NATIONAL QUALITY FORUM

Neurology Endorsement Maintenance – Phase I

DRAFT TECHNICAL REPORT FOR VOTING

September 11, 2012

Contents

Neurology Endorsement Maintenance – Phase I

DRAFT TECHNICAL REPORT

Introduction

Neurological conditions and injuries affect millions of Americans each year, taking a tremendous toll on patients, families, and caregivers, and costing billions of dollars in treatment, rehabilitation, and lost or reduced earnings. Specifically:

- Strokes were the fourth leading cause of death in the United States in 2009, as well as a leading cause of disability.[i] Each year, approximately 795,000 people suffer a stroke.[ii] Health care costs for stroke-related morbidity reached $73.7 billion in 2010.[iii]
- An estimated 5.4 million Americans have Alzheimer's disease, and an estimated 16 million will have Alzheimer's by 2050.[iv] The disease accounts for 70 percent of the cases of dementia in the country.[v] In 2009, Alzheimer's disease was the fifth leading cause of death for adults ages 65 and over. Medicare and Medicaid spending on people with Alzheimer's disease totaled $130 billion in 2011; this could rise to $1.1 trillion by 2050.[vi]
- Epilepsy affects two million Americans and is estimated to cost $15.5 billion each year in medical costs and lost or reduced earnings and production.[vii]
- One million Americans have Parkinson's disease, and the combined direct and indirect costs are estimated at $25 billion per year.[viii]
- Approximately 400,000 Americans have multiple sclerosis.[ix]
- Traumatic brain injury (TBI) is a major health issue affecting all age groups in the United States, causing 52,000 deaths and 275,000 hospitalizations each year. An additional 1.3 million people are treated for mild TBI and released annually from emergency departments. Direct and indirect costs for treatment and lost productivity add up to an estimated $76.5 billion yearly. These numbers do not include TBI associated with serving overseas in the military.[x]

Over the past decade, NQF has endorsed a number of consensus standards to evaluate the quality of care for neurological conditions. As quality measurement has matured, better data systems have become available, electronic health records are closer to widespread adoption, and the demand for meaningful performance measures has prompted development of more sophisticated measures of healthcare processes and outcomes for neurological conditions. An evaluation of the NQF-endorsed® neurology measures and consideration of new measures will ensure the currency of NQF's portfolio of voluntary consensus standards.

Measure Evaluation

On June 20-21, 2012, the Neurology Steering Committee evaluated 6 new measures and 23 ~~17~~ measures undergoing maintenance review against NQF's standard evaluation criteria. To facilitate the evaluation, Steering Committee members and candidate standards were divided into four workgroups for preliminary review of the measures against the evaluation sub-criteria prior to consideration by the

entire Committee. The Committee's discussion and ratings of the criteria are summarized in the evaluation tables beginning on page 13.

NEUROLOGY PHASE I SUMMARY

	MAINTENANCE	NEW	TOTAL
Measures under consideration	25	6	31
Measures withdrawn from consideration	2 ~~8~~	0	2 ~~8~~
Measures Recommended	13	3	1~~4~~6
Not recommended	10 ~~4~~	3	13 ~~7~~
Measures where consensus has not yet been reached		2	2
Reasons for Not Recommending	**Importance: 10 ~~3~~**	**Importance: 2 Scientific Acceptability: 1**	

Overarching Issues

During the Steering Committee's discussion of the measures, several overarching issues emerged and were factored into the Committee's ratings and recommendations for multiple measures; these issues are not repeated in detail with each individual measure.

High Performance

Based on actual performance data submitted, several measures appear to have a high performance rate. However, many of these performance rates are based on data from only a subset of providers (e.g., clinicians that report on the measure to PQRS or facilities that report through TJC or Get-With-The-Guidelines programs) and may reflect performance of "the best" clinicians/facilities. Also, for several of these measures, there is evidence of disparities in performance among certain subpopulations. The Committee formally discussed the possibility of endorsement under Reserve Status for only one measure, but ultimately decided that given the large population affected, even small opportunities for improvement could potentially affect a large number of patients.

Disparities in Care

The Committee noted that several measures addressed aspects of care for which there are recognized disparities in care delivery (either in orders/assessment/delivery/follow-up). Some of the measure submissions included citations from the literature to show disparities but few presented actual measure data to illustrate disparities in care, even though the measures have been in use for several years. The recognition of disparities in care for several of the measures also influenced the Committee's perception regarding opportunity for improvement for several of the measures.

Risk-Adjustment for Outcome Measures

A total of eleven measures in this project were outcome measures that incorporated some form of risk adjustment. Three of the measures used a statistical approach for risk adjustment (specifically, hierarchical linear modeling), while eight of the measures used a stratification approach. The bulk of the Committee's discussion of the three measures using the statistical risk-adjustment centered on the adequacy of the risk-adjustment model in terms of the factors included (e.g., stroke severity) and the discriminatory power of the model. The Committee did not discuss risk-adjustment issues for the outcomes measures that used a stratification approach because those measures did not meet the Importance criterion.

Related/Competing Measures

Measures that the Committee recommended as suitable for endorsement also were compared to any competing or related measures. Competing measures are those with the same measure focus and the same target population, while related measures are those with the same measure focus or the same target population. Using NQF guidance for these comparisons, the Committee was asked to consider these multiple measures.

For this project, the Committee addressed a total of 15 measures (12 from the current Neurology project and 3 that were evaluated in other projects) that have been identified as competing and/or related measures, as follows.

Antithrombotic Therapy

Two antithrombotic therapy measures (#0325 and #0435) were identified as competing because, on a conceptual level, both of these measures address prescription of antithrombotic therapy at discharge and both target hospitalized stroke patients. In addition, measure #0438 was identified as related to measure #0435. These measures differ in the following ways:

Measure group #1: Antithrombotic Therapy

Number and Title	**0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy (AMA-PCPI)**	**0435 STK 02: Discharged on Antithrombotic Therapy (TJC)**	**0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two (TJC)**
Measure focus	Antithrombotic therapy prescribed	Antithrombotic therapy prescribed	Antithrombotic therapy administered
Patient population	Patients 18+, dx=ischemic stroke or transient ischemic attack (TIA)	Patients 18+, dx=ischemic stroke	Patients 18+, dx=ischemic stroke

Number and Title	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy (AMA-PCPI)	0435 STK 02: Discharged on Antithrombotic Therapy (TJC)	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two (TJC)
Denominator exclusions	Died during stay Exceptions: Medical reason documented, Patient reason documented	Length of Stay > 120 days, comfort measures only documented, enrolled in clinical trials related to stroke, admitted for elective carotid intervention, discharged to another hospital, left against medical advice, expired, discharged to home for hospice care, discharged to a health care facility for hospice care, documented reason for not prescribing antithrombotic therapy at discharge	Duration of Stay < 2 days, length of Stay > 120 days , comfort measures only documented on the day of or day after hospital arrival, enrolled in clinical trials related to stroke, admitted for elective carotid intervention, IV OR IA thrombolytic therapy administered at this hospital or within 24 hours prior to arrival, documented reason for not administering antithrombotic therapy by end of hospital day 2
Timeframe	Discharge	Discharge	By end of hospital day two
Level of analysis	Clinician	Facility	Facility
Data sources	Administrative claims, electronic clinical data, EHR, registry	Electronic clinical data, EHR, paper medical records	Electronic clinical data, EHR, paper medical records

In their discussions of #0325 and #0435, the Committee was somewhat divided on the inclusion of TIA patients, but recommended that #0325 should be stratified in order to report rates for stroke and TIA patients separately. While they acknowledged that it would be a future endeavor, the Committee also expressed a strong desire for a measure that could be used at both the clinician and the facility level.

In their discussion of #0435 and #0438, the Committee suggested that the developer consider developing a composite measure that would incorporate both measures; the Committee also requested that the developer provide data on the percentage of patients who were prescribed antithrombotic therapy at discharge but not on day two and vice-versa.

VTE Prophylaxis

Two VTE prophylaxis measures (#0240 and #0434) were identified as competing because, on a conceptual level, both of these measures address VTE prophylaxis and both target hospitalized stroke

patients. In addition, measure #0371 was identified as complimentary to measure #0434 because it is practically identical except that it excludes stroke patients. Similarly, measure #0239 was identified as related to #0240, but assesses VTE prophylaxis among surgical patients. These measures differ in the following ways:

Measure group #2: VTE Prophylaxis

Number and Title	**0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage (AMA-PCPI)**	**0239 Venous Thromboembolism (VTE) Prophylaxis (AMA-PCPI)**	**0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis (TJC)**	**0371 Venous Thromboembolism Prophylaxis (TJC)**
Measure focus	DVT prophylaxis administered (pharma or mechanical)	Order for Low Molecular Weight Heparin (LMWH), Low-Dose Unfractionated Heparin (LDUH), adjusted-dose warfarin, fondaparinux, or mechanical prophylaxis	DVT prophylaxis received (pharma or mechanical) OR have documentation why DVT prophylaxis not given	DVT prophylaxis received OR have documentation why DVT prophylaxis not given
Patient population	Patients 18+ dx=ischemic stroke or intracranial hemorrhage	Patients 18+, undergoing procedures where VTE prophylaxis is indicated in all patients	Patients 18+, dx=ischemic stroke or hemorrhagic stroke	Patients 18+, dx=any, except stroke/obstetrics/VTE

