FACT SHEET

American Heart Association.

Laying the Cornerstones for Systems of Care

Primary Stroke Centers

OVERVIEW

Stroke is the fifth leading cause of death and a leading cause of disability among American adults.[1,2] Each year, approximately 795,000 people suffer from a stroke in the United States.[2] Despite its prevalence, many hospitals do not have the necessary personnel, equipment, and organization to triage and treat patients with stroke rapidly and effectively. A study published in 2019 found that only 37% of US hospitals were certified stroke centers.[3] Stroke centers have stroke specific infrastructure, including acute stroke teams, stroke units, care protocols, and other support systems for stroke patients which increase the use of diagnostic and therapeutic treatments, reducing stroke complications and improving overall stroke care.[4]

Four types of stroke centers specialize in different aspects of stroke care:[5]

- Acute Stroke-Ready Hospitals (ASRHs) perform rapid stroke assessment and stabilization for patients experiencing stroke.
- Primary Stroke Centers (PSCs) have dedicated stroke teams that can stabilize and provide emergency care for patients with acute strokes.
- Thrombectomy Capable Stroke Centers (TSCs) can provide 24/7 care for patients with acute ischemic strokes and can perform mechanical thrombectomies, a procedure used to remove blood clots
- Comprehensive Stroke Centers (CSCs) have extensive teams of vascular surgeons and neurosurgeons that provide more specialized care for patients with complex strokes.

This fact sheet explores PSCs, specifically including what makes them unique and effective.

ELEMENTS OF PSCS

The Brain Attack Coalition (BAC), a multidisciplinary organization that includes most major medical organizations involved with stroke care, created a series of recommendations outlining the most important elements of PSCs.[6] Their proposal supports patient self-management, treatment tailored to individual needs, adherence to evidence-based guidelines, and continual improvement of stroke care. The BAC recommends that primary stroke centers have the following infrastructure and capabilities:

- **Acute Stroke Teams:** Members include, at a minimum, a physician and another health care practitioner that are available 24 hours a day and able to be at the bedside of a possible stroke patient within 15 minutes of patient arrival. Ideally, a neurologist, neurosurgeon, or a provider with expertise in cerebrovascular disease will be a member of the team.
- **Written Care Protocols:** Adherence to stroke protocols improves the care that patients receive and reduces complications. Written protocols should be available in the emergency department (ED) and other areas where stroke patients are likely to receive care and should be reviewed and updated by the stroke team at least once a year.
- **Coordination with Emergency Medical Services:** Given that EMS plays a vital role in delivering timely care to patients with stroke, the EMS must be integrated into the PSC.
- **Emergency Department Commitment:** The ED is normally the first point of contact between the patient and the medical facility. ED personnel should be trained to diagnose and treat all types of acute stroke.
- **Stroke Unit:** Patients who receive care in stroke units have better outcomes than those that receive care in general medical wards.
- **Neurosurgical Services:** Although not all hospitals have a neurosurgeon on staff, neurological care should be available to patients within 2 hours, even if that requires patient transport.

- **Support of the Medical Organization:** A hospital's administration and staff drive the quality of stroke care, so it is important that a facility's leadership is committed to high quality, efficient stroke care.
- **Neuroimaging and Laboratory Services:** Access to brain imaging and laboratory services, either in the hospital or through teleradiology, is critical to a hospital's ability to rapidly diagnose a patient.
- **Outcome and Quality Improvement Activities:** Studies show that improvement programs increase the quality of care received by stroke patients.[7]
- **Continuing Medical Education:** The science surrounding the diagnosis and treatment of cerebrovascular disease is constantly changing, and staff should continually update their knowledge regarding best practices.

THE PSC CERTIFICATION PROCESS

PSC designation requires a recognized outside entity to review a hospital's credentials to determine whether the hospital meets established requirements. Specific requirements may vary between different designating entities, but in general, hospitals must demonstrate minimum standards and show a commitment to delivering excellent stroke care based on BAC guidelines. The certification process ensures that all PSCs deliver standardized, high-quality care to stroke patients.[8]

Although many entities, including several states, have developed their own designation processes, the American Heart Association/American Stroke Association (AHA/ASA) and The Joint Commission (TJC) have the largest and most well-known PSC certification program, combining the expertise of the AHA/ASA in scientific knowledge with TJC's health care facility evaluation experience.

PSCs DELIVER HIGH QUALITY CARE

PSCs improve the efficiency of patient care and increase the use of acute stroke therapies. PCSs decrease peristroke complications, reduce morbidity and mortality, improve long-term outcomes, and increase patient satisfaction.[9] PCSs improve acute stroke care and treatment provided to patients, such as reducing time from ED arrival to Alteplase (tPA) initiation, compared to non-PCSs.[10] Certified PSCs also have lower mortality rates.[11]

PSCs SUPPORT STROKE SYSTEMS OF CARE

PSCs are integral to a stroke system of care, facilitating patient access to stroke services and improving patient quality of care.[12] PSCs support the timely diagnosis and transportation of stroke patients to treatment facilities. Telemedicine is valuable in efficiently triaging stroke patients and transporting patients either via air or ambulance to PSCs or CSCs, depending on stroke severity. PSCs promote organized and standardized approaches to reduce time from stroke symptoms to treatment, which improves patient outcomes.[13]

ACCESS TO PSCs VARIES

Although PSCs enhance the quality of stroke care, improve patient outcomes, and promote efficient health care delivery, access to PSCs varies across the country. In fact, recent studies show that over one-third of the US population is not within 60 minutes of a PSC.[14]

States with stroke programs are more likely to have hospitals that will become PSCs. Therefore, states can play a substantial role in promoting PSC development.[15] Improving access to PSCs can improve care for the thousands of Americans who suffer strokes each year.

STATE ACTIONS TO PROMOTE PSCs

State policy development regarding stroke includes state-level stroke center designation, plans to divert patients with acute strokes to designated centers by bypassing EMS protocols,[16] state-level stroke center quality improvement policies, and policies supporting telemedicine to get stroke patients in rural and underserved areas rapid access to acute stroke

specialists.[17] States with stroke related legislation had a greater increase of PSCs than states without stroke legislation, which in turn decreases stroke complications and mortality.[13]

THE ASSOCIATION ADVOCATES

The American Heart Association/American Stroke Association supports the development and certification of PSCs to improve the quality of acute stroke care, support stroke systems of care, and improve access to life-saving stroke care, believing that all Americans should be able to access the high-quality stroke care that PSCs can provide.

Specifically, the AHA/ASA encourages:

- States to formally recognize PSC certification through legislation or regulation.
- States to develop comprehensive and coordinated stroke systems of care which recognize PSCs as being a cornerstone to effective systems development.

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