been updated, improved, and is now available commercially for purchase by other institutions that wish to use it as an interprofessional teamwork learning tool. MUSC will continue to use SimuVersity Medical Center as a fun way to engage first-year students from all 6 Colleges in a team-based activity that will help them learn with, from, and about each other.
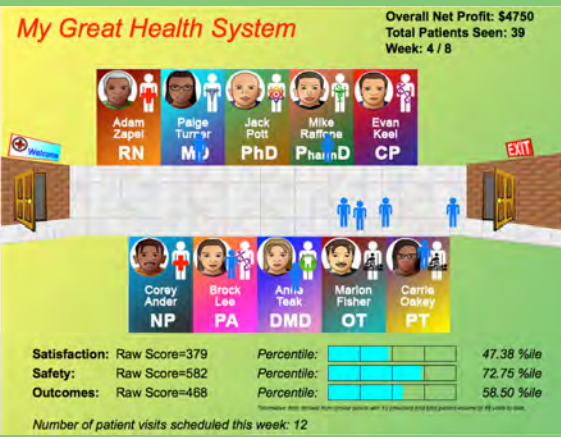
TEAMSTEPPS RATER-CERTIFICATION SYSTEM

With the emphasis on the development of students' applied teamwork skills in our QEP, we have developed a system to engage students in a unique aspect of teamwork in healthcare. Being part of a high performing team requires that one is able to recognize and critically evaluate team structure, functioning, communication, leadership, and mutual support, thereby identifying areas that can be improved.

In order to maximize the efficiency and validity of student team-evaluation skills, the TeamSTEPPS® Rater-Certification System was developed by our team.

After undergoing formal didactics in TeamSTEPPS® concepts and practices, students at MUSC engage with our online certification system to demonstrate their teamwork evaluation skills.

Our group identified four videos of healthcare team interactions. We then asked TeamSTEPPS expert raters to evaluate each of the videos and score them using the standardized TeamSTEPPS® 2.0 Team Performance Observation Tool. Mean scores (and standard deviations) were calculated for the expert raters across each of the rated domains (team structure, communication, leadership, situation monitoring, mutual support). In the TeamSTEPPS® Rater-Certification System, students log-in to and view each video. After each video has been viewed, students complete an online version of the TeamSTEPPS 2.0 Team Performance Observation Tool. Students must score each video within one standard deviation of the expert raters across at least four of the measured domains.

MUSC TeamSTEPPS
Rater Assessment System

Name: Jeff Borckardt
Preceptor: MAULDIN
Logged-in As: borckard@musc.edu

VIDEO A

videoA

Performance feedback screen...
MUSC TeamSTEPPS
Rater Assessment System

Your Performance on Video-A

Factor	Your Mean Score	In range
Team Structure	1.50	YES
Communication	1.75	YES
Leadership	1.33	YES
Situation Monitoring	1.60	YES
Mutual Support	1.50	YES
OVERALL PERFORMANCE		PASS

Return to Home Page

THIS INNOVATION ADDRESSES:

OBJECTIVE 2A:
Teach fundamentals of teamwork using the TeamSTEPPS framework to all students at MUSC

OBJECTIVE 2B:
Engage student teams in simulated scenarios to further develop and practice teamwork skills

After the student submits his/her scores the system provides immediate feedback of his/her performance relative to the expert ratings. If he/she does not "pass" the rating for a video, he/she can watch the video and try again. Once a student has passed all of the videos, he/she is eligible to participate in projects through our hospital wherein he/she provides ratings of real-world, active clinical service teams in action through our TeamWorks program (see below).

To date, 678 students have successfully completed the TeamSTEPPS® rater-certification program through pilot sections of IP710 at MUSC. These students have gone on to evaluate team performance across several clinical programs including labor and delivery and interventional radiology through the TeamWorks Program.

Example of the "passing" range(s) from the expert raters.

VIDEO A

	Team Structure	Communication	Leadership	Situation Monitoring	Mutual Support
MISS	<1.29	<1.31	<1.26	<1.29	
ACCEPTABLE	1.29	1.31	1.26	1.29	1.00
TARGET	2.21	1.75	1.93	1.84	1.35
ACCEPTABLE	3.13	2.19	2.61	2.39	1.84
MISS	>3.13	>2.19	>2.61	>2.39	>1.84
Rater's Mean Score:					
Circle:	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss

☐ PASS (≥ Acceptable Ratings)
☐ FAIL (<4 Acceptable Ratings)

VIDEO B

	Team Structure	Communication	Leadership	Situation Monitoring	Mutual Support
MISS	<4.02	<4.48	<4.32	<3.82	<3.79
ACCEPTABLE	4.02	4.48	4.32	3.82	3.79
TARGET	4.53	4.85	4.80	4.48	4.53
ACCEPTABLE	5.00	5.00	5.00	5.00	5.00
MISS					
Rater's Mean Score:					
Circle:	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss	Acceptable / Miss

☐ PASS (≥ Acceptable Ratings)
☐ FAIL (<4 Acceptable Ratings)

TEAM-UP FOR BETTER TEACHING

This new program is being developed in collaboration between the Office of Interprofessional Initiatives and MUSC's Apple Tree Society. This faculty development program specifically seeks to bring together educators from all Colleges at MUSC with the goal of improving teaching methods and practices in an interprofessional team setting. Faculty in the program will meet weekly to attend lectures and seminars on advanced teaching methods, technologies, and skill-development as well as learn about teamwork strategies and principles relevant to TeamSTEPPS® and Team-Up for Better Health.

Additionally, each faculty member in the program will present a lecture on a topic of his/her choice and receive feedback from the team of other program members on ways to enhance the impact of teaching approaches. Faculty completing the program will receive a certificate of completion and will serve on the Board of Directors for the next annual program iteration.

Participation in the program is competitive, and interested faculty must apply as well as provide a letter of support from their Department Chair. The program Board of Directors selects faculty participants.

THIS STRATEGY ADDRESSES:

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs and community.

FACULTY-DRIVEN IP TEAMWORK CLINICAL ROTATIONS DEVELOPMENT PROGRAM

An innovative approach to creating new opportunities for students to gain applied teamwork skills in real-world clinical settings was piloted in preparation for our QEP, and will continue through the first 3 years. MUSC's Office of Interprofessional Initiatives solicits faculty-involvement in the creation of new interprofessional team-based clinical training opportunities.

This is a competitive RFP and funding is made available (up to $15K for the first 12-months) to select proposals to support the implementation and evaluation of new clinical educational experiences. This program seeks primarily to create new interprofessional training opportunities for students at MUSC. Funding can be used to seed faculty involvement, facilitate logistical problem-solving, offset costs associated with increased initial load on preceptors, and to support program evaluation. The proposal must include a viable plan for program sustainability after the award period.

Program Information and Criteria:

Eligible proposals must follow guidelines outlined below.

1)   Must include students from 3 or more different professions providing direct patient care

2)   Must introduce new rotation options for students (i.e., can't be used to support existing rotations)

3)   Must include a metrics and evaluation plan to examine factors such as:

    a.   Student learning outcomes

    b.   Clinical efficiency/health economics

    c.   Teamwork skills development

    d.   Financial/clinical-revenue impact

    e.   Patient outcomes and safety impact

    f.   Patient and staff satisfaction impact

4)   Must include a plan to coordinate clinical rotation experiences with rotation schedules and accreditation
    requirements of involved Colleges/professions (e.g., through Associate Deans for Education)

5)   Must include a viable plan for rotation financial independence and sustainability after the award period

6)   Adequate interprofessional/interdisciplinary supervision requirements must be met

7)   New rotations must be available starting Fall semester of 2016

8)   Awards will be up to $15K for the first 12-months

Applications must include sections on: A) Clinical Focus (e.g., patient population, clinical focus and description of existing MUSC clinical service), B) Site Training Background (e.g., existing student rotations/experiences in the clinical area, if any), C) New Rotation Description (e.g., new student rotations in the clinical area, activities, roles and responsibilities of students from different professions), D) Supervision Plan (e.g., list of clinical rotation preceptors/supervisors and their professions, frequency and type of supervision for students, E) Logistics, Schedules and Timing (e.g., day(s) and time(s) of the week, duration, location, total number of students to be reached, reconciliation of different professions' non-overlapping rotation schedules), F) Rotation Type and Accreditation Standards (e.g., required versus elective, training accreditation standards addressed for each profession involved), G) Student Orientation and Didactics (e.g., plan to provide background and orientation to new students on the rotation), H) Student Resources (e.g., facilities, offices, computers, phones), I) Student Evaluation Plan (e.g., student grading, format, learning outcomes, metrics), J) Program Evaluation Plan (e.g., indicators of program success, efficiency metrics, patient outcome metrics, satisfaction metrics, economic indices of success), K) Teamwork Evaluation Plan (e.g., metrics for evaluating success in teamwork, communication, conflict resolution), L) Budget (e.g., line items for facilitator/supervisor effort, measure/scale acquisition, decreased productivity costs, etc.), and M) Sustainability Plan (e.g., how the training opportunity will continue if no supplemental/award funds were available in the future). During our pilot phase, four new interprofessional team-based clinical rotations were developed:

The Palliative Care Program

In this rotation, students will have the opportunity to work with an interdisciplinary team comprising multiple physicians and advanced practice nurses, a chaplain, and other volunteers. Students may work alongside students from the MD, MHA, OT, PA, or NP programs. The team will meet daily to discuss each patient, patient care challenges, and other issues. Additionally, there will be an interdisciplinary team meeting twice per week that will include other professions such as physical therapy, occupational therapy, dieticians, and more.

The Interprofessional Aging in Place Program

Students in this rotation will work interprofessionally in a team, which consists of PT, PA, and nursing students under supervision of MUSC faculty (nurse practitioners from the College of Nursing). The interactions will be a combination of live and telehealth medicine. As a team, the students will develop a care plan for each high-risk patient, per site, incorporating all aspects of physical and medical rehabilitation. The IP team then meets on a weekly basis via videoconference for an update of each discipline's perspective related to each patient's progress. Students participating in this experience will practice essential skills of team communication including tools such as the Situation, Background, Assessment and Recommendation (SBAR) technique.

Interprofessional Team-Based Comprehensive Pain Management Program

This rotation will include an interprofessional team comprised of one medical student, one nurse practitioner student, one physician assistant student and one clinical pharmacy student. Students will work individually and in teams to see patients in clinical rooms. Students will also participate in team roundtable patient-care and treatment planning discussions, as well as a wrap-up huddle at the end of each day. The pain management program team currently comprises of an attending physician, a nurse practitioner, PharmD's, and a psychologist. Students will have the opportunity to work with this group of professionals and fellow students to learn about interprofessional teams and how it improves the quality of care provided.

Primary Care and Population Health: The Role of the PCMH Interprofessional Team

In this rotation, students will work with an interprofessional team consisting of internal medicine physicians, advanced practice practitioners (PA and DNP), pharmacists, registered nurses, and licensed practical nurses. Students will work in interdisciplinary teams to identify care barriers, quality gaps, disparities, diagnostic errors, medication errors, and other care challenges, determine the root cause, and recommend systematic strategies to prevent future events. Each team will be responsible for a final presentation to faculty and staff at the end of the rotation. Students will be trained in the key principles of TeamSTEPPS: team structure, communication, leadership, situation monitoring, and mutual support.

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs and the community

ORAL HEALTH FACULTY DEVELOPMENT PROGRAM

Adaptations to the Innovations in Oral Health Toolkit for Faculty Development in Safety Net Practice and Education

Care integration was part of former Surgeon General Richard Carmona's charge to reduce oral health disparities. Two Institute of Medicine reports affirming the need for improved oral health care through interprofessional practice, especially for underserved communities, followed. Since then, HRSA's report on oral health integration into primary care provided a framework for competency adoption. MUSC's response to these recommendations is evident in a HRSA-funded predoctoral training grant, "Rural Oral Health Advancement and Delivery through Interprofessionalism (ROADTRIP)."

ROADTRIP's purpose is to enhance interprofessional education at the Medical University of South Carolina (MUSC) so more dental and primary care graduates have the prerequisite clinical and interprofessional competencies, business acumen, and willingness for rural safety net oral health practice.

We plan to build on the existing Innovations in Oral Health (IOH) toolkit in order to contextualize it for safety net practice and education. We will adapt segments of the IOH toolkit collaboratively with faculty and practice partners for priority populations (i.e. rural, underserved, safety net communities).

In Year 1, our first objective will be to develop innovative learning tools for faculty such as virtual simulations and interactive games, contextualized for the safety net.

Second, we aim to cultivate safety net faculty champions within each primary care training program. We propose annual awards be given at Faculty Convocation along with financial stipends to incentivize a champions network internal to MUSC.

Third, we will institutionalize interprofessional oral health faculty development from a centralized place within MUSC, the OII. The OII is organized under the Provost's Office so that it can affect the entire organization (university, hospital, and healthcare system) by supporting education, research, and practice of interprofessional care models.

In Year 2, we propose to conduct outreach to faculty at all our state's primary care training programs, physician assistant, and nurse practitioner programs. We will explore how to elevate oral health interprofessional competencies of technical and community college faculty who teach dental hygiene, medical assistant, nursing, and community health worker programs. We will define success using the Donabedian model of process and structure. Process measures of success will be development of faculty learning tools for oral health interprofessionalism as well as a system for cultivating faculty champions.

MUSC TEAMWORKS PROGRAM

The TeamWorks program is a new program developed in collaboration between the Office of Interprofessional Initiatives and the MUSC Medical Center that focuses on teamwork assessment and improvement initiatives on inpatient hospital units.

Between 210,000 and 440,000 people die in hospitals each year from preventable harm, and medical error is the 3rd leading cause of death in America behind heart disease and cancer.[28] The most common root cause of medical errors is communication problems (written and verbal).

Often, poor teamwork sets the stage for such errors, and TeamWorks was developed to address this issue at MUSC. The Office of the Chief Quality Officer (CQO) at MUSC identifies hospital units at MUSC that are performing poorly on standardized quality and safety metrics.

Once identified, large teams of MUSC students trained in teamwork assessment using TeamSTEPPS® Team Performance Observation Tool (TPOT) via our Teamwork Rater Certification System are dispatched on the unit in small groups wherein they evaluate the quality of teamwork in real-life clinical units (often covering programs running 24 hours per day, 7 days per week). These observational data are processed along with staff and faculty self-report data regarding communication, teamwork quality, and the practice environment on the unit.