Number and Title	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage (AMA-PCPI)	0239 Venous Thromboembolism (VTE) Prophylaxis (AMA-PCPI)	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis (TJC)	0371 Venous Thromboembolism Prophylaxis (TJC)
Denominator exclusions	Died during stay Exceptions: Medical reason documented, patient reason documented	Exceptions: Medical reason documented	Duration of Stay < 2 days, length of Stay > 120 days , comfort measures only documented on the day of or day after hospital arrival, enrolled in clinical trials related to stroke, admitted for elective carotid intervention	Length of stay (LOS) less than two days and greater than 120 days ; patients with comfort measures only documented on day of or day after hospital arrival ; patients enrolled in clinical trials ; patients who are direct admits to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU LOS greater than or equal to one day ; patients with ICD-9-CM Principal Diagnosis Code of Mental Disorders or Stroke as defined in Appendix A, Table 7.01, 8.1 or 8.2 ; patients with ICD-9-CM Principal or Other Diagnosis Codes of Obstetrics or VTE as defined in Appendix A, Table 7.02, 7.03 or

Number and Title	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage (AMA-PCPI)	0239 Venous Thromboembolism (VTE) Prophylaxis (AMA-PCPI)	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis (TJC)	0371 Venous Thromboembolism Prophylaxis (TJC)
				7.04 ; patients with ICD-9-CM Principal Procedure Code of Surgical Care Improvement Project (SCIP) VTE selected surgeries as defined in Appendix A, Tables 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24
Timeframe	By end of hospital day two	Within 24 hours prior to incision time or within 24 hours after surgery end time.	By end of hospital day two	By end of hospital day two/or surgery end date if surgery within 2 days of admission
Level of analysis	Clinician	Clinician	Facility	Facility
Data source	Administrative claims, electronic clinical data, EHR, registry	Administrative claims	Electronic clinical data, EHR, paper medical records	Electronic clinical data, EHR, paper medical records

In their discussions of #0240 and #0434, the Committee expressed a desire for a measure that could be used at both the clinician and the facility level. The Committee did not identify any harmonization issues for measures #0239 or #0371.

Anticoagulant Therapy for Atrial Fibrillation

Two anticoagulation therapy measures for atrial fibrillation patients (#0241 and #1525) were identified as competing because, on a conceptual level, both of these measures address anticoagulation therapy and both target atrial fibrillation patients. In addition, measure #0241 was identified as competing with

measure #0436 because, on a conceptual level, both of these measures address anticoagulation therapy and both target stoke patients. These measures differ in the following ways:

Measure group #3: Anticoagulant Therapy for Atrial Fibrillation

Number and Title	**0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge (AMA-PCPI)**	**0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter (TJC)**	**1525 Chronic anticoagulation therapy (ACC/AHA/AMA-PCPI)**
Measure focus	Anticoagulant prescribed	Anticoagulant prescribed	Anticoagulant prescribed
Patient population	Patients 18+, dx=ischemic stroke or transient ischemic attack (TIA), with documented permanent, persistent, or paroxysmal atrial fibrillation	Patients 18+, dx=ischemic stroke with atrial fibrillation/flutter	Patients 18+, dx=nonvalvular atrial fibrillation/flutter at high risk for thromboembolism
Denominator exclusions	Died during stay Exceptions: Medical reason documented, Patient reason documented	Length of Stay > 120 days, comfort measures only documented, enrolled in clinical trials related to stroke, admitted for elective carotid intervention, discharged to another hospital, left against medical advice, expired, discharged to home for hospice care, discharged to a health care facility for hospice care, documented reason for not prescribing anticoagulation therapy at discharge	
Timeframe	Discharge	Discharge	Office visit
Setting	Hospital/ACF	Hospital/ACF	Clinician office
Level of analysis	Clinician	Facility	Clinician
Data source	Administrative claims, electronic clinical data, EHR, registry	Electronic clinical data, EHR, paper medical records	Electronic clinical data, EHR, paper medical records, registry

In their discussion of measures #0241 and #1525, the Committee did not express a desire that the measures be combined, noting that they are fundamentally different because one is hospital-based (#0241) and one is office-based (#1525). In their discussion of measures #0241 and #0436, the Committee recommended that the measures be harmonized to the extent possible, and, in the future, that a measure that can be used at both the clinician and the facility level be developed.

Stroke Rehabilitation

Two stroke rehabilitation measures (#0244 and #0441) were identified as related because both address rehabilitation services for stroke patients. These measures differ in the following ways:

Measure group #4: Stroke Rehabilitation

Number and Title	**0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered (AMA-PCPI)**	**0441 STK-10: Assessed for Rehabilitation (TJC)**
Measure focus	Rehab services ordered OR documentation that no rehab needed	Assessed for or received rehab services
Patient population	Patients 18+, dx=ischemic stroke or intracranial hemorrhage	Patients 18+, dx=ischemic stroke or hemorrhagic stroke
Denominator exclusions	None	Length of Stay > 120 days, comfort measures only documented, enrolled in clinical trials related to stroke, admitted for elective carotid intervention, discharged to another hospital, left against medical advice, expired, discharged to home for hospice care, discharged to a health care facility for hospice care
Timeframe	At/prior to discharge	Hospital admission to discharge
Level of analysis	Clinician	Facility
Data source	Administrative claims, electronic clinical data, EHR, registry	Electronic clinical data, EHR, paper medical records

In their discussion of these measures, the Committee did not identify any harmonization issues to be addressed by the developers.

Mortality and Readmissions

Two stroke mortality measures (#0467 and #2026) were identified as competing because both address mortality among stroke patients. In addition, measure #2027 was identified as related to #2026 because both target the same population. These measures differ in the following ways:

Measure group #5: Mortality and Readmissions

Number and Title	0467 Acute Stroke Mortality Rate (IQI 17) (AHRQ)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization (Yale/CMS)	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization (Yale/CMS)
Measure focus	In-hospital death	Death (any cause) within 30 days of index admission	Readmission (any cause) within 30 days of index discharge
Patient population	Patients 18+, principal dx=stroke	Patients 65+, 12 months FFS Medicare Part A/B, principle dx=acute ischemic stroke	Patients 65+, 12 months FFS Medicare Part A/B, principle dx=acute ischemic stroke
Denominator exclusions	Transferring to another short-term hospital, MDC 14 (pregnancy, childbirth, and puerperium), missing discharge disposition, gender, age, quarter, year or principal diagnosis	Transferred from another acute care hospital, with inconsistent or unknown mortality status or other unreliable data, discharged against medical advice (AMA), enrolled in the Medicare hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission	Within hospital death, transferred to another acute care facility, discharged against medical advice (AMA), without at least 30 days post-discharge claims data, only one 30-day readmission counted, no hospitalization counted as both a readmission and an index admission
Timeframe	In-hospital	Within 30 days	Within 30 days
Level of analysis	Facility	Facility	Facility
Data source	Administrative claims	Administrative claims, other	Administrative claims

In their discussion of measures #0467 and #2026, the Committee agreed that there is value in having two different measures of mortality. However, they encouraged the developers to harmonize the measure exclusions to the extent possible, for measure #2026 to be expanded to patients age 18 years and older, and for measure #0467 to be stratified so that rates for the stroke subtypes can be reported and rates for patients age 65 and older can be reported. In the discussion of measures #2026 and #2027, the Committee did not identify any harmonization issues to be addressed by the developer.

In their post-comment discussion, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they recommended continued and aggressive efforts for harmonization when possible for these measure groups. They also requested an update on progress with harmonization at the time of annual review.

Recommendations for Future Measure Development

During their discussions the Committee identified numerous areas where additional measure development is needed:

- Imaging: ~~acute care,~~ measures that would impact~~s on~~ care (e.g., how fast imaging completed, how fast a reliable interpretation was completed, preliminary revisions to report~~,~~; should capture a time window appropriate to stroke patients, contain guidelines about a minimum imaging study, such as CT vs. MRI in acute care, be comprehensively-worded and accurate ~~time window, revisions to report, CT vs. MRI~~)
- End-of-life care in stroke
- Palliative care (e.g., presence/absence of a palliative care ~~such as~~ consultation ~~received~~ after stroke severity rating)
- Functional status outcome measures (especially functional status outcomes related to stroke severity)
- Better information on exclusions, including exclusions weighted by stroke severity score and a way to validate patients excluded from reporting
- ~~Process and outcome rehabilitation~~ Rehabilitation measures (both process and outcome, including whether patients actually receive rehabilitation services)
- Measures that explore hidden health disparities and/or disabilities and that focus on patients with health disparities and disabilities
- Measures of pre-hospital care and emergency response, including use of stroke scale before hospital arrival and use of protocols by emergency response teams
- Measures of post-acute care and rehabilitation care ~~post hospital care~~ (prescription use at timed intervals after stroke, whether health problems are controlled over time, etc.)
- Transfers between facilities
- Community ~~–~~level m~~M~~easures that capture whether or not a patient received services ordered (such as t-PA and rehabilitation or if/how code protocols exist and if they are followed)
- Hospital-level dysphagia screening measure
- Measures of care separated by stroke vs. TIA; specific measures for the care of TIA
- Screening and diagnosis of atrial fibrillation, including identifying appropriate patients, screening rates, rate of actual detections/under diagnosis rate, and use of types of diagnostic tools used to determine A-Fib
- An outcome measure that is a combined endpoint of death and severe disability (i.e. Rankin Score 4-6), for a patient centered approach that would incorporate a patient's values on quality of life.
- Measures to document patient and family training and education in acute and post-acute settings to reduce disability, burden of care, and primary and secondary prevention.

