

## Comprehensive Stroke Center Requirements (Formerly LERN Level 1 Stroke Hospital)

**Must obtain Comprehensive Stroke Center Certification by the Joint Commission.**

Facilities in this category will provide acute access to stroke care for their geographic area. EMS should not bypass a PSC, PSC-E or an Acute Stroke Ready Hospital where care can be delivered faster to reach such a CSC Hospital. EMS should only bypass a PSC or an Acute Stroke Ready Hospital if 1) the patient is <6 hours from the last seen normal time, 2) a screen for large vessel occlusion is positive, and 3) it would take <15 additional minutes of transportation time to reach a hospital with endovascular therapy (such as a CSC, TSC, or PSC-E). The CSC will provide support all Louisiana hospitals as a referral source for high level neurological critical care, medical, interventional, and surgical capabilities.

Program Concept	CSC
Eligibility	General eligibility requirements; use of a standardized method of delivering care centered on evidence-based guidelines for stroke care. <ul style="list-style-type: none"> <li>• Treatment of 20 SAH caused by aneurysm annually (40 over 2 years)</li> <li>• Capable of treating aneurysms by performing 15 endovascular coiling or microsurgical clipping procedures annually (30 over 2 years)</li> <li>• Administering IV thrombolytic therapy 25 times annually (50 times over 2 years)</li> <li>• CSCs will be required to meet a minimum mechanical thrombectomy volume as per TJC requirements.</li> </ul>
Program Medical Director	Has extensive expertise; available 24/7
Acute Stroke Team	Available 24/7, at bedside within 15 minutes
Emergency Medical Services Collaboration	Access to protocols used by EMS, routing plans; records from transfer
Stroke Unit	Dedicated neuro intensive care beds for complex stroke patients available 24/7; on-site neurointensivist coverage 24/7
Initial Assessment of Patient	Emergency Department physician
Diagnostic Testing Capability	CT, MRI, labs, CTA, MRA, catheter angiography 24/7; other cranial and carotid duplex ultrasound, TEE, TTE as indicated
Neurologist Accessibility	Meets concurrently emergent needs of multiple complex stroke patients; Written call schedule for attending physicians providing availability 24/7
Neurosurgical Services	24/7 availability: Neurointerventionist; Neuroradiologist; Neurologist; Neurosurgeon
Telemedicine	Available if necessary
Treatment Capabilities	IV thrombolytics; Endovascular therapy; Microsurgical neurovascular clipping of aneurysms; Neuroendovascular coiling of aneurysms; Stenting of extracranial carotid arteries; Carotid endarterectomy
Transfer protocols	For receiving transfers and circumstances for not accepting transferred patients
Staff Stroke Education Requirements	Nurses and other ED staff - 2 hours annually; Stroke nurses and core stroke team - 8 hours annually
Provision of Educational Opportunities	Sponsors at least 2 public educational opportunities annually; LIPs and staff present 2 or more educational courses annually for internal staff or individuals external to the comprehensive stroke center (e.g., referring hospitals)
Clinical Performance Measures	Standardized Measures: 8 core stroke measures and 10 comprehensive stroke measures for a total of 18
Research	Participates in patient-centered research that is approved by the IRB
Guidelines	Recommendations from Brain Attack Coalition for Comprehensive Stroke Centers, 2005

The above grid and the grid for TSC, and PSC are only a comparison of program requirements and should not be relied upon in lieu of reading a program manual. © Copyright 2018 The Joint Commission. The Stroke Certification Programs – Program Concept Comparison is used by American Heart Association/American Stroke Association with permission.

