

Journey Toward Improving Stroke Care: Onslow Memorial Hospital

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In 2006, the leadership at Onslow Memorial Hospital (OMH) decided to address stroke care—a major population health issue in Onslow County. OMH is located in the southeastern region of North Carolina, which has been labeled the buckle of the stroke belt [1]. The southeastern region of North Carolina was so labeled due to high rates of hypertension, cardiovascular disease, obesity, and diabetes. Notably, Onslow County had an increase in stroke deaths in 2006 compared to the declining rates in North Carolina overall [2, 3].

The magnitude of the need for stroke care improvement was realized through benchmarking data in the North Carolina Stroke Care Collaborative (NCSCC). This data provided the framework to measure the quality of stroke care using evidence-based standards and recognized performance measures supported by the American Heart Association/American Stroke Association, Brain Attack Coalition, National Quality Forum, and the Joint Commission. Quality improvement (QI) initiatives began with development of an interdisciplinary stroke team to measure progress toward improved stroke care. The NCSCC shared data comparisons with registry hospitals across the state and provided monthly stroke care QI webinars and annual workshops for educational and networking purposes as well as to share best practices and guidelines for current stroke care standards. Additionally, grant funding was available and provided to further support hospitals with development or enhancement of innovative stroke care QI programs and projects.

Initial data collected in 2006 showed that OMH's com-

pliance with the stroke education performance measure score was only 28%, which was the lowest measured score for all the stroke performance indicators. There was a clear need to improve stroke care at OMH as well as in the community. OMH created an interdisciplinary stroke team to work on low stroke measure performance scores. The team helped implement process improvements such as stroke education with staff, improved documentation needed to show compliance with stroke performance measures, and enhanced educational resources for patients and families about stroke disease risks and poststroke care. These interventions improved OMH's stroke education performance score to 40% by 2007. In 2007, OMH began participation in the NCSCC's Quality Improvement Working Group which meets monthly to review registry data and makes recommendations for stroke care QI initiatives that are reasonable and feasible for hospitals to implement. OMH participation ensures that the perspective of a rural community hospital is taken into consideration when making decisions about which initiatives to implement. From this work came relevant stroke care QI monthly presentation topics for participating registry hospitals. Pivotal to the successes at OMH is the unwavering and unique support from the OMH Board and executive leadership in conjunction with the passion of frontline stroke care champions. These champions include nurses, physicians, physical therapists, pharmacists, radiologists, dietitians, and other health professionals who help ensure compliance with stroke standards, mentor new staff, and identify opportunities to improve stroke care.

From July through September of 2008 the regional coordinators of the Eastern and Northeastern North Carolina HDSP programs, who had been designated by partners to staff the ENCSN, initiated a strategic planning effort in response to the ENCSN's growth. As had been the case in 2003 and 2006, key strategic partners—including the AHA and Vidant Medical Center—recognized the value and importance of engaging members from 30 targeted counties in Eastern North Carolina in the strategic planning process. Counties were identified as targets based on several definitions of Eastern North Carolina: counties located east of Interstate 95; counties with the highest stroke mortality; counties previously grouped by trauma systems; and counties falling within the service areas of the ECU Brody School of Medicine, EAHEC, the North Carolina HDSP Program, Vidant Medical Center, and other networked hospitals.

Ultimately, stakeholders from 25 organizations met 3 times to develop plans for strengthening the ENCSN's structure and membership and to identify priority actions for addressing stroke care needs in Eastern North Carolina. During the planning process, the ASA recommendations

for the establishment of stroke systems of care [5] were adopted and each facet of the stroke continuum of care—primary prevention, pre-hospital, acute, subacute, secondary prevention, and rehabilitation/recovery—was discussed.