Measure Evaluation Summary

Measures recommended

Measures where consensus is not yet reached

Measures not recommended

Measures withdrawn from consideration

Measures Recommended

0437 STK 04: Thrombolytic Therapy

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well for whom IV t-PA was initiated at this hospital within 3 hours of time last known well. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Acute ischemic stroke patients for whom IV thrombolytic therapy was initiated at this hospital within 3 hours (less than or equal to 180 minutes) of time last known well.
Denominator Statement: Acute ischemic stroke patients whose time of arrival is within 2 hours (less than or equal to 120 minutes) of time last known well.
Exclusions: • Less than 18 years of age

- Length of Stay > 120 days
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- Time last known well to arrival in the emergency department greater than 2 hours
- Documented reason for not initiating IV thrombolytic

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure meets the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-20; M-2; L-0; I-0**; 1b. Performance Gap: **H-21; M-1; L-0; I-0** 1c. Evidence: **Y-18; N-3**
Rationale:

- Data submitted by the developer reported that each year in the U.S. 795,000 people experience a new or recurrent stroke, and approximately one of every 18 deaths in the U.S. is attributable to stroke; further, stroke is a leading cause of long-term disability.
- Developers provided a summary of a Cochrane review of the evidence surrounding use of t-PA in stroke patients and also noted the AHA/ASA clinical practice guideline supporting use of IV t-PA within three hours of an ischemic stroke. The Committee agreed that this measure is supported by strong evidence.
- The developers noted a 64% performance rate for this measure among participating hospitals. The Committee agreed that this level of performance demonstrates ample opportunity for improvement.

0437 STK 04: Thrombolytic Therapy

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-4; M-17; L-1; I-0** 2b. Validity**: H-13; M-8; L-1; I-0**
<u>Rationale:</u>

- The Committee requested further information from the developers on why patients with a length of stay over 120 days are excluded from the measure. The developer explained that this exclusion is an artifact of the billing cycles used by CMS, and that in practice, it has a negligible impact on the measure.
- The developer noted that the denominator for this measure includes patients who arrive at the hospital within 2 hours of the time last known well, and the numerator includes patients who were given t-PA treatment within 3 hours of the time last known well. This gives the hospital at least 60 minutes to make a determination and begin treatment. They also explained that this measure only examines t-PA administration within the first 3 hours of the time last known well— thus, patients given t-PA in the 3.0-4.5 hour window are not included in this measure.

3. Usability: H-16; M-4; L-2; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- The developer noted that the measure is currently in use, is publicly reported through several venues, and is also used by hundreds of hospitals for quality improvement efforts. The Committee agreed that this measure meets the usability criteria.

4. Feasibility: H-18; M-3; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c. Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- One Committee member asked if the specifications for this measure are identical to the CMS Meaningful Use specifications. Although the developer could not confirm, noting that the Meaningful Use eMeasures have not been tested, they did clarify that hospitals that report on this measure for Meaningful Use can report either electronically or through paper-based methods and therefore no duplicate reporting efforts are required. The Committee agreed this measure meets the feasibility criteria.

5. Related and Competing Measures

- This measure directly competes with #2022 [Stroke and Stroke Rehabilitation: Tissue Plasminogen Activator (t-PA) Initiated]. However #2022 was not recommended as suitable for endorsement by the Committee.

Steering Committee Recommendation for Endorsement: Y-22; **N-0**

0437 STK 04: Thrombolytic Therapy

Public & Member Comment
Comments included:

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.

Committee response:
While SC members recognize that the measure may require a fair amount of data abstraction, they agreed that the measure meets NQF's feasibility criterion and did not change their recommendation.

1952 Time to Intravenous Thrombolytic Therapy

Submission | **Specifications**

1952 Time to Intravenous Thrombolytic Therapy

Status: New Submission
Description: Acute ischemic stroke patients aged 18 years and older receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay and having a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less.
Median time from hospital arrival to administration of intravenous tissue plasminogen activator (tPA) therapy in acute ischemic stroke patients aged 18 years and older.
Numerator Statement: Acute ischemic stroke patients aged 18 years and older receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay and having a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less.
Median time from hospital arrival to administration of intravenous tissue plasminogen activator (tPA) therapy in acute ischemic stroke patients aged 18 years and older.
Denominator Statement: All acute ischemic stroke patients who received intravenous thrombolytic therapy within 4.5 hours of symptom onset.
Included populations: Discharges with an ICD-9-CM Principal Diagnosis Code for Acute Ischemic Stroke.
-Diagnosis for ischemic stroke ICD-9: 433.01, 433.10, 433.11, 433.21, 433.31, 433.81, 433.91, 434.00, 434.01, 434.11, 434.91, 436
-Diagnosis for ischemic stroke ICD-10:I6322, I6529, I63139, I63239, I63019, I63119, I63219, I6359, I6359, I6320, I6609, I6619, I6629, I6330, I6340, I6350, I678.
Exclusions: • Patients less than 18 years of age
• Patient stroke occurred while in hospital
• Patients received in transfer from the inpatient, or outpatient of another facility
• Patients who did not receive thrombolytic therapy within 60 minutes and had a reason for delay documented by a physician/advanced practice nurse/physician assistant as the cause for delay: social, religious, initial refusal, hypertension requiring aggressive control with intravenous medications, inability to confirm patients eligibility, or further diagnostic evaluation to confirm stroke for patients with hypoglycemia (blood glucose < 50); seizures, or major metabolic disorders, or management of concomitant emergent/acute conditions such as cardiopulmonary arrest, respiratory failure requiring intubation), or investigational or experimental protocol for thrombolysis.
• Clinical trial
Adjustment/Stratification: No risk adjustment or risk stratification. Not Applicable. Not Applicable.
Level of Analysis: Facility, Population : National, Population : Regional, Population : State
Type of Measure: Process
Data Source: ~~Administrative claims,~~ Electronic Clinical Data : Registry
Measure Steward: American Heart Association/American Stroke Association **Other organizations:** Not applicable

STEERING COMMITTEE MEETING 06/20-21/2012
Importance to Measure and Report: <u>The measure meets the Importance criteria</u>
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-22; M-0; L-0; I-0** 1b. Performance Gap: **H-21; M-1; L-0; I-0** 1c. Evidence: **Y-21; N-1**
<u>Rationale</u>:

- Data submitted by the developer reported that stroke is the fourth most common cause of death in the United States and the direct and indirect costs are estimated at $34.3 billion.
- Developers summarized results from seven randomized controlled trials, stating that timely administration of t-PA is associated with greater functional recovery and a lower risk of mortality.
- Published data have shown that fewer than one-third of stroke patients who were treated with t-PA had door-to-needle times <= 60 minutes.

1952 Time to Intravenous Thrombolytic Therapy

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-14; M-8; L-0; I-0** 2b. Validity**: H-20; M-2; L-0; I-0**
<u>Rationale:</u>

- The developer clarified that the measure assesses whether those patients who received t-PA were treated within 60 minutes of hospital arrival; however, the developer also noted that the median time to treatment also is reported in order to help facilities recognize where they are in relation to their time-to-treatment goals.
- One Committee member noted that the exclusions to the measure (for delay in t-PA administration) are reasonable.
- The Committee expressed no other questions or concerns about the reliability or validity of the measure.

3. Usability: H-22; M-0; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This is a new measure that is not currently used in public reporting programs. However, it is included in the Get With the Guidelines (GWTG) stoke program and thus may be used by as many as 1,600 hospitals for internal quality improvement efforts.

4. Feasibility: H-16; M-5; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee expressed some concern that this measure may lead to a rush in treatment decisions or unfairly penalize facilities that take more time to more conclusively evaluate patients.
- The Committee also acknowledged that collecting data on time of events can be difficult, but noted that such data are routinely collected by hospitals participating in GWTG.

5. Related and Competing Measures

- No related or competing measures noted.

Steering Committee Recommendation for Endorsement: Y-22; **N-0**

Public & Member Comment:
Comments included**:**

- A comment noted the difficulty in implementing this measure from administrative claims alone. **Developer response:** This measure was mistakenly specified for administrative claims when originally submitted and agrees that it cannot be captured by claims data only. The measure specification document was revised so that the measure is specified for electronic registry data only.

0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two

Submission | Specifications

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic stroke patients who had antithrombotic therapy administered by end of hospital day two (with the day of arrival being day 1). This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-6: Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic stroke patients who had antithrombotic therapy administered by end of hospital day two.
Denominator Statement: Ischemic stroke patients
Exclusions: • Less than 18 years of age

- Duration of Stay < 2 days
- Length of Stay > 120 days
- Comfort measures only documented on the day of or day after hospital arrival
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- IV OR IA thrombolytic therapy administered at this hospital or within 24 hours prior to arrival
- Documented reason for not administering antithrombotic therapy by end of hospital day 2

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure meets the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-22; M-0; L-0; I-0**; 1b. Performance Gap: **H-3; M-8; L-9; I-2** 1c. Evidence: **Y-22; N-0**
Rationale:

- Data submitted by the developer reported that each year in the U.S., 795,000 people experience a new or recurrent stroke, and approximately one of every 18 deaths in the U.S. is attributable to stroke; further, stroke is a leading cause of long-term disability.
- The developers cited summaries of a systematic review of antiplatelet therapy for prevention of death, myocardial infarction, and stroke in high risk patients and a meta-analysis of seven randomized control trials on effects of antithrombotic therapy in acute ischemic stroke patients. They also cited the AHA/ASA guideline recommending oral administration of aspirin within 24-48 hours after stoke onset.
- The Committee noted the high performance for this measure (98%), but agreed that even a relatively small increase in performance would affect a large number of patients.

