BENCHMARKING PERFORMANCE

2021 Review of ACHC-certified Stroke Centers
ACHC’s mission is to deliver the best possible accreditation experience and to be the valued partner for healthcare organizations committed to improving their quality of care through accreditation standards and continuing education, with a focus on advancing the health and welfare of their communities.

Special thanks to Donna Smith, RN, and Josh Boatright for their contributions to this report.

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INTRODUCTION

All ACHC-certified stroke centers collect quarterly data on the performance measures relevant to their specific certification program. For five years, we have been compiling the data into an annual retrospective review. The goals of this review are:

- To support individual stroke centers by providing a resource that allows them to compare their performance to that of peer programs.
- To augment the culture of community and shared learning established by ACHC’s quarterly practice-sharing teleconferences for stroke programs.
- To evaluate the effectiveness of ACHC Certification as a driver of quality improvement for the care of stroke patients.

Last year, in addition to the measures applicable to all stroke programs, we began including those specifically focused on Thrombectomy and Comprehensive Stroke Centers (see pages 18-22).

Based on customer feedback and preference, we are continuing to report data in cohorts based on patient volume as indicated below.

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<thead>
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<th>PATIENT COUNT</th>
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As always, the ACHC team is here to support your program with opportunities for education, for connection, and for consultation.

We welcome your feedback and hope that you find this report useful.
Introduction

Below each graph is a description of what is being measured along with comments that describe best practice and summarize the overall analysis.

The results demonstrate that ACHC-certified stroke centers continue to meet or exceed the benchmarks established as national goals. Use this data to benchmark and communicate your own center’s performance.

Analyse

1. Identify your organization. Or find the group that represents the certification option appropriate to your program.

2. Compare your performance to that of your peer organizations and the overall group.

3. Compare your results with your community needs assessment. *Does your stroke program meet the goals set in that report?*

Communicate

1. Share this report (and your analysis) with your stroke staff to show how their patient care is reflected in the data.

2. Share this report with your Board, medical staff, leadership team, and hospital staff as evidence of the quality care you provide.

3. Share this report with your marketing department to encourage active support of your program.

4. Share relevant results at your community education events.
**SM-1: Venous Thromboembolism (VTE) Prophylaxis**

**Description of the measure**

Frequency at which patients with a diagnosis of acute ischemic stroke who are assessed to be at risk for VTE and for whom prophylaxis (including anticoagulant medications, sequential compression stockings, and early mobilization) is indicated, receive relevant intervention.

Related Standard: 02.02.03

**Best practice**

Complete a VTE risk assessment at the time of admission. The application of sequential compression devices is the accepted intervention for VTE risk.

**Comment**

In 2021, 89% of organizations — a decline from 94% in 2020 — met or exceeded the benchmark for prophylaxis for ischemic stroke patients at risk for VTE. The average performance indicated delivery of VTE prophylaxis for 94% of the relevant patient population.

Among facilities that treated 99 or fewer patients, four of 21 centers missed the benchmark of 85%. At lower patient volume, any individual failure to meet the measure will be prominent in the data. Among centers that cared for 100 to 199 patients, only two failed to meet the 85% threshold; those facilities recorded 84% and 81%. All centers that treated 300 to 399 patients achieved the benchmark, as did all centers that treated 400 or more patients.
SM-2: Discharged on Antithrombotic Therapy

Description of the measure
This measure addresses the percentage of ischemic stroke patients who were prescribed antithrombotic therapy (anti-platelet and anticoagulants) at hospital discharge.

Related Standard: 02.02.03

Best practice
All ischemic stroke patients should receive a prescription for an antithrombotic at the time of discharge. If antithrombotic therapy is not prescribed, the reason should be documented in the medical record.

Comment
The benchmark of 85% was met or exceeded by all ACHC-certified stroke centers, up from 96% in 2020. The 100% performance improves over the previous year, when two programs did not meet the threshold, reaching 80% and 83%, with each of these organization seeing fewer than 40 stroke patients in 2020. The aggregate average achievement in 2021 was 99%.
**SM-3:** Anticoagulation Therapy for AF/Flutter

**Description of the measure**
This measure addresses ischemic stroke patients with a clinical diagnosis of atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge.

