WISCONSIN COVERDELL
STROKE PROGRAM

Stroke Center
Success Story
2018

Enhancing Communication and Teamwork to Reduce Door-to-Needle Time

When it comes to treating acute ischemic strokes, time is a crucial factor that can decide a patient's health outcome. Quick administration of alteplase (clot busting drug), which restores blood flow to the brain, increases a stroke patient's chance of a good outcome. With this in mind, Sue Fuhrman, Comprehensive Stroke Center (CSC) Coordinator/CNS, and Marc Lazzaro, Comprehensive Stroke Program and Neurointervention Medical Director at Froedtert & the Medical College of Wisconsin set out to shorten the time between an acute ischemic stroke patient entering the door and receiving alteplase in order to provide the best care possible to this population.

In June 2017, Froedtert began looking at their alteplase administration process more closely. While their current values of alteplase administration were within regulatory standards, the comprehensive stroke program and the organization's administration wanted to focus on decreasing door-to-needle (DTN) time to improve their stroke care as much as possible. As a first step, they developed a DTN Task force (which is a subcommittee of the CSC Steering Committee)- an interdisciplinary quality improvement team made up of key stakeholders at all levels from the neurology, radiology, emergency, and pharmacy departments, CT Technicians and EMS providers to spearhead the project. This team utilized Six Sigma quality improvement methodology to determine which actions caused a delay in treatment, and which processes could be improved. The DTN Task Force determined four opportunity areas where time could be decreased: CT interpretation, alteplase administration location, communication and documentation across specialties, and performing other tasks before administering alteplase.

Froedtert first determined that an attending or faculty physician, not a resident, from either neurology or radiology must interpret an acute stroke patient's CT scan. Clearly assigning this task to certain individuals removed confusion about responsibility. Next, Froedtert determined that alteplase did not need to be administered in a designated region of the ED; rather, the alteplase could be brought to the patient, often within the CT area. This change in protocol removed the extra time it would take to transport a patient to different regions of the hospital, therefore saving time before providing alteplase.

Froedtert also worked to improve communication and documentation across all specialties involved in stroke care. Because attending and faculty physicians from both neurology and radiology have the ability to interpret CT scans, it was often unclear which department should take charge, resulting in a documentation lag between CT and alteplase administration. To remedy this, Froedtert made it their primary policy that radiology interprets the CT scan and dictates the time and date of that interpretation directly on the CT report, thus removing any documentation issue. Finally, Froedtert removed any and all unnecessary tasks before the administration of alteplase. Prior to this change, the habit was to gown the patient and place a catheter before providing alteplase. After looking at the literature and at other ways to cut down on door-to-needle time, it was determined that such tasks could be eliminated or wait until after the time-sensitive alteplase was given. After concentrating on these four areas, Froedtert has decreased their door-to-needle time by more than half in under a calendar year.

Froedtert's role as an academic medical center was key to the success of this change. The residents involved in stroke care are engaged and excited about the quality improvement, and which affects every level of care. To sustain their impressive achievements, Froedtert reviews each case involving a stroke patient that receives alteplase. These cases are then summarized and shared on a monthly basis with the DTN Task Force comprehensive steering committee, EMS providers, and all the departments within the hospital involved in acute ischemic stroke care. Froedtert also provides feedback and recognition to the people involved in this improvement project in order to maintain their culture of engaged stroke care.

The Players

Sue Fuhrman, MS, MSN, RN-BC, CCNS, APNP: Comprehensive Stroke Program Coordinator

Marc Lazzaro, MD **:** Comprehensive Stroke Program and Neurointervention Medical Director

What They Did

Utilized quality improvement methods. Created an interprofessional DTN Task Force with staff and providers to lead the quality improvement project using Six Sigma techniques.

Streamlined care process. Eliminated unnecessary delays prior to administration of alteplase by improving communication and documentation.

Involved staff at all levels. An interdisciplinary approach helped everyone who contributed to the process feel valued.

