

**CHANGING
WHAT'S
POSSIBLE
THROUGH
TECHNOLOGY**

MUSC Health
HEART & VASCULAR CENTER



*Cover photo, ERIC POWERS, M.D.,
CO-MEDICAL DIRECTOR OF MUSC'S
HEART & VASCULAR CENTER*



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**CHANGING
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James L. Stephenson

Medical technology, I suppose, is relative. What was “state of the art” health care centuries, even decades ago, is considered primitive today. But the way we took care of each other in the past served as the foundation for what we do today.

For example, in prehistoric times, people used the bark of willow trees to ease pain. Who would have made the connection that bark applied to pain brings relief? It turns out that willow bark contains salicylates, a bitter chemical compound found in analgesics. The Romans constructed the first freshwater system, which at its peak carried 300 million gallons a day. How essential is a clean water supply to our health? The smallpox vaccine, developed by English physician Edward Jenner, is nearly as old as this country. Another vaccine, for polio, was developed in the 1950s and significantly reduced the threat of this paralyzing virus. Dr. Albert Sabin, a member of the MUSC faculty from 1974 to 1982, played a major role in pushing back this crippling disease.

Advancements in medicine are occurring at a dizzying pace, and I firmly believe that MUSC scientists and health care providers are making significant contributions to that progress. As explained in this publication, we are making good on our mission of serving all the citizens of South Carolina using modern technology to reach out across the state. Under Dr. Robert Adams, who holds the Endowed Chair in Stroke at MUSC, our telestroke clinic, known as REACH, has been a tremendous success for three years now. As director of MUSC’s Stroke Center and Telestroke Program, Dr. Adams oversees a statewide network of some 14 hospitals. Through a direct televised connection at any of our partner hospitals, an MUSC stroke expert can consult with a physician, the patient or the patient’s family if a stroke is suspected and make an immediate recommendation for treatment.

Other types of networks, like Dr. Eric Powers’ Heart Attack Network, dramatically reduce the time from the onset of a heart attack until blood flow to the heart has been restored. It’s a perfect storm of technology, training and equipment to combat heart attacks and minimize the damage they cause. Another network, called CREST, functioned much like the Telestroke Program and dealt with patients at smaller hospitals suffering from trauma or severe infections, also known as sepsis. It will likely lead to similar programs in the future.

Or course, we would be remiss if we didn’t mention those other networks -- the social networks, like Facebook and Twitter. Obviously, they are to REACH and CREST like day is to night. That does not mean, however, that they are without purpose. A staggering 845 million people use Facebook actively, while Twitter has 175 million. Those two networks, and others, have become a major means of communication in today’s world, and many MUSC faculty and staff have taken to social networks to spread the word about our programs and services. One of our most active social networking physicians, Dr. David Geier, is profiled in the following pages.

Technology, however, is only one area in which we strive to be leaders. In other fields, such as diversity, we are committed to providing a stimulating environment which fosters innovation, compassion and inquisitiveness from a variety of perspectives. Our student body, staff and faculty all reflect this diversity, coming from many different backgrounds and cultures. Just as importantly, however, is the fact that this same commitment to diversity is reflected in our administration. Half of our deans are women, and you would be hard pressed to find that ratio at any other institution of higher education in the nation. We are proud of that fact, and wanted to share that information with you; therefore, you will find a special section profiling them.

In conclusion, we have experienced another good year at MUSC, training the next generation of health care providers and medical scientists while providing compassionate care using the latest technology available, and seeking to solve the mysteries of biomedicine. As always, I am proud to be a part of this dynamic institution, as we continue our pledge to you to serve you to the best of our ability.



Raymond P. Greenberg

Dear Friends:

There are many exciting developments these days on the campus of the Medical University of South Carolina. Some are easily visible, such as the new Drug Discovery and Bioengineering buildings. Others may not be quite as obvious to the casual observer, but are just as important. In the 17 years that I have been at MUSC, I have never seen as much focused activity on new and innovative ways for providing care and improving the health of South Carolinians.

For example, the rural parts of our state have the dual misfortune of high rates of disease with relatively limited access to primary, much less specialty care. Recently, however, we have begun to make in-roads into removing geography as a limitation in terms of access to the best care possible. Through support from the Duke Endowment, telemedicine networks have been established to allow specialists at the Medical University to be connected instantaneously with their colleagues around the state and jointly care for patients with life-threatening conditions. Today, the patient in Kingstree, or Hartsville, or Dillon can have the same access to stroke specialists at MUSC, as do patients in downtown Charleston.

Even in our own backyard, we are finding ways to work more effectively with other health care providers. Until quite recently, when a patient was admitted to an emergency room in any Charleston hospital, the laboratory tests, x-ray studies, and medical reports from other hospitals had to be obtained by calls to the other facilities, manual pulling of the records, and transmission by facsimile image over telephone lines. It is easy to appreciate how inefficient and expensive it was to do all of these tasks manually, and that it often led to unnecessary duplication of expensive tests. Moreover, the time it took to retrieve these records resulted in treatment delays, crowding of emergency rooms, and patient dissatisfaction. Again, the Duke Endowment stepped in to help, providing a grant to create an exchange of health information between all of the Charleston area hospitals. There are few such networks operating in the country, and preliminary data suggest that the Charleston system already is saving money and time, and improving the quality of care for patients.

These are just two examples of the ways in which technology is transforming how care is delivered. More advances are highlighted in this report, but the truth of the matter is that we are just beginning to realize the full potential of how technology can revolutionize health care in Charleston, South Carolina and beyond.

Thanks for your continued support of the Medical University and helping us to achieve our goal of Changing What's Possible.

With best wishes,

Ray Greenberg, M.D., Ph.D.

Ford, Fakhry use telemedicine to help distant trauma, sepsis patients

Somewhere in the middle of the night, a patient is brought to a rural hospital complaining of fever and flu-like symptoms. Almost immediately, however, the patient's condition deteriorates and he goes into shock. The staff, ill-prepared to properly diagnose and manage the patient's treatment, attempts to stabilize the patient and phones a larger medical center in an

attempt to transport him. Crucial minutes elapse as this logistical dance is arranged, and the patient's outcome may depend on the accuracy of the diagnosis and the timeliness of the transport.

staff and staffs from participating hospitals have an audiovisual connection, enabling them to see and hear each other, as well as seeing the patient, resulting in a more thorough evaluation and documentation for the patient's medical record.

At first glance, the collaboration of Fakhry, a trauma surgeon, and Ford, an associate professor of pulmonary and critical

care medicine, may seem odd, but at their core, the two disciplines have a strong common bond. "Both groups are in the business of taking care of people in situations where time matters," says Fakhry, professor of surgery and chief of the Division of General Surgery.

highway fatalities, according to a 2011 study. And, as Fakhry points out, all the state's trauma centers are in urban areas, where they are most needed. "It's an access issue, in a way," he adds, as rural hospitals try to save patients who may be far removed from the nearest full-service medical center.

Still, trauma patients have an advantage over sepsis patients because a hospital network already exists for victims of trauma-related incidents.

"The sepsis piece was actually appealing to these (participating) hospitals because there is already a trauma system in place for triage and transfer throughout the United States," Ford says. "There isn't a parallel system for people who have catastrophic medical illnesses, meaning usually respiratory failure or shock and other major organ system failures. So it becomes incumbent on the doctors and nurses at a hospital who have a very ill patient, to hunt down a place where they could have that patient transferred to if they're unable to support that patient's needs."

Such a scenario occurs frequently throughout South Carolina and the country. Thanks to a federally-funded program involving the Medical University of South Carolina and select hospitals in the Low-country and Pee Dee regions, similar occurrences may fade into the past.

Under the acronym CREST (Critical Care Excellence in Sepsis and Trauma), Dee Ford, M.D., and Samir Fakhry, M.D., established a telemedicine network with several smaller hospitals in eastern South Carolina. The project was modeled after the successful REACH (Remote Evaluation of Acute IsCHemic Stroke) program operated by Robert Adams, M.D. (see article, pg. 11). Underwritten three years ago by a federal grant, the program is now in the evaluation phase, but something similar is expected to be proposed in the future, they say.

Roughly half of the 40,000 traffic fatalities occurring annually die at the scene of the accident, Fakhry says, but if you survive that, "your best chance for survival occurs within the first hour or two, what we call the 'Golden Hour.' The focus in trauma

care has always been to make sure you get the patient to the appropriate level of care in the shortest possible time."

To make matters worse, South Carolina leads the nation in the percentage of rural

was a daunting task. Before any consultations could commence, MUSC staff had to obtain privileges at the participating hospitals, reams of paperwork had to be completed, and local ED staffs had to undergo training

"The focus in trauma care has always been to make sure you get the patient to the appropriate level of care in the shortest possible time."

— Samir Fakhry, M.D.

"There's a lot of variation in what you're told and what your assessment is once the patient actually arrives."

— Dee Ford, M.D., on telephone consultations



MEMBERS OF THE CREST TEAM. STANDING, JANE ZAPKA, SCD, ANBESAW SELASSIE, PHD; SEATED, FROM LEFT, LAURA LANGSTON, STUDY COORDINATOR, DEE FORD, MD, KIT SIMPSON, DRPH

in the use of the telemedicine units, essentially laptops on wheels equipped with video cameras and microphones.

“This was a marriage of convenience between two conditions that required really expert care at the very beginning, but in most cases presented at emergency departments those resources may not be available to provide specialist-directed care,” Fakhry says. “You couldn’t put an expert trauma surgeon and an expert critical care doctor in every emergency department, but with telemedicine, we could make that expertise available and make it affordable in these remote locations.”

Of course, telephone consultations

you’re doing a true clinical consultation.