Related Standard: 02.02.03

**Best practice**
Cardiac monitoring for 24 hours after admission may be helpful in diagnosing AF/Flutter. If anticoagulation therapy is not prescribed at discharge, there must be documentation in the medical record of the reason for this clinical decision.

**Comment**
The benchmark was achieved by 96% of stroke centers and the aggregated average achievement was 98%. The two that failed to reach the benchmark are in the two cohorts of smaller programs, with one hospital treating fewer than 99 patients in 2021 and the other treating between 100 and 199 patients.
**SM-4: Thrombolytic Therapy within 4.5 hours**

**Description of the measure**
This measure addresses acute ischemic stroke patients who arrive at this hospital within two hours (120 minutes) of time last known well and for whom IV tPA was initiated at this hospital within 4.5 hours of time last known well.

Related Standard: 02.00.06

**Best practice**
When the 4.5-hour benchmark is missed, a documented explanation — e.g., blood pressure or airway management — will help distinguish patient-specific severity of illness issues that must be immediately addressed from process issues that can be addressed with corrective actions. For example, multiple critical patients is not an acceptable reason for late administration of tPA.

**Comment**
Although most ACHC-certified stroke centers delivered thrombolytic therapy for all patients with 4.5 hours of time last known well, four programs fell below benchmark, resulting in an aggregate average 98% achievement rate across participating stroke centers.

The four centers that missed the benchmark belong to three separate cohorts.
**SM-5: Antithrombotic Therapy (End of Day 2)**

**Description of the measure**
This measure identifies ischemic stroke patients administered antithrombotic therapy by the end of hospital day two. Antithrombotic therapy includes anti-platelet and anticoagulant medications.

Related Standard: 02.02.03

**Best practice**
Having the stroke coordinator or a program champion at the leadership level review patient records in real time can help the medical team catch medications that would be expected but have not been ordered.

**Comment**
In 2021, 95% of centers achieved the benchmark, a small improvement from 94% in 2020. Three organizations missed the benchmark. All three were small programs treating 27, 37, and 72 stroke patients respectively. At lower patient volume, any individual failure to meet the measure will be prominent in the data.

Overall, an average of 96% of patients across all reporting organizations received antithrombotic therapy by the end of hospital day two.
SM-6: Discharged on Statin Medication

Description of the measure
The measure looks at statin medication prescribed at discharge for ischemic stroke patients with LDL greater than or equal to 100 mg/dL, LDL not measured, or those who were on a lipid-lowering medication prior to hospital arrival.

Related Standard: 02.02.03

Best practice
If a patient is not prescribed a statin, meeting the goal of this metric would require documentation demonstrating why, e.g., allergy or intolerance by patient.

Most centers find it helpful to have real-time review of medical records to catch medications that have not been ordered.

Comment
For this measure, 96% of stroke programs surpassed this benchmark with an average score of 96%. Two centers in the small patient cohorts failed to reach the 85% benchmark.
SM-8: Stroke Education

Description of the measure
This measure addresses ischemic or hemorrhagic stroke patients or their caregivers who were provided with educational materials during the hospital stay. Education topics included 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.

Related Standard: 02.02.06

Best practice
In keeping with our intent to be a resource partner to the organizations we serve, ACHC stresses the value of an educational approach to health care. Our expectation is that stroke centers take a similar approach and are prepared with materials for patients and their caregivers to help them understand and effectively advocate for their care.

Comment
In 2021, 91% of ACHC-certified programs met the 85% benchmark for this measure. This is a performance decline from 2020, when 96% of hospitals provided effective stroke education.

The aggregated average score for 2021 was 94%.
SM-10: Assessed for Rehabilitation

Description of the measure
This measure addresses ischemic or hemorrhagic stroke patients who were assessed for rehabilitation services. Initial physical rehabilitation must be conducted by a physical therapist and may include occupational therapy or speech and language therapy as identified by clinical needs assessment.

Related Standard: 02.02.04

Best practice
Inclusion of a physical therapy consult as a pre-checked item on stroke admission order sets can support achievement of this measure.

Comment
All but one hospital surpassed the benchmark threshold in 2021. The aggregate average was 98%.
**Description of the measure**

This measure addresses screening for dysphagia prior to receiving anything by mouth. (The dysphagia screen may be performed by an RN.)