A comprehensive report is provided to the CQO and targeted teamwork improvement strategies are developed. OII and Hospital Staff deliver targeted training in TeamSTEPPS®, communication strategies, patient and shift hand-off procedures, safety monitoring, and optimization of clinical workflows often in collaboration with MUSC's Simulation Center.

Following the teamwork training intervention, another wave of trained student raters evaluate the unit and another round of self-report measures are collected.

OBJECTIVE 2C:
Improve students applied teamwork skills through enhanced opportunities in real-world clinical practice and laboratory experiences

OBJECTIVE 2A:
Teach fundamentals of teamwork to all students at MUSC

OBJECTIVE 1A:
Develop and implement applied teamwork skills curricula in formats designed to reach all students at MUSC

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs and the community

OBJECTIVE 1C:
Increase the institutional capacity for students from different colleges and professions to work together during clinical training and research experiences at MUSC

THIS OPPORTUNITY ADDRESSES:

OBJECTIVE 2A:
Teach fundamentals of teamwork using the TeamSTEPPS framework to all students at MUSC

OBJECTIVE 1A:
Develop and implement applied teamwork skills curricula in formats designed to reach all students at MUSC

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics, labs and the community

MUSC TEAM SCIENCE COURSE
Instructor: Dr. Daniel T. Lackland

A new course has been developed to emphasize the science of teams and the impact of teamwork on scientific productivity. This interprofessional course is IP772 "Team Science in Clinical Research." This course serves both traditional students as well as faculty engaged in the Masters in Clinical Research (MSCR) program at MUSC.

In this course, an emphasis is placed on the competencies and processes associated with the concepts of team science in translational research. Solving complex societal problems requires the integration of specialized knowledge bases.

As the volume of scientific knowledge has increased over time, however, it has become increasingly difficult for any single individual to have deep expertise in all needed areas of science. Addressing today's complex problems requires the high degree of cross-disciplinary collaboration, referred to as "Team Science."

This course offers practical guidance about how best to engage in team science to: pursue complex scientific questions, work effectively with team members, and produce high impact research outcomes that help meet society's needs. This course seeks to provide the trainee with information and resources for the implementation of team science concepts in the design and conduct of clinical research.

The competencies included in this course focus on translational teamwork.

At the end of this course students are able to: 1) Build an interdisciplinary/ intradisciplinary/ multidisciplinary team that matches the objectives of the research problem, 2) Identify the composition of their research team as multidisciplinary, interdisciplinary, and/or transdisciplinary, 3) Complete a description of the research team in NIH grant format, 4) Complete the new NIH Biosketch including the 'team science' attributes, 4) Prepare a template describing the significance of published papers and abstracts as 'significant' for a promotion and tenure packet, 5) Prepare 'team science' ethics component for grant proposal, 6) Formulate a plan to evaluate a scientific team, 7) Develop a plan to manage an interdisciplinary team of scientists, 8) Develop a working plan for a multidisciplinary research team with fiscal, personnel, regulatory compliance, and problem solving requirements, 9) Advocate for multiple points of view, 10) Clarify language differences across disciplines, 11) Demonstrate group decision-making techniques, and 12) Manage conflict among team members.

SAFELY SPEAKING: TEAMWORK TUESDAYS

Safely Speaking is a daily email sent by MUSC's Chief Quality Officer (CQO), Dr. Danielle Scheurer, to all MUSC students, faculty and staff. MUSC Health is deeply committed to the principles of high reliability and safety. One of the key components of these principles is the development and maintenance of a learning culture.

Because the science and techniques in health care safety are still nascent, one of the ways we keep the entire MUSC Health Care Team constantly learning is through our daily Safely Speaking emails. Safely Speaking serves as a brief daily reminder of our commitment to safety and as a tool to help all of us learn more about health care safety.

We send it early in the morning so that it will be the first email that the majority of MUSC Health Care Team members will see as they start their day at MUSC.

Teamwork Tuesdays is a new addition to Safely Speaking wherein the topic, every Tuesday, will be relevant to how teamwork and the principles of our QEP "Team-Up for Better Health" pertain to patient safety and quality or care. This innovation will reach all of MUSC on a regular basis with reminders, observations, data, recommendations, and inspiring ideas related to the importance of teamwork in healthcare today.

OII WEB APPLICATIONS PORTAL

The newly launched Office of Interprofessional Initiatives Web Applications Portal is a central site that hosts many of the newly developed Team-Up for Better Health innovations and initiatives. Students and faculty can access SimuVersity Medical Center, the Applied Teamwork Competency Portfolio system, the TeamSTEPPS® Rater Certification System, and other QEP-related activities and developments via this central hub.

All systems that contain student-data (e.g., ATC Portfolio, Rater Certification System) are password-protected and only accessible with appropriate MUSC authentication. This hub serves as a one-stop shop for all interprofessional interactive digital systems.

THIS INNOVATION ADDRESSES:

OBJECTIVE 1B:
Improve staff/faculty knowledge, skills and practice models to develop a richer environment in which team-based care training will occur in clinics and labs

Team-Up for Better Health Timeline

The majority of our Team-Up for Better Health programs, strategies, and innovations (described above) have already been developed and have undergone pilot testing for functionality and feasibility. The detailed timeline for our formal QEP roll-out shows when each of these programs will begin in earnest during year 1 of Team-Up for Better Health.

Because of our early planning, program development, and pilot work, (the expense of which was incurred by the institution through OII under the umbrella of QEP development and MUSC's Strategic Plan "Imagine MUSC 2020"), we are in excellent shape for a timely roll-out with minimal unforeseen expenses and minimal unforeseen technical or logistical problems.

2016
- Jan — ★ IP-Day Simulation Game Pilot (SimuVersity Medical Center)
  - ★ TeamSTEPPS Rater Certification System Pilot
- Feb — ★ Team Science Course Pilot
- Mar
- Apr — ★ TeamWorks Program Pilot
- May
- Jun
- Jul — ★ SCTR Team Science Pilot Program Launch
  - ★ Faculty-Driven Clinical Rotation Development Program Launch
- Aug
- Sep — ★ TeamWorks Program Launch
  - ★ TeamSTEPPS Rater Certification System Launch
- Oct
- Nov — ★ IP710 Core Curriculum Revamp Committee Launch
- Dec

2017
- Jan — ★ **Official Team-Up for Better Health Launch**
  - ★ IP-Day Simulation Game Competition (SimuVersity Medical Center)
- Feb — ★ Applied Teamwork Competency Portfolio Launch
  - ★ Spring IP Team Science Course
- Mar — ★ SCTR TeamScience RFA Release
  - ★ Safely Speaking: Teamwork Tuesdays Launch
- Apr — ★ Faculty-Driven Clinical Rotation Development Program RFP Release
  - ★ Oral Health Faculty Development Program
- May — ★ Spring TeamWorks Program
- Jun — ★ Team-Up for Better Teaching Program Launch
- Jul — ★ TeamSTEPPS MyQuest Module Launch
  - ★ Targeted Staff Training Sessions
- Aug — ★ Faculty-Driven Clinical Rotation Program Launch (Round-2)
  - ★ SCTR Team Science Pilot Program Launch
- Sep — ★ Revamped IP710 Course Launch
  - ★ Fall TeamWorks Program
- Oct — ★ Fall IP Team Science Course
- Nov
- Dec

Our 5-year higher-level overview timeline shows each of the major activities developed for Team-Up for Better Health along with their launch semester, and schedule of annual recurrence. Additionally, the activities are organized with respect to whether they directly target student learning outcomes, the learning environment, or both.

Legend:
- *Student Learning*
- *Learning Environment*
- *Student Learning and Learning Environment*

Year	Sem.	Team-Up for Better Health Launch	Team Science Course	IP-710 Revamped Course	SCTR Science of Team Science RFA	Faculty-Driven Rotations Development RFP	Safely Speaking: Teamwork Tuesdays	Applied Teamwork Competency Portfolio	MyQuest TeamSTEPPS Training	Oral Health Faculty Development Program	TeamWorks Program	Team-Up for Better Teaching
2017	Spring	★	★		★	★	★	★		★	★	
	Summer						★	★		★	★	★
	Fall		★	★			★	★	★	★	★	★
2018	Spring		★		★	★	★	★	★	★	★	★
	Summer						★	★	★	★	★	★
	Fall		★	★			★	★	★	★	★	★
2019	Spring		★	★	★	★	★	★	★	★	★	★
	Summer						★	★	★	★	★	★
	Fall		★	★			★	★	★	★	★	★
2020	Spring		★	★	★		★	★	★		★	★
	Summer						★	★	★		★	★
	Fall		★	★			★	★	★		★	★
2021	Spring		★	★	★		★	★	★		★	★
	Summer						★	★	★		★	★
	Fall		★	★			★	★	★		★	★

Involvement of relevant institutional constituencies and stakeholders in QEP Implementation

COMPREHENSIVE STANDARD 3.3.2

Great care was taken to involve a comprehensive representation of all MUSC's constituencies and stakeholders in the development of Team-Up for Better Health, so we are now we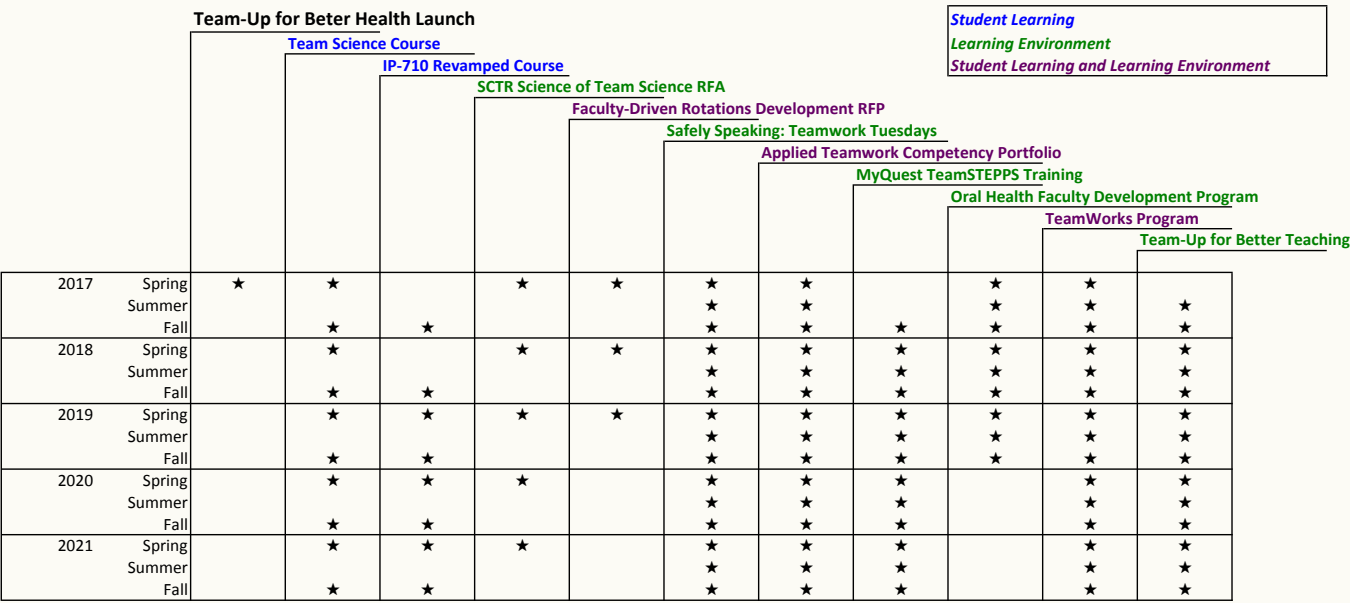ll-positioned to maintain that involvement throughout the QEP implementation process. The Office of Interprofessional Initiatives (OII), by design, works directly with the leadership, students, faculty, and staff of each of MUSC's six Colleges and with the MUSC Medical Center. The OII Directors as well as the IPID Advisory Council and the Interprofessional Student Advisory Board comprise students and institutional leaders representing all institutional constituencies and stakeholders thereby making OII the most strategic institutional Office for implementing the QEP.

OII will continue to work closely with its Directors, the IPID Advisory Council, the Interprofessional Student Advisory Board, College Deans, Chief Officers of the MUSC Medical Center, the Provost, Faculty Senate, Student Government Association, and MUSC's President throughout Team-Up for Better Health's implementation. OII will provide semi-annual updates to the Provost's Council on all QEP-relevant metrics and will compile detailed annual reports of Team-Up for Better Health's progress and challenges. The QEP committee will remain active throughout the QEP implementation and will support efforts related to QEP reporting, outreach and promotion institution-wide.

Capacity and Institutional Capability

COMPREHENSIVE STANDARD 3.3.2

MUSC has a host of resources to support the implementation of our QEP including alignment with our institutional strategic plan (Imagine MUSC 2020), our South Carolina Translational Research (SCTR) institute, the National Center for Interprofessional Practice and Education, dedicated personnel and financial resources, and several relevant pre-existing programs, working groups and committees.

We are well-positioned to implement and sustain Team-Up for Better Health. The Office of Interprofessional Initiatives (OII) is fully engaged in the process, staffed, and ready for implementation and sustainment of the plan. OII will provide collaborative and coordinating oversight of the QEP across all six colleges and with the Medical Center. OII has already developed and implemented strategies for making available numerous new interprofessional clinical rotations at MUSC, and the quality of applied teamwork skill education will be enhanced and evaluated continuously throughout the QEP.

MUSC'S 2015 STRATEGIC PLAN | IMAGINE MUSC 2020

MUSC's 2015 Strategic Plan has been finalized and implemented. Through a rigorous and comprehensive institutional process MUSC has arrived at our vision, mission, core values, and goals that will lead our way through to the year 2020. The strategic plan sets the stage for our next QEP by demonstrating the necessary institutional investment of time, priority and resources necessary to make our QEP successful.

Imagine
M U S C 2 0 2 0

VISION: Leading Health Innovation for the Lives We Touch

MISSION: MUSC's purpose is to preserve and optimize human life in South Carolina and beyond.

