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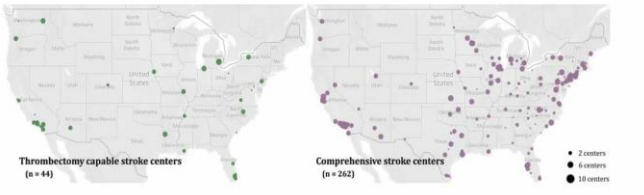
Taking Your Stroke Program to The Next Level

By Carol Wesley

Stroke continues to be a leading cause of death globally, with an annual mortality rate exceeding 6.5 million. Aside from the high mortality rates, stroke also results in significant morbidity and disability among survivors, with rates of up to 50%. This chronic disability poses major economic and social concerns, making it an issue of great public health importance. Organizations and societies dedicated to stroke care strive to promote safe, high-quality, and cost-effective treatment. However, they also recognize that acute stroke care remains a complex and multi-faceted challenge, with issues of accessibility still needing attention.

Most recent statistics on stroke from the American Heart Association report that there are approximately 795,000 new or recurrent strokes per year in the US with the largest percentage being ischemic, representing 87% of strokes. Of these, (87%) ischemic strokes, large-vessel occlusion (LVO) is present in 20–40% of cases. LVO strokes often contribute to less functional outcomes at a 3-month check and contribute to nearly 60% of poststroke dependency and 90% of poststroke mortality. Stroke thrombectomy has transformed the care for patients presenting with LVO, resulting in better outcomes among a broad range of baseline categories. Mechanical thrombectomy (MT) has not only revolutionized the standard of care in the past seven years but research has shown that MT procedures are cost-effective compared to traditional medical therapy with the major driver of cost savings being less disability and increased levels of functional independence.

In 2019, a review, published in *Neurology Journal,* provided an inventory of accredited stroke centers in the US and reported that there were 1,403 TJC-accredited stroke centers, 221 DNV-accredited stroke centers, and 65 HFAP-accredited stroke centers. Of these, 262 were comprehensive stroke centers and only 44 were thrombectomy-capable (*see map below).*



Source: *Bulwa, Z., Chen M. Stroke Center Designations, Neurointerventionalist Demand, and the Finances of Stroke Thrombectomy in the United States. Neurology. 2021; 97:S17-S24. doi:10.1212/WNL.0000000000012780*

Research reported in 2021 found that only about 3% of patients with acute ischemic stroke (AIS) received MT, compared to the 17% of patients who might have been eligible. And according to an oral presentation in 2021 at the Congress of Neurological Surgeons, one-hour access to thrombectomy-capable stroke centers is available to only 65% of US residents. These studies show a large gap between patients who could benefit from MT and those who receive it. To meet this need and provide an option for patients that can drastically reduce the chances of long-term disability, Corazon believes the consideration for investing in resources to promote greater adoption of advanced stroke services is needed, especially in underserved or rural geographic regions without timely access to a comprehensive or thrombectomy capable stroke centers.

The continued need to improve stroke care and access across the United States requires the advancement of additional Primary Stroke Centers to Comprehensive or Thrombectomy-Capable as well as the development and integration of Stroke Systems of Care (SSOC) to improve regional stroke response. But advancing to the next level of stroke care can be costly to implement depending on the center's specific needs. Advancing to thrombectomy capability can come at a significant expense, primarily due to initial investment in imaging equipment and the neuro-interventionalists salary expense. Although upfront costs of implementing the mechanical thrombectomy (MT) program thrombectomy can be high, studies have shown that stroke thrombectomy is not only clinically effective but also cost-effective. This treatment leads to a decrease in both direct and indirect expenses related to stroke care. It results in an 11-27% decrease in