**Note:** If a patient is kept NPO in the emergency department and subsequently transferred from the ED to a hospital with a higher level of care, this patient may be counted in the numerator when scoring the measure.

Related Standard: 02.02.02

**Best practice**

Incorporate dysphagia screening by an RN as part of every initial stroke work-up, whether Code Stroke or suspected stroke. Including a pre-checked “NPO until Swallow Screen by Nursing” works as a prompt on initial order sets. After the swallow screen is completed, having providers place a diet order (when screening is passed) or a Speech Therapy Eval/Consult for Swallow (for failed screening) reinforces awareness of dysphagia screening compliance.

**Comment**

In 2021, 78% of ACHC-certified stroke centers met or exceeded the benchmark with an average aggregate score indicating that 90% of patients are screened for dysphagia prior to be given anything by mouth. There were two significant outliers at 57% and 44%, with each treating very small patient populations within the Primary Stroke Center Certification program. Primary Stroke Centers averaged 87% for their performance rates. Overall, centers that treated 100–199 patients for the year averaged 84%.
SM-12: Door-to-Needle Time

SM-12A: Door-to-Needle Time — 60 Minutes

SM-12B: Door-to-Needle Time — 45 Minutes

SM-12C: Door-to-Needle Time — 30 Minutes

Benchmarking Performance: 2021 Review of ACHC-certified Stroke Centers
**Description of the measure**

These measures address acute ischemic stroke patients age 18 years and older who receive intravenous tissue plasminogen activator (tPA) therapy during the hospital stay with a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle) ranging from under 30 minutes to under 60 minutes.

Related Standard: 02.00.06

**Best practice**

Because the American Stroke Association raised performance expectations on these measures, stroke programs should examine their processes to make improvements.

Meeting patients at the door, performing a quick assessment, and taking the patient directly to CT has helped many hospitals reduce door-to-needle times.

**Comment**

The results for these measures reflect incremental gains but there is still room for improvement.

**SM-12A** In 2021, 55% of hospitals achieved 60 minutes, and at an average score of 76%.

**SM-12B** The 45-minute threshold was met by 33% of stroke programs 2021 compared with 53% in 2020 and 36% in 2019. The aggregate average score was 56%.

**SM-12C** The 30-minute threshold saw average performance of 30% with only 9% of stroke centers meeting or exceeding the benchmark of 50%. Stroke centers that treat 200 to 299 patients exceeded the benchmark with 54% performance.
**SM-13: Stroke Team Arrival**

**Description of the measure**

The measure examines the time between presentation of a patient in the ED with stroke symptoms and the arrival of the stroke team to the bedside or the time between inpatient onset of symptoms and the arrival of the stroke team to the bedside.

Related Standard: 02.03.03

**Best practice**

Establish a protocol for close communication with EMS regarding actual arrival time to assist in meeting this measure.

**Comment**

In 2021, 86% of hospitals met or exceeded the benchmark, down from 93% in 2020. The aggregate average score of 94% for 2021 was up from 92% in 2020.
**SM-14: Glucose Results**

**Description of the measure**
This measure looks at patients with lab testing drawn and results delivered within 45 minutes of arrival in the ED and inpatients with lab testing drawn and results delivered within 45 minutes of onset of symptoms.

Lab testing included in this turnaround-time measure includes point-of-care glucose testing; INR and PT and PTT (if indicated); and others per stroke protocol/physician order.

Related Standard: 02.00.05

**Best practice**
Glucose is the only lab required unless the patient has a blood clotting disorder. This can be by finger stick at the bedside. If allowed by policy, the hospital may accept the EMS glucose reading as well.

**Comment**
In 2021, 84% of stroke programs achieved the benchmark of 85%. The average performance score for 2021 is 92%, an improvement over 2020’s average of 89%.
**SM-15: Neuroimaging Studies**

**Description of the measure**
This measure addresses the number of patients exhibiting or presenting with acute stroke symptoms (as defined by hospital protocols) for whom neuroimaging (CT scan or MRI) turnaround time (TAT) with results reported to the provider occurs within 45 minutes of arrival.

Related Standard: 02.00.04

**Best practice**
Every minute counts. The neuroimaging time is measured from patient arrival until the ED provider has received results of the scan. Break down your process steps to determine where minutes are being used that may delay TAT.