VALUES:
- Compassion
- Collaboration
- Respect
- Integrity
- Innovation

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

Of unique relevance to the QEP is goal-3 which expands to the following: "We will evolve our learning methods and translate educational principles to foster a lifelong learning environment for students, staff, and faculty. Interprofessionalism, team building, and technology will serve as our foundation as we seek to enhance the value of our educational initiatives."

This goal represents the intersection of the overall institutional Strategic Plan and our QEP providing a solid institutional framework and commitment to the student learning outcomes outlined in our QEP.

Specifically, Strategic Objective 3 of this goal is to: "Integrate interprofessional teamwork into education, practice, and research." Several supporting initiatives were designed to realize this objective:

1. Create IP standards, definitions, expectations, and goals for all IP experiences as well as for students, faculty, and staff

2. Provide IP team-training to students, faculty, and staff in all educational, hospital and research units, enterprise-wide

3. Identify existing, enhance, and develop new IP applied experiences/rotations with real patients, and through the Simulation Center for students from all six MUSC Colleges

4. Get all Colleges' academic calendars aligned to facilitate cross-college interaction and collaboration (Transition by 2019)

5. Evaluate and enhance physical space as well as utilize telehealth technologies to improve IP collaboration

6. Evaluate the impact of IP teamwork on scientific productivity, clinical effectiveness, quality, outcomes, patient satisfaction, and safety

These initiatives, especially #3, "Identify existing, enhance, and develop new IP applied experiences/rotations with real patients, and through the Simulation Center for students from all six MUSC Colleges" is at the core of Team-Up for Better Health and synergizes institution-level strategy with our QEP efforts.

Team-Up for Better Health also aligns with other goals of Imagine2020 including the advancement of new knowledge and scientific discoveries (SCTR Team Science, see below), building health communities (oral health faculty development program), and committing to patients and families first (Safely Speaking initiative).

Altogether, Team-Up for Better Health integrates seamlessly into the institution's large-scale strategic plan thereby creating an outstanding level of institutional support for its implementation.

SOUTH CAROLINA TRANSLATIONAL RESEARCH INSTITUTE
MUSC's NIH Clinical and Translational Science Award Program

The South Carolina Clinical and Translational Research (SCTR) Institute is the catalyst for changing the culture of biomedical research, facilitating sharing of resources and expertise, and streamlining research-related processes to bring about large-scale, change in the clinical and translational research efforts in South Carolina.

SCTR's vision is to improve health outcomes and quality of life for the population through discoveries translated into evidence-based practice. SCTR facilitates cross-disciplinary research by coordinating expertise and resources throughout the state. SCTR also catalyzes the development of teams of researchers with unique and complimentary perspectives who create and implement effective, culturally sensitive primary and secondary prevention and treatment interventions based on fundamental discoveries.

Our most recent funded SCTR program (2015-2020) features a new program: **Collaboration and Multidisciplinary Team Science.**

Collaboration & Multidisciplinary Team Science | PI: Borckardt

Aims and Innovation. Solving complex clinical and translational science problems demands collaborations between investigators from multiple disciplines.[2-5] SCTR recognizes the importance of fostering team science through new educational programs designed to teach best practices in team science.[3,6-9] At a national level, SCTR is an active member of the CTSA Team Science Affinity group that is providing leadership in translational team building across the CTSA Network. MUSC is a national leader in interprofessional education and practice with the development and implementation of numerous campus-wide, cross-college educational and clinical initiatives and active membership in the National Center for Interprofessional Practice and Education. MUSC's Office of Interprofessional Initiatives is a campus-wide program that drives and promotes numerous university and statewide initiatives related to scientific, clinical and educational interprofessional teamwork. Partnering the SCTR Team Science initiatives with the Office of Interprofessional Initiatives affords opportunities for highly innovative synergies During the CTSA award period (2015-2020), we will build on our team science successes by further developing and integrating best practices and principles of team science across all SCTR-related research programs, projects, and educational opportunities. The specific aims of this program are to:

AIM 1:   Develop and support new programs and initiatives that promote team science research.

AIM 2:   Provide novel educational programs that teach best practices in team science to our research workforce.

AIM 3:   Collaborate with other CTSA hubs to co-develop, disseminate and adopt best team science practices.

Program Leadership: Jeff Borckardt, PhD, Program Director, is a clinical translational scientist with more than 10 years of continuous NIH funding in comprehensive chronic pain management and team-based scientific approaches to healthcare quality improvement processes. As Program Director, he oversees development and rollout of the new team-science small grants program, coordination of the team-science lecture series and pilot project funding, and represents SCTR on the CTSA Team Science Affinity group.

Small Grants Program. We have recently created a recurring small grants program to fund investigator-initiated "Science of Team Science (SciTS)" projects (described above) to examine the methodology and outcomes associated with interprofessional translational team science approaches.

SCTR Retreat Activities to Promote Team Science. We will continue to hold statewide scientific SCTR retreats focusing on topics that lend themselves to team science approaches (e.g., tobacco, obesity and pain research) involving investigators across the translational research spectrum (i.e., from molecular biology to clinical trials).

Dr. Kenneth Catchpole (associate Director for Collaborative Practice, OII) gave the inaugural presentation entitled: "Teamwork, Performance and Improving Patient Care: Science and Practice". A new component of the retreats will be Team Science "Speed Dating" sessions to promote formation of new interprofessional translational research teams.

New Team Science Courses and Lecture Series. SCTR will establish a monthly Team Science Special Topics Lecture Series open to all students, faculty, and staff including lectures by national leaders in team science research. We will use this program as an opportunity to seek onsite consultation from leaders around team science initiatives, ongoing SCTR projects and programs.

Promoting Team Science Through New Educational Initiatives. CAPSULE. SCTR and the Office of Interprofessional Initiatives will collaborate in developing a new program called CAPSULE—Collaborative and Practical Skills in Multidisciplinary Learning Experiences, modeled after the CLARION case competition. CLARION is a student-driven, staff/faculty-advised interprofessional experience including lessons in leadership, teamwork, and communication with a primary goal of having participants appreciate the skills that each profession brings to improving healthcare and patient safety through interprofessional collaboration.

MUSC has participated in the national CLARION competition for the past several years, placing 2nd in 2011 and 2014. In CAPSULE, teams of trainees (e.g., MSCR, MD PhD, PhD scholars) from at least two professions/disciplines at any SCTR site will be charged with designing a research project or program using optimal team science practices.

The trainees will work with advisory teams of faculty and staff that bring together diverse medical and related disciplines (e.g., medical subspecialties, engineers, chemists, allied health professionals). Teams of trainees are charged with developing a plan to take a specified therapeutic discovery to market through the development of a biotech company.

This requires establishing officers for the company, a development plan, patent search, licensing agreement, business plan, and Phase I-III clinical trials.

Collaborate with other CTSA hubs to co-develop, disseminate, and adopt best practices. As part of the CTSA Team Science Affinity Group, SCTR investigators are participating in a peer network of 25 team science educators, evaluators, and facilitators at 10 CTSAs in testing and disseminating best practices in translational team science. Building on Northwestern University's Team Science.org resources and new modules in collaboration readiness and team leadership, the group developed a web- and seminar-based Team-building Program for translational team science including competency-based educational modules to be piloted at 7 participating CTSA sites. SCTR is one of the 7 participating institutions.

Program impact will be evaluated by pre- and post-course measurements of team readiness and assessment of team processes and implementation plans. After refinement, the modules will be provided to the CTSA consortium for implementation and local adaptation. This tool will enable the consortium to employ evidence-based approaches in supporting team-based collaborations.

NATIONAL CENTER FOR INTERPROFESSIONAL PRACTICE AND EDUCATION

The National Center for Interprofessional Practice and Education was formed in October 2012 through a cooperative agreement with the United States Department of Health and Human Services, Health Resources and Services Administration. The National Center is also funded in part by the Josiah Macy Jr. Foundation, the Robert Wood Johnson Foundation, the Gordon and Betty Moore Foundation, and the University of Minnesota. MUSC is a Center member-institution and incubator site for IPE research.

The National Center for Interprofessional Practice and Education is a unique public-private partnership charged by its funders to provide the leadership, evidence and resources needed to guide the nation on the use of interprofessional education and collaborative practice as a way to enhance the experience of health care, improve population health and reduce the overall cost of care. We do this by aligning interprofessional education and collaborative practice (the "new IPE") with transforming health care delivery. The National Center challenges people to think in new and different ways about health care and how health professionals learn.

As a partner institution and incubator-site for the National Center, MUSC gathers, synthesizes, aggregates and disseminates information, knowledge and evidence about the effectiveness of interprofessional practice and education on health outcomes and its potential to transform health care and health professions education in the U.S. and beyond. The Center maintains a role as unbiased, neutral conveners working across many professional boundaries, cultures and experiences. In doing so, we are breaking new ground, inspiring people to join the journey and elevating the contributions of others along the way – providing the leadership, evidence, solutions and support necessary to advance the field.

The Mission of the Center is to offer and support evaluation, research, data and evidence that ignites the field of interprofessional practice and education and leads to better care, added value and healthier communities.

The vision is that high-functioning teams can improve the experience, outcomes, and costs of health care.

FINANCIAL AND HUMAN RESOURCES

Because of the extensive personnel resources dedicated to the QEP outlined below, additional hiring will be unnecessary for successful QEP implementation and completion. Salary/effort coverage will be provided for key personnel through OII thereby ensuring adequate personnel support throughout the QEP process at MUSC.

Non-key personnel effort will be funded in-kind through each faculty members' host College including participation in QEP-related working-groups, advisory council participation, and/or special project time-allocation. This personnel plan represents a clear institutional commitment to a successful QEP through investment of financial resources to sufficiently staff our QEP.

The anticipated return on investment by MUSC in Team-Up for Better Health is difficult to quantify, however there is evidence emerging to support the notion that improved teamwork in health care can reduce costly medical errors, improve patient safety, reduce excess medical utilization, reduce hospital length of stay, improve patient satisfaction, and improve clinical outcomes. MUSC is dedicated to each of these goals and thus Team-Up for Better Health is viewed as a welcome up-front investment in institutional strategies that serve our mission and ultimately the health of the State of South Carolina.

Below are key personnel and committee members that will be dedicated and instrumental in Team-Up for Better Health.

Jeff Borckardt, Ph.D. (Colleges of Medicine, Dental Medicine, and Graduate Studies)
Assistant Provost, Interprofessional Initiatives
    50% Effort on QEP

Mary Mauldin, Ed.D. (Library Sciences)
Associate Director for Education, OII
    10% Effort on QEP

Chad Register, MPA
Administrative Coordinator
Office of Interprofessional Initiatives
ESL Finance and Administration
    50% Effort of QEP

Ron Acierno, Ph.D. (College of Nursing)
Associate Director for Mentoring and
Professional Development, OII
    3% Effort on QEP

Angela Egner, M. (MUSC Medical Center;
Chief Learning Officer)
Associate Director for Hospital Integration, OII
    3% Effort on QEP

IP/ID ADVISORY COUNCIL MEMBERSHIP

Elizabeth Pilcher – Chair (Professor, College of Dental Medicine)

Jeff Borckardt – Asst. Provost & Director, OII (Professor, Colleges of Medicine, Dental Medicine, and Graduate Studies)

Daniel Scheurer – Chief Quality Officer, MUSC Medical Center

Jennifer Bailey – Director of Operations, OII

Donna Kern – Senior Associate Dean for Medical Education, College of Medicine

Debora Brown – Associate Professor and Academic Coordinator of Clinical Education, College of Health Professions

Nancy Carson – Associate Professor and Associate Dean for Academic and Faculty Affairs, College of Health Professions

Terri Fowler – Assistant Professor, College of Nursing

Mulugeta Gebregziabher – Assistant Professor, Public Health Sciences

Stephen Andrew Hargett – Chief Financial Officer, MUSC Medical Center

Ginny Hun – MUSC-TH Affiliation Executive

Renata S. Leite – Assistant Professor, College of Dental Medicine

Mark A. Lyles – Chief Strategic Officer, MUSC Clinical Enterprise

William P. Moran – Professor & Director, Division of General Internal Medicine & Geriatrics

Holly Wise, Ph.D. (College of Health Professions)
Associate Director for Collaborative Practice, OII
    5% Effort on QEP

David Garr, M.D. (College of Medicine and SC AHEC)
Deborah Carson, Pharm.D. (College of Pharmacy and SC AHEC)
Associate Directors for Clinical and Community Affairs, OII
    4% Combined Effort on QEP

Suzanne Thomas, Ph.D. (College of Medicine)
Director of Institutional Effectiveness
    5% In-kind Effort on QEP

Elizabeth Pilcher, D.M.D. (College of Dental Medicine)
Chair, IPID Advisory Council
    2% Effort on QEP

Sarah Velasco
Administrative Coordinator, OII
    75% Effort on QEP

Kelly R. Ragucci – Professor & Chair, Department of Clinical Pharmacy and Outcomes Sciences

Royce R Sampson – Research Assistant Professor, Clinical Neuroscience Division, Chief Operations Officer, South Carolina Clinical & Translational Research Institute (SCTR)

Phil Smeltzer – Assistant Professor & Program Administrator, Population Health Program

Matt Wain – Chief Operating Officer, MUSC Medical Center

QEP COMMITTEE

Jeff Borckardt – Chair

Willette Burnham – Assistant Professor, University Chief Diversity Officer

Nancy Carson – Associate Professor and Associate Dean for Academic and Faculty Affairs, College of Health Professions

Thomas Crawford – Administrator, MSK & ACT, MUSC Medical Center

Angela Egner – Chief Learning Officer, MUSC Medical Center

David Garr – Professor & Executive Director, South Carolina Area Health Education Consortium

Philip Hall – Dean, College of Pharmacy

Donna Kern – Senior Associate Dean for Medical Education, College of Medicine

Daniel Lackland – Professor, College of Graduate Studies

Ragan Leblanc – MHA Student & Interprofessional Student Advisory Board Member

Mary Mauldin – Professor & Executive Director, Office of Instructional Technology & Faculty Resources

William Moran – Professor & Director, Division of General Internal Medicine & Geriatrics