## Thrombectomy Capable Stroke Center (TSC)

**Must obtain Thrombectomy Capable Stroke Center Certification by the Joint Commission.**

Program Concept	TSC
Eligibility	<p>General eligibility requirements; use of a standardized method of delivering care centered on evidence-based guidelines for stroke care. Organization 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 past 24 months). Neurointerventionists who routinely take call to perform mechanical thrombectomy must:</p> <ul style="list-style-type: none"> <li>-Be CAST certified; <b><u>OR</u></b></li> <li>-Completed ACGME/equivalent residency in neurosurgery/neurology/radiology;</li> <li>-Completed ACGME/CAST/UCNS/equivalent stroke/neurocritical care/neuroradiology fellowship;</li> <li>-Completed neuroendovascular training (CAST accredited or similarly rigorous program);</li> <li>-Performed 15 mechanical thrombectomies over the past 12 months (or 30 over past 24 months) (procedures performed at hospitals other than the one applying for TSC certification can be included)</li> </ul>
Program Medical Director	Neurology background with ability to provide clinical and administrative guidance to program
Acute Stroke Team	Available 24/7, at bedside within 15 minutes
Emergency Medical Services Collaboration	Access to protocols used by EMS, routing plans; records from transfer
Stroke Unit	Dedicated neuro intensive care beds for complex stroke patients available 24/7; on-site critical care coverage 24/7
Initial Assessment of Patient	Emergency Department physician
Diagnostic Testing Capability	CT, MRI, labs, CTA, MRA, catheter angiography 24/7; other cranial and carotid duplex ultrasound, TEE as indicated
Neurologist Accessibility	24/7 via in person or telemedicine; written call schedule for attending physicians providing availability 24/7
Neurosurgical Services	Within 2 hours; OR is available 24/7 in TSCs providing neurosurgical services
Telemedicine	Available if necessary
Treatment Capabilities	IV thrombolytics; Mechanical thrombectomy, IA thrombolytics
Transfer protocols	For neurosurgical emergencies
Staff Stroke Education Requirements	Nurses and other ED staff – 2 hours annually; Stroke nurses and core stroke team – 8 hours annually
Provision of Educational Opportunities	Provides educational opportunities to prehospital personnel; Provides at least 2 stroke education activities per year to public
Clinical Performance Measures	Standardized Measures: 8 PSC stroke measures as well as 5 ischemic hemorrhagic CSTK measures for a total of 13.
Research	N/A
Guidelines	AHA/ASA Focused Update for the Early Management of Patients with Acute Ischemic Stroke Regarding Endovascular Treatment, 2015

## Primary Stroke Center with Endovascular (PSC-E)\* and PSC Requirements (Formerly LERN Level 2 Stroke Hospital)

Must obtain Primary Stroke Center Certification by the Joint Commission, DNV or by the Healthcare Facilities Accreditation Program (HFAP).

### **\*PSC-E must also meet the following additional requirements:**

- Personnel: Physician credentialed to perform mechanical thrombectomy
- Collect and submit quarterly to LERN the same data Joint Commission requires the Thrombectomy Stroke Capable centers to collect.

Program Concept	PSC and PSC-E
Eligibility	General eligibility requirements; use of a standardized method of delivering care centered on evidence-based guidelines for stroke care.
Program Medical Director	Sufficient knowledge of cerebrovascular disease
Acute Stroke Team	Available 24/7, at bedside within 15 minutes
Emergency Medical Services Collaboration	Access to protocols used by EMS
Stroke Unit	Stroke unit or designated beds for the acute care of stroke patients
Initial Assessment of Patient	Emergency Department physician
Diagnostic Testing Capability	CT, MRI (if used), labs 24/7; CTA and MRA (to guide treatment decisions), at least one modality for cardiac imaging when necessary
Neurologist Accessibility	24/7 via in person or telemedicine
Neurosurgical Services	Within 2 hours; OR is available 24/7 in PSCs providing neurosurgical services
Telemedicine	Available if necessary
Treatment Capabilities	IV thrombolytics and medical management of stroke
Transfer protocols	For neurosurgical emergencies
Staff Stroke Education Requirements	ED staff – a minimum of twice a year; core stroke team at least 8 hours annually
Provision of Educational Opportunities	Provides educational opportunities to prehospital personnel; Provides at least 2 stroke education activities per year to public
Clinical Performance Measures	Standardized Measures: 8 core stroke measures
Research	N/A
Guidelines	Recommendations from Brain Attack Coalition for Primary Stroke Centers, 2011

## Acute Stroke Ready Hospital (ASRH) Requirements (Formerly LERN Level 3 Stroke Hospital)

**Certification by an external certifying body is not required, but the LERN Board does recognize certifications from HFAP and the Joint Commission.**

Facilities in this category will provide timely access to stroke care but may not be able to meet all the criteria specified in CSC, TSC, and PSC-E guidelines. These centers will provide acute stroke care in urban and rural areas where transportation and access to time-sensitive treatment are limited and is intended to recognize those models of care delivery that have shown utility including “drip-and-ship” and telemedicine. Because the effectiveness of treatment is time-dependent, ASRH centers should not be bypassed to go to a more distant LERN CSC, TSC, PSC-E or PSC Hospital unless 1) the patient is <6 hours from the last seen normal time, 2) a screen for large vessel occlusion is positive, and 3) it would take <15 additional minutes of transportation time to reach a hospital with endovascular therapy.

