

Stroke Performance Improvement Committee

Metric Details & Definitions



MISSISSIPPI STATE DEPARTMENT OF HEALTH

Manually Made Report: Door to CT Interpreted \leq 45 minutes

This report was made manually from the GWTG Registry. Its purpose is to show the percentage of patients whose door to CT interpreted time is equal to or less than 45 minutes.

Included

- Includes all stroke patients with a door to CT interpreted time that is not blank

• Excluded

- LKW time is \geq 24 hours
- NIHSS total score = 0
- Time brain imaging is initiated is not blank.

AHA/STR13: Time to Intravenous Thrombolytic Therapy – 60 min

Percent of acute ischemic stroke patients receiving intravenous tissue plasminogen activator (thrombolytic) therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less.

Initial Patient Population		Exceptions	
All patients age 18 years and older who have a final clinical diagnosis of acute ischemic stroke	Age ≥ 18 AND Final Clinical Dx. of Stroke: (Ischemic Stroke)	None	N/A
Denominator		Numerator	
		Patients who receive IV thrombolytic at my hospital within 60 minutes after arrival	Date/time IV thrombolytic therapy initiated – Arrival Date/Time ≤ 60 minutes
Include:		Rationale	
All patients in the initial patient population who received IV thrombolytic at my hospital	Same as initial patient population AND IV thrombolytic initiated at this hospital: (Yes)	Treatment of AIS with IV tissue-type plasminogen activator is of proven benefit for select patients given up to 4.5 hours after symptom onset. Pooled data from RCTs indicate the benefit is greatest when treatment occurs early after stroke onset and declines with time. Registry data from AHA GWTG-Stroke hospitals confirm this temporal relationship. In an analysis of 58 353 alteplase-treated patients, treatment started more rapidly (evaluated in 15-minute increments) was associated with reduced in-hospital mortality (OR, 0.96 [95% CI, 0.95–0.98]; P<0.001), reduced symptomatic intracerebral hemorrhage (sICH) (OR, 0.96 [95% CI, 0.95–0.98]; P<0.001), increased independent ambulation at discharge (OR, 1.04 [95% CI, 1.03–1.05]; P<0.001), and increased discharge to home (OR, 1.03 [95% CI, 1.02–1.04]; P<0.001). Patient factors most strongly associated with shorter onset-to-treatment times include greater stroke severity, arrival by ambulance, and arrival during regular hours. (Citation 1, p. e352).	
Exclusions		Supporting Guideline Recommendations or Other Evidence	
<ul style="list-style-type: none"> Stroke occurred after hospital arrival (in ED/Obs/inpatient) Patients whose date/time of Arrival and/or date/time of thrombolytic administration are blank, unknown, or date only Patients with a negative calculated time difference of IV thrombolytic initiation time from hospital arrival time Patients with a Date Last Known Well, but no Time Last Known Well Patients who receive IV thrombolytic greater than 4.5 hours after Last Known Well Patients who received IV thrombolytics at an outside hospital or by EMS/Mobile Stroke Unit Patients with documented Eligibility or Medical Reasons for delay in treatment Clinical Trial 	<p>Patient location when stroke symptoms discovered: (Stroke occurred after hospital arrival (in ED/Obs/inpatient))</p> <p>OR</p> <p>Hospital Arrival Date and Time: blank, unknown, or MM/DD/YYYY only OR</p> <p>IV thrombolytic Initiation Date/Time: blank, unknown, or MM/DD/YYYY only OR</p> <p>IV thrombolytic Initiation Date/Time < Hospital Arrival Date and Time</p> <p>OR</p> <p>Date/Time patient last known to be well: is in the MM/DD/YYYY format AND</p> <p>IV thrombolytic Initiation Date/Time – Date/Time patient last known to be well > 4.5 hours)</p> <p>IV thrombolytic at an outside hospital or EMS/Mobile Stroke Unit: (Yes)</p> <p>OR</p> <p>(If IV thrombolytic was initiated greater than 60 minutes after arrival, documented Eligibility or Medical reason(s) for delay: (Yes) AND</p> <p>(Eligibility Reason: is not blank OR</p> <p>Medical Reason: is not blank))</p> <p>OR</p> <p>During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied: (Yes)</p>	<p>2019 Update to the 2018 AHA/ASA Guidelines for the Early Management of Acute Ischemic Stroke Class I</p> <p>In patients eligible for IV alteplase, because benefit of therapy is time dependent, treatment should be initiated as quickly as possible and not delayed for additional multimodal neuroimaging, such as CT and MRI perfusion imaging. (Level of Evidence: B-NR) (Citation 1, p. e357)</p> <p>It is recommended that stroke systems of care be developed so that fibrinolytic-eligible patients and mechanical thrombectomy-eligible patients receive treatment in the fastest achievable onset-to-treatment time. (Level of Evidence: A) (Citation 1, p. e352)</p> <p>Establishing and monitoring target time goals for ED door-to-treatment IV fibrinolysis time can be beneficial to monitor and enhance system performance. (Level of Evidence: B-NR) (Citation 1, p. e352)</p> <p>1. Powers WJ, Rabinstein AA, Ackerson T, Adeoye OM, Bambakidis NC, Becker K, Biller J, Brown M, Demaerschalk BM, Hoh B, Jauch EC, Kidwell CS, Leslie-Mazwi TM, Ovbiagele B, Scott PA, Sheth KN, Southerland AM, Summers DV, Tirschwell DL; on behalf of the American Heart Association Stroke Council. Guidelines for the early management of patients with acute ischemic stroke: 2019 update to the 2018 guidelines for the early management of acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. <i>Stroke</i>. 2019;50:e344–e418 doi: 10.1161/STR.0000000000000211. Available at: https://www.ahajournals.org/doi/abs/10.1161/STR.0000000000000211</p>	

