Re: Relationship Between Process and Outcome in Stroke Care

To the Editor:

We read with great interest the recent article by McNaughton and colleagues1 regarding the relationship between clinical processes and outcomes of stroke care in the setting of 3 hospitals in New Zealand.

Stroke may have devastating outcomes for patients, families, and society. The hypothesis that understanding clinical care processes may lead to sustainable changes that would favorably impact the clinical outcomes of that care is an important one. McNaughton and colleagues’ null findings should not stymie continued efforts to reflect on current practice and its inevitable impact on outcome. Opportunities to improve care abound as many institutions have yet to implement currently published guidelines.

Our group has been especially interested in the relationship between stroke units, processes of clinical care in those units, and patient outcomes.2 We are situated in a regional referral center with an open physician’s admission program, which in many ways reflects community practice outside of universities and institutes. The Stroke unit is not a unitary location, but is represented in the emergency department, in the neuro-intensive care and telemetry units, and in the general neurology ward. A physician may actually admit only very few, if any, stroke patients during any given year. This limited physician experience may ultimately impact his ability to reflect on daily practice or to gain the expertise to manage a stroke patient optimally. At the same time, the interaction among physicians, nurses, and ancillary staff with regard to these patients, while often understudied, is quite important. Related areas of exploration include variation in training and retention of specialized nursing staff, and readiness to care for stroke patients among nursing and ancillary staff. Understanding and reducing this variation in both subtle and mundane structural and process-related factors may contribute to improved outcomes for an individual patient. Our program is directed at implementing fundamental evidence-based stroke orders and guidelines such that all patients may benefit, independent of their physician’s stroke experience. We have taken a slightly different approach than that taken by McNaughton and colleagues, as we are not only interested in measuring what, how, and when care is performed, but more importantly in using this information to inform how to improve the delivery of care. We strongly believe that the outcomes we measure are impacted not only by processes of care, but also by the structure in which care is provided. We have modeled this approach on the pioneering work of Dr Avedis Donabedian, who studied the relationship of structure, process, and outcome.3 We also believe that any sustainable improvements in outcomes will come from the redesign of clinical care and the creation of a “learning organization.”

We have developed and implemented a multidisciplinary approach to studying and improving stroke care. This model depends on the nursing and physician leaders to identify and champion these efforts. Using a quality improvement model we have targeted improvements in 4 areas: clinical quality, functional quality, utilization/cost, and staff and patient satisfaction. Data concerning care delivery and outcome are captured by querying and linking clinical and administrative databases. We regularly create a “Dashboard Report,” which summarizes our performance in each of the aforementioned quadrants. The Stroke Program uses this information for the development of improvement projects, which are undertaken, measured, and analyzed. This cycle becomes an iterative process, with the ultimate goal of real and sustainable improvement.

The quality improvement model has been highly successful in the cardiac surgery field. The Northern New England Cardiovascular Disease Study Group (NNECDSG), a voluntary and multidisciplinary consortium of 8 medical centers conducting cardiac interventions in northern New England, has used the quality improvement model to improve in-hospital outcomes for patients undergoing cardiac surgery.4 Member participants include surgeons, anesthesiologists, perfusionists, nurses, hospital administrators, and research personnel. The NNECDSG’s success has been attributed in part to its multidisciplinary approach, and use of data to inform and drive improvement efforts through the redesign of clinical care. Quality improvement models have proven to be a useful tool for the redesign of clinical care. We commend McNaughton and colleagues on their work and look forward to sharing our findings in the near future.

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