Program Concept	Acute Stroke Ready Hospital
Eligibility	General eligibility requirements; use of a standardized method of delivering care centered on evidence-based guidelines for stroke care.
Emergency Department	Physician staffed 24/7: Perform initial ER physician evaluation within 10 minutes of patient arrival
CT Scan	Ability to perform CT on site within 25 minutes of patient arrival and interpret within 45 minutes of arrival, 24/7
Labs	Ability to draw and report results of appropriate lab work within 45 minutes of patient arrival 24/7
Neurological Expertise	Access to neurological expertise by phone or telemedicine within 15 minutes of arrival.
Proficiency in delivery of tPA	<ul style="list-style-type: none"> <li>a. Ensure that tPA can be delivered within 60 minutes from arrival. Documentation of ongoing efforts to reduce the median time from arrival to tPA, in recognition of the new target door-to-needle time of 45min (AHA Target Stroke).</li> <li>b. Timely transfer of appropriate patients for unavailable services, such as endovascular and neurosurgical procedures to an appropriate higher level of care.</li> </ul>
Personnel	Emergency Physician
Infrastructure	Emergency Room, If the hospital does not have an ICU then patient transfer should be considered after tPA administration.
Written care protocols and order sets for stroke, including guidelines, algorithms for management of tPA-related and other hemorrhagic strokes and angioedema, critical care pathways, NIH Stroke Scale training.	
Written documentation of a plan for secondary transfer to CSC, TSC, PSC-E, PSC , or other appropriate facility, if resources deemed necessary are not available at the primary destination site.	
Quality of stroke care demonstrated by submission of required data elements to LERN on a quarterly basis.	

\*Please note that the LERN Level III stroke criteria are based on the Joint Commission’s (TJC) Acute Stroke Ready Hospital requirements but do not include all of TJC criteria. In addition to the above requirements, The Joint Commission has several additional requirements for certification as an Acute Stroke Ready Hospital which can be found at

[https://www.jointcommission.org/stroke\\_certification\\_programs\\_program\\_concept\\_comparison/](https://www.jointcommission.org/stroke_certification_programs_program_concept_comparison/)

## Stroke Bypass Hospital Requirements (Formerly LERN Level 4 Stroke Hospital)

1. These facilities are considered a Non-Stroke Hospital. EMS should not bring patients exhibiting signs or symptoms of stroke to a Stroke Bypass Hospital except for instances where the clinical situation requires stopping at the closest emergency department.
2. Transfer protocol in place for transfer to higher levels of care with a written and agreed upon relationship with a CSC, TSC, PSC-E, PSC or ASRH.

Criteria	Stroke Bypass Hospital	Acute Stroke Ready Hospital	PSC	PSC-E	TSC	CSC
Physician staffed ER 24/7	X	X	X	X	X	X
CT scan available <25 minutes		X	X	X	X	X
CT scan available 24/7		X	X	X	X	X
Lab < 45 minutes		X	X	X	X	X
Proficient tPA delivery		X	X	X	X	X
Neurological expertise		X	X	X	X	X
Vascular neurology						X
Neurosurgery <2 h			X	X	X	
Neurosurgery < 30 min						X
Interventional				X	X	X
Research						X
Training programs						X
Stroke unit			X	X	X	X
ICU		If no ICU – should consider drip and ship	X	X	X	X
NICU						X
Quality control		Submission of required data to LERN		GWTG/JC/ LERN	GWTG/JC	GWTG/JC
Protocols for stroke care		X		X	X	X

GWTG= Get with the Guidelines, American Heart and Stroke Association; JC= Joint Commission

### References:

1. The Joint Commission Web Site
2. Alberts MJ, Latchaw RE, et al. Revised and updated recommendations for the establishment of Primary Stroke Centers. Stroke 2011; 42: 2651-2665.
3. Alberts MJ, Latchaw RE, et al. Recommendations for comprehensive stroke centers. Stroke 2005; 36:1597-1618.
4. Acker JE III, Pancioli AM, et al. Implementation strategies for emergency medical services within stroke systems of care. Stroke 2007; 116: 3097-3115.
5. Schwamm LH, Holloway RG, et al. A review of evidence for use of telemedicine within stroke systems of care. Stroke 2009; 40: 2616-2634.
6. Schwamm LH, Audebert HJ, et al. Recommendations for the implementation of telemedicine within stroke systems of care. Stroke 2009; 40: 2635-2660.
7. Schwamm LH, Pancioli A, et al. Recommendations for the establishment of stroke systems of care. Stroke 2005; 36: 690-703.
8. Alberts MJ, Latchaw RE, et al. Revised and updated recommendations for the establishment of primary stroke centers. Stroke 2011; 42: 2651-2665.
9. Demaerschalk BM. Seamless integrated stroke telemedicine systems of care: A potential solution for acute stroke care delivery delays and inefficiencies. Stroke 2011; 42: 1507-8.