Solving the Issue of Patient Arrival Time
A Call for Vigilant Action

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See related article, pages 2376-2378.

Late arrival to the hospital after the onset of acute stroke symptoms is a plague of unheralded proportions that is not easily treated or cured. Contributors to this problem are many, including a lack of urgent response to symptoms on the part of patients and family, patient inability to activate emergency systems attributable to neurologic deficits, and even fear of embarrassment on the part of lay people that they may have made an inappropriate call to 911.1–9 Although clinicians and the lay community have come together to successfully tackle late response to symptoms of myocardial ischemia, no doubt the presence of chest pain and shortness of breath in and of themselves have contributed to a heightened sense of urgency in response to acute coronary symptoms. At more than 10 years from the approval of tissue plasminogen activator for intravenous thrombolysis in ischemic stroke,10 it is discouraging at best to note that public awareness coupled with an urgent community response to stroke symptoms has yet to be realized for victims of this relatively “painless” yet devastating disease.

The study by Jarrell and colleagues11 evaluated “healthline” phone service responses to a stroke victim scenario in hospitals with neurology residency teaching programs. After listening to a brief scenario that described typical stroke symptoms, 22% of healthline operators recommended calling a primary care physician instead of advocating for immediate emergency transport to the hospital. Even more discouraging, 24% were also unable to name even one warning sign of stroke. These findings are striking given the fact that these hospitals serve as practice sites for physicians on the forefront of diagnosing and treating stroke along with training the next generation of neurologists.

Jarrell et al11 have brought to light one more example of the complexity of building and implementing seamless health systems to support delivery of stroke care.12–15 Hospital systems, let alone community-based health service operations, are significantly complex with multiple access points, varying levels of practitioner expertise and skill, and provision of health services that should be well integrated and orchestrated.15 Although this is easily said on paper, construction of such a system is usually a highly political and challenging endeavor.

Assessing health systems’ performance is akin to peeling several onions at the same time and often leads to discovery of what on the surface appear to be small kinks but are capable of unfortunate system impact when not appropriately managed. Jarrell and colleagues13 identify one such example in their article, but many others exist as well. Take for example the problem of hospital ambulance diversion, which is often related to poorly managed inpatient throughput, whereby one service’s slow response to moving patients through the system ties up hospital beds and resources in a domino effect16–18 that ultimately may impact ability to admit patients with acute stroke. The politics surrounding resolution of problems such as this can be stifling, because it is not the addition of patient beds that is usually needed; it is modification of practitioner performance.16,18 Improving emergency medical services performance is another example, especially when high personnel turnover leads to the need for regular retraining to ensure appropriate prehospital care. However, even the best prehospital care does little to affect stroke outcome if receiving hospitals are themselves disorganized in their response to stroke or lacking commitment to provision of evidence-based care.15

Most assuredly, healthline programs were created to do the “right thing” for patients and family in need of health information, and these systems are typically supported by some form of quality monitoring to ensure optimal operations. Yet, it is likely that stroke may be overlooked by some program trainers as necessary content for healthline operators. The relative invisibility of the number one cause of adult disability and the third greatest cause of death remains a significant concern, and stroke practitioners and victims must see this as a call to action. Although education of healthline operators and others who intercept the system is a must, perhaps it is also time to consider the addition of 2 new program quality measures: symptom onset to emergency department arrival time and mode of hospital arrival (eg, emergency medical services versus private automobile).

It is difficult to gauge on a national level exactly what symptom onset to emergency department arrival times are on average, but late arrival continues to be one of the most common reasons for nontreatment with intravenous tissue plasminogen activator. 3,5,7,8 When tissue plasminogen activator treatment numbers are low attributable to late arrival (especially when they fall below the national average), it would seem that stroke programs should then be held accountable for increasing their public presence, creating partnerships with key community stakeholders, and getting the word out that stroke warning signs herald an emergency
requiring a call to 911. Similarly, when a significant number of patients with stroke arrive by private automobile in areas that are well served by emergency medical services, something is vastly wrong with the system. Not only should patients and family members be asked why they made such a choice, but the community-at-large needs to be engaged in providing a solution to this problem. The addition of these 2 program metrics may spawn a vigilant approach to addressing the late arrival problem, especially if tied to stroke center certification.

The study by Jarrell et al11 provides us with yet another wakeup call about the importance of fully assessing and optimizing each link of the stroke chain of survival. However, it is likely that each of us will need to wipe our eyes as we continue to peel our onions and find other hidden areas for improvement. Still, if we accept community leadership in the fight against stroke as the most important aspect of our jobs, we should welcome the unmasking of problems as opportunities to build excellent stroke systems of care.

Disclosures
None.

References
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