“There’s a lot of variation in what you’re told and what your assessment is once the patient actually arrives,” Ford continues, “and sometimes it can result in decisions you would have done differently, but you just didn’t know because you didn’t have all the data before they got to MUSC. And for the people that came after we had that (telemedicine) consult, there was none of that. They showed up, we knew exactly what their status was, what their problems were, what had been done and what hadn’t been done. It was a lot clearer picture.”

Six MUSC trauma surgeons and four pulmonary/critical care physicians were

home from that hospital,” Fakhry says.

By contrast, about 80 percent of the sepsis patients came to MUSC, perhaps owing to the insidious nature of the disease.

“Sepsis is rapidly progressive,” Ford says. “Someone can come in and say I’ve had a fever, shortness of breath and I’ve been coughing up stuff, and they can be in shock and on a ventilator within hours. It is very rapidly progressive. There were several patients who had what might have appeared to be relatively bland abnormalities in some of their laboratory tests. To me, as someone who’s used to this kind of severely ill patient population, those are like little red flags going off in my head.”

Although the project is wrapping up, Ford and Fakhry say they were pleased with the overall program and are looking ahead to similar individual outreach programs for the future. Ford would broaden her program to include a three-step approach: follow-up consultations beyond the initial contact; sharing patient safety and quality care with participating hospitals, and bringing an education component including all the disciplines involved with medical critical care.

Fakhry, for his part, believes improving technology in the telemedicine field will slice health care costs dramatically. “My wife uses her phone to do face-time with our grandchild in Washington,” he explains.

“My prediction is none of this fancy equipment is going to be needed. One day in the next few years, a doctor somewhere will want me to give an opinion. They will call me on the phone and say ‘I’ve got a patient in the Emergency Department, I’ll just send him to you.’ I’ll say, ‘Let me take a look.’ They’ll hold up their phone – I’ll be able to see the patient, talk to the patient, interact with him, and we’ll have a different way of doing things than before at much lower cost.” ■

“There isn’t a parallel system for people who have catastrophic medical illnesses, meaning usually respiratory failure or shock and other major organ system failures. So it becomes incumbent on the doctors and nurses at a hospital who have a very ill patient, to hunt down a place where they could have that patient transferred to if they’re unable to support that patient’s needs.”

— Dee Ford, M.D.

have been ongoing for years, and continue to be given daily. The difference in this program was the video component and data transmission as well as medical documentation. “People do call us on the phone,” Ford says, referring to rural hospital staffs seeking recommendations on difficult diagnoses.

“But from a patient care perspective, you cannot do the kind of evaluation that’s necessary for a very sick patient. You can’t give optimal recommendations because the patient evaluation is much more limited. The level of dialogue is much lower than if

available to consult with the rural hospitals 24 hours a day, seven days a week, 365 days a year. During the active phase of the program, participating hospitals requested 33 consults from MUSC, with approximately two-thirds of those sepsis-related.

Approximately half of the trauma patients involved in the program were transferred to MUSC, a statistic in which Fakhry took pride, pointing to the combination of care and cost-effectiveness. “I was able to take care of that patient with the doctor and the nurses, and the patient was able to go

Geier mixes social, mainstream media with sports medicine



DAVID GEIER, M.D.
PERFORMING SURGERY

Facebook and Twitter aren't just for fun any more.

Social media is not a passing fad but a means of connecting with current and potential patients in Charleston and around the world. That is the message of David Geier, M.D., MUSC's orthopaedic surgeon and the director of sports medicine, who in short time has created a multi-faceted social media identity in sports medicine.

"I started my blog to give me the chance to talk about sports medicine in my own voice," he says. "It was an alternative to traditional advertising campaigns in that people could read my opinions on treatments and surgeries and comment on them without feeling like I was trying to sell them a product or simply promote myself. I thought that it might lead to people choosing me as their doctor, but that was never the ultimate goal."

The blog, drdavidgeier.com, has been

a huge success with readers in more than 150 countries. It has translated into new patients from across the United States. Over time his definition of success has evolved.

"I always thought Facebook was an enormous time waster, and I didn't even know what Twitter was. Now they are central to my efforts to share information and connect with health care professionals, athletes, parents, coaches, and potential patients all over the world."

— David Geier, M.D.

"What I never envisioned when I started was how much I would enjoy writing," Geier explains. "When I got the regular sports medicine column in *The (Charleston) Post and Courier*, I was nervous. I've never felt like I was a particularly good writer. But I started to get excited writing about famous

athletes' injuries and controversial topics. I found my style of writing, and it has just taken off."

Geier regularly writes for *The Post and Courier*, *Cover 2 Cover Magazine*, the *Charleston Battery*, the *Family Circle Tennis Center*, the *STOP Sports Injuries* campaign, and the *Be Active Your Way* blog by the U.S. Department of Health and Human Services. He hopes to syndicate his *Post and Courier* column.

And while the exposure from the blog and other publications slowly grew, it's his efforts in other areas of social media that have expanded his online identity. "I always thought Facebook was an enormous time waster, and I didn't even know what Twitter was. Now they are central to my efforts to share information and connect with health care professionals, athletes, parents, coaches, and potential patients all over the world."

Geier is extremely active on Twitter (@drdavidgeier) and his Facebook fan page, and he is developing content for Flickr, YouTube, and other sites.

Recently he entered the podcast arena. The *Dr. David Geier Show* is a weekly, hour-long discussion of "anything and everything" in sports medicine. He discusses a hot topic each week, explains the injuries of several college and professional athletes, and answers listener's questions and offers

DAVID GEIER, M.D., IS THE TEAM PHYSICIAN FOR THE CHARLESTON BATTERY SOCCER TEAM.



general information on injuries and not specific medical advice. “It amazes me how many questions and comments I get from all over the country and the world.” And while a weekly show is a big time commitment, he believes the experience will be helpful if he ever ventures into television or radio.

In July, he was appointed chairman of the Public Relations Committee for The American Orthopaedic Society for Sports Medicine. “It really was a terrific opportunity and honor. AOSSM is such a great organization that works to promote injury treatment and prevention in sports. My social media experience apparently was a major factor pushing my nomination for chairman forward. Very few sports medicine organizations communicate to the public through social media. AOSSM is already the world’s leader in sports medicine research and fellowship, but I intend to help the

society become the ‘go to’ organization for anyone involved in sports.”

As PR chairman, Geier earned a seat on the national steering committee for the

other health care organizations, medical practices, and medical professionals from all over the world. “We are trying to raise awareness of the epidemic of traumatic and overuse injuries in youth sports and promote measures to keep kids safe and healthy. It is one of my main passions. I talk about it wherever and whenever I have the opportunity,” he says.

Geier is the head team physician for the Charleston Battery soccer team and chief tournament physician for the Family Circle Cup. He has served as orthopaedic consultant for professional and elite sports teams, including the United States Women’s Soccer team and the Eagles USA Rugby National team. He was team physician for Washington University in St. Louis and also assisted in the orthopaedic care of baseball’s St. Louis Cardinals and the NFL’s St. Louis Rams.

Geier received a degree in economics from Wake Forest University. After completing medical school at MUSC, he completed an orthopaedic surgery residency at Campbell Clinic in Memphis and a sports medicine fellowship at Washington Univer-

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STOP Sports Injuries campaign. This is a campaign AOSSM started with the American Academy of Orthopaedic Surgeons, the American Academy of Pediatrics, the National Athletic Trainers’ Association, and

sity in St. Louis. He returned to Charleston in 2005 and created the MUSC Sports Medicine program. ■

Treiber making the smartphone smarter, among other things

Frank Treiber, Ph.D., is used to catching the latest wave, whether it's in the Atlantic Ocean or in the use of mobile technology that he sees as a game changer in shaping the delivery of health care.

Treiber, formerly vice president for research and development at the Medical College of Georgia, came to MUSC in 2010 as a SmartState endowed chair in technology applications to prevent and manage disease. He leads the Technology Center to Enhance Healthful Lifestyles that is charged with developing and commercializing software and technological products to improve the delivery of health care.

The field of mobile technology sort of chose him rather than the other way around, he said. His research career previously had focused on 24-hour telemonitoring devices that tracked patients' vital signs, such as blood pressure and heart rate, in their natural environment.

"As I saw technology developing, we started morphing into smartphones and into the management of diseases and prevention work. MUSC had the foresight along with USC to develop a center of economic excellence involving technology applications."

The options for mobile health care are limitless. This is telemedicine, but it also is about enabling patients to better monitor their health, he said. "We wanted to reach out to a lot of people and what we have found that one thing that a lot of people have irrespective of their socioeconomic status, their ethnic background is a smartphone

or cellphone."

A recent proof of concept study featured the app Tension Tamer. Many chronic diseases are stress activated or worsened by stress, such as high blood pressure, cardiovascular disease and Type II diabetes. Treiber said the beauty of the Tension Tamer is that it takes breathing awareness meditation that is easy to learn and has been shown to be effective in lowering blood pressure and puts it into an app that patients can access easily anywhere.

"It'll be of the 16,000 apps that are out there for health care or wellness, but it will be one of the very few that has been empirically validated – that has been shown to be very feasible and very usable and acceptable to those who are using it. The most important thing is that they maintain it. They keep doing it. We had high, high adherence rates to this twice a day, 10 minute sessions for three months, in part, because of the feedback they're getting."

— Frank Treiber, Ph.D.

Researchers figured out how to use the smartphone camera to do pulse readings while a person is doing the meditation app so they can get immediate physiologic feedback. Based on study results with school teachers, they found large reductions in resting and ambulatory blood pressures in prehypertensive adults, he said. Participants also reported a reduction in stress and anxiety and better ability to sleep.

The long-term goal is to have an app available on the android and Apple side.

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Another success story is the pilot study called S.M.A.S.H., Smartphone Medication Adherence Stops Hypertension, which involved Hispanic adults with uncontrolled high blood pressure.