AHA49: Time to Intravenous Thrombolytic Therapy - 45 min

Percent of acute ischemic stroke patients receiving intravenous thrombolytic therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 45 minutes or less

Initial Patient Population

All patients age 18 years and older with a final clinical diagnosis of ischemic stroke

Age >= 18
AND
Final clinical diagnosis related to stroke = (Ischemic Stroke)

Denominator

Include:

All patients in the Initial Patient Population who received IV thrombolytic at my hospital

Same as initial patient population
AND
IV thrombolytic initiated at this hospital = (Yes)

Exclusions:

- Stroke occurred after hospital arrival (in ED/Obs/inpatient)
- Undocumented time for Arrival Date/Time
- Undocumented time for Date/Time of IV Thrombolytic Initiation
- IV Thrombolytic Initiation Date/Time is before Arrival Date/Time
- Patients who receive IV thrombolytic greater than 4.5 hours after Last Known Well
- Patients who received IV thrombolytic greater than 45 minutes after arrival and have a documented Eligibility or Medical reason for delay in treatment
- Clinical Trial
- Patients who received IV thrombolytic at an outside hospital or by EMS/Mobile Stroke Unit Patients with a Date Last Known Well, but no time Last Known Well

Patient location when stroke symptoms discovered = (Stroke occurred after hospital arrival (in ED/Obs/inpatient))
 OR
 Arrival Date/Time is blank, Unknown, or just MM/DD/YYYY
 OR
 IV thrombolytic Initiation Date/Time is blank, Unknown, or just MM/DD/YYYY
 OR
 IV thrombolytic Initiation Date/Time < Arrival Date/Time
 OR
 (If IV thrombolytic was initiated greater than 45 minutes after arrival, documented Eligibility or Medical reason(s) for delay = (Yes)
AND
 (Eligibility Reason is not blank
 OR
 Medical Reason is not blank))
 OR

During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied = (Yes)
 OR
 (Date/Time patient last known to be well is in MM/DD/YYYY format
AND
 IV thrombolytic Initiation Date/Time – Date/Time patient last known to be well > 270 minutes)
 OR
 Date/Time patient last known to be well = is just MM/DD/YYYY
 OR
 IV thrombolytic at an outside hospital or EMS/Mobile Stroke Unit = (Yes)

Exceptions:

None

Numerator

Patients who receive IV thrombolytic at my hospital within 45 minutes after arrival

Date/time IV thrombolytic therapy initiated - Arrival Date/Time <= 45 minutes

AHASTR28: In-Hospital Mortality

Patients who expired in the hospital grouped by final clinical diagnosis

Initial Patient Population

All patients age 18 years and older

Age \geq 18

Denominator

Include:

All patients in the Initial Patient Population

Same as initial patient population

Exceptions:

None

N/A

Numerator

Patients who expired grouped by final clinical diagnosis, with one bar for all patients:

1. All Patients
2. Ischemic Stroke
3. Transient Ischemic Attack (<24 h)
4. Subarachnoid Hemorrhage
5. Intracerebral Hemorrhage
6. Stroke not otherwise specified
7. No stroke related diagnosis

Group 1: Discharge Disposition = (Expired)

Group 2: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (Ischemic Stroke)

Group 3: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (Transient Ischemic Attack (< 24 hours))

Group 4: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (Subarachnoid Hemorrhage)

Group 5: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (Intracerebral Hemorrhage)

Group 6: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (Stroke not otherwise specified)

Group 7: Discharge Disposition = (Expired) **AND Final clinical diagnosis related to stroke** = (No stroke related diagnosis)

Bars plotted as percent of patients in the total denominator after all exclusions are applied who expired. Total will not equal 100% since not all patients included in the denominator expired.