0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-16; M-6; L-0; I-0** 2b. Validity**: H-16; M-6; L-0; I-0**
<u>Rationale:</u>

- One Committee member requested clarification regarding the definition of the antithrombotic regimen—specifically whether it includes only aspirin therapy. The developer noted that the all FDA-approved or guideline-endorsed antithrombotic agents are listed in a data dictionary for the measure.
- The Committee expressed no concerns regarding the reliability or validity of this measure.

3. Usability: H-19; M-3; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry and is included in the Stage I Meaningful Use EHR incentive program.
- This measure is used by hundreds of primary stroke centers for internal quality improvement efforts.
- This measure has been in use nationally since 2009.

4. Feasibility: H-1 8; M-3; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee expressed no concerns regarding the feasibility of this measure.

0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two

5. Related and Competing Measures

- This measure is related to another TJC measure: measure #0435 [STK 02: Discharged on Antithrombotic Therapy]. The main difference between the measures is that one assesses prescription of antithrombotic therapy at hospital discharge (#0435) while the other assesses administration of antithrombotic therapy by the end of hospital day two (#0438).
    - The Committee suggested that the developer consider developing a composite measure that includes both measures; they noted that such a composite measure would indicate the percentage of patients who receive appropriate care at both time points and that such a measure would likely provide more opportunity for improvement.
    - The Committee asked the developer if they could provide data on the percentage of patients who get antithrombotic therapy at discharge but not on day two and vice-versa.

Developer response: The Joint Commission conducted further data analysis of these measures. Data were collected for the period 4Q2010 to 3Q2011. During this one-year period, data from 39,812 patient records were collected for all stroke (STK) measures. Of these 39,812 cases, 379 were prescribed antithrombotic therapy at discharge but did not receive it by end of hospital day 2, representing approximately 1% of the population. Conversely, 8,281 cases or 21% of the population received antithrombotic therapy by the end of hospital day 2 but were not prescribed antithrombotic therapy at discharge. Based on this analysis, The Joint Commission concludes that greater opportunity for improvement may exist with measure #0435 (STK 02: Discharged on Antithrombotic Therapy); however, the STK core measures are a relatively new measurement option for healthcare organizations to meet performance measure requirements for hospital accreditation purposes. At this time, we have less than two years of stoke measure data in The Joint Commission ORYX core measure database. Therefore, we think it prudent to maintain the current measure constructs for a longer duration to fully assess performance.

Steering Committee Recommendation for Endorsement: Y-19; **N-3**
Rationale

- The Committee agreed that this measure is suitable for endorsement; however, because of the high performance rates for this measure, they discussed whether it should be moved to Reserve Status. The Committee agreed that even a small gap affects a large number of patients; they also expressed concern that this measure would not be included in Meaningful Use applications—and therefore not be routinely collected—if placed on Reserve Status. However, they also acknowledged the burden of data collection and the possibility that the apparent gap is related to documentation error rather than non-performance of the measure. The Committee voted on placing the measure in Reserve Status, but rejected this approach by a margin of 12 to 10. They did, however, encourage the developers to analyze the data to determine whether there are differences in performance rates between types of hospitals (primary stroke centers vs. regular hospitals).

0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0435 STK 02: Discharged on Antithrombotic Therapy

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic stroke patients prescribed antithrombotic therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy,STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge
Denominator Statement: Ischemic stroke patients
Exclusions: • Less than 18 years of age
- Length of Stay > 120 days
- Comfort measures only documented
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- Discharged to another hospital
- Left against medical advice
- Expired
- Discharged to home for hospice care
- Discharged to a health care facility for hospice care
- Documented reason for not prescribing antithrombotic therapy at discharge

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

0435 STK 02: Discharged on Antithrombotic Therapy

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: <u>The measure meets the Importance criteria</u>

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-22; M-0; L-0; I-0**; 1b. Performance Gap: **H-5; M-11; L-5; I-1** 1c. Evidence: **Y-22; N-0**

<u>Rationale</u>:

- Data submitted by the developer reported that each year in the U.S. 795,000 people experience a new or recurrent stroke, and approximately one of every 18 deaths in the U.S. is attributable to stroke; further, stroke is a leading cause of long-term disability.
- The developers provided a summary of a systematic review of antiplatelet therapy for prevention of death, myocardial infarction, and stroke in high risk patients. They also cited several additional trials relevant to antithrombotic therapy for non-cardioembolic stroke. They also cited the AHA/ASA guideline recommending use of antiplatelet agents to risk of recurrent stroke. The Committee expressed no concerns regarding the evidence underlying this measure.
- The Committee noted the overall high rate of performance for this measure (approximately ~~9998~~% among reporting hospitals). Committee members noted disparities in the use of antithrombotic therapies, and the developer clarified that published studies have shown a lower rate of prescription of antithrombotic therapies among minority populations (the focus of this measure).

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>

(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)

2a. Reliability: **H-18 ; M-4; L-0; I-0** 2b. Validity**: H-15; M-7; L-0; I-0**

<u>Rationale:</u>

- The Committee expressed no concerns regarding the reliability or validity of this measure.

3. Usability: H-14; M-8; L-0; I-0

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*

<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry and is included in the Stage I Meaningful Use EHR incentive program.
- The developer reported that this measure is used by more than 900 primary stroke centers for internal quality improvement efforts and is included in the Get With The Guidelines stroke program.
- This measure has been in use nationally since 2009.

4. Feasibility: H-15; M-7; L-0; I-0

(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

<u>Rationale</u>:

- One Committee member again asked if the specifications for this measure are identical to the CMS Meaningful Use specifications. The developer noted that the specifications are intended to be identical but could not confirm this, stating that the Meaningful Use eMeasures have not yet been tested.
- The Committee had no additional questions or concerns about the feasibility of this measure.

0435 STK 02: Discharged on Antithrombotic Therapy

5. Related and Competing Measures

- This measure directly competes with measure #0325 [Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy]. Measure #0325 is an AMA-PCPI clinician-level measure and #0435 is a TJC facility-level measure. Also, measure #0325 includes both TIA and ischemic stroke patients in the denominator while measure #0435 includes only ischemic stroke patients.
    - The Committee was somewhat divided on the issue of inclusion of TIA patients. Some members suggested that AMA-PCPI should remove TIA patients from measure #0325 because of the "squishiness" of that diagnosis, while others argued the importance of keeping these patients in the measure. The Committee also suggested that AMA-PCPI stratify measure #0325 to report rates for stroke and TIA patients separately.
      AMA-PCPI response: The Stroke and Stroke Rehabilitation measures were developed in conjunction with the -American Academy of Neurology (AAN), American College of Radiology (ACR), and National Committee for Quality Assurance (NCQA). As the measures were developed, and recently updated, a sincere effort was made to ensure harmonization with The Joint Commission (TJC) Stroke measures. Our clinical expert panel evaluated the TJC measures and made several edits to the original PCPI measures in order to achieve harmonization amongst the data elements. As the measures have recently been updated and were approved by the PCPI membership in June of this year, we are unable to make updates/revisions to the measures at this time. However, we appreciate the committee's feedback and will certainly work towards further harmonization when the measures undergo their next periodic review.

      We would like to clarify that the data elements of -measure #0325 is currently presented so that measure results can be stratified. Additionally, the inclusion of TIA patients is supported by the evidence base, including clinical practice guidelines and performance gap data.

    - The Committee also expressed a strong desire for a measure that could be used at both the clinician and the facility level, although they acknowledged that this is not yet possible because neither developer collects all of the data necessary.
    - The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to have only one measure that can be used for both clinician- and facility-level analysis.
      Joint Commission response: While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

      AMA-PCPI response: With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility

level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

- This measure is also related to another TJC measure: measure #0438 [STK 05: Antithrombotic Therapy By End of Hospital Day Two]. The main difference between the measures is that one assesses prescription of antithrombotic therapy at hospital discharge (#0435) while the other assesses administration of antithrombotic therapy by the end of hospital day two (#0438).
  - The Committee suggested that the developer consider developing a composite measure that includes both measures; they noted that such a composite measure would indicate the percentage of patients who receive appropriate care at both time points and that such a measure would likely provide more opportunity for improvement.
  - The Committee asked the developer if they could provide data on the percentage of patients who get antithrombotic therapy at discharge but not on day two and vice-versa.