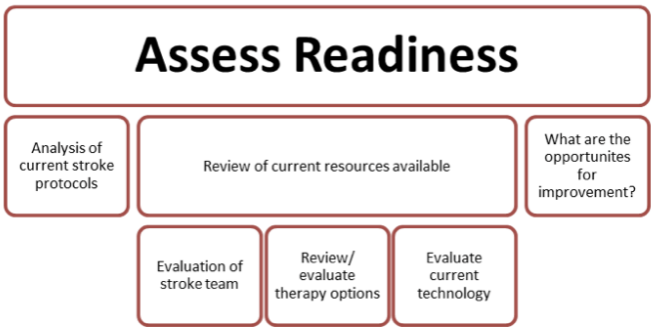
overall procedural and hospital costs, thereby providing an average saving of $23,203 per patient compared to standard medical therapy alone. These cost savings can be attributed to reduced inpatient care needs, decreased length of stay, and improved clinical and functional outcomes that result in reduced long-term complications or disabilities. The benefit to society is seen in the reduction in long-term health care costs as evidenced by quality of life. Additional implementation costs are associated with the recruitment and training of specialized staff and physicians, purchasing specialized equipment and technology, creating the appropriate infrastructure, accreditation, or certification of the program to meet the requirements of the state, and if needed, any construction or renovation costs associated with the creation of the neurointerventional lab. These costs can be upwards of several million dollars depending on the facility's needs, although some programs will offset many of the costs associated with the development of the neurointerventional

lab by using a collaborative/hybrid model of care, such as cross-training cath lab staff and using the same procedural space.

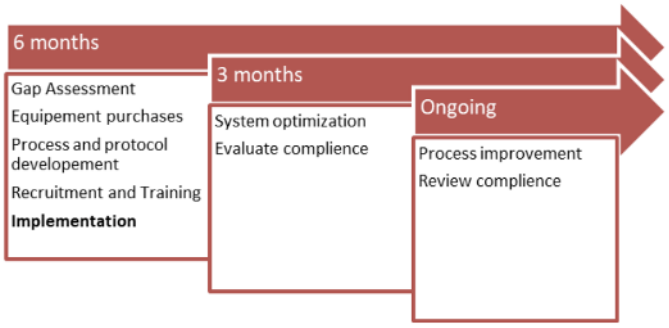
Although advancing to thrombectomy-capable can be costly, this is still comparatively less costly and resource intensive than implementing a full comprehensive stroke program, which requires dedicated neuro-critical care beds with neurointensivist oversight, open and endovascular neurosurgical capabilities as well as the development of the infrastructure to participate in clinical research to advance stroke care. Yet given the right market situation, advancing to a comprehensive stroke program may be the right decision. Current research has shown that the advancement to comprehensive stroke services can be associated with up to a 9.8% reduction in the risk of death or dependency.

Ready to Advance?

The first step in knowing if the organization is ready to advance is to understand the current market dynamics and the potential for case volume and future growth. It is crucial for service line administrators to have a comprehensive understanding of the financial impact of implementing advanced stroke treatments in their organization and understand the organization's limitations and any obstacles that exist in providing MT services. This knowledge is necessary to accurately evaluate the opportunity and complete financial implications. Assessing the organization should start with a gap analysis and readiness assessment by evaluating the current state and developing strategies to address these gaps.



After the gap analysis and readiness assessment are complete, the next step is to develop a timeline and budget, which provides a clear picture of expenses and facilitates informed decision-making. This can help to ensure a smooth implementation and an on-time commencement of the program. Developing a budget for advancing services to Thrombectomy-capable services can vary greatly depending on the size and resources that exist within the organization. A realistic budget should include costs for hiring and training physicians and staff, the development of an interventional lab, the purchase of necessary equipment, and any supplementary resources. A realistic timeline should be developed, which is typically 9-12 months from assessment to implementation (see timeline below). The development of a work plan provides a path for effective communication among all, guarantees a shared understanding of the strategy and implementation, and expected completion.



Finally, to maintain the quality of care, a robust quality improvement program is needed. This should include auditing and review of processes, as well as tools to ensure compliance with new protocols that must be developed.

Advancing a hospital's stroke program to include MT can be a powerful addition to the organization's care capabilities as MT has been found to be an incredibly cost-effective therapy for treating a defined subset of strokes, increasing the quality of care provided, and improving outcomes with decrease death and disability due to stroke. Providing this advanced service not only strengthens community confidence in the quality and safety of care, treatment, and services but investing in a MT program should be considered an essential part of a healthcare facility's strategy for providing the highest quality stroke care. In Corazon's experience, organizations that invest in this type of program typically expect to see an increase in patient volume and revenue, as more patients become aware of and choose this treatment option and as state regulations continue to evolve EMS protocols to route patients with suspected LVO directly to MT-capable stroke centers.

Should your organization be contemplating the progression of stroke care or weighing the value of such an undertaking, Corazon is readily available to provide assistance. Contact Corazon today to take your stroke program to the next level.

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