Michele Ravenel – Associate Professor, College of Dental Medicine

Danielle Scheurer – Chief Quality Officer, MUSC Medical Center

Gail Stuart – Dean, College of Nursing

Suzanne Thomas – Professor & Director, Office of Institutional Effectiveness

Andrea Anderson – Graduate Student & Interprofessional Student Advisory Board Member

Jillian Harvey – Assistant Professor, College of Health Professions

Heather Holmes – Associate Professor, Associate Director of Libraries

Angela Dempsey – Associate Professor, College of Medicine

Lisa Langdale – Director, Clinical Excellence Education

Susan Newman – Associate Professor College of Nursing

Anita Ramsetty – Clinical Assistant Professor, Department of Family Medicine

Dayan Ranwala – Research Assistant Professor, SCTR Institute

Holly Wise – Professor, College of Health Professions

INTERPROFESSIONAL STUDENT ADVISORY COUNCIL

Alexander Novgorodov – President

INTERPROFESSIONAL CORE CURRICULUM COMMITTEE

Lindsey Hamil – Assistant Professor; Dental Medicine

Debra Hazen Martin – Associate Dean for Curriculum; Medicine

Jeff Korte – Associate Professor; Medicine & Public Health Sciences

Teri Fowler – Instructor; Nursing

Gil Boissinneault – Professor; PA; Health Professions

Candace Jaruzel – Nurse Anesthetist; Health Professions

Brandi White – Instructor; Healthcare Studies

Abby Kazley – Professor & Interm Director, Department of Health Informatics; Health Professions

Heather Bonilha – HRS PhD Program Director; Health Sciences & Research; Health Professions

Melissa Hortman – Senior Information Resources Consultant; Education and Student Life

**Jennifer Bailey** – Instructor; Director of Operations, OII

Mary Mauldin – Professor: Associate Director for Education, OII

Jeff Borckardt – Professor: Director of OII

TEAM-UP FOR BETTER HEALTH ADMINISTRATIVE STRUCTURE

The Team-Up for Better Health governance plan fits seamlessly into the OII office structure, taking advantage of organizational efficiencies and resources that are institutionally-backed and hard-wired. This structure affords us the necessary institutional framework to successfully carry-out our QEP with minimal additional financial investment above and beyond the explicit allocations for MUSC's Strategic Plan and QEP-specific expenses allocated to date.

We gain the distinct advantage of creating a QEP that is truly integrated with the values, mission and strategic goals of the institution.
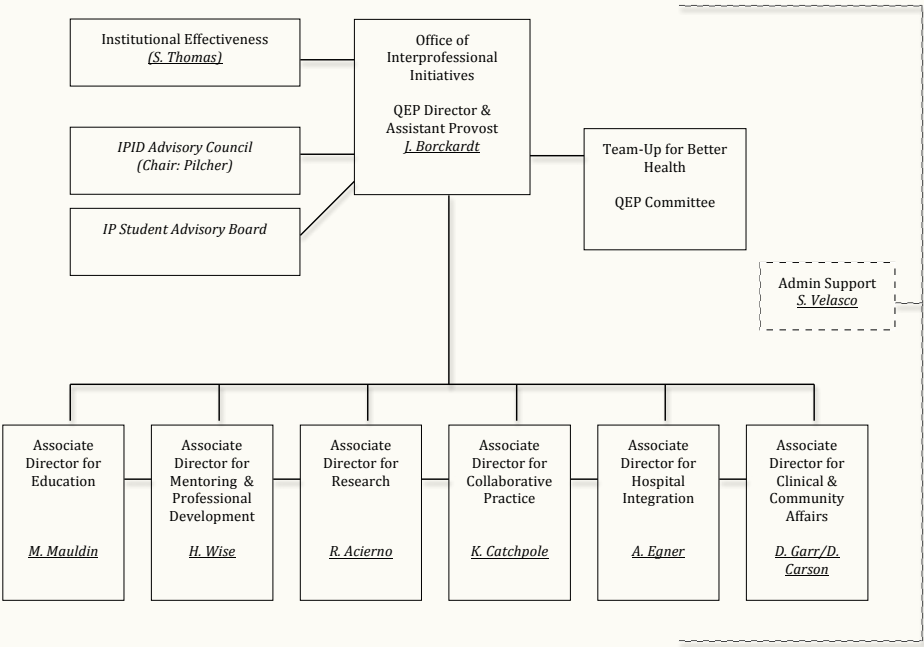
Team-Up for Better Health Budget & Financial Allocations:

Year-1		Year-2	
QEP-Related Personnel Costs	$243,930	QEP-Related Personnel Costs	$251,248
IP 710 Facilitator Personnel Costs	$93,000	IP 710 Facilitator Personnel Costs	$95,790
IP-Day Facilitator Personnel Costs	$37,300	IP-Day Facilitator Personnel Costs	$38,419
TeamWorks Personnel Costs	$56,800	TeamWorks Personnel Costs	$58,504
RFP for New Clinical Rotations	$60,000	RFP for New Clinical Rotations	$30,000
QEP Promotion and Related Materials	$25,000	QEP Promotion and Related Materials	$5,000
Misc. QEP-Related Materials & Services	$12,000	Misc. QEP-Related Materials & Services	$12,000
Year-1 Total	**$528,030**	**Year-2 Total**	**$490,961**

Year-3		Year-4	
QEP-Related Personnel Costs	$258,785	QEP-Related Personnel Costs	$266,548
IP 710 Facilitator Personnel Costs	$98,663	IP 710 Facilitator Personnel Costs	$101,623
IP-Day Facilitator Personnel Costs	$39,571	IP-Day Facilitator Personnel Costs	$40,758
TeamWorks Personnel Costs	$60,259	TeamWorks Personnel Costs	$62,066
QEP Promotion and Related Materials	$5,000	QEP Promotion and Related Materials	$5,000
Misc. QEP-Related Materials & Services	$6,000	Misc. QEP-Related Materials & Services	$6,000
Year-3 Total	**$468,278**	**Year-4 Total**	**$481,995**

Year-5	
QEP-Related Personnel Costs	$274,545
IP 710 Facilitator Personnel Costs	$104,672
IP-Day Facilitator Personnel Costs	$48,512
TeamWorks Personnel Costs	$63,928
QEP Promotion and Related Materials	$5,000
Misc. QEP-Related Materials & Services	$6,000
Year-5 Total	**$502,657**

TEAM-UP for Better Health

Total Cost: $2,471,921

ADDITIONAL LIBRARY / LEARNING RESOURCES

(in-kind resources not reflected in budget)

MYQUEST

In April of 2015, MUSC selected Net Dimensions Talent Suite to be our new product for our employee learning management system. We have since achieved successful adoption of the learning management system (called MyQuest) for our more than 19,000 faculty, staff and students. We focused on improving our educational content by meeting with subject matter experts for content validation, using newly purchased eLearning templates from Net Dimensions for content design. MyQuest is used at MUSC to deliver educational content and evaluate learner knowledge across all mandatory annual training topics for faculty, staff and students, but can also be used by learners to develop individualized elective training curricula in areas of unique interest to individuals at MUSC.

APPLE TREE SOCIETY

MUSC's Apple Tree Society under the Direction of Dr. Mary Mauldin seeks to foster dialogue and activity related to the scholarship of health professions teaching through campus and national partnerships. This longstanding program seeks to expand the faculty development opportunities related to teaching and learning on campus and beyond, initiate programs that recognize and enhance the value of the scholarship of teaching and learning, explore and support innovative methods and technologies for teaching and learning, promote professional development of current and future educators across all colleges, and foster networking opportunities and conversations about teaching, learning, and educational technology. Apple Tree will serve as a hub for faculty development resources pertaining to Team-Up for Better Health, TeamSTEPPS and interprofessional faculty mentorship programs relevant to IP710 teaching, IP-day facilitator training and other Team-Up for Better Health initiatives.

OCLC WORLDCAT

Through WorldCat Discovery, MUSC users can search more than two billion electronic, digital and physical resources in libraries around the world with a single search of WorldCat and a central index that represents more than 2,300 e-content collections. Items that are held by MUSC including electronic books, traditional paper books, and historical items are sorted at the top of the results. Users are able to filter results to pin-point the material that meets their needs. Specifically, this is a great way for users to discover MUSC Library's collection of over 300,000 eBooks which have been difficult to locate under our old system. The search box also gives users to select a "Books" tab which automatically limits the search to just books (excluding journal articles) or to select the "Journals" tab which searches our journal collection by title.

MOODLE

Moodle is a learning platform designed to provide educators, administrators, and learners with a single robust, secure, and integrated system to create personalized learning environments. Moodle is built by the Moodle project which is led and coordinated by Moodle HQ, an Australian company of thirty developers which is financially supported by a network of over sixty Moodle Partner service companies worldwide. Moodle is one of MUSC's primary online learning environment tools and is used to support IP710 as well as numerous other IP elective courses. Moodle's worldwide numbers of more than ninety million users across both academic and enterprise level usage makes it the world's most widely-used learning platform.

Assessment of Achievement

COMPREHENSIVE STANDARD 3.3.2

MEASUREABLE OUTCOMES AND DATA FLOW

We have developed a comprehensive set of metrics for Team-Up for Better Health that capture measureable student learning outcomes as well as measures of the learning environment at MUSC. We have elected to revisit several teamwork-relevant metrics from our last QEP where initial deficiencies were noted, and where possible, we used these data from the completion of our prior QEP as baseline scores as we moved forward with the plan for implementing Team-Up for Better Health. Additionally, we have added an extensive list of new metrics that reflect progress toward the goals of Team-Up for Better Heath using our new IP-web applications server platform, which hosts our Applied Teamwork Competency Portfolio system via interface with a dedicated MySQL database.

The measurement sources are all institutionally hard-wired (e.g., MUSC's annual employee engagement survey, patient satisfaction survey, etc.) and institutional processes are in place for collection and retrieval of data from these sources. The ATC Portfolio database is up and running and relies on a purely digital data collection interface that runs on all desktop computers as well as mobile devices (phones and tablets). OII manages this system and database and has the capacity to directly query the database. Thus, all proposed metrics are set-up to optimize data flow through OII, OIE, and MUSC's Hospital Analytics Group.

Our key QEP metrics (outlined in the metrics table on opposing page) comprise a variety of formats and data-types ranging from raw counts to percent-agree/positive-response on self-report surveys. In some cases, our goals are expressed as absolute values/ratings and in other cases the goals are represented as change-scores over time.. Our progress goals were set by the QEP committee based on what the group considered to be meaningful and relevant representations of student skill acquisition, learning-outcomes and institutional environment parameters that best capture our two primary QEP goals.

We attempted to strike a balance between ambitious yet realistic targets for year-5 of the QEP across all of the measures, and we interpolated progress toward those goals in the intermediate years of the plan. OII and the QEP Committee will examine all metrics annually against projected targets and evaluate progress toward meeting the goals of Team-Up for Better Health. The committee will identify areas of strength and weakness based on the data and will update and/or initiate new strategies/innovations as needed to ensure continued progress toward our goals.

TEAM UP FOR BETTER HEALTH

Impact Report

After year five of Team-Up for Better Health, MUSC will submit to SACSCOC a QEP Impact Report that will include a list of our initial goals and intended outcomes, a discussion of changes made to the QEP, if any, referencing adjustments in strategy, new innovations, new programs, and/or metrics and targets in response to internal evaluations of progress or obstacles encountered. The report will include a summary of Team-Up for Better Health's impact on student learning and the learning environment at MUSC as well as a review of unanticipated outcomes (positive and negative) and a reflection on what the institution has learned as a result of the QEP experience.

Select Teamwork-Specific Metrics from Previous QEP Carried Forward

Source	Measure	Type	QEP-Domain	Collection Approach	Baseline	Target Year-1	Target Year-2	Target Year-3	Target Year-4	Target Year-5
IP-710 Course Evaluation	Item: My Teamwork Skills Improved	% Agree	Student Learning	Bi-Annual Course Evaluation	47%	55%	64%	73%	82%	90%
Employee Satisfaction Survey/ Academic/Clinic Areas	Quality of Interprofessional Teamwork	% Favorable	Learning Environment	Annual Employee Satisfaction Survey	82%	83%	84%	86%	88%	90%
Employee Satisfaction Survey/ Hospital Areas	Quality of Interprofessional Teamwork	% Favorable	Learning Environment	Annual Employee Satisfaction Survey	78%	82%	84%	86%	88%	90%
Patient Satisfaction Survey	Item: There was good teamwork among the doctors, nurses, therapists, and other staff who cared for me	Mean score	Learning Environment	Rolling Patient Satisfaction Survey	90.75	91.00	92.00	93.00	94.00	95.00

New Metrics Introduced as part of Team-Up for Better Health at MUSC

Source	Measure	Type	QEP-Domain	Collection Approach	Baseline	Target Year-1	Target Year-2	Target Year-3	Target Year-4	Target Year-5
ATC Portfolio	QII Approved IP Team-based clinical and research rotations for students	Count	Learning Environment	Annual IP Database Query	14	17	21	25	30	35
ATC Portfolio	Number of students involved in QII-approved applied teamwork experiences	Count	Learning Environment	Annual IP Database Query	104	200	250	300	350	400
MyQuest	Faculty & Staff post-test scores on teamwork training module	Mean score (%)	Learning Environment	MyQuest Database Query	-	80%	83%	86%	88%	90%
ATC Portfolio	Teamwork Performance Evaluation (TPE) Student Self Ratings (Time of Graduation minus Time of Admission)	% improvement	Student Learning	IP Database Query	-	-	-	10%	20%	30%
ATC Portfolio	Student downloads of ATC vitae supplement	Count	Learning Environment	Annual IP Database Query	-	50	100	150	200	250
IP-710 Course	Teamwork Performance Evaluation (TPE) Precepter Evaluation of Students (Post Training minus Pre-Training)	% improvement	Student Learning	Annual IP Database Query	-	10%	15%	20%	25%	30%
Clinical or Research Rotation/Course	Teamwork Performance Evaluation (TPE) Precepter Evaluation of Students Post-Rotation	% Favorable	Student Learning	Annual IP Database Query	-	70%	75%	80%	85%	90%
Clinical or Research Rotation/Course	Teamwork Performance Evaluation (TPE) Student Evaluation of Rotation/Course Team	% Favorable	Learning Environment	Annual IP Database Query	-	55%	65%	75%	80%	85%
Team-Up for Better Teaching	Teamwork Performance Evaluation (TPE) Peer Evaluations (Post- minus Pre-participation)	% improvement	Learning Environment	Annual IP Database Query	-	10%	15%	20%	25%	30%
SCTR Team Science Program	Extramurally funded research projects seeded by intramural Team Science small grants program	Count	Learning Environment	Annual ORSP Database Query	-	1	1	2	2	3
Teamwork Rater Certification	Number of student certified raters in TeamSTEPPS	Count	Student Learning	Annual IP Database Query	678	825	825	825	825	825
TeamWorks Program	Number of students evaluating real-world health teams via TeamWorks	Count	Student Learning	Annual IP Database Query	140	160	180	200	220	240

Literature Cited

1. Institute of Medicine Report (2015). Measuring the impact of interprofessional education on collaborative practice and patient outcomes. National Academy of Sciences.

