

Advanced (Level II) Stroke Designation

Department Approved Guidelines



The Texas Department of State Health Services (DSHS) determines requirements for stroke facility designation based on the recommendations of the Guidelines of the Brain Attack Coalition and the Governor’s EMS and Trauma Advisory Council Stroke Committee.

All DSHS approved survey organizations must use these requirements as a baseline but may also include additional standards that exceed this baseline in their certification process.

Eligibility

Facilities must meet the [Texas Administrative Code](#) requirements and these approved guidelines validated by a department-approved survey organization.

Facility must have performed mechanical thrombectomy and post-procedure care for at least 15 patients with ischemic stroke over the past 12 months (or 30 over the past 24 months).

*EMS Trauma Systems Section
Stroke Facility Designation*

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Administrative Support and Leadership

The governing body, facility leadership and medical staff demonstrate support and commitment by providing the necessary financial, physical and personnel resources to ensure for a successful program for the entire certification or designation cycle.

An identified senior administrator to organize and prioritize key programmatic elements and provide the necessary resources.

Written documents available providing information about administrative support, staffing, notification plans, stroke care guidelines and performance improvement.

State and Regional Participation

All designated stroke facilities must participate in the regional and statewide stroke systems.

Stroke Medical Director

All designated stroke facilities must have an identified Stroke Medical Director who is a physician with training and expertise in cerebrovascular disease to provide administrative leadership, clinical guidance, input to the program, and oversee performance improvement.

The Stroke Medical Director must have:

- a significant amount of training and expertise in vascular neurology, neuro-interventional surgery or neurosurgery;
- demonstrated experience in the care of patients with cerebrovascular disease;
- prior experience in a neuroscience intensive care unit (ICU);
- attendance at national stroke courses or conferences; and
- evidence of greater than or equal to 8 hours of continuing medical education (CME) annually in cerebrovascular disease.

The Stroke Medical Director or designee is available 24 hours a day, 7 days a week to provide leadership and manage difficult medical, logistical, and administrative issues.

Stroke Program Manager

All designated stroke facilities must have an identified Stroke Program Manager who is a Registered Nurse with experience and expertise in the care of patients with cerebrovascular disease including neuro-critical care, participates in at least 8 hours of continuing education annually related to or focused on cerebrovascular disease and attends national or regional stroke courses or conferences.

The Stroke Program Manager provides program leadership and is responsible for on-going stroke program functions and performance improvement related to the care of stroke patients.

The Stroke Program Manager collaborates with the Stroke Medical Director for oversight of the stroke program and to develop, review and implement stroke policies, procedures, and guidelines.

Case Management/Social Services

At least one case manager or social worker available to provide assistance for stroke patients in need of services.

Emergency Medical Services (EMS)

The designated stroke facility supports, participates in and offers educational activities involving EMS personnel at least twice a year.

Written EMS protocols available to the stroke facility including:

- Triage and recognition of patients with acute stroke,
- Assessment using a validated scale and establishing last known well time or onset of symptoms,
- Stabilization and treatment onsite and during transport; and
- Transport of patients and patients' medications to an appropriate stroke designated hospital.
- Effective and accurate prehospital arrival communication with receiving stroke center.

Acute Stroke Team (AST)

Team members must arrive at the bedside within 15 minutes of receiving notification.

Team members must be comprised of a minimum of one physician and one other healthcare provider (Registered Nurse (RN), Nurse Practitioner (NP), Physician Assistant (PA)) available 24 hours a day, 7 days a week.

Team members must have experience and expertise with recognition, evaluation, diagnosis, stabilization, and acute care of all types of patients with strokes.

Written criteria for stroke activations and stroke care guidelines must be clearly defined. Team members have documented training in acute stroke care.

Team members have at least 8 hours continuing education or CME annually related to cerebrovascular disease, with emphasis on acute care, diagnosis, and treatment.

