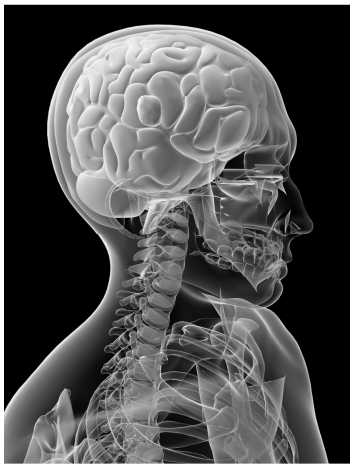
Improving Stroke Care in Alabama: A Systems Approach



Stroke is devastating to the state of Alabama in both human and financial costs.

- Every 40 seconds someone has a stroke. Every four minutes someone dies of a stroke.[1]
- Stroke is the nation's No. 4 killer and a leading cause of long-term disability.[1]
- Stroke accounts for nearly 3,000 deaths in Alabama each year.[2]
- Stroke care costs the state of Alabama an estimated $540 million annually.[3]

The fragmented approach to stroke care that currently exists in Alabama does not provide an effectively integrated system for stroke prevention, treatment and rehabilitation. There is inadequate access to specialized stroke care in various areas of the state and insubstantial coordination among those fundamental components of stroke care that currently exist. The Institute of Medicine (IOM) of the National Academy of Science has concluded that the fragmentation of the delivery of healthcare services frequently results in suboptimal treatment.

The key to improving stroke care is establishing a uniformed approach to treating stroke and implementing a system of care that integrates prevention and treatment services across the care continuum. The following are fundamental components of a stroke system:

- Primordial and primary prevention;
- Community education;
- Notification and response of emergency medical services;
- Acute treatment for stroke;
- Sub-acute stroke treatment and secondary prevention;
- Rehabilitation of stroke patients; and
- Continuous quality improvement initiatives.

The linchpin of a stroke system of care is the Primary Stroke Center. A Primary Stroke Center is a hospital equipped to quickly diagnose, treat and provide early rehabilitation to stroke patients. They facilitate effective and rapid response treatment. Recommended components of Primary Stroke Centers identified and endorsed by the American Heart Association/American Stroke Association and the national stakeholder coalition of stroke care experts called the Brain Attack Coalition, include:

- Acute stroke teams with experience and expertise in diagnosing and treating stroke that are available 24 hours a day/seven days-a-week.
- Written protocols for stroke patient treatment, including the use of tPA.
- Integration of emergency medical services with the primary stroke center.
- Training of emergency department personnel in diagnosing and treating acute stroke.

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- Establishment of stroke units staffed by personnel with training and expertise in caring for patients with stroke.
- Neurosurgical care available within two hours and operating rooms to perform neurosurgical procedures staffed 24 hours a day.
- Commitment to the center from hospital administration and a designated medical director with stroke expertise.
- Capacity to perform either a cranial computed tomographic scan or a brain magnetic resonance imaging scan within 25 minutes of the order being written.
- Laboratory services available 24 hours a day.
- Maintenance of a database or registry for tracking patients, types of strokes, treatment, timelines for providing treatment and measurement of outcomes.
- Stroke continuing medical education requirements for stroke center professional staff.

The Joint Commission (the accreditation entity for hospitals) developed a Primary Stroke Center Certification Program based on the work of the Brain Attack Coalition and the American Heart Association/ American Stroke Association. The Joint Commission's Certificate of Distinction for Primary Stroke Centers recognizes centers that make exceptional efforts to foster better outcomes for stroke care.

Quality improvement should be a driving force in any state stroke system. A stroke registry facilitates the statewide collection of data regarding any patient in a certified Primary Stroke Center and Comprehensive Stroke Center that is coded as a stroke patient. A registry also houses data confirming that the appropriate steps are being taken to effectively treat stroke patients in a timely manner. The American Heart Association's Get With the Guidelines-Stroke tool, or a similar robust tool, is strongly recommended as the exclusive data platform for a stroke registry.

The American Heart Association/American Stroke Association recommends:

- Adoption legislation or rules to establish Primary Stroke Centers to improve stroke patient care.
- The Joint Commission certification process or a process of equal rigor based on nationally recognized standards should be required to certify that designated Primary Stroke Centers meet appropriate criteria.
- Set up a statewide data collection tool to drive quality improvement
- Extend the reach of stroke care through telemedicine.

1. Roger VL, Go AS, Lloyd-Jones DM, et al. on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2011 update: a report from the American Heart Association. *Circulation.* 2011;123:e18–e209.2.Minino A., et al. Deaths: Preliminary Data for 2008. Center for Disease Control and Prevention. Volume 59, No. 2. December 9, 2010.
2. Alabama Department of Public Health, Burden Document, 2010.
3.Formula used to derive cost of stroke in Alabama a. Total Number of Strokes x 87% = number of Ischemic Strokes (ISC) [4,299.54] x $103,576 = a [$445,329,155.04] b. Total Number of Strokes x 10% = number of Intracerebral Hemorrhage (ICH) [494.2] x $123,565 = b [$61,065,823] c. Total Number of Strokes x 3% = number of Subarachnoid Hemorrhage (SAH) [148.26] x $228,030 = c [$33,807,727.80] d. a + b +c = estimated financial burden on State [$540,202,705.84].

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