**Comment**
74% of stroke programs achieved the benchmark, compared with 82% in 2021 and 79% in 2019. The average performance score improved slightly to 89%, up from 88% in 2020.
**SM-16: Neurosurgical Services**

### Description of the measure

This measure calculates the number of patients diagnosed with hemorrhagic stroke (as defined by hospital protocols) who received neurosurgical services (or were transferred for neurosurgical service) within two hours of need.

Related Standard: 02.00.07

### Best practice

For hospitals that do not perform neurosurgery or neuro-interventions, the two-hour window is from the time the **decision** is made that the patient may need surgery/intervention until the patient is transferred out the door. Alerting EMS early about potential transfer, having standardized transfer protocols, and making early notification to the receiving hospital of potential transfer may assist in reducing times.

### Comment

In 2021, 73% of participating programs met the benchmark of 85% for this measure, producing an improved average performance score of 86%. In 2020, 74% of participating programs met the benchmark for this measure, with an aggregate average score of 83%.
The following 10 performance measures focus on assessment and interventions specific to Thrombectomy and Comprehensive Stroke Centers.

**SMA-1 NIHSS Performed for Ischemic Stroke Patients**

This measure addresses ischemic stroke patients for whom an initial National Institutes of Health Stroke Scale (NIHSS) examination is performed and documented in the medical record prior to any acute recanalization therapy (i.e., IV thrombolytic or IA thrombolytic [tPA] therapy, or mechanical endovascular reperfusion therapy) or for whom an NIHSS assessment is documented within 12 hours of ED arrival for patients who do not undergo recanalization therapy.

**Best practice**

The NIHSS is a 15-item examination that evaluates the effect of acute cerebral infarction on the levels of consciousness, language, neglect, visual-field loss, extraocular movement, motor strength, ataxia, dysarthria, and sensory loss.

Used as a data collection tool for planning patient care, the NIHSS provides a common language for information exchange among providers.

**Comment**

All stroke programs met the threshold for this measure, and the programs had an overall average score of 92% in 2021, down from 95% in 2020.

**SMA-3 Severity Measure Performed for SAH & ICH**

The measure addresses subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) stroke patients for whom a severity measurement (e.g., Hunt and Hess Scale for SAH patients or ICH Score for ICH patients) is performed and documented in the medical record prior to clipping, coiling, or any surgical intervention or within six hours of arrival at the hospital ED for patients who do not undergo surgical intervention.

**Best practice**

Multiple scales exist for assessing the clinical condition of patients following SAH or ICH. The goal of this measure is to improve communication among clinicians by providing a consistent, shared grading scale.

**Comment**

Just over half (57%) of the stroke centers to which this measure applies achieved the benchmark threshold in 2021, matching the 57% in 2020. The average performance was 88%, an improvement over the 74% in 2020.
SMA-4 Procoagulant Reversal Agent Initiated for ICH

This measure addresses 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, recombinant factor VIIa, prothrombin complex concentrates).

Comment

Stroke programs that treated 100 to 199 stroke patients and 200-299 stroke patients each achieved a score of 100% for ICH stroke patients treated in 2021. Larger programs scored lower, recording 50% for those that treat 300 to 399 patients and 78% for those treating 400 or more stroke patients. Overall, 71% of programs achieved the benchmark of 85%, and the programs had an average performance score of 80%.

SMA-5 Hemorrhagic Transformation (Overall Rate)

This measure addresses 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 the 36 hours of the start of treatment with IV or IA thrombolytic (tPA) therapy, or mechanical endovascular reperfusion procedure (i.e., mechanical endovascular thrombectomy with a clot retrieval device).

Comment

This measure has no associated benchmark; it is used for tracking and trending. The goal is that this complication would be rarely seen. In 2021, all but one stroke program kept hemorrhagic transformation at 15% or lower, and the average was 15%.
SMA-6 Nimodipine Treatment Administered
Subarachnoid hemorrhage (SAH) patients for whom nimodipine treatment was administered within 24 hours of hospital arrival.

Comment
In 2021, all reporting stroke programs exceeded the threshold of 85%, with an average performance score of 93%.