One of the biggest problems that health care providers face is getting patients with chronic diseases to take medications properly. Thirty to 50 percent of patients do not take their medications as prescribed. "It's not just people who are elderly or on a large numbers of medications, either. It turns out this problem affects a wide range of ages and patients."

With the SMASH study, patients were given an electronic medication tray with individualized compartments for each day's dosages. The patient receives a series of alerts, including a bright flashing light at first followed by a loud chime and an automated phone call if the medication remains untaken. The patients also received a blood pressure monitor to take their pressures every three days. The readings are sent wirelessly to their smartphone and sent via internet to a secure

FRANK TREIBER HOLDS A MEDMINDER, A WIRELESS, COMPUTERIZED MEDICATION DISPENSER.



computer to be reviewed by their doctor, who receives summary reports of their patients' pressures every two weeks and alerts if pressures are ever in a danger zone.

Initial results from the three-month trial are very promising, he said. Patients who received the devices exhibited a 95 to 100 percent adherence to their medication regimen. At the three-month evaluation, they showed a 17.9 mmHG reduction in their systolic blood pressure across 24 hours compared to a less than 1 drop among the control patients. They went from hypertensive, with a systolic resting pressure of 154 to being normotensive at three months with a reading of 127.5.

Additional patients are now participating. If the findings hold up, the technology center will apply for funding to test the SMASH program in a large sample of uncontrolled hypertensive adults, he said.

What the studies are showing is mobile technology's ability to help people form and adhere to healthy habits. It also allows health care providers to address the issue of clinical inertia - when there's too much time lag in doctors getting information they need to monitor a patient's progress, such as being able to adjust a medication that not be set at the right dosage.

"These mobile health technologies allow a doctor and a patient to be interconnected with each other 24/7. The doctor can monitor very readily with the technology that we have multiple vital signals - heart rate, pulse oximetry, glucose, weight. They can have all that processed and delivered to them."

Another promising area to explore is the innovative ways to use teleconferencing on mobile devices to deliver health care. All these innovations mean the possibility of

better health care and more cost-effective monitoring.

"The doctor will be able to take care of them in the home environment without them getting so bad that all of sudden they end up in the ER in a crisis.

In the long run, these kinds of devices will help in the delivery of more efficacious and cost effective health care because we'll keep people out of the ERs and the hospitals."

Treiber, who has about 10 ongoing projects, said he's excited about finding ways to bring together the intellectual capital on MUSC's campus with the innovations of mobile high-tech health care.

"I saw the opportunity to come here and help bring this along as a way to really help treat diseases that are ravaging the South and the nation." ■

REACH network driving force behind stroke prevention, rehab efforts

The year was 1924.

Calvin Coolidge was president. In Russia, Vladimir Lenin died, signaling the rise to power of Josef Stalin. Two U.S. Army Air Service planes had the distinction of being the first to fly around the world on a trip that took 175 days. The IBM company was founded, and one of the more enduring, if not the most tasty, icons of modern life – frozen food – was in the early stages of commercial production by a man named Clarence Birdseye.

It was in April of 1924 that a popular magazine called Radio News tepidly predicted the future of health care: THE RADIO DOCTOR – Maybe! The cover's illustration resembled a Norman Rockwell painting: A boy sitting on his bed with his tongue sticking out, facing a contraption the size of a small bookcase filled with all sorts of gadgets, dials and graphs. One of the gadgets protruding from the machine was a stethoscope that the boy obediently held to his chest. In the middle of this contrivance was a video monitor, and in the monitor was a kindly doctor in some remote location, looking down the boy's throat.

In April 1924, it would still be another two years before the first images are transmitted over a television system. Talk about visionary.

Fast forward to today.

At 14 hospitals networked with the Medical University of South Carolina, emergency department staffs can communicate with MUSC stroke experts when a suspected stroke victim is brought in. With the use of a computerized cart with audio-visual capability and a secure Internet connection, hospital staff and the patient's family can see and talk to an MUSC stroke expert, who also can study the patient's CT scan, and recommend a course of action.

Since May 2008, this process has

occurred more than 2,000 times in hospital emergency departments across South Carolina. Today, the REACH network (an acronym for Remote Evaluation of Acute isCHemic stroke) connects 14 hospitals from the Lowcountry to the Pee Dee to the Upstate to MUSC's stroke experts 24 hours a day, seven days a week, every day of the year.

Stroke can be treated with Alteplase, a clot-busting drug also known as tPA, but it must be administered within three hours of the stroke according to FDA guidelines. The number of hospitals in the network also works to the patient's advantage, as 76 percent of South Carolinians are within a one-hour drive of a REACH hospital or a Joint Commission primary stroke center. Before the network existed, only 38 percent were within 60 minutes of a stroke expert.

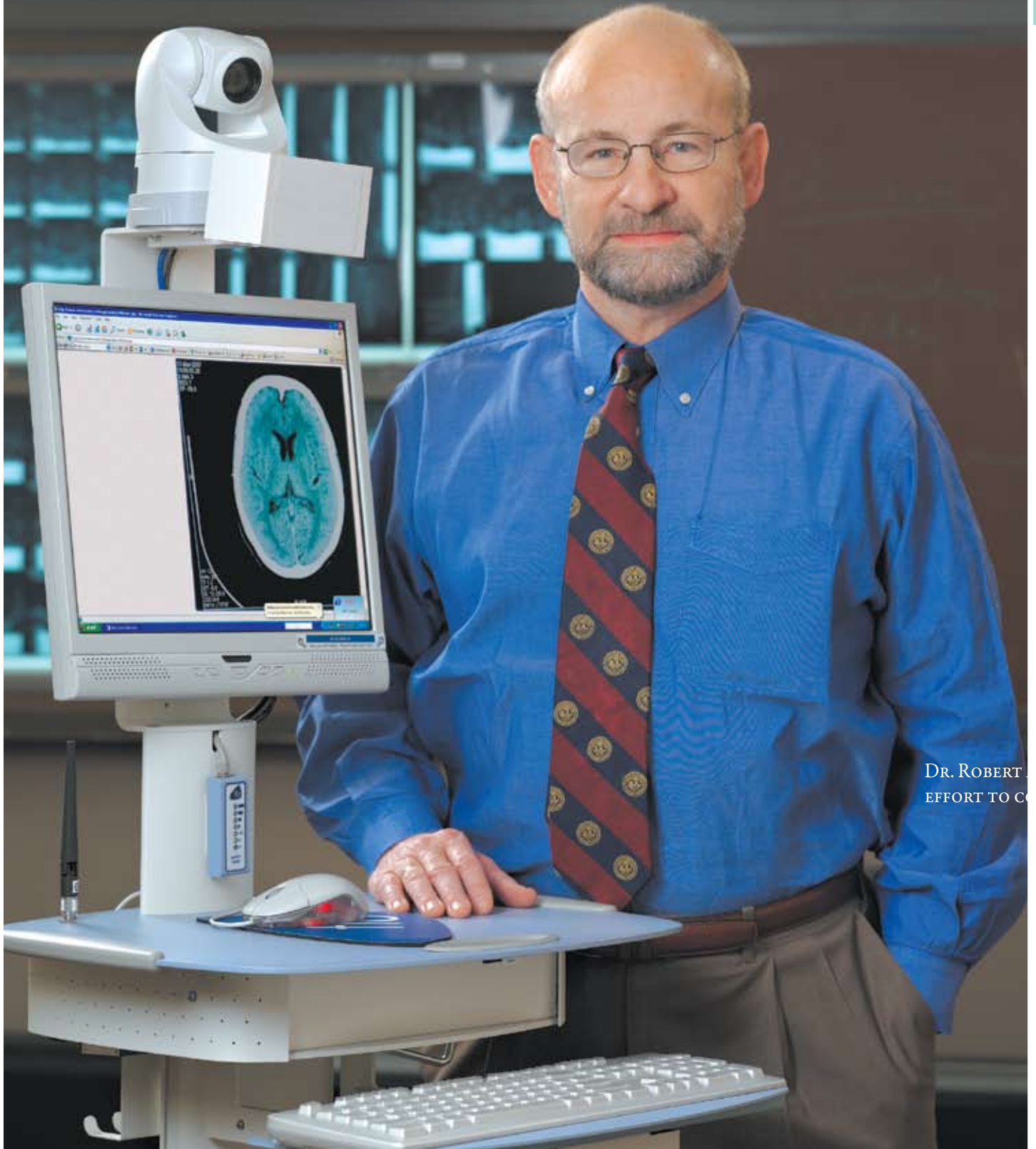
“We can put a stroke expert in their emergency room in 10 minutes or less,” says Robert Adams, M.S., M.D., director of MUSC's Stroke Center and the REACH program. The time factor is crucial for any recovery to occur. Stroke is a leading cause of death and the No. 1 cause of disability nationwide. Although no region of the country is immune to stroke, people in South Carolina – in the middle of an 11-state region known as the stroke belt – are particularly susceptible to the disease, with death rates twice as high as the national average. The chances of someone under 65 having a stroke are 40 percent higher in South Carolina than the national average.

Personal interaction is one of the primary components of a strong patient-physician relationship, of course, and Adams believes REACH can meet that need even when some distance is involved. “We make a bond with the patient and the family as well as local ED staff,” Adams says. “I would say the relationship that we make with REACH is more with the family because the patient is overwhelmed with what's happening. The family has an opportunity to actually see us with the way our picture is projected to them. And we can talk to them and explain what we're going to do.”

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Still, with all the advantages the network provides, the concept had to be sold to the other hospitals, which meant meetings,

DR. ROBERT ADAMS LEADS A MULTIDISCIPLINARY
EFFORT TO COMBAT STROKE.