Written roles and responsibilities of the team members responding, the patient's managing physician and nursing staff are clearly defined.

Written Stroke Guidelines for Treatment and Stabilization

Written management guidelines or standards of care available and developed by a multidisciplinary team based on evidence-based practice.

Management guidelines are reviewed annually to reflect the most current stroke care standards, including:

- Emergent care (ischemic and hemorrhagic);
- Standardized order sets for acute diagnosis;
- Serial vital sign checks;
- Serial neurological checks;
- Blood tests;
- Electrocardiogram (ECG); and
- Brain imaging studies.

Written management guidelines are available to personnel providing stroke care in the Emergency Department (ED) and inpatient hospital units as appropriate.

Emergency Department

The designated stroke facility has methods of communication with EMS providers and personnel.

The ED must have at least one physician onsite at all times to diagnose and manage acute stroke patients.

A physician arrives at the patient bedside within 15 minutes of when a stroke or suspected stroke patient arrives.

ED clinical personnel available at all times who are trained in recognition and treatment of all types of acute strokes.

Written stroke management guidelines and protocols are available and followed for the acute evaluation, diagnosis, stabilization, monitoring, and treatment of patients with a suspected stroke and all types of strokes including:

- Administration of intravenous thrombolytic with monitoring parameters;
- Reversal of anticoagulation for intracranial hemorrhage;

- Use of a standardized assessment score or scale for initial assessment and monitoring;
- Stabilization of vital signs;
- Management of increased intracranial pressure;
- Blood pressure management;
- Treatment of seizures; and
- Communication for feedback within the stroke patient care team about effectiveness of initial treatment, diagnosis, and patient outcome.

Stroke Inpatient Units

Stroke inpatient units are directed and staffed by clinical personnel with training and expertise in the care of patients with cerebrovascular disease.

All physicians, physician assistants, nurse practitioners, and nurses on stroke units, who provide direct patient care or supervise patient care must receive at least 8 hours annual education related to cerebrovascular disease.

Appropriate equipment to provide care to stroke patients is available at all times including continuous multi-channel telemetry capable of monitoring blood pressure, pulse, respirations, and oxygenation.

Written stroke management guidelines and protocols readily available and followed including:

- Admission and discharge criteria;
- Swallow evaluation;
- Deep Vein Thrombosis (DVT) prophylaxis;
- Serial neurological assessment tools and scales;
- Identification of changes in patient status and notification of medical staff;
- Post-procedural management with frequent vital signs and neurological assessments; and
- Monitoring patient outcomes.

Intensive Care Unit (ICU)/Neuro ICU

The Stroke ICU/Neuro ICU is directed and staffed by Registered Nurses with training and expertise in the care of critical patients with cerebrovascular disease.

Stroke patient care is managed by physicians with training and expertise in critical care medicine or neuro-critical care.

Dedicated Stroke ICU/Neuro ICU beds to care for complex stroke patients by onsite providers with critical care privileges (NP, PA, Fellows, and Residents) available 24 hours a day, 7 days a week.

Physicians caring for patients in Stroke ICU/Neuro ICU have at least 8 hours CME annually related to or focused on cerebrovascular disease.

The ICU nurses participate in at least 8 hours of continuing education annually related to or focused on cerebrovascular disease.

Neurological Services

Physicians with neurology and critical care experience are available for clinical backup 24 hours a day, 7 days a week.

Neurosurgical Services

Stroke centers transferring patients for neurosurgical care have a written agreement, plan and protocol for neurosurgical emergencies available in the ED and to Stroke Center personnel.

Centers that provide neurosurgical services, a written plan for coverage and call schedule is outlined and available to staff.

Centers that provide neurosurgical services for neurosurgical emergencies shall have a fully functional operating room with necessary staff and equipment to perform neurosurgical procedures available 24 hours a day, 7 days a week. All staff for neurosurgical services are available within 2 hours.