2. Mitchell R, Parker V, Giles M, White N. Review: Toward realizing the potential of diversity in composition of interprofessional health care teams: an examination of the cognitive and psychosocial dynamics of interprofessional collaboration. Med Care Res Rev. 2010;67(1):3-26.

3. Bennett LM, Gadlin H. Collaboration and team science: from theory to practice. J Investig Med. 2012;60(5):768-75. PMCID: 3652225.

4. Bennett LM, Gadlin H, Levine-Finley S. Collaboration & Team Science: A Field Guide. Bethesda, MD: National Institutes of Health, 2010. Retrieval from NIH website: https://ccrod.cancer.gov/confluence/download/ attachments/47284665/teamscience_fieldguide.pdf

5. Bedwell WL, Ramsay S, Salas E. Helping fluid teams work. A research agenda for effective team adaptation in healthcare. Transl Behav Med. 2012; 5:71-77.

6. Begg MD, Crumley CG, Fair AM, Martina CA, McCormack WT, Merchant C, Patino-Sutton CM, Umans JG. Approaches to preparing young scholars for careers in interdisciplinary science. J Investig Med. 2014 Jan;62(1):14-25.

7. Dorsey SG, Schiffman R, Redeker NS, Heitkemper M, McCloskey DJ, Weglicki LS,Grady PA; NINR Center Directors. National Institute of Nursing Research Centers of Excellence: A logic model for sustainability, leveraging resources, and collaboration to accelerate cross-disciplinary science. Nurs Outlook. 2014 Nov-Dec;62(6):384-93. PMCID: PMC4253141.

8. Slavkin HC, Sanchez-Lara PA, Chai Y, Urata M. A model for interprofessional health care: lessons learned from craniofacial teams. J Calif Dent Assoc. 2014 Sep;42(9):637-44.

9. Weinberger M, Pusek SN, Esserman DA, Loehr LA, Miller WC, Orringer EP, Weaver MA. A model for developing, evaluating, and disseminating best practices in education and training. Clin Transl Sci. 2014 Oct;7(5):402-5. PMCID:PMC4230533.

10. Baker DP, Gustafson S, Beaubien JM, et al. Medical teamwork and patient safety: the evidence-based relation. Washington, DC: American Institutes for Research; 2003.

11. Cannon-Bowers JA, Tannenbaum SI, Salas E, et al. Defining competencies and establishing team training requirements. In: Guzzo RA, Salas E, eds. Team effectiveness and decision making in organizations. San Francisco: Jossey-Bass; 1995. p. 333.

12. Salas E, Dickinson TL, Converse SA, et al. Toward an understanding of team performance and training. In: Swezey RW, Salas E, eds. Teams: their training and performance. Norwood, NJ: Ablex; 1992. p. 3.

13. Salas E, Bowers CA, Cannon-Bowers JA. Military team research: 10 years of progress. Mil Psychol 1995;7(2):55-75.

14. Morgan BB, Glickman AS, Woodward EA, et al. Measurement of team behaviors in a Navy environment. Tech. Report No. NTSC TR-86-014. Orlando, FL: Naval Training Systems Center; 1986.

15. Kohn LT, Corrigan JM, Donaldson MS. To err is human: building a safer health system. Committee on Quality of Health Care in America, Institute of Medicine. Washington, DC: National Academy Press; 1999.

16. Baker D, Salas E, King H., et al. The role of teamwork in the professional education of physicians: current status and assessment recommendations. Jt Comm J Qual Patient Saf 2005;31:185-202.

17. Salas E, Sims DE, Burke SC. Is there a "Big Five" in teamwork? Small Gr Res 2005;36(5):555-99.

18. Salas E, DiazGranados D, Klein C, et al. Does team training improve performance? A meta-analysis. Hum Factors 2008;50:903-33.

19. Weaver SJ, Lyons R, DiazGranados D, et al. The anatomy of health care team training and the state of practice: a critical review. Acad Med 2010;85:1746-60.

20. Fransen A, van de Ven J, Merien A, et al. Effect of obstetric team training on team performance and medical technical skills: a randomized controlled trial. BJOG 2012;119(11):1387-93.

21. Buljac-Samardzic M, Dekker-van Doorn CM, van Wijngaarden JDH, et al. Interventions to improve team effectiveness: a systematic review. Health Policy 2010;94(3):183-95.

22. Capella J, Smith S, Philp A, et al. Teamwork training improves the clinical care of trauma patients. J Surg Educ 2010;67(6):439-43.

23. Deering S, Rosen M, Ludi V, et al.On the front lines of patient safety: implementation and evaluation of team training in Iraq. Jt Comm J Qual Patient Saf 2011;37(8):350-6.

24. Neily J, Mills PD, Lee P, et al. Medical team training and coaching in the Veterans Health Administration: assessment and impact on the first 32 facilities in the programme. Qual Saf Health Care 2010;19(4):360-4.

25. Paull DE, Mazzia LM, Wood SD, et al. Briefing guide study: preoperative briefing and postoperative debriefing checklists in the Veterans Health Administration medical team training program. Am J Surg 2010;200(5):620-3.

26. Salas E, Gregory M, King H. Team training can enhance patient safety—the data, the challenge ahead. Jt Comm J Qual Patient Saf 2011;37(8):339-40.

27. Thomas L, Galla C. Building a cutlure of safety through team training and engagement. BMJ Qual Saf 2013;22(5):425-34.28. James, JT (2013). A New, Evidence-based Estimate of Patient Harms Associated with Hospital Care. Journal of Patient Safety. 9(3):122-128, September 2013.

29. Interprofessional Education Collaborative. (2016). Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative.

Appendix

Visit the Team Up for Better Health Web Applications Portal to view our interactive QEP at
ip.musc.edu

Appendix

MUSC Team Performance Evaluation
Evaluation of Student Performance by Preceptor

Please evaluate the performance of the individual team-member by checking the boxes below that best represent your observations and experiences related to each item.

	Never	Rarely	Sometimes	Frequently	Always
1. The individual fulfills his/her roles and responsibilities as a member of the team.					
2. The individual's communications are valuable and reflect the use of information from a variety of sources.					
3. The individual serves as a role model for the team.					
4. The individual helps make the team aware of the need for actions and resources.					
5. The individual shares constructive feedback with the team members.					

	Yes	No
6. I want this individual to be a member of my team.		

Why or Why Not?

Team Performance Observation Tool

Date: _____
Unit/Department: _____
Team: _____
Shift: _____

Rating Scale
Please comment if 1 or 2.

1 = Very Poor
2 = Poor
3 = Acceptable
4 = Good
5 = Excellent

1. Team Structure	Rating
a. Assembles a team	
b. Assigns or identifies team members' roles and responsibilities	
c. Holds team members accountable	
d. Includes patients and families as part of the team	
Comments:	
Overall Rating – Team Structure	

2. Communication	Rating
a. Provides brief, clear, specific, and timely information to team members	
b. Seeks information from all available sources	
c. Uses check-backs to verify information that is communicated	
d. Uses SBAR, call-outs, and handoff techniques to communicate effectively with team members	
Comments:	
Overall Rating – Communication	

3. Leadership	Rating
a. Identifies team goals and vision	
b. Uses resources efficiently to maximize team performance	
c. Balances workload within the team	
d. Delegates tasks or assignments, as appropriate	
e. Conducts briefs, huddles, and debriefs	
f. Role models teamwork behaviors	
Comments:	
Overall Rating – Leadership	

4. Situation Monitoring	Rating
a. Monitors the status of the patient	
b. Monitors fellow team members to ensure safety and prevent errors	
c. Monitors the environment for safety and availability of resources (e.g., equipment)	
d. Monitors progress toward the goal and identifies changes that could alter the plan of care	
e. Fosters communication to ensure that team members have a shared mental model	
Comments:	
Overall Rating – Situation Monitoring	

5. Mutual Support	Rating
a. Provides task-related support and assistance	
b. Provides timely and constructive feedback to team members	
c. Effectively advocates for patient safety using the Assertive Statement, Two-Challenge Rule, or CUS	
d. Uses the Two-Challenge Rule or DESC Script to resolve conflict	
Comments:	
Overall Rating – Mutual Support	
TEAM PERFORMANCE RATING	

Practice Environment Checklist (PEC) - Short-Form
Lurie, Schultz & Lamanna, 2011

1. This team encourages everyone to share ideas.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. Leadership in this team creates an environment where things can be accomplished.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. People in this team have the information that they need to do their jobs well.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4. When people in this team experience a problem, they make a serious effort to figure out what's really going on.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5. Everyone in the team feels able to act on the team vision.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

RELATIONAL COORDINATION SURVEY

1. How frequently do you communicate with care providers in these groups about patients?

Physicians	Never	Rarely	Occasionally	Often	Constantly
Residents	Never	Rarely	Occasionally	Often	Constantly
Nursing	Never	Rarely	Occasionally	Often	Constantly
Pharmacists	Never	Rarely	Occasionally	Often	Constantly
Psychologists	Never	Rarely	Occasionally	Often	Constantly
Fellows	Never	Rarely	Occasionally	Often	Constantly

2. Do care providers in these groups communicate with you in a timely way about patients?

Physicians	Never	Rarely	Occasionally	Often	Constantly
Residents	Never	Rarely	Occasionally	Often	Constantly
Nursing	Never	Rarely	Occasionally	Often	Constantly
Pharmacists	Never	Rarely	Occasionally	Often	Constantly
Psychologists	Never	Rarely	Occasionally	Often	Constantly
Fellows	Never	Rarely	Occasionally	Often	Constantly

3. Do care providers in these groups communicate with you accurately about patients?

Physicians	Never	Rarely	Occasionally	Often	Constantly
Residents	Never	Rarely	Occasionally	Often	Constantly
Nursing	Never	Rarely	Occasionally	Often	Constantly
Pharmacists	Never	Rarely	Occasionally	Often	Constantly
Psychologists	Never	Rarely	Occasionally	Often	Constantly
Fellows	Never	Rarely	Occasionally	Often	Constantly

4. When problems arise regarding the care of patients, do care providers in these groups work with you to solve the problem?

Physicians	Never	Rarely	Occasionally	Often	Constantly
Residents	Never	Rarely	Occasionally	Often	Constantly
Nursing	Never	Rarely	Occasionally	Often	Constantly
Pharmacists	Never	Rarely	Occasionally	Often	Constantly
Psychologists	Never	Rarely	Occasionally	Often	Constantly
Fellows	Never	Rarely	Occasionally	Often	Constantly

5. How much do care providers in these groups know about the work you do in caring for patients?

Physicians	Nothing	Little	Some	A lot	Everything
Residents	Nothing	Little	Some	A lot	Everything
Nursing	Nothing	Little	Some	A lot	Everything
Pharmacists	Nothing	Little	Some	A lot	Everything
Psychologists	Nothing	Little	Some	A lot	Everything
Fellows	Nothing	Little	Some	A lot	Everything

6. How much do care providers in these groups respect the work you do in caring for patients?

Physicians	Not at all	A little	Somewhat	A lot	Completely
Residents	Not at all	A little	Somewhat	A lot	Completely
Nursing	Not at all	A little	Somewhat	A lot	Completely
Pharmacists	Not at all	A little	Somewhat	A lot	Completely
Psychologists	Not at all	A little	Somewhat	A lot	Completely
Fellows	Not at all	A little	Somewhat	A lot	Completely

7. How much do care providers in these groups share your goals for the care of patients?

Physicians	Not at all	A little	Somewhat	A lot	Completely
Residents	Not at all	A little	Somewhat	A lot	Completely
Nursing	Not at all	A little	Somewhat	A lot	Completely
Pharmacists	Not at all	A little	Somewhat	A lot	Completely
Psychologists	Not at all	A little	Somewhat	A lot	Completely
Fellows	Not at all	A little	Somewhat	A lot	Completely

8. Which work group do you belong to?

[ ] Physicians
[ ] Residents
[ ] Nursing
[ ] Pharmacists
[ ] Psychologists
[ ] Fellows

Collaboration and Satisfaction about Care Decisions (CSACD)

Team Code: _____   Evaluator Code: _____   Date: _____ Time: _____

These questions are related to a decision to transfer a patient. Please circle the number that best represents your judgment about the team process and the decision.