DR. ROBERT
EFFORT TO C

training sessions, and, of course, equipment purchases. “It’s a network. A network is a living thing, so we had to build this from the ground up, go to hospitals and get them to understand why this was the most efficient way for them to meet their needs for stroke,” Adams says. “The existing situation was they would call us and transfer the patient, which would take too long. Everybody I think is gaining in appreciation of the fact that there is window for the treatment of stroke. This window of treatment for stroke is something that everyone knows now and quite honestly, more and more of the public is expecting to be treated within that window.”

As a by-product of membership in the REACH network, hospitals enjoy enhanced status in their respective communities and tend to promote the MUSC connection, Adams believes.

Adams, holder of an endowed chair in stroke at MUSC, came from the Medical College of Georgia, where he also held a distinguished faculty position and has held prominent leadership positions in national stroke organizations. Through his work and the REACH network, Charleston is now one of the preeminent stroke treatment and research hubs on the East Coast, along with Miami, Jacksonville, Fla. and Washington, D.C.

In addition to MUSC’s status as a stroke treatment hub, however, Adams and his staff have helped to lay the foundation for a comprehensive research and rehabilitation center, collaborating with other programs across the campus. Research activities involve

sickle cell anemia and stroke disparities. In the rehabilitation area, the Stroke Center is collaborating with the Center for Rehabilitation Research in Neurological Conditions, co-directed by Steve Kautz, Ph.D., and Jim Krause, Ph.D.

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— Robert Adams, M.D.

“The Harborview Stroke Center is a research incubator,” Adams says. “It’s a large area that contains a number of programs and a staff that can help anyone get a project off the ground quickly. Someone can use up all their resources just doing paperwork. We can help them with a project that makes sense and is doable.”

There is another field into which the Stroke Center is expanding – spinoff biomedical production. Adams has established a company called South Carolina Science Solutions, LLC, using technology to solve medical problems. “The device I’m developing, in conjunction with the MUSC Foundation for Research Development,

cannot be disclosed to the public yet, but we think it will be a success and we look forward to bringing it to market in South Carolina,” Adams says.

Ideally, perhaps the best way to deal with the stroke problem is to prevent them from ever happening, or at least significantly reducing the occurrences. REACH is working toward that end as well, collaborating with the South Carolina Area Health Education Consortium (AHEC) to provide stroke education and awareness programs across the state. “We’re overlaying the REACH map and the AHEC map and looking for ways to help each other carry out our missions,” Adams says. Additionally, REACH is working with the College of Nursing through a grant provided by the South Carolina Center for Translational Research (SCTR) to raise community awareness on the connection between human behavior and stroke risk factors.

In just a few years, Adams and his staff have assembled a comprehensive stroke center more advanced than any other in South Carolina and one of the few elite centers on the East Coast, put together a network of hospitals to help treat residents virtually anywhere in the state, collaborated with other MUSC departments to help rehabilitate stroke victims, and established outreach programs to help prevent future strokes. In 1924, magazines touting such advancements would have been classified science fiction. Today it’s science fact. ■

MUSC, EMS among national leaders in saving heart attack victims

South Carolina is awash in statistical databases showing it on the wrong end of many health and lifestyle categories. Amid all the bad news, however, may be an oasis of success when it comes to medical response to a heart attack, according to Eric Powers, M.D., professor of medicine and co-medical director of the Heart and Vascular Center at the Medical University of South Carolina.

A heart attack occurs when blood flow to the heart is stopped, which results in part of the heart muscle being injured or dying if the stoppage is long enough.

The Palmetto State is among the national leaders in restoring blood flow to the heart following an attack, thanks in large part to technological advances being made when first responders assess the patient. For several years now, Powers has chaired a statewide initiative to improve care heart attack patients receive. “An important part of that is early recognition that a patient is having a heart attack,” Powers says.

MUSC and other medical centers throughout South Carolina possess the latest technology and have highly trained staffs to give patients the best chance of survival once they pass through the doors. The heart attack care network, South Carolina Mission: Lifeline, focuses on providing first responders – usually paramedics – with the training and equipment to quickly make a diagnosis and relay that information to the hospital. That early notification allows emergency departments to be ready and waiting for the patient when he comes in, thus cutting down on additional evaluation time.

This means additional training for EMS staffs and equipment to transmit electrocardiograms from remote areas to emergency departments. Where that’s been done, the results are astonishing. Prior to the implementation of this practice, MUSC’s

median time to restore blood flow to the heart was about 120 minutes, considered typical among medical centers. With this recent advancement, it’s down to 47 minutes, restoring blood flow to the heart more than an hour sooner.

That puts MUSC with the third best time in the nation, according to Powers.

“In large part, we know it’s a heart

“In large part, we know it’s a heart attack before the patient gets here. It turns out that 60-80 minutes we save has a big impact on outcome – smaller heart attacks, fewer deaths, less late morbidity complications.”

— Eric Powers, M.D.

attack before the patient gets here,” Powers says. “It turns out that 60-80 minutes we save has a big impact on outcome – smaller heart attacks, fewer deaths, less late morbidity complications.”

Powers emphasizes that this initiative is not confined to MUSC – all Charleston hospitals participate and all have shown improved response times. Nor is the network confined to the Charleston area – it is a statewide project, and in South Carolina’s major metropolitan areas, response times overall are better than before, Powers notes.

“In South Carolina, about 65 percent of the time, when a patient’s picked up by EMS, the heart attack is identified and that information is transmitted to the receiving

hospital,” Powers says. “Around the rest of the country – and everybody’s trying to do this now – the rate is about 50 percent. So South Carolina is doing better than the rest of the country.”

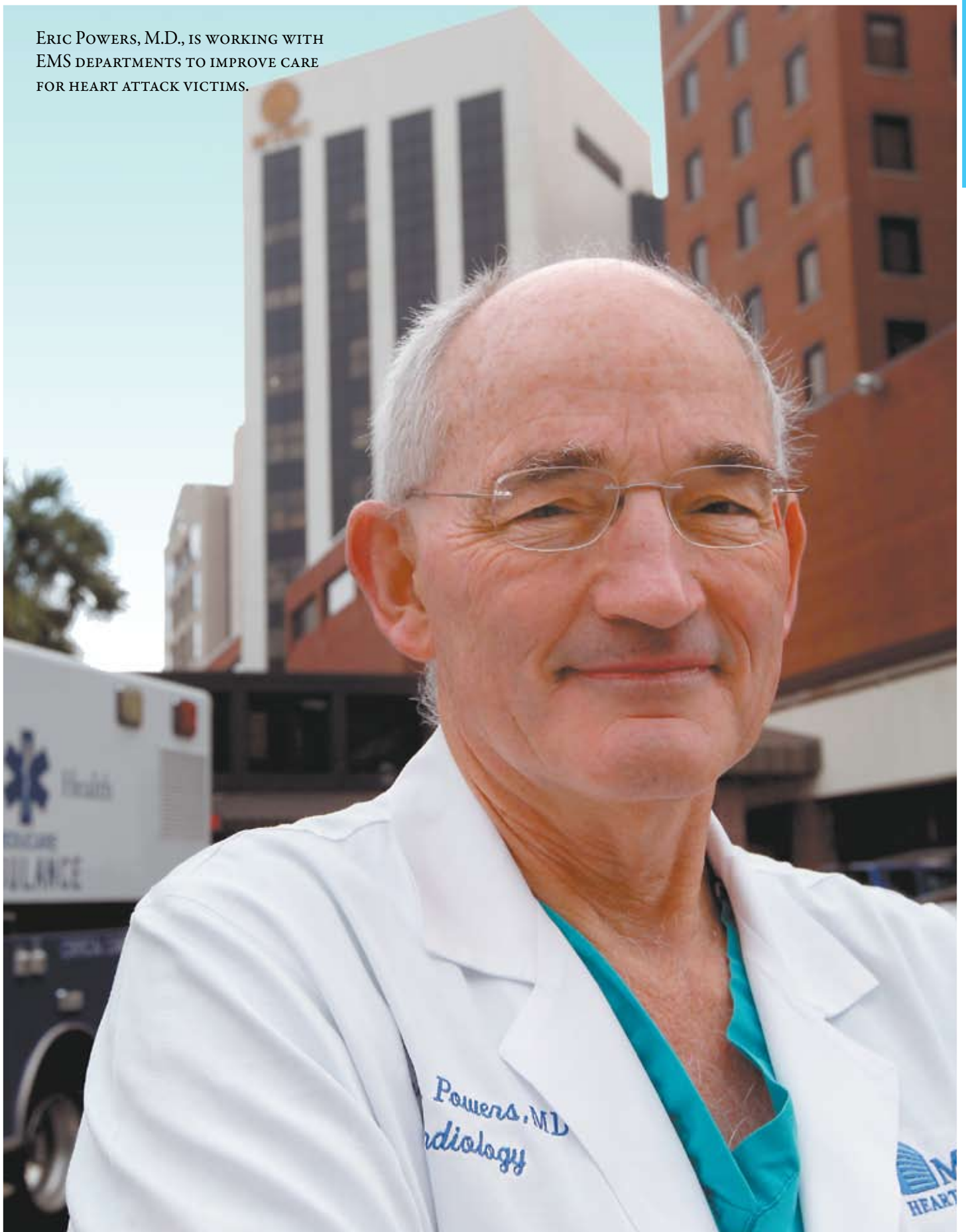
Don Lundy, director of Charleston County Emergency Medical Service, considers this technological advancement a sea change in the health care field. “I’ve been doing this since 1974,” says the EMS veteran. “I cannot think of a process that was more patient-centered and life-changing as this. All of the PCI (Percutaneous Coronary Intervention) – centered hospitals came together to make this happen for the patient. It is very humbling to know the difference we are all making as a team.”