Endovascular Thrombectomy (EVT) services available 24 hours a day, 7 days a week including the endovascular suite with at least one endovascular laboratory technician and one endovascular registered nurse.

Physician privileged to perform EVT is available on site within 45 minutes, 24 hours a day, 7 days a week.

All physicians who perform mechanical thrombectomy must have performed a minimum case volume of 10 over the past 12 months or 20 over the past 24 months per practitioner. In evaluating the number of mechanical thrombectomies performed, procedures performed at hospitals other than the one applicant can be included in the physician's total.

Procedures performed at hospitals other than the one applicant can be included in the physician's total.

Written call schedules, approved by covering neuro-interventionalists and stroke center leaders, available in ED and to Stroke Center personnel.

Laboratory/ECG/Chest Radiograph Testing

Diagnostic results for the stroke-related patient are available within 45 minutes of ordering.

Cardiac Imaging

The facility must have imaging and interpretation capabilities for transthoracic echocardiography or transesophageal echocardiography available at all times.

Brain Imaging

Brain imaging capabilities and interpretation available 24 hours a day, 7 days a week.

Non-contrast head Computed Tomography (CT) completed, and interpretation communicated to the treating physician within 45 minutes of being ordered.

At least one in-house certified radiology technologist capable of performing a CT scan and any CT-based studies 24 hours a day, 7 days a week.

Written documentation that CT scans were:

- Available 24 hours a day, 7 days a week;
- Performed and interpreted within the specified times.

Cranial/Carotid duplex ultrasound capabilities and interpretation available 24 hours a day, 7 days a week.

Magnetic Resonance Imaging (MRI), Magnetic Resonance Angiogram (MRA), Computed Tomography Angiography (CTA) available 24 hours a day, 7 days a week (if used for primary diagnosis must be performed, interpreted, and communicated within 45 minutes).

Perfusion imaging capability either by CT or MRI available 24 hours a day, 7 days a week.

Digital Subtraction Angiography (DSA) with appropriate staff and resources available 24 hours a day, 7 days a week.

Emergent Therapies/Procedures

Implementation of guidelines and therapies to improve outcomes for patients including:

- Intravenous thrombolytics;
- Intracranial angioplasty (IA) lytics;
- Reverse coagulopathies; and
- Management of intracranial pressures, seizures and blood pressure.

Capability to perform microsurgical neurovascular clipping and neuro endovascular coiling or rapidly transfer patients if the facility is unable to offer this therapy.

Capability to perform intracranial angioplasty (IA) or IA infusions of vasodilators or rapidly transfer patients if the facility is unable to offer this therapy.

Telemedicine

Stroke telemedicine live audio and video streaming established within 20 minutes per standards of stroke care.

Transfers to Comprehensive Stroke Center

Written comprehensive transfer plan with at least one Comprehensive Stroke Center.

Rehabilitation Services

Physical, occupational, or speech therapists readily available by consultation for early patient assessment and initiation of therapy during the acute hospitalization.

Consults are requested and completed within 24 hours of patient admission.

Written guidelines for admitting or transferring stroke patients to an appropriate inpatient rehabilitation unit.

Written guidelines for referral to rehabilitation services upon discharge from facility as needed.

Prevention and treatment for medical complications including:

- Aspiration pneumonia;
- Infections;
- Cerebral edema/herniation;
- DVT;
- Pressure sores; and
- Contractures.

Post-stroke assessment of and treatment or assistance for:

- Cognitive decline;
- Depression; and
- Social implications of stroke.

Professional Education

Stroke team members prepare and present at least 2 educational courses annually aimed at health care professionals within or outside the facility.

Community Education

Sponsor or provide at least 2 public educational programs annually focusing on stroke prevention, diagnosis, the availability of acute therapies or other stroke topics.