Joint Commission response: The Joint Commission conducted further data analysis of these measures. Data were collected for the period 4Q2010 to 3Q2011. During this one-year period, data from 39,812 patient records were collected for all stroke (STK) measures. Of these 39,812 cases, 379 were prescribed antithrombotic therapy at discharge but did not receive it by end of hospital day 2, representing approximately 1% of the population. Conversely, 8,281 cases or 21% of the population received antithrombotic therapy by the end of hospital day 2 but were not prescribed antithrombotic therapy at discharge. Based on this analysis, The Joint Commission concludes that greater opportunity for improvement may exist with measure #0435 (STK 02: Discharged on Antithrombotic Therapy); however, the STK core measures are a relatively new measurement option for healthcare organizations to meet performance measure requirements for hospital accreditation purposes. At this time, we have less than two years of stoke measure data in The Joint Commission ORYX core measure database. Therefore, we think it prudent to maintain the current measure constructs for a longer duration to fully assess performance.

Steering Committee Recommendation for Endorsement: Y-21; N-1

0435 STK 02: Discharged on Antithrombotic Therapy

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy

Submission | **Specifications**

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) who were prescribed antithrombotic therapy at discharge
Numerator Statement: Patients who were prescribed antithrombotic therapy at discharge
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA)
Exclusions: All patient that expired during inpatient stay are excluded.
Documentation of medical reason(s) for not prescribing antithrombotic therapy at discharge (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s))
Documentation of patient reason(s) for not prescribing antithrombotic therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure meets the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-22; M-0; L-0; I-0**; 1b. Performance Gap: **H-13; M-6; L-0; I-3** 1c. Evidence: **Y-19; N-3**

Rationale:

- Data submitted by the developer reported that an estimated 7,000,000 Americans have had a stroke and that stroke is the leading cause of serious long-term disability in the U.S.
- The Committee noted that the evidence presented for this measure reflects the effectiveness of antithrombotic therapy in the prevention of subsequent vascular events. They expressed no additional questions or concerns about the evidence for the measure.
- The Committee noted this measure differs from similar measures because it includes TIA patients in addition to ischemic stroke patients.
- The Committee noted that the performance gap for this measure is much lower than that reported under measure #0435 (the similar facility-level measure) and asked the developer to explain the difference. The developer noted that the 83% performance rate for 2010 is derived from PQRS data (which are reported by only 24% of eligible professionals). The Committee also questioned whether the lower performance rate is due to the inclusion of TIA patients in the measure; however, the developer was unable to confirm or deny this hypothesis.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy

(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-11; M-11; L-0; I-0** 2b. Validity**: H-9; M-7; L-6; I-0**
Rationale:

- One Committee member questioned whether this measure is used in the rehab setting (because of the title). The developer clarified that this measure applies only to the inpatient hospital setting.
- The Committee agreed that the data element reliability testing demonstrated adequate reliability of the measure.
- One Committee member acknowledged that the validity of the diagnosis of TIA is problematic, and also noted that billers may often inappropriately code TIA as the primary diagnosis (as there is a financial incentive to do so). However, this member argued the importance of measuring TIA. Another member agreed, suggesting that hospitals inappropriately billing for TIA could be identified when they score lower on this measure. However, another member noted that this is a clinician-level measure and therefore would not identify hospital billing practice errors.
- Another member suggested that developers construct separate measures for TIA and ischemic stroke patients. The developer noted their effort to include as broad a patient population as possible, per NQF's desire for measures with broad applicability across patient populations. Committee members then suggested that the developers report separate rates for TIA and ischemic stroke patients.

3. Usability: H-12; M-8; L-2; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
Rationale:

- This measure has been used in the PQRS program since 2007.
- The developer reported that this measure is reported through the Get With the Guidelines program and the CDC Paul Coverdell National Acute Stroke Registry.

4. Feasibility: H-15; M-7; L-0; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The Committee agreed that this measure can be implemented electronically and expressed no additional questions or concerns about feasibility.

5. Related and Competing Measures

- This measure directly competes with measure #0435 [STK 02: Discharged on Antithrombotic Therapy]. Measure #0325 is a clinician-level measure while #0435 is a TJC facility-level measure. Also, measure #0325 includes both TIA and ischemic stroke patients in the denominator while measure #0435 includes only ischemic stroke patients.
  - The Committee was somewhat divided on the issue of inclusion of TIA patients. Some members suggested that AMA-PCPI should remove TIA patients from the measure #0325 because of the "squishiness" of that diagnosis, while others argued the importance of keeping these patients in the measure. The Committee also suggested that AMA-PCPI stratify measure #0325 to report rates for stroke and TIA patients separately.
    AMA-PCPI response: The Stroke and Stroke Rehabilitation measures were developed in conjunction

with the American Academy of Neurology (AAN), American College of Radiology (ACR), and National Committee for Quality Assurance (NCQA). As the measures were developed, and recently updated, a sincere effort was made to ensure harmonization with The Joint Commission (TJC) Stroke measures. Our clinical expert panel evaluated the TJC measures and made several edits to the original PCPI measures in order to achieve harmonization amongst the data elements. As the measures have recently been updated and were approved by the PCPI membership in June of this year, we are unable to make updates/revisions to the measures at this time. However, we appreciate the committee's feedback and will certainly work towards further harmonization when the measures undergo their next periodic review.

We would like to clarify that the data elements of measure #0325 is currently presented so that measure results can be stratified. Additionally, the inclusion of TIA patients is supported by the evidence base, including clinical practice guidelines and performance gap data.

- The Committee also expressed a strong desire for a measure that could be used at both the clinician and the facility level, although they acknowledged that this is not yet possible because neither developer collects all of the data necessary.
- The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to have only one measure that can be used for both clinician- and facility-level analysis.
  Joint Commission response: While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

  AMA-PCPI response: With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

  Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy

Steering Committee Recommendation for Endorsement: Y-20; N-2

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: In a prospective administrative claims program, this code is reported ('attested') by the physician who performed the numerator action on the claim. If the physician does not report the designated Quality Data Codes or CPT codes on a claim, the information will not be available.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0439 STK-06: Discharged on Statin Medication

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic stroke patients with LDL greater than or equal to 100 mg/dL, or LDL not measured, or who were on a lipid-lowering medication prior to hospital arrival who are prescribed statin medication at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic stroke patients prescribed statin medication at hospital discharge
Denominator Statement: Ischemic stroke patients with an LDL greater than or equal to 100 mg/dL, OR LDL not measured, OR who were on a lipid-lowering medication prior to hospital arrival.
Exclusions: • Less than 18 years of age
- Length of Stay > 120 days
- Comfort measures only documented
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- Discharged to another hospital
- Left against medical advice
- Expired
- Discharged to home for hospice care
- Discharged to a health care facility for hospice care
- Documented reason for not prescribing statin medication at discharge

Adjustment/Stratification: No risk adjustment or risk stratification Not applicable. Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

0439 STK-06: Discharged on Statin Medication

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: <u>The measure meets the Importance criteria</u>

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-19; M-1; L-1; I-0**; 1b. Performance Gap: **H-10; M-10; L-2; I-0** 1c. Evidence: **Y-19; N-2**

<u>Rationale</u>:

- Data submitted by the developer reported that each year in the U.S. 795,000 people experience a new or recurrent stroke; that approximately one of every 18 deaths in the U.S. is attributable to stroke; that stroke is a leading cause of long-term disability; and that statin therapy reduces risk of stroke.
- The developers summarized several studies and systematic reviews regarding the use of statins for prevention of cardiovascular disease. They also cited the AHA/ASA guideline recommending use of statin therapy among stroke and TIA patients with evidence of atherosclerosis and high LDL levels.
- The Committee noted that while performance is high for this measure (approximately 92%), there are disparities in performance for minority populations.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>

(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)

2a. Reliability: **H-19; M-3; L-0; I-0** 2b. Validity**: H-12; M-9; L-1; I-0**

<u>Rationale:</u>

- The developer clarified that patients with a documented reason for non-indication of statins (e.g., atrial fibrillation) are excluded from the measure. The Committee expressed no other questions or concerns about the reliability and validity of the measure.

3. Usability: H-21; M-1; L-0; I-0

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*

<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry and is included in the Stage I Meaningful Use EHR incentive program.
- The developer reported that this measure is used by more than 900 of primary stroke centers for internal quality improvement efforts and is included in the Get With The Guidelines stroke program.
- This measure has been in use nationally since 2009.

4. Feasibility: H-20; M-1; L-1; I-0

(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee expressed no concerns regarding the feasibility of this measure.

5. Related and Competing Measures

- No related or competing measures noted.

Steering Committee Recommendation for Endorsement: Y-21; **N-1**

0439 STK-06: Discharged on Statin Medication

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.
- A comment recommended d "changing the measure to discharge on Statin or other Lipid Lowering medication. Since many patients cannot tolerate statins, other lipid lowering medications are often prescribed. This new title will be more inclusive."