Charleston County paramedics are trained to interpret EKG data. If a heart attack is confirmed, that information is radioed to the hospital while the ambulance is en route, saving critical time. “What we didn’t want to do was bog down the patient in technology,” Lundy says, “so the process was developed that everything is done with the idea that the patient is always moving towards definitive care.”

The 12-lead EKG, in which electrodes attached to the body record the heart’s electrical activity, is the method in use by local EMS agencies and approximately 80 percent of EMS systems nationwide. Transmitting that data from the field to the hospital is not as widespread, according to Lundy. Although South Carolina is among the leaders in response times, there remains a gap between Charleston and other metropolitan areas compared to the rest of the state. Powers and Lundy agree there is more work to be done.

“We are always looking at the next step,” Lundy says. “What can make it even better?” ■

ERIC POWERS, M.D., IS WORKING WITH EMS DEPARTMENTS TO IMPROVE CARE FOR HEART ATTACK VICTIMS.



Medical school dean masters work, life balance



ETTA PISANO WITH HUSBAND, DR. JAN KYLSTRA, AND CHILDREN CAROLYN, SCHUYLER, JIMMY AND MARIJKE

On College of Medicine Dean Etta Pisano's bucket list is an unusual item. She wants to write a play on the changing role of women in society.

It's no wonder. One of the strongest role models in her life was her mother, who was an electrical engineer running an office of 30 men in charge of computerizing the telephone system. When she married Pisano's father in 1955, unfortunately they

that experience shaped who I am to a large degree."

As the first female dean of the College of Medicine, Pisano, M.D., certainly has learned to handle tough issues within her area, at her former institution, the University of North Carolina-Chapel Hill, and throughout her life.

It also instilled in her a desire to stop women from dying too young – and that is

"I'm a believer in the wisdom of crowds. It's important that a variety of viewpoints are heard and that we hear from people who think differently."

— Etta Pisano, M.D.

let her go from her employment.

"It was a different time back then, but I'm sure that must have been incredibly difficult – to have to choose between her professional life and her personal life. I like to think that if she had the opportunity she would have rejoined the workforce. My mother passed away when I was 15 – and as the oldest of seven children I gained a lot of responsibility at a young age. I believe

one of the reasons she selected breast cancer as an area of focus. It is this same drive and desire, energy and strong work ethic that has pushed Pisano throughout her career to excel as an accomplished physician-scientist, innovator and balanced leader.

At MUSC, Pisano has already made history as the institution's first female medicine dean. Although her decision to lead South Carolina's oldest medical school was

not easy, she felt the opportunities at MUSC were too irresistible to pass up.

"The College of Medicine is a great institution with rich traditions and a proud history, and I felt that there was much more that could be accomplished here across all of the institution's missions. The vision outlined by President Greenberg and the board of trustees mirrored my own values and aspirations for this institution. I am very glad to have been given this opportunity and am very much enjoying being here."

Pisano joined an elite sorority of about a dozen women deans leading the country's 126 accredited medical schools with her appointment in 2010. Her leadership comes at a challenging time where deans in academic medicine face pressure with difficult issues including state funding cuts, reduced federal research funding, doctor shortages and the implementation of Health Care Reform.

Mark Sothmann, Ph.D., vice president for academic affairs and provost, is among campus leadership who works closely with Pisano and MUSC's five college deans on a variety of programs such as the College of Medicine's progress with the institution's new funds flow financial model and alignment with the 2010 Strategic Plan.

"Dr. Pisano has one of the most difficult jobs at any academic health center. The challenges are immense with such forces as the changing fiscal climate and health care reform. Being one of just a few women in these positions nationally, her successes at MUSC will be hugely symbolic not just regionally but across the country," Sothmann said.

A preeminent researcher and internationally renowned expert in the field of breast imaging, Pisano made advances in breast cancer screening with her landmark, multi-center Digital Mammographic Imaging Screening Trial. The trial tested the diagnostic

DR. ETTA PISANO AT MATCH DAY.



accuracy of digital and film mammography. She and her research team also developed new technologies with diffraction enhanced imaging and other radiological imaging breakthroughs to improve breast cancer detection in women.

Pisano is regarded as an expert in the field of women's imaging and recognized among the top 20 most influential people in radiology. In 2008, she was elected to the Institute of Medicine of the National Academy of Sciences, considered as one of the highest honors in the fields of health and medicine.

Along with being an accomplished physician and researcher, Pisano has proven

herself as an advocate and pathfinder for women's issues in academic medicine and higher education.

Pisano credits her parents, the nuns who helped educate her as a child and other successful professionals for laying down a strong foundation in her early years. Aside from her mother's influence, she also learned much from her father, a radiologist, who had a strong presence in shaping the direction of her life. As a pre-teen, Pisano remembers her father introducing her to several successful female physicians and colleagues who were successful at balancing both career and family. Meeting and talking to these professionals, she realized how possible it was for a

woman to have a family and be a successful physician.

The setbacks her mother faced with gender stereotypes and lack of choices for women devoted to raising a family back then were difficult, but not so different than some of the challenges Pisano herself has faced as a woman in the 1980s launching a career in medicine and science.

"There was often the perception that a woman couldn't have a medical career and be a wife and mother. As a junior faculty member, I had to assert myself to be allowed to work part-time for several years while I had young children at home – I encountered resistance, because that was not the norm. But it was during those years that I got my first grants and learned how to be a researcher – they were incredibly productive years."

Among her goals, Pisano wants to improve collaborative relationships across colleges and throughout the campus. She also wants to develop mentorship opportunities among faculty and students, strengthen research and advance translational discoveries to development, increase fundraising within the college and other efforts. She is co-founder of her company, NextRay.

She's also focused on making an impact on women and promoting diversity in leadership within her college and across campus.

"MUSC has been very forward-thinking in selecting women leaders for many of its highest leadership positions. This demonstrates MUSC's commitment to diversity, and I believe the university benefits by having a diverse leadership. I have always been an ardent supporter of this and am committed to maintaining and increasing diversity among the leadership in the College of Medicine."

During her 20-year tenure at UNC-Chapel Hill, Pisano emerged as a passionate

advocate and champion for women faculty, women in leadership and diversity projects. In 2007, she founded the university's Working on Women in Science program, an initiative established to enhance the recruitment, retention and promotion of women faculty through leadership training, mentoring and networking. She led and supported UNC's Association of Professional Women in Medical School. Most notably, she chaired UNC's Committee on the Status of Women, which the group addressed tenure clock issues and gender-based salary inequities among faculty.

"I believe it's important that we accommodate life changes for both women and men – to allow our faculty to both have a career and raise children. MUSC does not have a 'tenure clock' for its faculty, so there is not the same degree of pressure that exists as at many other institutions for faculty to move 'up or out.' This 'tenure clock' time period typically coincides with when faculty would be having and raising their children."

The tenure clock extension policy in higher education is defined as an adjustment of extra time granted to a tenure-track faculty member due to circumstances and conditions in the management of family responsibilities or health issues.

As dean, Pisano also is challenged with attracting and retaining talented women and minority recruits who choose an academic career. Within her own college,

she advocates for the presence of women and minorities in leadership groups, committees and work panels.

"I'm a believer in the wisdom of crowds. It's important that a variety of viewpoints are heard and that we hear from people who think differently – representing a diversity of generations, race, gender, background and specialty. This is the key to making well-reasoned decisions."

To maintain an academic career pipeline for women and minorities in her college, faculty are encouraged to attend professional development conferences, participate in the Executive Leadership in Academic Medicine program or attend Association of American

"I believe it's important that we accommodate life changes for both women and men – to allow our faculty to both have a career and raise children. MUSC does not have a 'tenure clock' for its faculty, so there is not the same degree of pressure that exists as at many other institutions for faculty to move 'up or out.' This 'tenure clock' time period typically coincides with when faculty would be having and raising their children."

— Etta Pisano, M.D.

Medical Colleges workshops and meetings.

Managing the work-family balance at this level is something that Pisano has learned to master well. The mother of four children and the wife of Jan Kylstra, M.D., a retinal surgeon and professor of ophthalmology at the Storm Eye Institute, Pisano cherishes the love and support from her family especially at this stage of her career. She also values the talented and hard-working team that works with her every day.

"I have always felt it imperative to strike a balance in my whole life, not just my work life. It's also important to recognize one's limitations."

In the two years that she's been dean, Pisano and her team have achieved many accomplishments. She smiles as she describes it as an exciting time for everyone in the College of Medicine.

Since her arrival, she's met and talked to medicine faculty, staff and students to discuss issues and set priorities. During this period, she and her staff have recruited more than a dozen new leaders and faculty; collaborated with a faculty-led committee to implement the college's Research Strategic

Plan; and initiated the hospital's new Clinical Enterprise Strategic Plan sponsored by the College of Medicine, MUSC Physicians and MUHA, as well as multiple projects. She's currently guiding faculty and staff in preparing for the medical school's reaccreditation with the Liaison Committee

on Medical Education scheduled for January 2013.

On sharing her advice with colleagues and women, Pisano's words are wise and practical. "It's important to have strong support systems, both in your personal life and professional life. Reach out and learn from others. Have good mentors and be a mentor to other people." ■

Stuart blends the art, science of nursing into success

Hanging in Gail Stuart's office is an elegant art piece of an Asian woman.

She laughingly calls it her muse, and it brings back fond memories of an overseas trip she took. More than that it embodies visually her goals of instilling compassion and self-efficacy in the students and faculty that traverse the halls of MUSC's College of Nursing where she has served as dean for the past decade.

"I love seeing minds blossom," she said of the journey she witnesses of the students, staff and faculty in the college. "It's very much a visual thing where you see the flower opening up, particularly in nursing. You see people come in here and they just bloom. They take in information. They have insights they never had before. They have new ways of reaching out to people."