As a result of the strategic planning process, the vision, mission, structure, and membership targets were defined. The vision of the ENCSN is "to be recognized as a leading resource for voluntary collaboration on stroke best practices in Eastern NC communities." The mission of the network is "to improve the prevention, treatment, and quality of stroke care in Eastern NC through a coordinated regional system" [6]. The ENCSN is staffed by regional coordinators of the North Carolina HDSP Program, who receive support from a steering committee. Target membership counties of the ENCSN are Beaufort, Bertie, Camden, Chowan, Carteret, Craven, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Jones, Lenoir, Martin, Nash, Northampton, Onslow, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Warren, Washington, Wayne, and Wilson. Membership is open to any person or organization from these counties who will champion the improvement of

OMH's focus is on increasing the community's awareness of the state's stroke reduction program using a three-pronged approach: prevention and education in pre-hospital screening; individualized acute care education; and post-hospital follow-up. Grant funding in 2008 from the NCSCC, the NC Stroke Association (NCSA), and the Kate B. Reynolds Charitable Trust (KBR) further optimized opportunities to enhance the OMH Stroke Program and realize its vision. Through this funding, a dedicated Stroke Nurse Coordinator (SNC) was hired to coordinate the increasing need to facilitate the stroke care across the continuum. The dedicated educator/SNC serves as the liaison to and resource for community stroke needs and patient and family education while also providing education and support to hospital staff. The SNC also facilitates interdisciplinary care coordination and monitors stroke outcomes.

The SNC provides community outreach and education on inpatient and outpatient poststroke care utilizing a Stroke Risk Identification Screening Program which provides standardized protocols for identifying stroke risk factors, counseling participants, directing them to resources, and providing outcome management through partnerships for those found to be at high risk for stroke. In this way, potential problems with access and interventions, as needed, are identified. Staff education is ongoing from the time of orientation to the hospital. The education includes annual mandatory computerized module learning, updates at regular staff meetings and real time feedback with chart reviews and care management discussions.

In 2010, OMH became designated as Stroke Capable with the Onslow County Emergency Medical Services (EMS). Performance measure scores for stroke education improved to 96.9%. In 2011, OMH's stroke education per-

formance score for stroke education (95.2%) was statistically higher than the aggregate 80.4% stroke education score for all NCSCC registry hospitals. In June 2012, Onslow Memorial Hospital received accreditation from the Joint Commission as Advanced Primary Stroke Certified. NCMJ

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stroke care in their community.

Following the formal strategic planning process, the ENCSN moved forward to work on 4 priorities: community prevention education, hospital plans of care, quality improvement programs, and continuing education requirements for health professionals. Representatives of the AHA, EAHEC, North Carolina Stroke Care Collaborative, Onslow Memorial Hospital, Vidant Medical Center, and Pitt County Health Department were identified as co-chairs for work groups for each of the Network's priorities.

From January 2009 through May 2012, 9 ENCSN meetings were held and the regional coordinators of the North Carolina HDSP Programs helped sponsor 4 Eastern Regional Stroke Conferences in partnership with other major stroke stakeholder organizations, including the ECU Brody School of Medicine, EAHEC, and Vidant Medical Center.

Quarterly meetings are rotated throughout the region to engage the full partnership base and are usually held at a facility belonging to a member of the ENCSN. Since 2009, meetings have been held in Greenville, Jacksonville, Kinston, Morehead City, New Bern, Rocky Mount, and Williamston.

The ENCSN has been able to successfully attract local, state, and national speakers to these meetings. Topics addressed have included innovative practices and emerging issues facing each of the ENCSN's work groups, including, but not limited to topics such as assistive technology for stroke patients, emergency medical services and hospital collaboration in Duplin County, faith-based cardiovascular disease management in Eastern North Carolina, and telehealth and chronic care management to reduce hypertension.

Specialized trainings sometimes occur immediately following quarterly meetings. For example, in January 2012, a blood pressure measurement mini-course was offered by the regional coordinators of the North Carolina HDSP Program. Because the ENCSN meetings draw attendees from across the region, partners from a variety of locations were able to attend the class. Attendees included people who work in acute stroke care, emergency medical services, federally qualified health centers, hospital community outreach, long-term care, and public health.

As part of the quarterly meeting format, health care professionals from community-based organizations, pub-