Stroke Database or Registry

The designated stroke facility must maintain a program log or registry of key data points and share with the department, or a department approved entity:

- Call time (Time of Activation);
- Response times as required;
- Patient diagnoses;
- Treatments;
- Treatment outcomes;
- Complications of treatment;
- Delays in treatment; and
- Patient disposition

Quality Assessment and Performance Improvement

The Stroke Center must have a multidisciplinary team with a peer review process that includes at least the Stroke Medical Director, Stroke Program Manager, and Quality/Performance Improvement personnel responsible for conducting stroke case reviews to identify variances in care and opportunities for improvement.

The Stroke Center shall demonstrate the capability to provide written stroke standards of care, and a written stroke Quality Assessment and Performance Improvement (QAPI) plan as outlined by the Texas Administrative Code, Rule §157.133 Requirements for Stroke Facility Designation.

Evaluate facility performance in comparison to national benchmarks and develop a plan of correction for identified improvement opportunities.

Defined multidisciplinary stroke committee to review, revise and approve stroke policies, procedures and guidelines at least 2 times per year.

Evidence of documentation available for:

- Identified facility stroke benchmarks;
- Performance Improvement plan and processes; and
- Minutes for all stroke related committee meetings.

Multidisciplinary Performance Improvement Committee monitors overall care of stroke patients including tracking and monitoring of all benchmarks, indicators, evidence-based practices and outcomes to include:

- Length of stay;
- Evidence-based treatment guidelines;
- Treatments;
- Complications including aspiration pneumonia, urinary tract infection (UTI) and

DVT;

- Patient and Family Education;
- Patient disposition; and
- Patient Outcomes.

Case volumes for facility and providers based on services and resources available for the patient population served.

Required Quality Indicators:

- Venous Thromboembolism (VTE) prophylaxis
- Discharged on antithrombotic therapy
- Anticoagulation therapy for Atrial Fibrillation (Afib)/Atrial Flutter
- Thrombolytic therapy
- Antithrombotic therapy by end of hospital day 2
- Discharged on statin medication
- Stroke education
- Assessment for rehabilitation
- National Institutes of Health Stroke Scale (NIHSS) performed for ischemic stroke patients within 12 hours
- Modified Rankin Score (mRS) at 90 days
- Overall rate of hemorrhagic transformation
- Thrombolysis in cerebral infarction scores
- Arrival Time to Skin Puncture
 - Transfers; and
 - Direct Arrivals.

Standard Quality Indicators:

**Level of compliance at least 80% (for the identified standard indicators)*

- Acute stroke team response within 15 minutes*;
- Stroke protocols, revised annually*;
- Initial use of neurological assessment tool/scale*;
- Initiation of telemedicine within 20 minutes when deemed medically necessary*;
- Door-to-Needle time within 60 minutes*;
- Door-to-Discharge for transfers. Patient leaves within 2 hours of arrival (or once medically stable) *;
- Time from symptom onset to IV thrombolytics never more than 4.5 hours from last known well or time of stroke symptom recognition with appropriate MRI findings (Diffusion-Weighted Imaging (DWI) – Fluid-Attenuated Inversion Recovery (FLAIR))
- Other acute therapies such as coagulation reversal therapy (time of diagnosis of cerebral hemorrhage to beginning treatment);
- Door to Image time (CT completion and interpretation within 45 minutes of patient

- arrival) *;
- Laboratory testing (results available within 45 minutes of ordering) *;
- Use of the transfer and transportation protocols; and
- Telemedicine utilization.

Stroke Quality Indicator Definitions

Anticoagulation therapy for Atrial Fibrillation (Afib)/Atrial Flutter - This measure captures the proportion of ischemic stroke patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge.

Antithrombotic therapy by end of hospital day 2 - This measure captures the proportion of ischemic stroke patients who had antithrombotic therapy administered by end of hospital day 2.

Assessment for rehabilitation - This measure captures the proportion of ischemic or hemorrhagic stroke patients who were assessed for rehabilitation services.