Stuart, Ph.D., RN, has seen many positive changes. The college boasts a 92 percent graduation rate for 2010-11 and a 100 percent pass rate on a certification exam for family nurse practitioners in 2010. It has doubled student enrollment and gone from having no National Institutes of Health

ranking for research to being ranked 30th in the country. It also has added to its online nursing programs.

Though all are welcomed changes, it's not what stands out to Stuart.

"I'm proudest of the emotional climate in this college. That's probably not what you'd expect a dean to say. I'm proudest that the faculty and the staff in the MUSC excellence survey – 97-100 percent said they made the right choice in coming to work at the college of nursing. If you have a healthy

emotional climate and respectful climate, you can do great things."

Many times organizations do good things, but they foster a competitive, cut-throat climate that is not healthy.

"Ultimately, that's not going to win the day. We are a team. The more stars that shine, the greater the light that's given out. It's not about individuals. It's about all of us growing to be the best that we can be."

Her relational style of management that blends the art and science of nursing is one factor that has made Stuart stand out in her role as dean. She is being recognized as part of the MUSC's National Women's History Month program in March celebrating "Women's Education – Women's Empowerment."

Stuart has had many offers during her career to move on to other institutions.

"Women have not won this day. There still are challenges there. There are a lot of subtle and unexpressed biases. I don't think women have been totally unleashed as far as the potential that they can really bring into the workplace and the workforce."

— Gail Stuart, Ph.D., RN, | Dean, College of Nursing

She has stayed because her continuity has allowed her to develop good working relationships and gain momentum to effect change. "I'm someone who likes to grow and develop things. I like to see the possibilities. I think MUSC is uniquely positioned to grow."

Born in Jersey City, New Jersey, Stuart lived in a fourth floor apartment with no elevator. "I don't think I ever saw a riding mower. I was a real city girl. I went to the village on weekends. I was very much brought

up in the New York City environment."

Not many fields were open to women as she was considering college.

"I have a confession. I type with two fingers because when I was growing up you took typing if you wanted to be a secretary. I knew I wanted a college degree, so I went to Georgetown University, which was a fabulous experience."

Nursing turned out to be the perfect match for her. She loved the holistic view and ability to interact with patients. After receiving her bachelor of science degree in nursing from Georgetown University, she went on to get her master's in psychiatric nursing from the University of Maryland, and her doctorate in behavioral sciences from Johns Hopkins University, School of Hygiene and Public Health.

Stuart said she realized she was drawn to psychiatric nursing while working in the emergency room at George Washington University Hospital. "What I noticed is that every time someone came in with an overdose or suicide attempt of any kind, the staff always used to triage those to me. I started thinking maybe there was

a reason why they don't want to do it, and I do like to do it."

Stuart would go on to make significant contributions to psychiatric mental health nursing. She is finishing the 10th edition of the textbook, Principles and Practice of Psychiatric Nursing that has been honored with four Book of the Year Awards from the American Journal of Nursing and has been translated into six languages.

The book goes beyond just the science of nursing to capture the artistry involved as



GAIL STUART ON THE STEPS OF
THE COLLEGE OF NURSING.

well. Stuart said she carefully chose patient and nurse stories. It also includes the work of batik artist, Mary Edna Fraser.

“It’s that sense of generativity – of giving back. It’s a legacy. Clearly, it won’t be forever, but it’s been 30 some odd years and there are a lot of people who have been touched by the content. It’s more than just numbers and facts. It really tries to humanize the whole mental health and substance use field. I think people relate to that. People love stories, and it makes it more personal.”

Though she now has grandchildren tempting her to take more time off, Stuart said she has much she wants to accomplish before retiring. She’s excited about a renovation of the college that will be starting in the fall.

She likes that three of the six deans at MUSC are female. There was a period when she was the only female dean. “It makes the dialogue more balanced and gives more perspective. It enriches MUSC overall with the kinds of discussions and analysis that can be achieved when you have a mix of people – racial, ethnic, gender – however you want to look at it. Like minds always think the same way, and you go down the same road.”

There’s still work that needs to be done to mentor women in leadership roles. “Women have not won this day. There still are challenges there. There are a lot of subtle and unexpressed biases. I don’t think women have been totally unleashed as far as the potential that they can really bring into the workplace and the workforce.”

Her advice to women is to ignore some of the negative images that can surround working women and find creative ways to make balancing family and career work. There’s an art in learning to be true to oneself, she said.

“Don’t second guess feelings important to you and let the outside voices override your own voice. Experiment. I think that’s very important. Experiment with childcare arrangements. Experiment with careers. I’ve told people that I’ve had more different jobs without leaving Charleston because I was here. I was over at psychiatry. I was at the center for health care research. Sometimes certain things work at one point in time and then they don’t work at another.”

Pragmatic to the core, Stuart exudes resiliency.

“You have to adapt and change as your situation changes. This shouldn’t be frightening. It shouldn’t be a bad thing. It should be experimental. I tell my faculty there is no failure here. If we try something that we all thought was a good idea and it doesn’t work out, we are smarter than we were the day before. It’s like a rule-out diagnosis.

I think that’s how women have to feel. I think oftentimes women feel more contained and held back and less able to take risks.”

She believes in being proactive.

“I’m not someone who wrings her hands or whines. I really don’t like whining at all. I don’t like worrying about things you can’t change. I don’t find that productive. There are plenty of things to worry about that you can change. I tend to be optimistic and persevering. Sometimes people find that annoying. If you close the front door, I’m very likely to go to the back door and see if that’s open.”

The college is on a very positive trajectory, and she wants to continue to see an increase in students and in research agenda. Her goal is for the college to be one of the best state-supported schools in the country in the top tier of its peer group. More importantly, she wants its graduates to have mastered the two traits that in her book that are essential to success: Compassion and self-efficacy. With those two traits, they can handle any situation, she said.

“Sometimes I see some of our students and I think ‘you make me so happy for the future of nursing.’ I know that’s the kind of nurse who I want at the bedside. That gives you a sense of longevity and a sense of hope in the future that, yeah times are tough and sure, there are bad apples, but we are turning out people whom I would want to be my nurse.” ■

Saladin not afraid to take risks

Lisa Saladin, dean of the College of Health Professions, almost died last year.

She says it matter of fact, a tight smile playing at the corners of her mouth. As one of three female deans at MUSC, she hasn't gotten to where she is being afraid of risks. Saladin, Ph.D., who is trained as a physical therapist, enjoys two-week backpacking jaunts to decompress from the stress of her work. It'll be a long time before she'll forget her latest trip. She was hauling her 50-pound backpack from Chamonix France to Zermatt Switzerland on a hiking trip with her husband Dr. Michael Saladin.

About 1,500 feet up, they looked down on a glacier from their 8-inch wide ledge on the trail. Saladin faced a vertical wall with two ascending ladders. Hikers have to make a short jump from one to the other.

Despite the knowledge that a fall from this height would likely result in death, she reminded herself that she'd been told even grandmothers had made the climb.

"I looked at it and thought maybe Swiss ones."

Saladin made the climb, did the jump and found herself dangerously dangling by a hand. "I misjudged the weight of my pack and how much it would cause me to sway in the opposite direction. I had my closest near death experience where I really thought this was it. I was hanging with one arm, and I had to use every bit of strength I had to get my feet grounded and get my other arm on."

Though she has had flashbacks about the moment, she doesn't let it stop her. Her next trip will be to South America to explore Patagonia. "It's about the challenge. I want to prove that I can do something different every year."

That mantra plays out in her career as well.

She became dean of the college August

2011, after serving a year in an interim position, so she knew what to expect.

"It's a challenge every day. It's a steep learning curve, but I'm very much enjoying it. The environment is changing around us as far as funding goes."

The dean selection committee praised her especially for her collaborative approach to decision making. When asked what she wants most for the college, she answers quickly that it is the goals that have been set up collectively and fall into seven different areas ranging from research to faculty and staff recruitment and mentoring.

would like more structured. Some people complain that mentorship just trains staff, and then they leave. She disagrees. "I would rather grow and develop a faculty member who leaves than ignore someone here who stays and is miserable. My advice is — across the board look for people who strive to do things well and strive to promote them in every way possible."

One of her proudest accomplishments, other than her numerous teaching awards, is becoming dean. Five years ago it wasn't even a goal, but Mark S. Sothmann, Ph.D., became dean of the college in 2007, and she

"We all have very different styles, and I like that. It's basically demonstrating that a female can be a good leader and an accepted leader with very different styles. People need to be open to exploring that sometimes one leadership style might be good in a setting, in one college, in one time frame. I don't think we were put in these positions because we are all females. I think we were put in these positions because we were the right person, in the right time at the right place."

— Lisa Saladin, Ph.D. | Dean, College of Health Professions

Being trained in a team concept kind of care, she has seen how that approach in management can get the best results. She encourages people to challenge her on a regular basis. That's how the best ideas get born, she said.

An area that needs to be strengthened in the college is mentorship, which occurs on a kind of hit or miss practice that she

was given opportunities to have more input and influence in the college.

"I hadn't thought of it as an opportunity until Mark came. I guess he saw something in me. I do have a head for budgets and figures and looking at big pictures and analyzing data. He mentored me and offered some opportunities to test the water in administration in higher levels

LISA SALADIN ON A BACKPACKING TRIP IN SWITZERLAND.



than I had been allowed before.”

Saladin said it was an incredibly rewarding experience, one she tries to pay forward. She feels that women especially need mentorship.

“Competition among females is so intense and so hurtful that we often don’t build each other up and help each other move through. Most of my ability to move forward has been from male administrators.”

Her advice to managers is to build everyone up and look for potential leaders.

