

Level I Stroke Center (Comprehensive)

Designation Criteria for Level I Stroke Center

1. Personnel

- 1.1 The center has a stroke care coordinator that is at minimum an RN.
- 1.2 The center has a stroke medical director who is a neuro-specialist (i.e. neurosurgeon, neurologist, or neuro-intensivist) with extensive experience in neurology and cerebrovascular disease.
- 1.3 The center has an acute stroke team (i.e. the team of physicians and nurses that responds to assess and treat acute stroke), as designated by the stroke center medical director, on-site 24/7 within 15 minutes of activation with an 80% achievement rate.
- 1.4 The center has a defined stroke leadership team that is responsible for education, protocol, Quality Assurance (QA), program development, outreach education, etc.
- 1.5 The center has a neurologist available 24/7 who is on-site within 15 minutes of stroke team activation, or who is available via telemedicine within 15 minutes of stroke team activation and on-site within 45 minutes if needed with an 80% achievement rate.
- 1.6 The center has a board-certified vascular neurologist; or the center has an ABPN-certified neurologist who has completed 12 months of formal training in vascular neurology, or who devotes a minimum of 25% of practice time to vascular neurology.
- 1.7 The center has a vascular surgeon available 24/7 that is on-site within 30 minutes when requested with an 80% achievement rate.
- 1.8 The center has interventional physicians available 24/7 that are on-site within 30 minutes when requested with an 80% achievement rate.
- 1.9 The center has critical care or neurocritical care physicians available 24/7 that are on-site within 30 minutes when requested with an 80% achievement rate.
- 1.10 The center has physical medicine and rehabilitation physicians.
- 1.11 The center has a neurosurgeon available 24/7 that is on-site within 30 minutes when requested with an 80% achievement rate.
- 1.12 The center has organizational and administrative support.
- 1.13 The center has clinical emergency department (ED) personnel trained in diagnosing and treating acute stroke on-site 24/7.

2. Training and Education

- 2.1 Members of the stroke leadership team have a minimum of 8 hours of annual education on stroke diagnosis and treatment to ensure competence.
- 2.2 All center staff are educated annually on the signs and symptoms of stroke and the process to activate the stroke team.

2.3 The stroke unit’s clinical staff demonstrates evidence of initial and ongoing training in the care of acute stroke patients. Stroke units may be defined and implemented in a variety of ways. The stroke unit does not have to be a specific enclosed area, but must be a specified unit to which most stroke patients are admitted.

3. Stroke Services

3.1 The center has neuroradiology services available 24/7.

3.2 The center has diagnostic radiology services available 24/7.

3.3 The center has:

a. an intensive care unit (ICU);

b. physical therapy;

c. occupational therapy; and

d. speech therapy.

3.4 The center has staff stroke nurses available 24/7.

3.5 The center has a CT tech on-site 24/7.

3.6 The center performs CT or MRI within 25 minutes of patient arrival at the center 24/7 with an 80% achievement rate (excluding transfers with appropriate imaging already completed).

3.7 The center has staff on-site or via telemedicine to read and report CT/MRI within 45 minutes of patient arrival at the center 24/7 with an 80% achievement rate (excluding transfers with appropriate imaging already completed).

3.8 The center has MRI with diffusion available 24/7.

3.9 The center has MR angiography/MR venography available 24/7.

3.10 The center has CT angiography available 24/7.

3.11 The center has digital subtraction cerebral angiography available 24/7.

3.12 The center has transcranial doppler available 24/7.

3.13 The center has transesophageal echo.

3.14 The center has carotid artery duplex ultrasound imaging.

3.15 The center has EKG and chest x-ray capability 24/7.

3.16 The center has laboratory or point-of-care testing 24/7 with results for CBC and coagulation labs in 45 minutes or less from patient arrival with a 90% achievement rate.