1. Team members planned together to make the decision about care for this patient.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

2. Open communication among team members took place as the decision was made for this patient.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

3. Decision-making responsibilities for this patient were shared among team members.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

4. Team members cooperated in making the decision.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

5. In making the decision, all team members' concerns about this patient's need were considered.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

6. Decision-making for this patient was coordinated among team members.
   1   2   3   4   5   6   7
   Strongly disagree   Strongly agree

7. How much collaboration among team members occurred in making the decision for this patient?
   1   2   3   4   5   6   7
   No Collaboration   Complete Collaboration

8. How satisfied are you with the way the decision was made for this patient, that is with the decision-making process, not necessarily with the decision itself?
   1   2   3   4   5   6   7
   Not Satisfied   Very Satisfied

9. How satisfied were you with the decision made for this patient?
   1   2   3   4   5   6   7
   Not Satisfied   Very Satisfied

J. Baggs, 1992

Applied Teamwork Competencies
OII Student Experience Qualification Rubric

APPLICATION LEVEL QUALIFIER

   i. Real world application

      (real world healthcare, research project, patient or community team experience)

   ii. Simulated, role-played or standardized application

      (simulated healthcare, research project, patient or community team experience)

   iii. Didactic, classroom, or hypothetical case-based application

      (didactic healthcare, research, patient scenario or community team experience)

CATEGORIES

Category A (i, ii, or iii): Applied Clinical Interprofessional Team Experience

(1) Participate in clinical service delivery (with appropriate supervision) on a treatment team consisting of at least 3 different health professions working together

(2) Minimum of 12-hours

(3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

Category B (i, ii, or iii): Applied Teamwork Assessment Experience

(1) Complete at least 6 standardized behavioral observations/evaluations of team interactions on clinical, research or administrative teams using the TeamSTEPPS Team Performance Observation Tool (TPOT)

(2) Complete a 1-page summary report of the quality of teamwork observed

Category C (i, ii, or iii): Applied Quality Improvement Team Experience

(1) Participate as a team member on a performance improvement, quality improvement, root cause analysis or value-initiative project

(2) Attend a minimum of 75% of project-specific meetings

(3) Document the professions represented on the QI team and provide a 1-page QI project summary

(4) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

Category D (ii, or iii): Formal Course or Academic Applied Teamwork Experience

(1) Passing grade in an approved IP team-skills elective or required course

(2) Participate in an organized, applied team activity as part of the course curriculum

(3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

Category E (i, ii, or iii): Interprofessional Organization and Applied Service Learning Experiences

(1) Participation in approved interprofessional program or service learning activity focusing on interprofessional teamwork approaches

(2) Minimum of 12-hours

(3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

Category F (i, ii, or iii): Applied Interprofessional Research Team Experience

(1) Participate in at least 6 research lab meetings with members representing at least 3 disciplines

(2) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

Category G (i, ii, or iii): Applied Interprofessional Global Health Initiative Experience

(1) Participate in a MUSC Center for Global Health student activity (with appropriate supervision) on an implementation team consisting of at least 3 different health professions

(2) Minimum of 12-hours

(3) Completion of appropriate Team Performance Evaluation (TPE) scale or OII-approved metric

	TeamSTEPPS		IPEC
Team Structure	Identification of the components of a multi-team system that must work together effectively to ensure patient safety	TTCore	Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable.
	Assembles team.	TT1	Describe the process of **team development** and the roles and practices of effective teams
	Assigns or identifies **team members' roles and responsibilities.**	RR1	Communicate one's **roles and responsibilities** clearly to patients, families, community members, and other professionals.
		RR6	Communicate with team members to **clarify each member's responsibility** in executing components of a treatment plan or public health intervention.
	Holds team members **accountable.**	TT7	Share **accountability** with other professions, patients, and communities for outcomes relevant to prevention and health care.
	Includes **patients and families** as part of the team.	CC2	Communicate **information with patients, families**, community members, and health team members in a form that is understandable, avoiding discipline-specific terminology when possible.
		VE6	Develop a trusting **relationship with patients, families,** and other team members (CIHC, 2010).
Communication	Structured process by which information is clearly and accurately exchanged among team members	CCCore	Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease.
	Provides brief, clear, specific, and **timely information.**	CC5	**Give timely,** sensitive, instructive feedback to others about their performance on the team, responding respectfully as a team member to feedback from others.
	Seeks information from **all available sources.**	TT10	**Use available evidence** to inform effective teamwork and team-based practices.
	Uses check-backs to verify information that is communicated.		
	Uses SBAR, call-outs, check-backs, and handoff techniques to **communicate effectively with team members.**	CC1	Choose **effective communication tools and techniques**, including information systems and communication technologies, that enhance team function.
Leadership	Ability to maximize the activities of team members by ensuring that team actions are understood, changes in information are shared, and team members have the necessary resources	TT5 CC4	Apply leadership practices that support collaborative practice and team effectiveness Listen actively, and encourage ideas and opinions of other team members
	Identifies team **goals** and vision.	TT6	Engage self and others to constructively manage disagreements about values, roles, **goals,** and actions that arise among health and other professionals and with patients, families, and community members.
	Utilizes resources efficiently to maximize team performance.	RR3	Engage diverse professionals who complement one's own professional expertise, **as well as associated resources**, to develop strategies to meet specific health and healthcare needs of patients and populations.
	Balances workload within the team.	RR4	Explain the roles and responsibilities of other providers and how the team **works together to provide care,** promote health, and prevent disease.
		RR9	Use unique and complementary abilities of **all members of the team** to optimize health and patient care.
	Delegates tasks or assignments, as appropriate.	TT4	Integrate the knowledge and experience of health and other professions to **inform health and care decisions**, while respecting patient and community values and priorities/preferences for care.
	Conducts briefs, huddles, and **debriefs.**	TT8	**Reflect** on individual and team performance for individual, as well as team, performance improvement.
	Role models teamwork behaviors.	TT11	Perform effectively on teams and in **different team roles in a variety of settings.**
Situation Monitoring	Process of actively scanning and assessing situational elements to gain information or understanding, or to maintain awareness to support team functioning Monitors the state of the patient.	CC3	Express one's knowledge and opinions to team members involved in patient care and population health improvement with confidence, clarity, and respect, working to ensure common understanding of information, treatment, care decisions, and population health programs and policies
	Monitors fellow **team members to ensure safety** and prevent errors. Monitors the environment for safety and availability of resources (e.g., equipment).	RR5	Use the full scope of knowledge, skills, and abilities of professionals from health and **other fields to provide care that is safe,** timely, efficient, effective, and equitable.
	Monitors progress toward the goal and identifies changes that could alter **the care plan.**	RR6	Communicate with team members to clarify each member's responsibility in executing components of a **treatment plan** or public health intervention.
	Fosters communication to ensure a **shared mental model.**	TT3	Engage health and other professionals in **shared patient-centered** and populationfocused problem-solving.
Mutual Support	Ability to anticipate and support team members' needs through accurate knowledge about their responsibilities and workload	RRCore	Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations.
	Provides task-related **support and assistance.**	TT5	Apply leadership practices that **support collaborative practice** and team effectiveness
	Provides **timely and constructive feedback** to team members. Effectively advocates for the patient using the Assertive Statement, Two-Challenge Rule, or CUS.	CC5	Give **timely, sensitive, instructive feedback** to others about their performance on the team, responding respectfully as a team member to feedback from others.
	Uses the Two-Challenge Rule or DESC script to **resolve conflict.**	CC6	Use respectful language appropriate for a given difficult situation, crucial conversation, or **conflict.**
		CC7	Recognize how one's uniqueness (experience level, expertise, culture, power, and hierarchy within the health team) contributes to effective communication, **conflict resolution,** and positive interprofessional working relationships (University of Toronto, 2008)

LEGEND	
VECore	Competency 1: Values and Ethics
RRCore	Competency 2: Roles/Responsibilities
CCCore	Competency 3: Interprofessional Communication
TTCore	Competency 4: Team & Teamwork

Office of Interprofessional Initiatives (OII)
Clinical-Service Teamwork Evaluation Program
"Teamworks"

PRE-INTERVENTION PROGRAM EVALUATION REPORT

DATE OF REPORT: May 12th, 2016
CLINICAL SERVICE: ██████████████
INSTITUTION: Medical University of South Carolina

EVALUATION TOOLS:
        Practice Environment Checklist (PEC)
        Collaboration and Satisfaction about Care Decisions Survey (CSACD)
        Modified Relational Coordination Survey (RCS)
        TeamSTEPPS Team Performance Observation Tool (TPOT)

Survey Methods:
        The Practice Environment Checklist (PEC), Collaboration and Satisfaction about Care Decisions Survey (CSACD), and Modified Relational Coordination Survey (RCS) were converted to digital format by OII and administered anonymously online to all identified faculty and staff involved in the service using MUSC's implementation of the Research Electronic Data Capture system (REDCap). The TeamSTEPPS Team Performance Observation Tool (TPOT) was implemented using a large cohort of raters that observed clinical interactions within the ███████████████ program over a period of 4-weeks. Rater cohorts consisted of students actively engaged in graduate medical education programs at MUSC. Students completed a minimum of 4 didactic sessions in Fundamentals of TeamSTEPPS led by a group of TeamSTEPPS Master Trainers at MUSC. The TeamSTEPPS Master Trainers identified 4 simulation scenarios (video-taped healthcare team interactions) related to practice, and independently rated each video across all domains of the TPOT (team structure, communication, leadership, situation monitoring, and mutual support). After completion of the didactic training, students viewed the simulations and submitted TPOT ratings using MUSC's TeamSTEPPS Rater Certification System. All students were required to rate at least 4/5 sub-domains from the TPOT within 1-standard deviation of the Master Trainers for all 4 of the simulated (video) scenarios. Students were then assigned to observe and evaluate team interactions within the program at two practice sites (ART and MAIN) during 4 designated observation weeks (M-F 7:00am to 5:00pm) in 5-hour shifts. Students received elective credit for participation.

Sample Size(s):
        Practice Environment Checklist (PEC):   **n=22**
        Collaboration and Satisfaction about Care Decisions Survey (CSACD)   **n=22**
        Modified Relational Coordination Survey (RCS):   **n=19**
        TeamSTEPPS Team Performance Observation Tool (TPOT): **18 Raters**   **n=159** *Observations*

        We observed a **63% response-rate** from unit/program faculty and staff for the self-report scales (22/35). To be a representative sample (95% likelihood), we needed 17 participants, thus this response-rate suggests that, overall, the survey responses are >95% likely to be representative of the unit "population" of 35. Three participants completed the RCS but did not identify their professions.

Self-Report Survey Data Summary:
Practice Environment Checklist (PEC)
        Data from the PEC was range-normalized to a 0-100 point scale. The overall mean score was 79.43. Data suggest that the relative strengths of the unit(s) include team encouragement for sharing of ideas, and leadership that creates an environment facilitating accomplishment. Relative weaknesses identified include team efforts to determine root causes of problems encountered and individuals' ability to act on the team vision. Overall, scores on the PEC are good, but there is room for improvement across all 5 domains on the PEC given the highest observed score of 84.76/100 (see figure below)

Practice Environment Checklist Summary:
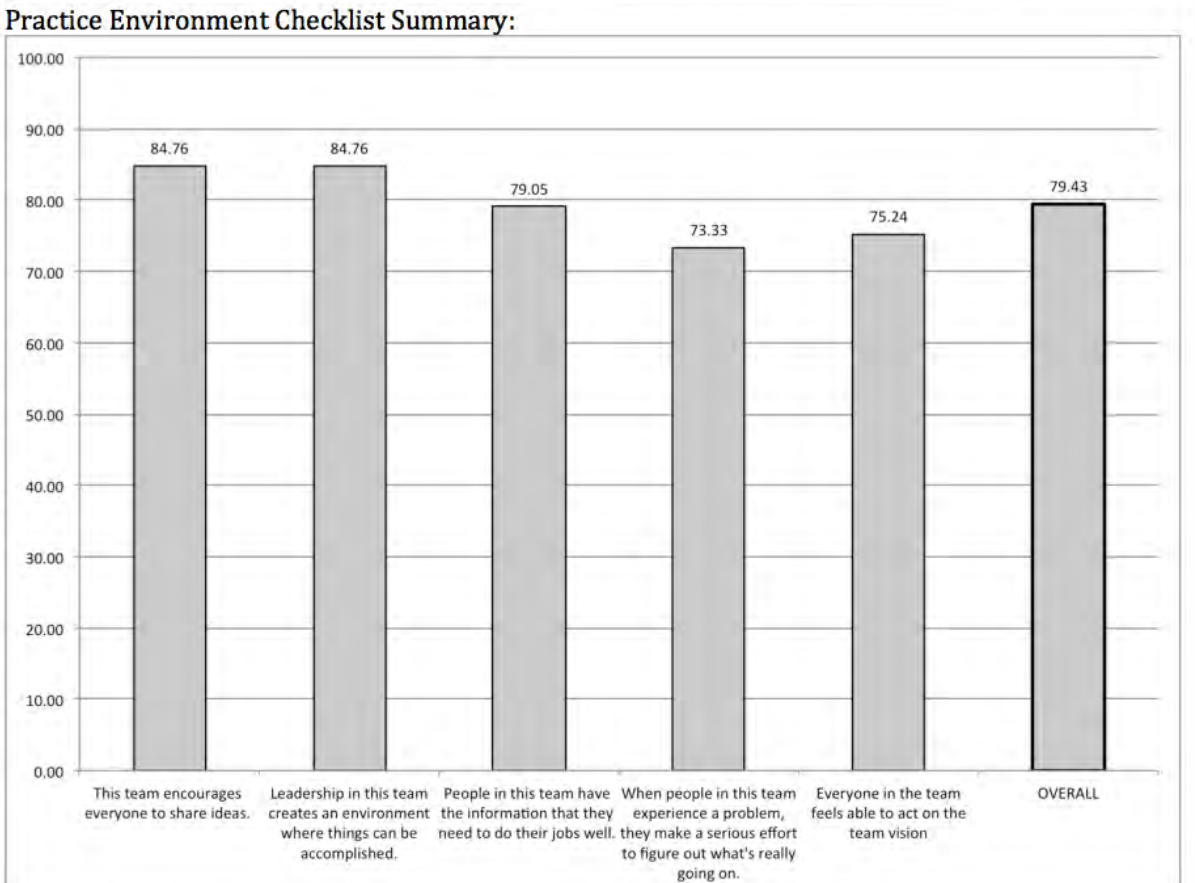
        When the PEC data is broken down by profession (when identified), it appears that Attending physicians are the primary reporters pointing to the identified weakness in team efforts to determine root causes of problems encountered (thereby driving the unit score for that domain down).