AHA60: Risk-Adjusted Mortality Ratio (Global Stroke Model)

Ischemic-Only Model

Definition- Calculation of predicted probability of in-hospital death based on stroke patient risk factors present on admission. This reported percentage represents the individual patient's predicted risk for in-hospital mortality. It is calculated based on the following risk factors at the time of hospital presentation: age, gender, arrival mode, stroke type, medical history, date and time of arrival, and NIHSS (if present). This predicted probability formula was derived and validated using the Get With The Guidelines-Stroke database using a model that includes all stroke types. This risk prediction is intended to enhance, not replace, clinical assessment and physician judgment. If too many of the necessary variables are missing, the mortality rate cannot be calculated for the patient.

Notes for Abstraction-

Any of the following cases will exclude the calculation of a risk score:

- Patient was transferred from another hospital
- Patient was transferred from your ED to another acute care hospital
- Final clinical diagnosis related to stroke is TIA or no stroke related diagnosis
- Patient received IV alteplase at an outside hospital
- First NIH Stroke Scale total score recorded by hospital personnel is greater than 42

Interventions

Include

- Patients with diagnosis of ischemic stroke and received IA or MER

Final clinical diagnosis related to stroke: Ischemic Stroke

AND

Received IA

OR

MER

Exclude

- Age < 18 years
- Stroke occurred after hospital arrival (in ED/Obs/inpatient)
- Clinical Trial
- Elective Carotid Intervention

Age: < 18

OR

Patient location when stroke symptoms discovered: Stroke occurred after hospital arrival (in ED/Obs/inpatient)

OR

During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied?: Yes

OR

Was this patient admitted for the sole purpose of performance of elective carotid intervention?: Yes

Numerator

- Number of IA or MER interventions for patients with a diagnosis of Ischemic Stroke

Treatment Type (count)

IA=Yes

AND

MER=Yes

OUTLIER: N/A, surveillance use only.

AHASTR115 Door to Start of Device (DTD) within 60 min for Pts. Transferred from an Outside Hospital OR within 90 min for Pts. Presenting Directly (24 hr treatment window)

Percentage of patients with acute ischemic stroke arriving within 24 hours of LKW or symptom discovery who receive mechanical endovascular reperfusion therapy and for whom the first pass (i.e., deployment) of the device is ≤ 60 minutes after arrival in patients who are transferred in from an outside hospital or < 90 minutes after arrival for patients presenting directly.

Include	Data Elements for Calculation	Numerator	
<p>All patients age 18 and older admitted to the hospital who have a diagnosis of acute ischemic stroke who arrived at your facility with 24 hours of LKW or discovery of symptoms and received mechanical intervention at your facility.</p>	<p>Age ≥ 18</p> <p>AND</p> <p>Final clinical diagnosis related to stroke: = Ischemic Stroke</p> <p>AND</p> <p>Mechanical Endovascular Reperfusion Therapy? = Yes</p> <p>AND</p> <p>(Arrival Date/Time: MINUS Date/Time patient last known to be well? < = 24 hours</p> <p>OR</p> <p>Arrival Date/Time: MINUS Date/Time of discovery of stroke symptoms? < = 24 hours)</p>	<ul style="list-style-type: none"> Patients for whom the first pass (i.e., deployment) of the device is ≤ 60 minutes in patients who are transferred in from an outside hospital or ≤ 90 minutes for patients presenting directly and arrived within 24 hours of LKW or discovery of symptoms. 	<p><u>How patient arrived at your hospital:</u> = Transfer from another hospital OR = Mobile Stroke Unit</p> <p>AND</p> <p><u>^What is the date and time of the first pass of a clot retrieval device at this hospital?: MINUS Arrival Date/Time:</u> ≤ 60 minutes]</p> <p>OR</p> <p><u>[How patient arrived at your hospital:</u> = EMS from home/scene OR = Private transport/taxi/other from home/scene OR = ND or Unknown</p> <p>AND</p> <p><u>^What is the date and time of the first pass of a clot retrieval device at this hospital?: MINUS Arrival Date/Time:</u> ≤ 90 minutes]</p>