  Developer response: Although the measure was originally configured as "STK-6: Discharged on Cholesterol-Reducing Medication", in May 2008, a Science Advisory from the American Heart Association/American Stroke Association specifically recommended statin medications to reduce the risk of stroke and cardiovascular events among patients with ischemic stroke who have evidence of atherosclerosis, and LDL-c level > 100 mg/dL, and who are without known coronary heart disease. Therefore, the measure was modified to conform with the most current evidence, and NQF-endorsed as STK-6: Discharged on Statin Medication.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis

Submission | Specifications

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission.
Denominator Statement: Ischemic or hemorrhagic stroke patients
Exclusions: • Less than 18 years of age
- Length of Stay < 2 days
- Length of Stay > 120 days
- Comfort measures only documented on day of or day after hospital arrival
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure meets the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-17; M-5; L-0; I-0**; 1b. Performance Gap: **H-11; M-9; L-2; I-0** 1c. Evidence: **Y-15; N-7**
Rationale:

- Data submitted by the developer reported that each year, approximately 795,000 people experience a new or recurrent stroke, that increased stroke severity and immobilization increase the risk of developing VTE, that pulmonary embolism may be detected in approximately 1% of patients who have had a stroke, and accounts for approximately 10% of deaths after stroke.
- One Committee member questioned why—given that graduated compression stockings have not been shown to reduce VTE risk or death in the first seven days post-stroke—the measure isn't limited to chemoprophylaxis. The developer clarified that although graduated compression stockings (i.e., TED hose) are not sufficient for VTE prophylaxis, other mechanical devices such as pneumatic or sequential compression devices are considered appropriate for patients who are not eligible for chemoprophylaxis (although the developer acknowledged that the evidence for mechanical devices is not as strong).
- The Committee agreed that the average performance rate of 88% provides an opportunity for

improvement. They suggested, however, that performance rates be reported by pharmacological vs. mechanical treatment, and for ischemic vs. hemorrhagic stroke patients.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-14; M-8; L-0; I-0** 2b. Validity**: H-5; M-16; L-1; I-0**
<u>Rationale:</u>

- The Committee questioned why both mechanical and pharmacological responses are included in the measure. The developer explained that they wanted to construct a measure that would assess provision of appropriate therapy in all patients, and noted that pharmacological treatments are contraindicated for hemorrhagic stroke patients in the first several days post-stroke.
- One Committee member questioned why the measure allows for an exclusion due to patient refusal. Other members noted that patients may refuse mechanical devices because they are uncomfortable.
- Committee members noted that the numerator includes patients given prophylaxis as well as those with documentation that no prophylaxis was given. However, one workgroup member noted that this measure, as specified, would give the percentage of patients who were treated appropriately, regardless of whether they actually received the prophylaxis or whether they were appropriately deemed not to require prophylaxis.

3. Usability: H-15; M-7; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry. It has also been proposed for inclusion in Stage 2 of the Meaningful Use EHR incentive program.
- The developer reported that this measure is used by more than 900 primary stroke centers for internal quality improvement efforts and is included in the Get With The Guidelines stroke program.
- This measure has been in use nationally since 2009.

4. Feasibility: H-9; M-12; L-0; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee noted that this measure requires a fair amount of abstraction, but expressed no other concerns regarding feasibility.

0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis

5. Related and Competing Measures

- This measure directly competes with measure #0240 [Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage]. Measure #0240 is an AMA-PCPI measure. The main difference between the measures is that one is a clinician-level measure while the other is a facility-level measure.
  - The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to develop one measure that can be used for both clinician- and facility-level analysis.
    Joint Commission response: While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

    AMA-PCPI response: With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

    Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.
- Measure #0371 [Venous Thromboembolism Prophylaxis], a TJC measure that was not evaluated in this current project, was identified by NQF staff as a complementary measure that is basically the same as measure #0434 but excludes the stroke population.

Steering Committee Recommendation for Endorsement: Y-21; N-1

0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage

Submission | **Specifications**

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who were administered DVT prophylaxis by the end of hospital day two
Numerator Statement: Patients who were administrated Deep Vein Thrombosis (DVT) prophylaxis by the end of hospital day two
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage
Exclusions: All patients that expired during inpatient stay are excluded.
Documentation of medical reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s))
Documentation of patient reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure meets the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-7; M-11; L-3; I-1**; 1b. Performance Gap: **H-14; M-8; L-0; I-0** 1c. Evidence: **Y-17; N-5**
Rationale:

- Data submitted by the developer reported that pulmonary embolism may be detected in approximately 1% of patients with stroke and accounts for approximately 10% of deaths after stroke. However, the Committee questioned whether excluding patients who die during their hospital stay (as in done in this measure) would affect the impact of the measure. Although the developer stated that patients who die are excluded as a methodological decision to make sure they have a more clear-cut denominator that would exclude the most severely ill patients, one Committee member suggested only excluding those who die by day 2 of the stay (which is in line with the timing for the measure focus).
- The Committee noted similar issues with evidence as discussed in measure #0434, (i.e., the measure allows for either pharmacological or mechanical prophylaxis**,** but the evidence for mechanical prophylaxis is less strong).
- The developer reported that the average performance rate for this measure (per the 2010 PQRS data) was 78.6%. The Committee agreed that these data demonstrate opportunity for improvement.

0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-9; M-13; L-0; I-0** 2b. Validity**: H-5; M-16; L-1; I-0**
<u>Rationale:</u>

- The Committee voiced no significant concerns about the reliability and validity of this measure, although they did note that, unlike measure #0434, this measure does not exclude patients admitted for elective surgical procedures (e.g., carotid intervention).

3. Usability: H-15; M-7; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure has been used in the PQRS program since 2007.
- The developer reported that this measure is reported through the Get With the Guidelines program and the CDC Paul Coverdell National Acute Stroke Registry.

4. Feasibility: H-12; M-10; L-0; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- Although the Committee noted that this measure also has the same data-abstraction issues as prior measures, they still agreed the measure meets the feasibility criteria.

0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage

5. Related and Competing Measures

- This measure directly competes with measure #0434 [STK-01: Venous Thromboembolism (VTE) Prophylaxis]. Measure #0434 is a TJC measure. The main difference between the measures is that one is a clinician-level measure (#0240) while the other is a facility-level measure (#0434).
  - The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to develop one measure that can be used for both clinician- and facility-level analysis.
    Joint Commission response: While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

    AMA-PCPI response: With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

    Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

- This measure is also related to measure #0239 [Venous Thromboembolism (VTE) Prophylaxis]. Measure #0239—which was not evaluated in this current project—assesses VTE prophylaxis among surgical patients. However, because these measures target different populations, the Committee will not consider harmonization issues further.

Steering Committee Recommendation for Endorsement: Y-21; N-1
Rationale

- The Committee noted a preference for the term "VTE" to the term "DVT" because the treatment is intended to prevent both DVT and pulmonary embolism.

0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: In a prospective administrative claims program, this code is reported ('attested') by the physician who performed the numerator action on the claim. If the physician does not report the designated Quality Data Codes or CPT codes on a claim, the information will not be available.
- A comment agreed with the Committee recommendation to replace "DVT" with "VTE".
  Developer response: The clinical expert workgroup did not feel that indicating which DVT therapies was necessary for which population subsets in the measure language. It was determined that this level of detail will be captured in the eSpecifications, which are under development. The measure title and numerator language are not able to be updated at this time, as it is important to maintain consistency in the way the measure is documented and is being reported in national programs (ie, PQRS 2013). However, the measure title and numerator language will be updated, as requested, in the future, for subsequent years, when measure updates are submitted for all measures in use in national programs.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic stroke patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic stroke patients prescribed anticoagulation therapy at hospital discharge
Denominator Statement: Ischemic stroke patients with with documented atrial fibrillation/flutter.
Exclusions: • Less than 18 years of age

- Length of Stay > 120 days
- Comfort measures only documented
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- Discharged to another hospital
- Left against medical advice
- Expired
- Discharged to home for hospice care
- Discharged to a health care facility for hospice care
- Documented reason for not prescribing anticoagulation therapy at discharge

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: <u>The measure meets the Importance criteria</u>
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-21; M-1; L-0; I-0**; 1b. Performance Gap: **H-8; M-12; L-2; I-0** 1c. Evidence: **Y-21; N-1**
<u>Rationale</u>:

- Data submitted by the developer reported that approximately 20% of ischemic strokes result from a cerebral embolism secondary to a cardiac arrhythmia or disorder.
- The Committee noted that the medical evidence to support anticoagulation therapy is not controversial; however, there are some questions around the evidence for the timing of anticoagulant therapy.
- The Committee noted that although the average performance rate for this measure is approximately 94%, there is evidence of a performance gap for minority populations.

0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-4; M-16; L-2; I-0** 2b. Validity**: H-8; M-13; L-1; I-0**
<u>Rationale:</u>

- The Committee voiced some concern that the measure submission did not specify the agents that could be used to meet the measure.
- One Committee member noted that atrial fibrillation is under-diagnosed, and therefore this measure could potentially miss many patients who should be treated. The developer clarified that the measure includes any patient for whom atrial fibrillation is documented during the hospital stay or for whom there is any documentation of past history of A-fib or flutter.
- The Committee expressed concern about the relatively low rate of agreement (85%) for the numerator data element reliability testing. The developer explained that some of the newer anticoagulants were not on the abstractors' lists when the reliability testing was done and this likely contributed to the lower rats of agreement between the raters.

3. Usability: H-13; M-8; L-1; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry and is included in Stage 1 of the Meaningful Use EHR incentive program.
- The developer reported that this measure is used by more than 900 primary stroke centers for internal quality improvement efforts and is included in the Get With The Guidelines stroke program.
- This measure has been in use nationally since 2009.

4. Feasibility: H-13; M-9; L-0; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee again noted the problem of the under diagnosis of atrial fibrillation, but did agree the measure meets the feasibility criterion.