Breakdown of PEC by self-identified professions

		This team encourages everyone to share ideas.	Leadership in this team creates an environment where things can be accomplished.	People in this team have the information that they need to do their jobs well.	When people in this team experience a problem, they make a serious effort to figure out what's really going on.	Everyone in the team feels able to act on the team vision	OVERALL
n=6	RNs	76.67	83.33	76.67		70.00	75.33
n=5	RadiologyTechs	88.00	88.00	88.00		80.00	84.80
n=5	Attendings	92.00	84.00	72.00	64.00	76.00	77.60
n=1	NursePractitioners	100.00	60.00	60.00	80.00	60.00	72.00
n=1	PhysicianAssistants	100.00	100.00	100.00	100.00	100.00	100.00
n=1	Fellows	60.00	80.00	80.00	60.00	60.00	68.00
OVERALL		84.76	84.76	79.05	73.33	75.24	79.43

Collaboration and Satisfaction about Care Decisions Survey (CSACD)

Scores from the CSACD were range-normalized to 0-100. The overall score on the CSACD was 76.11. The area representing the biggest identified strength of the unit was the quality of communication between physicians, techs and nurses (specifically, openness of communication) in patient-related decision-making. Areas of relative weakness include interprofessional care-decision-planning and satisfaction with the decision-making process. In general, there is little variability between items on the CSACD, and there is some room for improvement across all domains of the CSACD as the highest observed score is 79.59/100 (see figure below).

Collaboration and Satisfaction about Care Decisions Survey Summary:
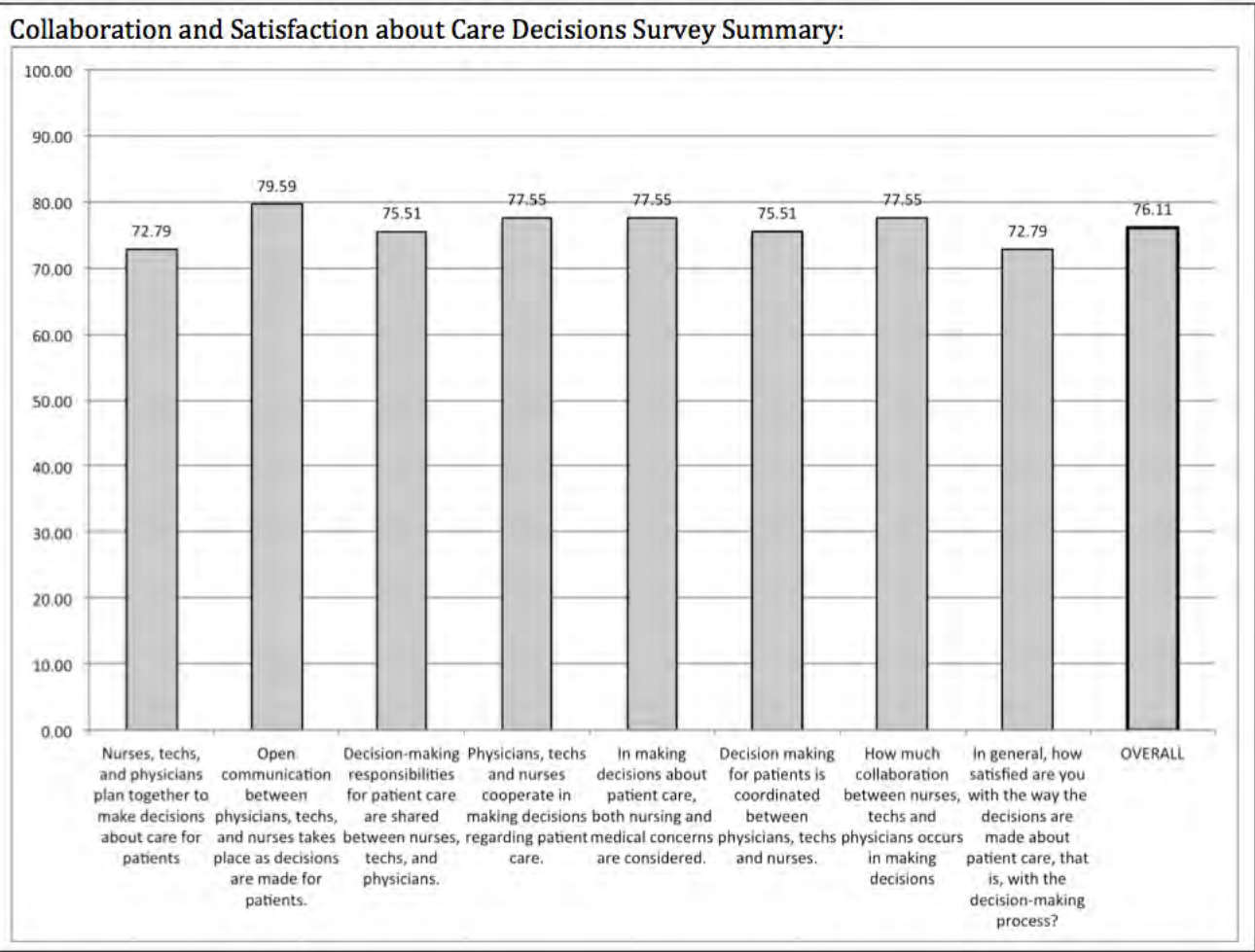
Modified Relational Coordination Survey (RCS)

Findings from the RCS suggest numerous areas of strength as well as a few areas for improvement. With respect to Timeliness of Communication, Attendings note excellence in intra-professional communication and communication with Fellows. The NP notes excellent communication timeliness with Fellows, other NP's, care-coordinators, PA's, Residents and Scheduling. The PA noted excellence in communication timeliness with virtually all professions. However, the NP indicated a communication timeliness problem with Anesthesia Techs, and the RN's indicated some moderate concerns about timeliness of communication with NP's, Patient-Care Coordinators , Scheduling and CRNA's which may warrant work-flow review. The overall score for Timeliness of Communication was 3.86/5.00 (77%) suggesting room for improvement in this domain.

With respect to Accuracy of Communication, numerous areas of outstanding performance were noted by Attendings, NP's and PA's . However, the NP indicated a communication accuracy problem with Anesthesia Techs, and the RN's note moderate concerns about communication accuracy with NP's, Care-coordinators and Scheduling which may warrant work-flow review. The overall score for Accuracy of Communication was 3.90/5.00 (78%) suggesting room for improvement in this domain.

With regard to the level of Perceived Respect Received for the work done by each profession, a number of outstanding relationships were identified. Attendings identified outstanding levels of perceived respect from the Fellows, PA's, Residents and Scheduling. The NP identified outstanding respect from the Attendings and other NP's. The PA indicated outstanding levels of perceived respect for the work he/she does from all parts of the team. The NP noted low levels of perceived respect from Anesthesia Techs, Anesthesiologists, and Radiology Techs. The overall score for perceived Respect for Work Done was 3.82/5.00 (76%) suggesting room for improvement in this domain.

With respect to ratings of Collaborative Problem Solving between professions, several strengths were noted. Attendings rated Fellows as outstanding. The PA and NP rated Attendings, CRNA's, Fellows, NP's, RN's, Care-Coordinators, PA's, Residents and Scheduling as outstanding collaborative problem solvers. However, Anesthesia Techs and Radiology Techs were rated as poor collaborative problem-solvers by the NP. RN's and Radiology Techs noted moderate concerns around collaborative problem-solving with NP's and Care-coordinators. The overall score for perceived Collaborative Problem Solving was 3.96/5.00 (79%) suggesting some room for improvement in this domain.

Behavioral Observations Data Summary:

TeamSTEPPS Team Performance Observation Tool (TPOT)

18 TeamSTEPPS raters completed 159 TPOT ratings at ART and Main Hospital during 4-weeks of staggered observation. The overall ratings suggest good teamwork with respect to Team Structure (4.31/5.00; 86%), Communication (4.18/5.00; 84%), Leadership (4.26/5.00; 85%), Situation Monitoring (4.40/5.00; 88%), and Mutual Support (4.30/5.00; 86%).

Statistically significant differences in performance between ART and Main were observed for Team Structure ($p<.05$), Communication ($p<.05$), Leadership ($p<.05$), Situation Monitoring ($p<.05$) and Mutual Support ($p<.05$). In all cases, the Main Hospital site performed better than ART across the observed teamwork domains. Interestingly, qualitative data from the rating-teams (next section) suggests that the physical layout of the Main location is far more conducive to teamwork and communication than ART, which may be related to the observed differences in team ratings. The area of greatest strength at both sites was Situation Monitoring which includes monitoring of patients and team members to ensure safety and prevent errors, goal-directedness, and fostering of communication to ensure the team has a shared mental model/goal (88%). The area with the most room for improvement at both sites was Communication including the observation of clear, brief, specific and timely information shared among the team, seeking of information for all available sources, and the use of check-backs to verify information (84%).

TeamSTEPPS Team Performance Observation Tool Objective Rating Summary:
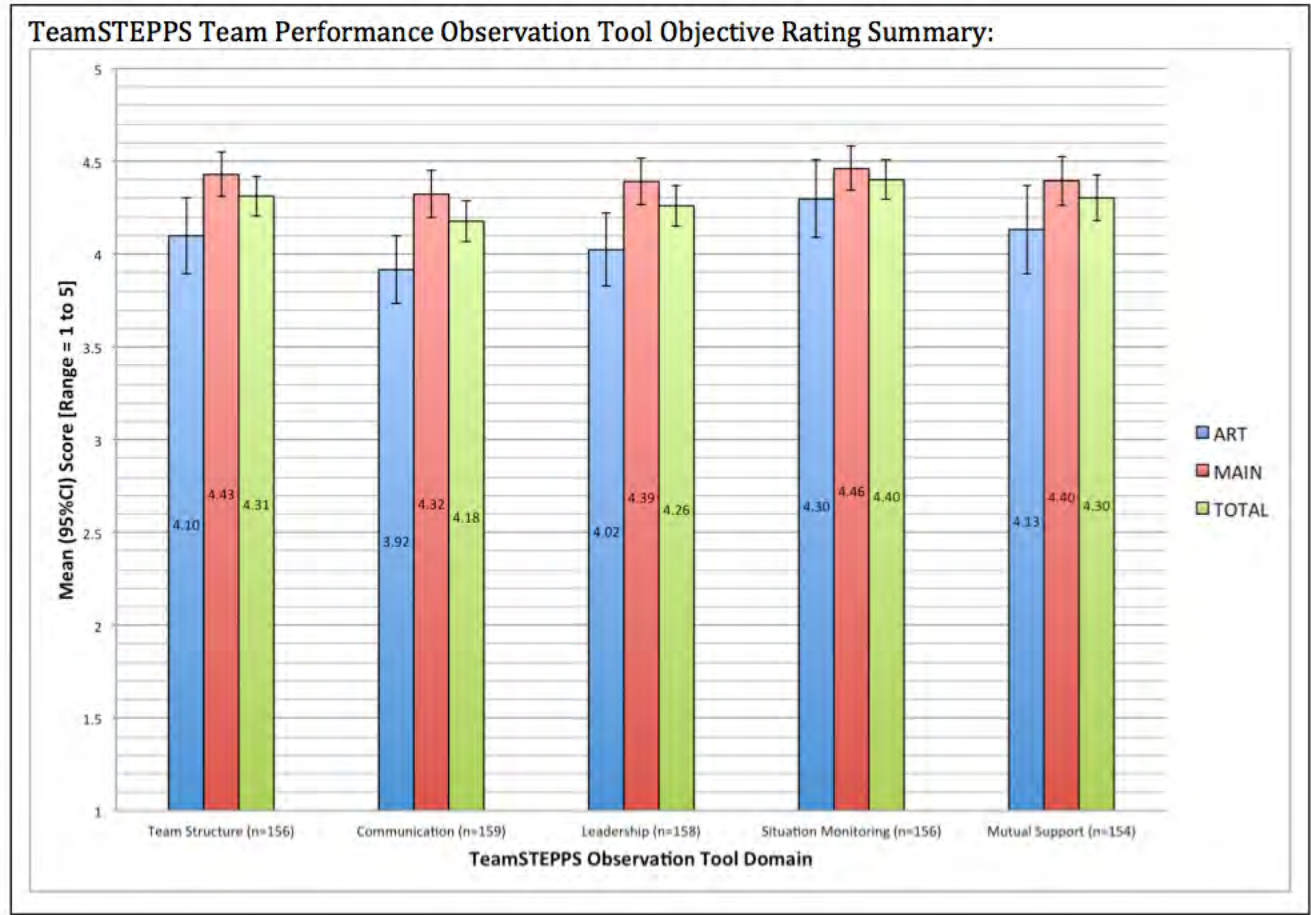
Qualitative Data and Observations Summary:

After rating-teams completed all observations, three faculty leaders conducted 2 debriefing sessions. In addition, 3 raters met individually with a faculty leader to debrief and share feedback from the observations. The raters in the debriefing sessions represented students from the colleges of dental medicine, health professions, nursing, medicine, and pharmacy. During the debrief session raters were asked to share their feedback on what surprised them, what they observed, what they did not observe, and suggestions for the unit based on the principles of TeamSTEPPS. In total 14 raters took part in the debriefing sessions.

Strengths Observed and Reported:
-Good INTRA-professional communication
-Staff seem to know each other and get along well
-Whiteboard in procedure-room with patient information appears very helpful
-Educational model wherein one physician observes procedures and can jump in to assist when needed can be very helpful
-Raters commented that they would feel comfortable if they or a family member were to come through this department as a patient.

General Feedback

Although individually, everyone on the unit was intelligent, personable, and welcoming to students with physicians explaining procedures; there was minimal INTERprofessional communication related to patient care during the procedures. The raters reported that they observed good intraprofessional communication focusing on patient care.

The raters did not observe many debriefs taking place. There were also no regular huddles or timeouts observed during a procedure. Briefs were observed only in the morning "huddle". Raters commented that these were more informational reports (one way communication). Raters did not observe verification of information by team members or any time allotted for questions during briefs/"huddles". Students observed that the huddles were not always done each morning and some were rushed.

Timeouts happened before a procedure, but verification check-backs did not happen at all times. In addition, some staff were doing other things preparing for the procedure and did not give full attention to the timeout. Allergies in some patients were identified but not verified. Students did not observe communication related to current medications on board.

Physicians would frequently leave the procedure area quickly without explaining orders or debriefing. Student observed a nurse asking for clarification of orders at the end of a procedure and the physician did not provide clarification. Check-backs and call-outs were not used. Nursing handoffs were not standard. The Techs seemed to be more concerned about patient comfort than other members of the team. Much of the communication happening in hallways was not centered on patient care. There was minimal communication during procedures especially "simple" or "routine" procedures.