“Look to help women because I think

we are disadvantaged. We as women have been part of the system that disadvantages other women to move through the system. So can we remove some of that competition? Can we remove some of the harsh criticism that seems to be leveled at females who try to move into leadership positions? Can we level the playing field because I don’t think we have a level playing field now.”

Having more diversity, whether gender or ethnicity, makes for a better administration. She likes that six of MUSC’s college

deans now are female and feels it will have a good impact on MUSC’s campus.

“We all have very different styles, and I like that. It’s basically demonstrating that a female can be a good leader and an accepted leader with very different styles. People need to be open to exploring that sometimes one leadership style might be good in a setting, in one college, in one time frame. I don’t think we were put in these positions because we are all females. I think we were put in these positions because we were the right

person, in the right time at the right place.”

Raised to enjoy the fresh air and the outdoors, Saladin relishes her Canadian and Lithuanian roots.

Both of her parents were born in Lithuania. Her mother’s family left their belongings and escaped during World War II with just an ox cart. Many of her relatives

degree in physical therapy was earned from Nova Southeastern University in Fort Lauderdale, Fla.

Following her husband to MUSC in 1990, Saladin began moving up within the ranks of the College of Health Professions. When she became dean last year, she was asked whether she wanted to keep teaching

“I love to hear someone saying that they want to be a neurotherapist after having had the class. Motivating them, exciting them, challenging them and watching them grow are the components I love about teaching.”

She also tries to impart to students that they will have to take risks to win battles personally and professionally. She recalls being involved in a legislative battle that was important to her professionally, but that pitted different health care providers against each other. It would have been safer to not take a vocal stand. “I learned ‘stick to your guns.’ I basically told the dean at the time that I’m not stopping. This is incredibly important to our profession. There are risks. When you take a stand, you take risks. You have to assume the risks that go with it. You will engage opposition and risks.”

What keeps her going are the rewards. She loves being in a profession that allows people to have less pain, more function and a better quality of life. She starts off each course she teaches with a real story about a patient.

“It’s a patient who against all odds and maybe against all the knowledge at the time not only survived but to watch them for the first time take that first step and to feel what they feel for you and their appreciation for what you did to change their life,” she said. “When you talk about our theme changing what’s possible, that’s what we do, particularly as a neurotherapist. You take people who are paralyzed, comatose and some of them walk out the door. To watch that in progress – to be part of that – to me that is what makes me tick.” ■

“I love to hear someone saying that they want to be a neurotherapist after having had the class. Motivating them, exciting them, challenging them and watching them grow are the components I love about teaching.”

— Lisa Saladin, Ph.D. | Dean, College of Health Professions

still live there in very poor conditions. “In some ways, I feel very blessed. If not for an ox cart, I could be living in Lithuania and not had the advantages that I have had. At the same time, I have gained a lot from that background and perspective seeing how they live and what they appreciate.”

Born in Winnipeg, Manitoba in Canada, Saladin remembers her grandmother coming to enjoy summers with her. They’d pick mushrooms or go fishing. It’s where she realized her love of the outdoors.

She also loved science and art and thought she wanted to go into architecture, but when she enrolled she found out that it wasn’t what she expected. An accidental visit to a career fair with a friend led to her fascination with physical therapy. She liked how it seemed to combine art and science and working with people.

She received her bachelor’s degree in medical rehabilitation physical therapy and a master’s of science degree in anatomy from the University of Manitoba, Winnipeg, Manitoba, Canada. Her doctor of philosophy

or not. Loving the challenge of motivating her 120 students to learn the intricacies of neurotherapy, Saladin chose to keep teaching.

“Not all deans choose to do it, but I’m going to keep doing it because I love to do it and it keeps me connected with students and faculty. It’s a way to stay connected. I love the nurturing part — watching someone grow and seeing the lights come on when you teach a very difficult topic. I teach neuroscience. It’s not the easiest topic. I like to find all kinds of creative ways to teach it and reach students with different learning styles.”

Saladin has been awarded three University Teaching Excellence awards, been designated a Master Teacher by the MUSC board of trustees and is the recipient of the national Dorothy E. Baethke-Eleanor J. Carlin Award for Excellence in Academic Teaching.

She likes to see students get as excited as she is about the whole concept of neuroplasticity and how therapy can change someone’s brain.

The Year in Philanthropy: A Success by Every Measure

by Jim Fisher, Vice President for Development

Inspiration is never hard to find on the Medical University's campus.

You can see it everywhere: In our patients' faces...in our students' sense of determination...in the passion of our volunteers...and in the dedication of our staff, faculty and caregivers, all of whom understand the importance of their work to the lives of others.

As vice president for development, I have the opportunity to see that inspiration in another place: in the generosity of the people, businesses and organizations that choose to support the Medical University through a philanthropic gift.

Two thousand eleven was an incredible year in philanthropy at the Medical University. Here are a few of the highlights that were especially meaningful to us:

A GROWING FAMILY OF SUPPORTERS

Giving can be hard during tough economic times. At a time when many supporters might have been hesitant to give, we actually saw double-digit growth in the number of donors making a gift to MUSC. More than 11,000 benefactors felt strongly enough about the importance of our work to make a gift in its support.

RECORD GIVING

Giving to the Medical University reached nearly \$83 million in gifts and pledges during 2011—about 8 percent more than the previous year. This was a record for the university that, again, took place during a time of great economic uncertainty.

Notably, the sharpest increase in giving took place among people who did not graduate from one of our six colleges. That amount grew 42 percent, to \$26.5 million. Their support was motivated by something beyond love of alma mater...something a little deeper and more meaningful to the community as a whole.

SUPPORT FROM WITHIN

Our employees' generosity has been nothing short of inspiring. Their support of the university's employee fund-raising campaign increased 10 percent during 2011, providing vital funding for services and programs across our campus. These contributions were important, both materially and symbolically; an enterprise that has the full faith, confidence and support of its own people cannot fail.

WHY PHILANTHROPY MATTERS

Although MUSC is considered a state-assisted university, its state appropriation accounts for about 3 percent of what it costs to fulfill its educational, research and patient-care mission on an annual basis.

LOYAL PARTNERSHIPS

More than 75 percent of last year's contributions came to us from "repeat benefactors." This is important because it tells us that people see the university as a sound investment with a proven track record of achieving results. We are honored by their confidence, and pledge to be faithful stewards of their continued trust and generosity.

NEW BEGINNINGS

This year, Boeing expanded its operations in South Carolina with the opening of its new final assembly facility in North Charleston. Before the company even cut the ribbon on the new building, it made a gift to establish a new center aimed at promoting healthier lifestyle habits among the state's young people. We are deeply gratified by Boeing's investments both in the Lowcountry and in the Medical University, and look forward to a long and fruitful partnership with it and the 1,161 others who made a gift to MUSC for the first time last year.

INSPIRING ACTS OF KINDNESS

Every so often, we see an example of selfless generosity that is so pure it stays with us forever. This year, this example came to us through 7-year-old Aidan Roff. Moved by a schoolmate's courageous but unsuccessful battle with cancer, Aidan recruited some friends to open a lemonade stand near his home in Charleston, raising more than \$2,000 for cancer research. In doing so, he not only demonstrated a drive and compassion beyond his years, but also embodied in a beautiful way the very essence of philanthropy: the idea that no problem is so large that it can't be solved when impassioned people decide to act.

These are just a few of the year's highlights in philanthropy from my perspective, as one who works with the Medical University's benefactors every day – there are many, many more. However, the more meaningful measures of last year's success were those that took place in our research labs, our classrooms, in the community and at our patients' bedsides as a result of this giving. We invite you to visit our campus, so that you may see for yourself how your gifts are transforming our campus and the lives of the people we serve.

If you made a gift to the Medical University last year, please know that your contribution is making a bigger difference in more lives that you can imagine. These are significant, transformative investments that will leave an enduring mark on our campus and create a legacy of better health for countless people for generations to come. On behalf of the entire Medical University family, I thank you.

REVENUES

UNIVERSITY

State Appropriations	\$ 105.3
Grants, Gifts, Contracts	246.8
Sales and Services	161.2
Tuition and Fees	69.2
Other	21.3