Arrival time to skin puncture - This measure reports the median time (in minutes) from hospital arrival to the time of skin puncture to access the artery (e.g., brachial, carotid, femoral, radial) selected for endovascular treatment (EVT) of acute ischemic stroke.

Discharged on antithrombotic therapy - This measure captures the proportion of ischemic stroke patients prescribed antithrombotic therapy at hospital discharge.

Discharged on statin medication - This measure captures the proportion of ischemic stroke patients who are prescribed statin medication at hospital discharge.

Modified Rankin Score (mRS) at 90 days - This measure captures the proportion of ischemic stroke patients treated with IV or IA alteplase therapy or who undergo mechanical endovascular reperfusion therapy for whom a 90 day (≥ 75 days and ≤ 105 days) mRS is obtained via telephone or in-person.

National Institutes of Health Stroke Scale (NIHSS) performed for ischemic stroke patients within 12 hours - This measure captures the proportion of ischemic stroke patients for whom an initial NIHSS score is performed prior to any acute recanalization therapy (i.e., IV thrombolytic therapy, or intra-arterial (IA) thrombolytic therapy, or mechanical endovascular reperfusion (MER) therapy in patients undergoing recanalization therapy and documented in the medical record, OR documented within 12 hours of arrival at the hospital emergency department for patients who do not undergo recanalization therapy.

Nimodipine treatment administered - This measure captures the proportion of SAH patients for whom nimodipine treatment was administered within 24 hours of arrival at this hospital.

Overall rate of hemorrhagic transformation - This measure captures the proportion of ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4 point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (\leq) 36 hours after the onset of treatment with IV or IA thrombolytic therapy, or mechanical endovascular reperfusion procedure (i.e., mechanical endovascular thrombectomy with a clot retrieval device) (stratified by type of therapy).

Procoagulant reversal agent initiation for ICH - This measure captures the proportion of intracerebral hemorrhage (ICH) stroke patients with an INR value > 1.4 at hospital arrival who are treated with a procoagulant reversal agent (i.e., fresh frozen plasma (FFP), recombinant factor VIIa, prothrombin complex concentrates).

Rate of rapid effective reperfusion from hospital arrival - This measure captures the proportion of ischemic stroke patients with a large vessel cerebral occlusion (LVO) (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion); T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy within 120 minutes (≥ 0 min. and ≤ 150 min.) of hospital arrival and achieve TICI 2B or higher at the end of treatment.

Rate of rapid effective reperfusion from skin puncture - This measure captures the proportion of ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion); T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy and achieve TICI 2B or higher less than ($<$) or equal to 60 minutes from the time of skin puncture.

Severity measurement performed for SAH and ICH patients (Overall Rate) - This measure captures the proportion of subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) stroke patients for whom a severity measurement (i.e., Hunt and Hess Scale for SAH patients or ICH Score for ICH patients) is performed prior to surgical intervention (e.g. clipping, coiling, or any surgical intervention) in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department for patients who do not undergo surgical intervention (stratified by stroke diagnosis).

Stroke education - This measure captures the proportion of ischemic or hemorrhagic stroke patients or their caregivers who were given educational materials during the hospital stay addressing all of the following: activation of emergency medical system, need for follow-up after discharge, medications prescribed at discharge, risk factors for stroke, and warning signs and symptoms of stroke.

Thrombolysis in Cerebral Infarction (TICI) scores - Thrombolysis in Cerebral Infarction (TICI) Post-Treatment Reperfusion Grade. This measure captures the proportion of ischemic stroke patients with a post-treatment reperfusion grade of TICI 2B or higher in the vascular territory beyond the target arterial occlusion at the end of mechanical endovascular reperfusion therapy.

Thrombolytic therapy - This measure captures the proportion of acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well and for whom intravenous (IV) thrombolytic therapy was initiated at this hospital within 3 hours of last known well.

Venous Thromboembolism (VTE) prophylaxis - This measure captures the proportion of ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission.

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