5. Related and Competing Measures

- This measure directly competes with #0241 [Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge]. The main differences between this measure and AMA-PCPI's #0241 measure is the inclusion of TIA patients in the denominator of #0241, the inclusion of A-flutter in the denominator of #0436, and the fact that #0241 is a clinician-level measure while #0436 is a facility-level measure.
    - The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to develop one harmonized measure that can be used for both clinician- and facility-level analysis. ***Joint Commission response***: As noted in The Joint Commission's measure submission materials, these measures were originally specified to include TIA patients. However, reliability testing of these measures during the pilot test revealed that this data element could not be reliably collected, principally due to the fact that there is not a "clean" ICD-9-CM code for TIA. As a result, this data element was removed from the populations of the Joint Commission's measures. This should not be

construed to mean that The Joint Commission does not feel that TIA patients should treated appropriately, merely that this cohort cannot be collected reliably.

With regard to the inclusion of atrial flutter (AFL) in Joint Commission measures, AFL affects 88 out of 10,000 new patients each year, making it the second most commonly diagnosed arrhythmia after atrial fibrillation. Both conditions are types of supraventricular arrhythmias distinguished by rate. Similar to atrial fibrillation, the atria beat very rapidly. If left untreated, the side effects of AFL can be potentially life-threatening. AFL makes it harder for the heart to pump blood effectively. With the blood moving more slowly, it is more likely to form clots. If the clot is pumped out of the heart, it could lead to a stroke or heart attack. Treatment is essentially the same as for atrial fibrillation and includes anticoagulation therapy. (Heart Rhythm Society of America). The AHA/ACC guidelines suggest that a flutter most often occurs in the setting of atrial fibrillation and so should be treated as a marker of AFib. Atrial flutter may degenerate into atrial fibrillation, and atrial fibrillation may convert to atrial flutter. Atrial flutter is usually readily distinguished from atrial fibrillation, but misdiagnosis may occur when fibrillatory atrial activity is prominent in more than one ECG lead (AHA/ACC/ESC 2006 Guidelines for the Management of Patients With Atrial Fibrillation, p 710-711). For prevention of stroke, therapy is recommended for patients with atrial flutter as for those with AFib. *(Class 1, Level of Evidence: C* Fuster et al ACC/AHA/ESC Practice Guidelines *e287*)

While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

AMA-PCPI response: The clinical expert panel did not include Atrial Flutter in the patient population for measure #0241, due to the evidence. The Stroke and Stroke Rehabilitation measures, like all other measures developed by the AMA PCPI were created based on support from evidence based guidelines. While the 2006 guideline from the American College of Cardiology/American Heart Association/European Society of Cardiology does recommend antithrombotic therapy for atrial flutter patients, this recommendation is graded as a level **Class I, Level C**, which is not as strong as the evidence which supports the recommendation for antithrombotic therapy for patients with atrial fibrillation, which is graded as **Class I, Level A**. Therefore, the clinical expert panel decided to include the population that is supported by the strongest evidence and limit the measure to patients with Atrial Fibrillation only.

With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we

certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

Steering Committee Recommendation for Endorsement: Y-22; N-0

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge

Submission | **Specifications**

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation who were prescribed an anticoagulant at discharge.
Numerator Statement: Patients who were prescribed an anticoagulant at discharge
Discharge refers to discharge from the acute care setting, whether patient received care in the emergency department or as an inpatient or a rehabilitation facility.
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation
Exclusions: All patients that expired during inpatient stay are excluded.
Documentation of medical reason(s) for not prescribing anticoagulant therapy at discharge (eg, other medical reason(s))
Documentation of patient reason(s) for not prescribing anticoagulant therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Adjustment/Stratification: No risk adjustment or risk stratification No risk adjustment or stratitification We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: <u>The measure meets the Importance criteria</u>
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-20; M-1; L-0; I-0**; 1b. Performance Gap: **H-17; M-5; L-0; I-0** 1c. Evidence: **Y-20; N-2**
<u>Rationale</u>:

- Data submitted by the developer reported that A-Fib is associated with an increased long-term risk of stroke, heart failure, and all-cause mortality, especially in women.
- The Committee largely agreed that there was strong evidence underlying this measure; however, they did note that the evidence was not entirely clear regarding intermediate-risk patients (e.g., those who had a stroke but did not have other risk factors that would require obvious use of anticoagulants, particularly if those patients had had a TIA).
- The Committee agreed that the average performance rate of 79% in 2010 demonstrated opportunity for improvement and also noted disparities in the performance rate, particularly among minority populations.

0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-7; M-15; L-0; I-0** 2b. Validity**: H-5; M-14; L-3; I-0**
<u>Rationale:</u>

- The Committee noted some concern that the definition of atrial fibrillation was not as specific as it perhaps should be (i.e., some patients have very brief episodes of A-fib).
- Committee members also noted that atrial flutter is not included as part of the measure numerator and that TIA patients are included in the denominator.
- Committee members were confused about which care setting this measure applies to, noting that the numerator specifications imply care could be provided in a rehabilitation facility. The developer clarified that the setting for the measure is an acute care hospital and does not include rehabilitation facilities. The Committee noted this measure has a high percentage of exceptions for medical- or patient-based reasons, which may affect the validity of the measure. They expressed some concern that the construct of the measure may allow physicians too much latitude in documenting exceptions to the measure (for example, is it really appropriate to exempt those patients who go on to rehab because of a fear that they may fall?).
- The Committee questioned whether this measure uses physician or hospital billing codes and noted that physician billing may not always contain complete diagnosis information (e.g., diagnosis of A-fib in a stroke patient). The Committee encouraged the developer to consider comparing the data submitted by a physician to that submitted by the hospital.

3. Usability: H-14; M-8; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure has been used in the PQRS program since 2007.
- The developer reported that this measure is reported through the Get With the Guidelines program and the CDC Paul Coverdell National Acute Stroke Registry.
- Although the Committee reiterated the opinion that the measure could incorporate absolute contraindications to anticoagulation rather than relying on physician-reported exceptions to the measure, they voiced no other concerns related to the usability of the measure.

4. Feasibility: H-1; M-18; L-2; I-1
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee noted a concern regarding the burden of data collection because physicians are submitting, in general, the same data that hospitals are submitting for this measure.

5. Related and Competing Measures

- This measure directly competes with #1525 [Chronic anticoagulation therapy]. Measure #1525 is a TJC measure that was not evaluated in this project. They are considered competing because both address prescription of anticoagulant therapy among A-fib patients. The main differences between the measures

include the inclusion of TIA patients in the denominator for measure #0241 and the inclusion of atrial flutter patients in the denominator of measure #1525; further, measure #1525 includes all A-fib/flutter patients while measure #0241 includes only A-fib patients with stroke.

- The Committee noted that both measures are needed because one is hospital-based (#0241) and one is office-based (#1525), making them fundamentally different and therefore inappropriate to combine.

- This measure is also considered to be competing with #0436 [STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter]. The main differences between this measure and TJC's #0436 measure is the inclusion of TIA patients in the denominator of #0241, the inclusion of A-flutter in the denominator of #0436, and the fact that #0241 is a clinician-level measure while #0436 is a facility-level measure.
  - The Committee has requested that TJC and AMA-PCPI to respond regarding any future opportunities to develop one harmonized measure that can be used for both clinician- and facility-level analysis. ***Joint Commission response***: As noted in The Joint Commission's measure submission materials, these measures were originally specified to include TIA patients. However, reliability testing of these measures during the pilot test revealed that this data element could not be reliably collected, principally due to the fact that there is not a "clean" ICD-9-CM code for TIA. As a result, this data element was removed from the populations of the Joint Commission's measures. This should not be construed to mean that The Joint Commission does not feel that TIA patients should treated appropriately, merely that this cohort cannot be collected reliably.

    With regard to the inclusion of atrial flutter (AFL) in Joint Commission measures, AFL affects 88 out of 10,000 new patients each year, making it the second most commonly diagnosed arrhythmia after atrial fibrillation. Both conditions are types of supraventricular arrhythmias distinguished by rate. Similar to atrial fibrillation, the atria beat very rapidly. If left untreated, the side effects of AFL can be potentially life-threatening. AFL makes it harder for the heart to pump blood effectively. With the blood moving more slowly, it is more likely to form clots. If the clot is pumped out of the heart, it could lead to a stroke or heart attack. Treatment is essentially the same as for atrial fibrillation and includes anticoagulation therapy. (Heart Rhythm Society of America). The AHA/ACC guidelines suggest that a flutter most often occurs in the setting of atrial fibrillation and so should be treated as a marker of AFib. Atrial flutter may degenerate into atrial fibrillation, and atrial fibrillation may convert to atrial flutter. Atrial flutter is usually readily distinguished from atrial fibrillation, but misdiagnosis may occur when fibrillatory atrial activity is prominent in more than one ECG lead (AHA/ACC/ESC 2006 Guidelines for the Management of Patients With Atrial Fibrillation, p 710-711). For prevention of stroke, therapy is recommended for patients with atrial flutter as for those with AFib. *(Class 1, Level of Evidence: C* Fuster et al ACC/AHA/ESC Practice Guidelines *e287*)

    While The Joint Commission appreciates the Steering Committee's desire for measures that can be used at both the provider and facility levels, we feel that development of such a measure is not in The Joint Commission's best business interest at this time. The Joint Commission develops performance measures for the purpose of informing the hospital accreditation process. Incorporation of provider components into these facility-level measures would not only not serve that purpose, but would also introduce needless complexity into the measures. The Joint Commission does work closely with the AMA-PCI, and we strive whenever possible to ensure harmonization of measure concepts and specifications for related measures, which was done with these measures.

