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REACHing Out: Stroke Network Delivers Cutting-Edge Care to Rural Patients

COLUMBIA, SC - September 8, 2009 - Elizabeth Lafata and Roberta Jordan each suffered a stroke in South Carolina's rural areas during the past year. The memories of those moments are vivid for both of them.

"I was in the gym on a bike," says Lafata, who was visiting South Carolina from Gloucester, Mass when her stroke occurred in February 2009. "I felt numbness in my legs, and I immediately knew there was something wrong. I got off the bike and knelt down on the floor, and by that time the numbness started going all through my legs and all through my arms. Thank God, my husband was there," she remembers. "I said, 'I think you better call 911.'"



Above Photo: Elizabeth Lafata, who was visiting South Carolina from Gloucester, Mass., had a massive stroke in Feb. 2009. Through the REACH MUSC program, an offshoot of the Stroke Center of Economic Excellence, she had access to top neurologists and specialized care to minimize the effects of her stroke and preserve her quality of life.



Above Photo: Roberta Jordan, who lives in Conway, is one of many rural stroke patients in the state who have benefitted from the ground-breaking work of the Stroke Center.

Jordan, who lives in Conway, recalls her stroke in December 2008. "I decided that I would put dishes up," she says. "When I went to put the pot in the utility cabinet, I dropped it. My head felt very strange."

Jordan called her son, who lived across the street. "When he came in, I couldn't talk to him. So, we called 911."

A stroke victim needs medical treatment right away. A delay of even one hour can mean the difference between complete recovery and significant, permanent disability; sometimes even death. This reality puts rural stroke victims at a decided disadvantage—for them, the closest hospital is likely to be a smaller, community facility that lacks the resources of a stroke specialist on permanent duty.

Both Lafata and Jordan were taken for treatment to small hospitals after their strokes—to Waccamaw Community Hospital in Murrells Inlet, and to Grand Strand Regional Medical Center in Myrtle Beach, respectively. But at these facilities, both Lafata and Jordan had access to top neurologists in Charleston at the Medical University of South Carolina.

How? Through a program called REACH MUSC, which uses the Internet to connect doctors and stroke patients at community hospitals with stroke specialists at MUSC.

The program is an offshoot of the Stroke Center of Economic Excellence at MUSC. **Dr. Robert Adams** (below), a CoEE endowed chair for the Stroke Center, helped develop the system equipment, software, and decision support that are part of the program.

REACH MUSC works in the following manner: when a stroke patient arrives at the emergency rooms of partner sites, he or she is rapidly identified as a likely stroke case. The local site then calls MUSC, and a stroke specialist connects to the partner site via a secure website. There, the physician can view the patient via web camera, study medical information about the case, and review the patient's computerized brain scan. The main purpose of this consultation is to reduce delay in using thrombolytic or clot-busting drug treatment, commonly known as tPA (tissue plasminogen activator).



"The painful reality is that despite having one effective treatment [tPA] to use, the drug is vastly underutilized due to the narrow time window of its [effective] use, which is three hours from onset of stroke," says Adams. "The fact is that if the first hospital a stroke victim is taken to cannot administer the drug, the patient won't get it, since there is usually no time within the window to transfer the patient to another hospital."

Lafata received online stroke treatment via REACH MUSC. "I remember one of the doctors coming over to me and saying, 'We're thinking of giving you a medicine called tPA,' Lafata says. "The next thing I knew . . . I was talking and I felt really good."

The REACH MUSC program's usefulness goes well beyond recommending (or advising against) tPA use, however. Rural hospitals' access to an MUSC stroke specialist also expedites treatment for other stroke conditions in which urgent care or specialized therapy may be required at a more comprehensive facility.

For Lafata, the availability of this specialized diagnosis and treatment made all the difference. The artery in her brain that was opened up with tPA treatment closed again, as sometimes happens. Lafata was taken by helicopter to MUSC, where she was treated by Dr. Aquilla Turk.

"She had a very severe stroke to the main blood vessel in the back of her brain; she received the clot-busting drugs which worked on her briefly, and her symptoms actually improved quite a bit," says Turk. "But by the time she was transferred to MUSC, over the course of about an hour, she was symptomatic once again."

Turk continues, "Through a minimally invasive procedure, going through the blood vessels, we were able to go up and actually remove and break up that blood clot and restore blood flow to the back of her brain, and she was able to recover back to her normal state."

"I woke up feeling stiff and very uncomfortable," says Lafata, "but I could speak again."

"In this particular case, I think we were able to prevent a catastrophic closure of the basilar artery, which I think would have been very devastating for her," says Adams.

When Roberta Jordan was taken to the emergency room at Grand Strand Regional Medical Center, the emergency room staff relied on REACH technology, which allowed Jordan to receive a consult from MUSC neurologist, Dr. Tanya Turan.

"When I turned on the computer and saw her in the hospital bed, she had pretty slurred speech and some right-sided weakness," recalls Turan.

After viewing Jordan's head CT scan, as well as speaking with her via computer monitors and noting that her speech was improving, MUSC staff determined that Jordan's condition did not require tPA, saving her unnecessary treatment that could have resulted in complications and increased medical costs.

"It was remarkable that they had the technology to do this, because if they hadn't, I don't know what would have happened," says Jordan.

Like Lafata, after the long-distance consultation using the REACH technology, Jordan was transported to MUSC, where she received a full stroke workup and appropriate treatment.



Above Photo: Stroke patient Elizabeth Lafata expresses her appreciation to CoEE Endowed Chair in Stroke Dr. Robert Adams. Adams developed the REACH MUSC program, which enabled Lafata to have remote access to stroke experts from a rural hospital.

"The great thing about the REACH program is that it offers state-of-the-art stroke care to people in small communities," says Turan. "The ER doctors at these outreach centers have been doing an excellent job of screening the patients that are appropriate for the REACH program. When we get a REACH call, we know that there's a pretty good chance that it's going to be a real stroke patient who really needs our help."

In the 12 months prior to implementing REACH, only 27 patients were treated with tPA at the six active REACH sites. After REACH was implemented, the active sites treated a total of 56 patients with tPA from May 2008 through June 2009. This represents more than a twofold increase in the number of patients treated for stroke.

Says Lafata: "I'm so blessed and thankful."