3.17 The center has Food and Drug Administration (FDA)-approved IV thrombolytic therapy for stroke available 24/7.

3.18 The center has Intra-Arterial (IA) recanalization capability available 24/7.

3.19 The center can perform carotid endarterectomy 24/7.

3.20 The center can provide surgical treatment of intracranial cerebrovascular disease 24/7.

3.21 The center can provide placement of intracranial pressure transducer 24/7.

3.22 The center can provide placement of ventriculostomy 24/7.

3.23 The center can perform endovascular treatment of intracranial aneurysms/arterial venous malformations 24/7.

3.24 The center can perform endovascular treatment of vasospasm 24/7.
3.25 The center can perform stenting and/or angioplasty of extracranial vessels 24/7 or has a referral protocol in place.
3.26 The center can perform stenting and/or angioplasty of intracranial vessels 24/7 or has a referral protocol in place.
3.27 The center has operating room coverage 24/7 and is ready within 30 minutes of notification with an 80% achievement rate.
3.28 The center has interventional services available 24/7 on-site within 30 minutes of notification with an 80% achievement rate.
3.29 The center has post discharge stroke services.
3.30 The center must have written stroke protocols, order sets, procedures, and/or algorithms for assessment and treatment of ischemic and hemorrhagic strokes which include:
a. stroke team activation process;
b. initial diagnostic tests;
c. administration of medication; and
d. swallowing assessment prior to oral intake.
3.31 The center's pharmacy is adequately staffed by qualified personnel to ensure effective medication management services including emergency services available 24/7.
3.32 The center has transfer protocols or guidelines specific to stroke patients; however, there should be no reason to transfer stroke patients from a Level I Stroke Center other than in cases of disaster, equipment failure, severe staffing shortage, etc.
3.33 The center coordinates with Emergency Medical Services (EMS) on stroke care and transport policy and procedures, system activation, training, data collection and quality improvement, and unavailability of services.
3.34 The center provides annual public education on stroke-related topics such as prevention, risk factors, signs and symptoms, and the importance of getting treatment right away and calling 911.
3.35 The center provides stroke education to stroke patients and their caregivers.
4. Minimum Requirements
4.1 The center cares for a minimum of 12 non-traumatic subarachnoid hemorrhage (SAH) patients per year.
4.2 The center performs a minimum of 15 clippings or endovascular procedures per year for aneurysmal disease.
5. Performance Measurement and Quality Improvement
5.1 The center participates in the Idaho TSE Registry. At least 80% of cases are submitted within 180 days of treatment.
5.2 The center measures performance on at least two relevant patient care benchmarks each year.
5.3 The center participates in their Regional TSE Committee.

5.4 The center must have a performance improvement (PI) program to ensure optimal care and continuous improvement of care.
5.5 The PI program is supported by a reliable method of internal data collection that consistently gathers valid and objective information necessary to analyze and identify opportunities for improvement.
5.6 System and process issues (such as documentation and communication), clinical care issues, and transfer decisions must be reviewed by the PI program.
5.7 The stroke program must use current clinical practice guidelines, protocols, and algorithms derived from evidence-based validation resources to achieve benchmark goals.
5.8 All process and outcome measures must be documented in a written PI plan and updated annually.
5.9 The process of analysis occurs at regular intervals to meet the needs of the program.
5.10 The process demonstrates problem resolution (loop closure).
5.11 The center is able to identify the stroke patient population for review.
5.12 The PI program must have audit filters to review and improve patient care.
5.13 The center's PI program must work with receiving and transferring facilities to provide and obtain feedback on all transferred patients.
5.14 The PI program evaluates delays in availability of the interventional suite.
5.15 Delays in surgeon/interventionalist response time must be monitored and reviewed for cause of delay and opportunities for improvement. Corrective actions must be documented.
5.16 Transfer within 24 hours to a higher level of care must be reviewed to determine the rationale for transfer, adverse outcomes, and opportunities for improvement.
5.17 The PI review is inclusive of all stroke admissions and transfers.
5.18 The center must have a policy to notify dispatch and Emergency Medical Services (EMS) agencies when on divert status.