SMA-8 Thrombolysis in Cerebral Infarction
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 treatment with intra-arterial (IA) thrombolytic (tPA) therapy and/or mechanical endovascular reperfusion therapy.

Comment
The average performance for ACHC-accredited programs in 2021 was 84%.
**SMA-9 Door-to-Skin Puncture Time**

A goal of < 90 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), (i.e., intra-arterial (IA) thrombolytic (t-PA) infusion and/or mechanical embolectomy devices), of acute ischemic stroke.

**Comment**

The average performance for this measure in 2021 was 76%, improved from 62% in 2020.

**SMA-10 Modified Rankin at Discharge or 90 Days**

Ischemic stroke patients treated with IV or IA thrombolytic (tPA) therapy or who undergo mechanical endovascular reperfusion therapy for whom a 90-day (≥75 days and ≤105 days) Modified Rankin Score (mRS) is obtained via telephone or in-person.

**Comment**

All stroke programs exceeded the 85% threshold for this measure with an average score of 99%, just above the 98% recorded in 2020.
**SMA-11 Timeliness of Reperfusion: Arrival to TICI 2B or Higher**

Ischemic stroke patients who have large vessel occlusion in the internal carotid artery (ICA) or ICA terminus, middle cerebral artery (MCA) M1 or M2, or basilar artery and who receive mechanical endovascular reperfusion therapy within 120 minutes of hospital arrival and achieve TICI 2B or higher at the end of treatment.

**Comment**

In 2021 average performance was 71%.

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**SMA-12 Timeliness of Reperfusion: Skin Puncture to TICI 2B or Higher**

Ischemic stroke patients who have large vessel occlusion in the internal carotid artery (ICA) or ICA terminus, middle cerebral artery (MCA) M1 or M2, or basilar artery and who receive mechanical endovascular reperfusion therapy and achieve TICI 2B or higher in 60 minutes or less from time of skin puncture.

**Comment**

In 2021, stroke centers achieved an average 74% performance score, with 25% of reporting centers meeting the benchmark. In 2020, this metric was achieved for 70% of patients, on average, across ACAC-certified stroke centers.
The data reported in this publication was collected throughout 2021. While the most acute phase of the COVID-19 pandemic receded with the release of coronavirus vaccines in early 2021, repercussions continued to stress individual provider organizations and systems as frontline healthcare professionals — with ranks overextended and thinned by staffing losses — still struggled to provide effective care and essential comfort.

COVID-19 had a twofold impact on stroke programs. Beyond stroke coordinators being asked to return to bedside nursing to address staffing shortages, COVID-19 brought stroke patients. In 2020, regions with high prevalence of COVID-19 began reporting increased incidence of stroke and in younger patients. Data have indicated a direct connection between COVID-19 and stroke. And the COVID-19-connected stroke patients are younger, too. A Swedish study* published in The Lancet on August 14, 2021, found that within a week of a COVID-19 diagnosis, a patient’s risk of stroke was three to six times higher than normal, and the risk of heart attack was three to eight times higher. The people studied averaged just 48 years old. The study indicated the elevated risk continued for a month or more.

In contrast to the literature, ACHC-certified stroke centers have anecdotally indicated fewer stroke patients during COVID peaks. Nonetheless, we understand that COVID-19 will be with us indefinitely, becoming endemic with mutating strains. And as studies are showing, we may need to redefine our “typical” stroke patient as the demographic skews younger.

No matter what changes COVID-19 brings, quality care provided by certified stroke centers will remain essential to the recovery and well-being of stroke patients. Accreditation Commission for Health Care (ACHC) Certification is just one indicator of your program’s commitment to continuous improvement. ACHC Surveyors are consistently impressed by the depth of knowledge and dedication of those involved in the programs they survey.

ACHC will continue to provide midcycle reviews in a virtual format for Primary Stroke Centers and Thrombectomy Centers, and virtual or onsite visits for Comprehensive Stroke Centers (based on program preference and the results of the most recent survey). ACHC also will continue to provide quarterly stroke teleconferences. Our practice-sharing sessions have been well-received by stroke coordinators, and we welcome suggestions to better support you. If you do not currently receive information to register for these programs and would like to, or if you have a topic you would like to present or propose for discussion, please let us know by emailing certification@achc.org.