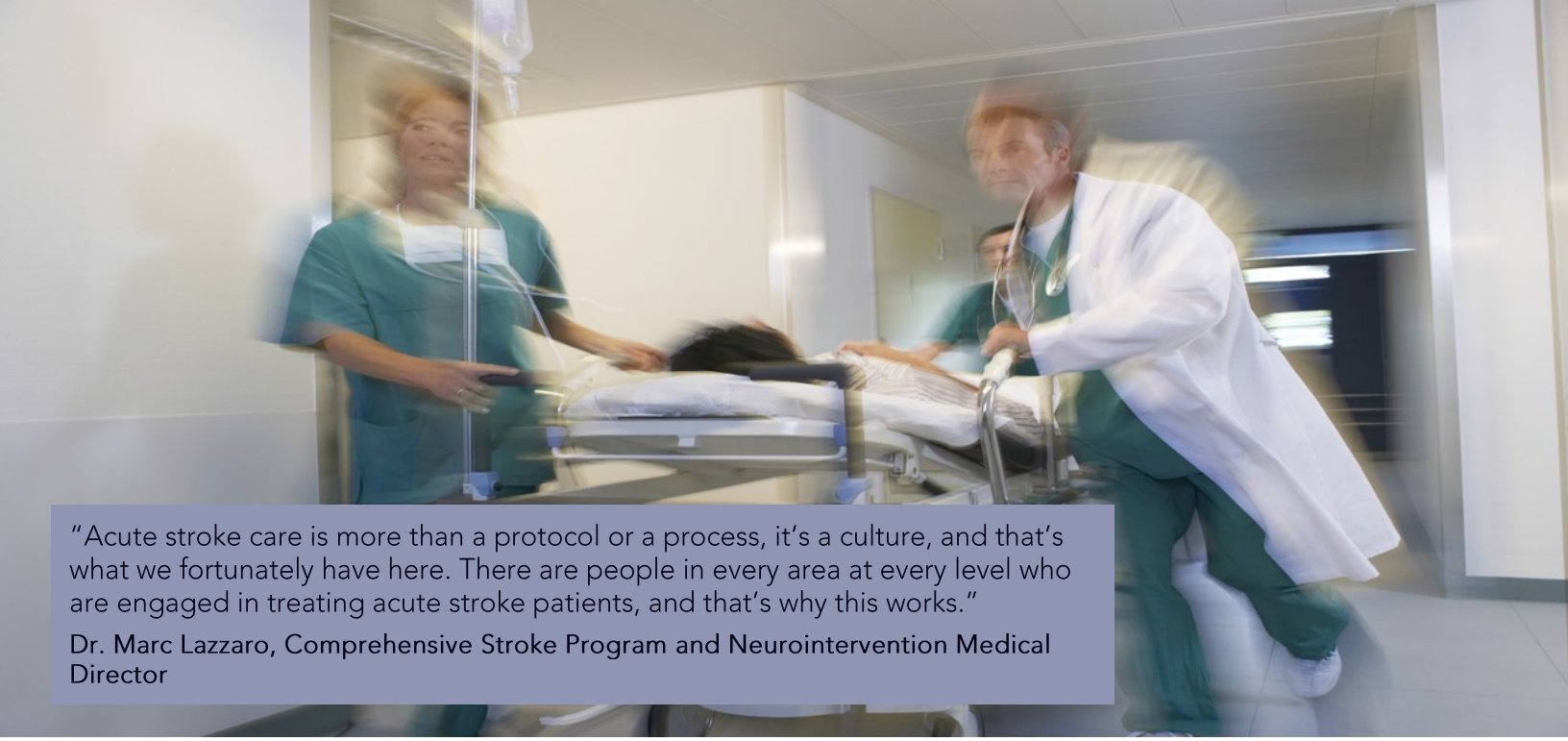
Provided feedback and recognized success. Shared information with team members via multiple mediums, including in newsletters and at staff meetings.

Accomplishments

Decreased average door-to-needle time from 50 minutes to 20.8 minutes as of April 2018.

Maintained average door-to-needle time of 30 minutes or less for six months, and are on track for this to continue.

Received Target Stroke Honor Roll and Elite Plus distinction from the American Heart/Stroke Association.



"Acute stroke care is more than a protocol or a process, it's a culture, and that's what we fortunately have here. There are people in every area at every level who are engaged in treating acute stroke patients, and that's why this works."

Dr. Marc Lazzaro, Comprehensive Stroke Program and Neurointervention Medical Director

Lessons Learned

Involve key stakeholders. Providers of all levels were included throughout the quality improvement process, from emergency medicine, to radiology, to neurology. "It's a multidisciplinary effort," says Lazzaro. "People at every level are engaged in treating acute stroke patients, and that's why this works."

Build relationships. Froedtert realized that delays in the care process stemmed from lack of communication. By creating relationships between departments, rather than working within silos, problems can be addressed immediately.

Communication is critical. The DTN Task Force meets and communicates monthly to discuss each case in which alteplase was administered. Froedtert also provides updates at systemwide stroke meetings, in newsletters, on their intranet network, and within individual staff meetings.

Success Factors

- **Established true buy-in from everyone involved.** "We have transporters and security staff walking certain routes in the hospital to tell us the fastest route," mentions Fuhrman. By having so many different levels of staff involved, Froedtert was able to change the culture and reinforce the efforts throughout the organization.
- **Maintained engagement within and between departments.** Froedtert held frequent DTN Task Force meetings where people were represented from all different disciplines, and celebrated successes. Being an academic medical center, Froedtert has a team of residents who are incredibly engaged. "They drive a lot of this," says Lazzaro. "That's part of the culture, helping to lead this care."

Barriers and Challenges

Ingrained habits. Many providers were initially comfortable with the existing procedures. "It was important to show them what the outcome of our efforts has been," says Fuhrman. She and others made sure to explain the science and regulation behind the decisions to change, which helped people to change their habits.

Communication. Reaching out and maintaining communication across the large organization was something Froedtert had to overcome. Staff at all levels were provided with information about why policies were changing so they could inform others and make sure that instructions were provided to those who needed the information.

Maintaining Success

Froedtert looks at every single case in which alteplase was administered. These results are summarized on a monthly basis and shared at comprehensive steering committee meetings, and are disseminated throughout the organization. Froedtert also gives feedback to their EMS services so that they know how their efforts contribute to the process.

Wisconsin Coverdell Stroke Program

The Wisconsin Coverdell Stroke Program works with hospitals, emergency medical services, and professional organizations across the state to support a healthier Wisconsin by improving community awareness and the quality of stroke care. Wisconsin hospitals of all types and sizes are invited to be part of the Wisconsin Coverdell Stroke Program. For more information, please visit the Wisconsin Coverdell Stroke Program's website.

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