MEDICAL UNIVERSITY HOSPITAL AUTHORITY

Patient Services	1,012.5
Other	17.0

MUSC PHYSICIANS

Patient Services	308.7
Other	26.6

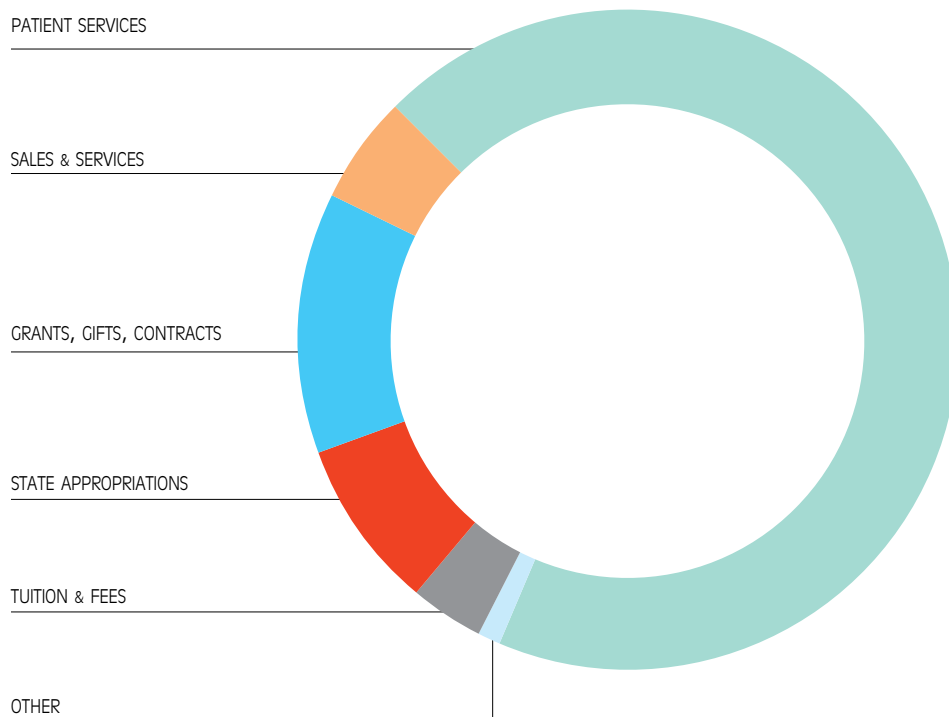
NONMAJOR ENTERPRISE FUNDS

	1.8
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ELIMINATIONS

Other	(1.6)
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TOTAL \$1,968.8



EXPENSES & TRANSFERS

MILLIONS OF DOLLARS

University 540.0

Medical University Hospital Authority 1,005.7

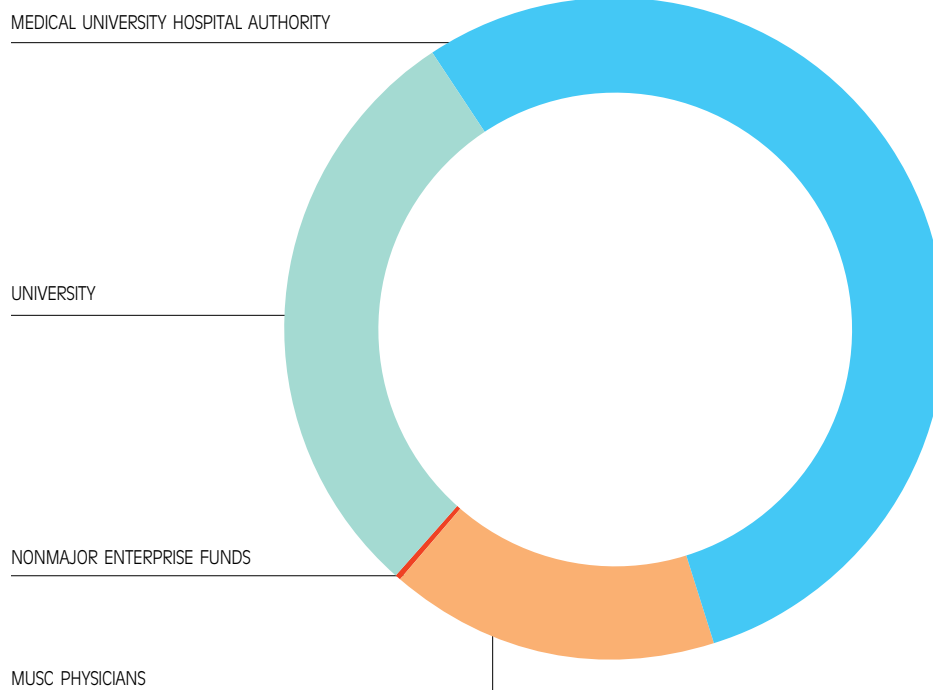
MUSC Physicians 300.3

Nonmajor Enterprise Funds 1.5

Eliminations (1.6)

TOTAL \$1,845.9

INCREASE IN NET ASSETS \$122.9

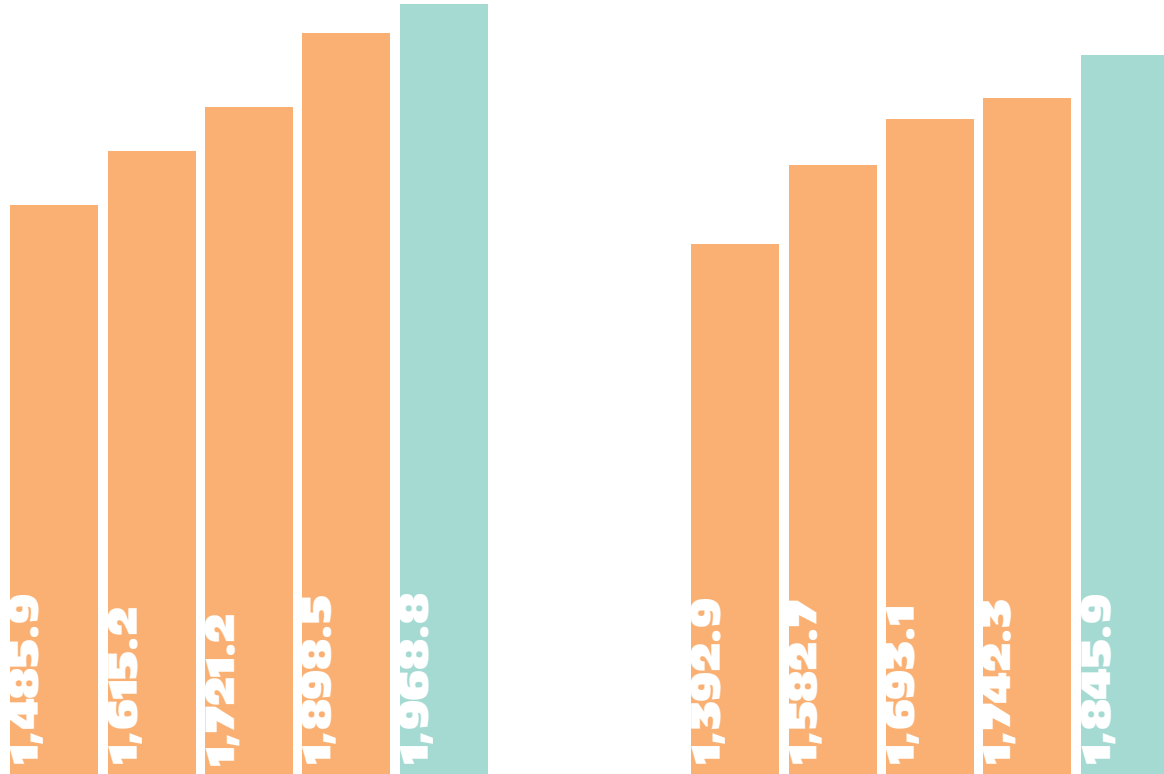


Note: The Nonmajor Enterprise Funds are comprised of the Medical University Facilities Corporation and CHS Development Company. Source: Audited Financial Statements for the year ended June 30, 2011.

REVENUES

MILLIONS OF DOLLARS

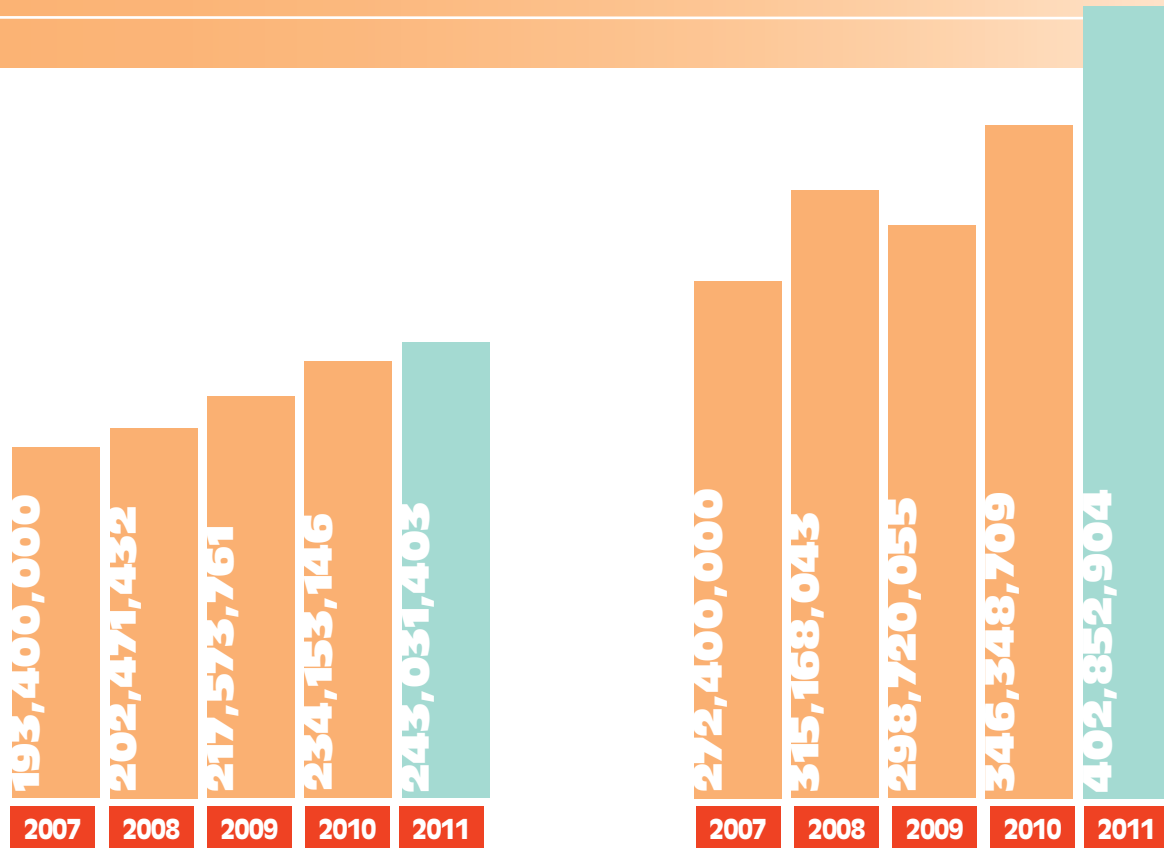
EXPENDITURES & TRANSFERS



RESEARCH CUMULATIVE AWARDS

MILLIONS OF DOLLARS

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