Concerns
- Students are not sure who is giving the handoff to post op. The nurse monitoring the patient in the room stays in the room for the next case.
- Nurse and Physician sometimes distracted during patient procedures. Several raters observed a nurse in the procedure room shopping online and on Facebook instead of monitoring patient. Raters observed a physician with his back turned away from the procedure room and unaware that a resident was having problems inserting a line (2 failed attempts). The patient was in distress and team did not attempt to communicate with or comfort patient. Other clinicians were

concerned with the time the procedure was taking and came to the room which was when the physician went in to assist with the 3rd attempt.

- Very minimal if any communication with patients who were awake during procedures.
- One rater was shown inappropriate pictures of staff members from a recent retreat/conference
- Raters mentioned sidebar conversations regarding the scheduler not being consistent.

Physical Environment

The physical layout appears better in Main vs ART. In Main, the unit is on close proximity to pre/post op. The whiteboard in the procedure room is helpful, but sometimes difficult to read. Placing computers in same area might allow staff members to communicate more easily.

Faculty Observations

The faculty evaluation leaders visited the floor several times between March and May. During the visits overall staff were friendly and welcoming. However, when faculty interacted with the patient registration/receptionist at Main it was noted that the receptionist did not greet, acknowledge or make eye contact when speaking with them. Faculty also observed patients/visitors treated in a similar manner during the visit.

The physical layout in Main hospital provides more opportunities for staff to communicate. In Main, the board runner area has more seating available and more space for staff to gather. The observation areas are larger in Main. Additionally, the sound system at Main allowed observers to hear the conversations in the procedure rooms whereas in ART there were times when conversations could not be heard in the observation areas.

Data Synthesis

The unit has numerous self-identified strengths including team encouragement for sharing of ideas and leadership that creates an environment facilitating accomplishment. Another identified strength of the unit is the self-reported quality of communication between physicians, techs and nurses (specifically, openness of communication) in patient-related decision-making. There are numerous unit-reported instances of outstanding communication timeliness, communication accuracy, collaborative problem-solving and respectful interactions between professions. Good intraprofessional communication was observed by raters on the unit, the staff seems to know each other and get along well, and raters commented that they would feel comfortable if they or a family member were to come through this department as a patient. Overall scores on the PEC and the CSACD were 79% and 76% respectively. While these scores are not indicative of serious unit environment and culture problems, there is room for improvement in faculty and staff perceptions of the practice environment and shared decision-making processes.

Rater observations of teamwork on the unit suggest the presence of reasonably high-functioning health care teams according to the TeamSTEPPS criteria. However, statistically significant differences in performance between ART and Main were observed for Team Structure, Communication, Leadership, Situation Monitoring and Mutual Support. In all cases, the Main Hospital site performed better than ART across the observed teamwork domains. Qualitative data from the rating-teams suggest that the physical layout of the Main location is far more conducive to teamwork and communication than ART, which may be related to the observed differences.

Some relative weaknesses identified in this study include limited team efforts to determine root causes of problems encountered and individuals' perceived ability to act on the team vision. Some problems related to communication timeliness, accuracy, collaborative problem-solving and mutual respect were reported between NP's, RN's, Anesthesia and Radiology Techs. These issues might be addressed by examination of workflow, communication methods, systems and timing. Areas of practical concern include information and patient hand-offs between services, providers, and programs. Additionally, use of check-backs and verification of clinically relevant information between providers is limited and erratic at times. Briefs, time-outs and debriefing sessions are used inconsistently and the frequency and quality of inter-professional communication was limited. Sometimes, communication between providers and patients during awake-procedures was limited and observably distressing to patients.

Recommendations for Consideration

1) Training on TeamSTEPPS Communication tools including:

    SBAR
    Check-backs
    Call-outs
    Debriefs
    Huddles
    Briefs
    Handoffs

2) Development/implementation of standard procedures for briefs and debriefings each day.

3) Examination of workflow, communication methods, systems and timing related to communication timeliness, accuracy, collaborative problem-solving and mutual respect between NP's, RN's, Anesthesia and Radiology Techs.

4) Examination of physical space and layout at ART with respect to teamwork conduciveness

5) Development/implementation of standard procedures for patient hand-offs between units

Request for Proposals: Interprofessional Team-Based Clinical Rotation Development

MUSC's Office of Interprofessional Initiatives is soliciting faculty-involvement in the creation of new interprofessional team-based clinical training opportunities. This is a competitive RFP and funding will be made available (up to $15K for 12-months) to select proposals to support the implementation and evaluation of new clinical educational experiences.

This program primarily seeks to create new interprofessional training opportunities for students at MUSC with an emphasis on development of new rotations for Physician Assistant (PA) and Advanced Practice Nursing (APN) students, however students from all professions at MUSC can be involved (e.g., OT, PT, PharmD, DMD, CRNA, etc) in proposed clinical rotations.

Funding can be used to seed faculty involvement, facilitate logistical problem-solving, offset costs associated with increased initial load on preceptors, and to support program evaluation. A viable plan for program sustainability after the award period is required.

Program Information and Criteria:
1) Must include students from **2 or more** different professions providing direct patient care
2) Must introduce **new** rotation options for students (i.e., can't be used to support existing rotations)
3) Must include metrics and evaluation plan to examine factors such as:
    a. Student learning outcomes
    b. Clinical efficiency/health economics
    c. Team-work skills development
    d. Financial/clinical-revenue impact
    e. Patient outcomes and safety impact
    f. Patient and staff satisfaction impact
4) Must include a plan to coordinate clinical rotation experiences with rotation schedules and accreditation requirements of involved Colleges/professions (e.g., through Associate Deans for Education)
5) Must include a viable plan for rotation financial independence and sustainability after the award period
6) Preference given for applications involving APN and PA students and for higher numbers of rotation slots created by the proposed rotation
7) Adequate interprofessional/interdisciplinary supervision requirements must be met
8) New rotations must be available starting Fall semester of 2016
9) Awards will be up to $15K for 12-months

Applications should be no more than 5 pages and include the following sections:
- Clinical Focus
    o E.g., Patient population, clinical focus and description of existing MUSC clinical service
- Site Training Background
    o E.g., Existing student rotations/experiences in the clinical area (if any)
- New Rotation Description
    o E.g., New student rotations in the clinical area, activities, roles and responsibilities of students from different professions
- Supervision Plan

- o E.g., List of clinical rotation preceptors/supervisors and their professions, frequency and type of supervision for students (see section: Acceptable Supervision Arrangements Between Professions)
- Logistics, Schedules and Timing
  - o E.g., Day(s) and time(s) of the week, duration, location, total number of students to be reached, reconciliation of different professions' non-overlapping rotation schedules
- Rotation Type and Accreditation Standards
  - o E.g., required versus elective, training accreditation standards addressed for each profession involved (see section on Accreditation Standards)
- Student Orientation and Didactics
  - o E.g., Plan to provide background and orientation to new students on the rotation, format (e.g., required readings, didactics, one-on-one orientation)
- Student Resources
  - o E.g., Facilities, offices, computers, phones,
- Student Evaluation Plan
  - o E.g., Student grading, format, learning outcomes, metrics
- Program Evaluation Plan
  - o E.g., Indicators of program success, efficiency metrics, patient outcome metrics, satisfaction metrics, economic indices of success
- Teamwork Evaluation Plan
  - o E.g., Metrics for evaluating success in teamwork, communication, conflict resolution
- Budget
  - o E.g., Line items for facilitator/supervisor effort, measure/scale acquisition, decreased productivity costs etc.
- Sustainability Plan
  - o E.g., how the training opportunity will continue if no supplemental/award funds were available in the future

Acceptable Supervision Arrangements Between Professions

Student Program	can be supervised by	Acceptable Supervisor Credential
MD		MD, DO
PA		MD, DO, PA, APN
APN		MD, DO, PA, APN
PT		PT
OT		OT
PharmD		PharmD
DMD		DMD

Team Science and Interdisciplinary and Interprofessional Collaborations Small Grant Program

South Carolina Clinical & Translational Research (SCTR) Institute and MUSC Office of Interprofessional Initiatives

Request for Applications (RFA) for 2015-2016 Funding Cycle

RFA Release Date: Wednesday February 03, 2016

Key Dates:

Application Due	By Noon on Tuesday March 15, 2016
Earliest Anticipated award notification	Monday May 02, 2016

Potential Projects:
Projects may focus on, but are not limited to, the impact of science of team science and ID/IP collaboration on research productivity, scientific innovation, patient outcomes, patient safety, cost-effectiveness of health care or research practice, and/or health professional educational outcomes. Projects may also focus on team science and interprofessional research tools and methodology such as the development/validation of relevant team science and interprofessional measurement tools, approaches and/or systems.

Team Science & Interprofessional Collaboration Background:
Team science initiatives are designed to promote collaborative, and often cross-disciplinary approaches to answering research questions about particular phenomena. Part of the field of Team Science focuses on understanding and enhancing the antecedent conditions, collaborative processes, and outcomes associated with team science initiatives, including their scientific discoveries, educational outcomes, and translations of research findings into new practices, patents, products, technical advances, and policies. Scientific collaboration occurs when research is conducted by more than one individual in an interdependent fashion, including research conducted by small teams and larger groups. Teams may vary in the extent to which they include or integrate the knowledge of experts from different disciplines or professions (e.g. nurse and physician, pharmacist and physician assistant) to achieve their scientific and, when relevant, translational goals.

The MUSC Office of Interprofessional Initiatives web site at http://musc.libguides.com/interprofessional has listed information related to the Interprofessional Practice, Education, and Team Science.

Award Amount:
Up to $15,000 (Direct Costs only) for a 12-month project period.

Eligibility Criteria:
- Principal Investigator (PI) or Co-PIs and other investigators can be faculty, post-doctoral fellows, graduate students, research support staff and/or clinical staff.
- The PI must be employed at MUSC, and one member of the research team must have an MUSC faculty appointment

- The investigative team must have an interdisciplinary or interprofessional composition (a minimum of two disciplines or professions).
- The proposed project should, in part, aim to establish a relationship between interprofessionalism and/or team-science practice and outcomes
- Scholarly work that establishes baseline data or demonstrates strong potential for obtaining additional funding will be viewed favorably.

Application Process:

All components of the applications should be submitted via the SCTR Pilot Project Program website at http://academicdepartments.musc.edu/sctr/programs/pilot_projects by clicking the appropriate 'Apply' link.

Please note that if you need any help, the SCTR Institute has free consultation services such as biostat, budget and regulatory consults. Please view the consult descriptions and submit your consult request using the SPARC web page at https://sparc.musc.edu.

Application Components:

1. On the online application, in the bottom Project Information section, **choose Grant Category: Team Science**
2. Biosketches for all investigators in the team: Please use the NIH biosketch format with 5 page limit (http://grants.nih.gov/grants/funding/424/index.htm)
3. Project Description Page (one page limit): Should include a project summary, rationale for the TS/IP team's composition, a plan to evaluate the project's outcome and the function of the TS/IP team.
4. Project Budget and Justification (2-4 pages): For the budget, please use PHS 398 Form Page 4: Detailed Budget for Initial Budget Period in MS Word Version (1 page) at http://grants.nih.gov/grants/funding/phs398/phs398.html and use continuation pages as needed for the budget justification. Upload the budget and justification as a single PDF file. Budget may include salary support up to 5% efforts for each member subject to the NIH salary cap, travel to present at a professional meeting, supplies, participant fees, IRB fee, and other expenses needed to conduct the proposed work. The small grant program committee may reduce the requested award amounts as appropriate.
5. Project Research Proposal (maximum of 3 page limit): Should include following components. Please combine all pages into a single PDF document to upload.
   a. Specific Aims
   b. Significance and Innovation
   c. Rationale and Approach (including methods, outcome measures, data analysis plans, and project evaluation)
   d. Time line and plan for dissemination of results (presentation of work at a relevant national meeting and/or publication is required)
   References cited and letter of supports** will not be counted as part of the 3 page limit.
   ** Letter of support from the advisor/supervisor of the PI and Co-PI/s, if applicable, is required. If the PI is an Early Career investigator, a letter of support from the mentor is required.

Post-Award Requirements:
If your application is selected to fund:

- A Just-in-Time (JIT) notice will be issued to each funded project PI to submit required documents such as IRB approvals, if appropriate, and to set up a UDAK account before funding can be awarded.
- A Notice of Award (NOA) will be issued to the PI after receiving all the required JIT information.
- Once the NOA is signed by the PI and PI's Business Manager, awarded $ amount for the project will be transferred to the appropriate UDAK account.
- Project period will be 12 months from the date when the NOA is released.
- Once funded, you will be required to submit a project progress report and a finance report at 6 month and 12 months into the project period, and then a brief update of the project for another 2 years. The instructions and format of the reports will be sent to the PIs via a REDCap survey link to submit the reports.
- By accepting the funds, you are required to acknowledge the SCTR Institute and MUSC Office of Interprofessional Initiatives in each publication, press release or any other document(s) and presentations similar to the following:

"This publication (or project) was supported in whole or in part by the South Carolina Clinical & Translational Research (SCTR) Institute, with an academic home at the Medical University of South Carolina (MUSC) through NIH/NCATS Grant Number UL1TR001450 and the MUSC Office of Interprofessional Initiatives."

Contacts for Questions:

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SCTR PILOT PROJECT REVIEW FORM

Principal Investigator:
Title:
Grant Category:
Name of Reviewer:

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Scores: (Use the NIH scoring system where 1 is the best score and 9 is the worst).
Indicate score for each review criterion listed below and for the Overall Impact/Priority Score for proposed project:

Core Review Criteria:

1) Significance including Scientific Merit   Select One ▼

2) Potential to Secure Future Extramural Funding   Select One ▼

3) Investigators   Select One ▼

4) Innovation   Select One ▼

5) Approach   Select One ▼

6) Environment   Select One ▼

Overall Impact/Priority Score *(this score reflects reviewer's evaluation based on project in its entirety rather than the averages of above review criteria)*   Select One ▼

Consider for Funding: ▼

Summary Statement: *This information is critical for making final award decisions and in providing anonymous feedback to applicants. Please critique the application as similar to the NIH scoring and review procedures providing critique for each core criterion and overall application.*

MEDICAL UNIVERSITY OF SOUTH CAROLINA

TEAM UP | FOR BETTER HEALTH

QUALITY ENHANCEMENT PLAN | 2017

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Changing What's Possible