0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge

AMA-PCPI response: The clinical expert panel did not include Atrial Flutter in the patient population for measure #0241, due to the evidence. The Stroke and Stroke Rehabilitation measures, like all other measures developed by the AMA PCPI were created based on support from evidence based guidelines. While the 2006 guideline from the American College of Cardiology/American Heart Association/European Society of Cardiology does recommend antithrombotic therapy for atrial flutter patients, this recommendation is graded as a level **Class I, Level C**, which is not as strong as the evidence which supports the recommendation for antithrombotic therapy for patients with atrial fibrillation, which is graded as **Class I, Level A**. Therefore, the clinical expert panel decided to include the population that is supported by the strongest evidence and limit the measure to patients with Atrial Fibrillation only.

With regards to the Steering Committee's suggestion to add a physician/clinical level indicator to several of the TJC measures so data can be collected on the physician and facility levels within a single measure, TJC and AMA PCPI staff agree that this is not a feasible option at this time. After a discussion with TJC staff, we have concluded that, although measurement for multiple levels of accountability may be achievable with a combined measure, such a change would be disruptive to the current use of physician level and facility level measures in separate government programs such as PQRS, Meaningful Use, etc. Therefore, to avoid limiting physician and facility reporting options and participation in these programs and related quality improvement efforts, we recommend against attempting to combine the physician and facility level measures at this time. However, we certainly look forward to working with the TJC when the Stroke measures are scheduled for review and enhancement, to consider how we may be able to use combined measures to achieve accountability at multiple reporting levels without jeopardizing the inclusion of the measures in different national programs.

Committee response: In response to a comment concerning harmonization for another group of measures, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

Steering Committee Recommendation for Endorsement: Y-21; N-1

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: In a prospective administrative claims program, this code is reported ('attested') by the physician who performed the numerator action on the claim. If the physician does not report the designated Quality Data Codes or CPT codes on a claim, the information will not be available.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia

Submission | **Specifications**

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who receive any food, fluids or medication by mouth (PO) for whom a dysphagia screening was performed prior to PO intake in accordance with a dysphagia screening tool approved by the institution in which the patient is receiving care
Numerator Statement: Patients for whom a dysphagia screening was performed prior to PO intake in accordance with a dysphagia screening tool approved by the institution in which the patient is receiving care
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who receive any food, fluids or medication by mouth (PO)
Exclusions: All patients that expired during inpatient stay are excluded
Exceptions:
Documentation of medical reason(s) for not performing a dysphagia screening prior to taking any foods, fluids or medication by mouth (eg, patient without any focal findings and not thought to be having a stroke when initially evaluated, other medical reason(s))
Documentation of patient reason(s) for performing a dysphagia screening prior to taking any foods, fluids or medication by mouth (eg, patient left against medical advice, other patient reason(s))
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure meets the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-20; M-1; L-0; I-0**; 1b. Performance Gap: **H-19; M-3; L-0; I-0** 1c. Evidence: **Y-20; N-2**

Rationale:

- The Committee agreed that aspiration from dysphagia is a major problem in stroke patients and contributes substantially to morbidity (e.g., pneumonias) and even mortality.
- To demonstrate opportunity for improvement, the developer cited a published paper that reported the range of screening rates for dysphagia among stroke patients to be between 19% and 81%. They also provided rates for this measure from three years of PQRS data (distributional statistics for 2008, and means from 2009-2010, with average performance rates of 32%, 77%, and 84% for the three years).
- The Committee noted that although the body of evidence underlying this measure does not include many randomized controlled studies, it does include many studies that consistently support the measure focus.

0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-15; M-7; L-0; I-X0** 2b. Validity**: H-6; M-14; L-2; I-0**
<u>Rationale:</u>

- The Committee noted that several options for screening can be counted for this measure, including video fluoroscopic swallow evaluation, fiber optic evaluation, a modified barium swallow, or a structured bedside evaluation, among others.
- The Committee agreed that the kappa statistics from the inter-rater reliability testing demonstrated measure reliability.
- The Committee noted that patients who die of aspiration would be excluded from the measure, but agreed that this would be unlikely to substantially influence the measure.
- One Committee member inquired why this measure is considered a screening for dysphagia rather than detection for dysphagia, given that fluoroscopic swallow evaluation goes beyond simple screening; this member also suggested changing the name of the measure from "screening for dysphagia" to "dysphagia assessment." The developer noted that while the minimum standard for meeting the measure is a screen, some hospitals do more than simple screening and these activities also would count towards meeting the measure. Another member, however, noted that there is actually a substantial difference between screening and detection. The developer agreed that there is confusion around definitions of dysphagia screening versus more formal dysphagia detection methods (e.g., bedside swallow), but noted that the measure is constructed to allow any screening tool that is approved by a hospital's speech pathology/language services group.
- Another Committee member questioned whether the inappropriate delay of feeding by mouth would be an unintended consequence of the measure.
- The Committee noted that the face validity assessment results were less strong for this measure than for other measures submitted by this developer.

3. Usability: H-17; M-5; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure has been used in the CMS PQRS system since 2007 and also is used in several national quality improvement programs.

4. Feasibility: H-14; M-7; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee agreed that this measure is fairly easy to use and report on. However, they wanted more information about why a similar facility-level measure had not been granted NQF endorsement in a prior evaluation. The Committee co-chair recalled that, as originally constructed, that non-endorsed measure restricted performance of the measure to a physician or speech/language pathologist, which was determined to be impractical on weekends or evenings.

0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia

5. Related and Competing Measures

- No related or competing measures noted.

Steering Committee Recommendation for Endorsement: Y-21; N-1

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: In a prospective administrative claims program, this code is reported ('attested') by the physician who performed the numerator action on the claim. If the physician does not report the designated Quality Data Codes or CPT codes on a claim, the information will not be available.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation.

0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered

Submission | **Specifications**

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge
Numerator Statement: Patients for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage
Exclusions: None
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure meets the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-13; M-9; L-0; I-0**; 1b. Performance Gap: **H-11; M-9; L-1; I-1** 1c. Evidence: **Y-20; N-2**
Rationale:

- Data submitted by the developer reported that stoke is the leading cause of serious long-term disability in the U.S., that 15-30% of stroke patients are permanently disabled, and that 20% of stroke patients require institutional care at three months post-stroke.
- The developer summarized findings from two systematic reviews and also cited the support of a clinical practice guideline.
- The average performance rate for this measure (per 2010 PQRS data) is 70%. However, the Committee noted that many stroke survivors do not get rehab, although it is unclear whether they do not get it because they were not assessed for it or because it was not ordered.

0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-16; M-6; L-0; I-0** 2b. Validity**: H-13; M-9; L-0; I-0**
<u>Rationale:</u>

- One Committee member questioned whether this measure could be met even if a patient had not been assessed for rehab. Another member agreed that institutions may utilize rehab order sets for all stroke patients regardless of type of stroke or need. The developer stated that the intent of the measure is that rehab services only be ordered once a physician had determined what is appropriate for the patient.
- The Committee did not express any additional questions or concerns about the reliability or validity of the measure.

3. Usability: H-16; M-6; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure has been used in the PQRS program since 2007.
- The developer reported that this measure is reported through the Get With the Guidelines program and the CDC Paul Coverdell Registry.
- The Committee noted that many patients, particularly those in rural areas, do not have access to rehab services, and thus the ordering of rehab services is futile for these patients. They encouraged developers to consider constructing a measure to assess whether or not patients actually receive rehab services.

4. Feasibility: H-17; M-4; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee agreed that the successful use of this measure demonstrated its feasibility, although they also noted not all elements are easily extracted from the electronic health record.

5. Related and Competing Measures

- This measure is related to #0441 [STK-10: Assessed for Rehabilitation]. Measure #0441 is a TJC measure. Beyond the difference in the measure focus (#0244 measures the ordering of rehab services and #0441 measures the assessment for rehab services), the main difference between the measures is that one is a clinician-level measure (#0244) while the other is a facility-level measure (#0441).
    - The Committee did not identify any harmonization issues to be addressed by the developers.

Committee response: In response to a comment concerning -harmonization, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

Steering Committee Recommendation for Endorsement: Y-21; N-1

0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: In a prospective administrative claims program, this code is reported ('attested') by the physician who performed the numerator action on the claim. If the physician does not report the designated Quality Data Codes or CPT codes on a claim, the information will not be available.
- One commenter noted that the measure title was misleading, because "The numerator includes those who have documentation of "no rehabilitation indicated" and therefore do NOT have rehab ordered. Recommend consideration of dual numerators to allow for a more appropriate evaluation tool."

  ***Developer response*:** The focus of the measure is to identify how many patients received the appropriate care, with regards to ordering rehabilitation services. Appropriate care would include either ordering the services or documenting that there was no indication for the order. Therefore, the clinical expert panel decided on Rehabilitation Services Ordered as the title of the measure, consistent with the measure focus. Additionally, for clarification, the measure currently contains a dual numerator, as you have suggested.
- Another commenter suggested that the numerators, denominator exclusions, and timeframe for measures #0244 and #0441 be harmonized.

  ***Developer response*:** The AMA PCPI uses measure exclusions and measure exceptions, where appropriate. However, as this measure numerator is constructed to capture patients for whom rehabilitation services were ordered and patients for whom the physician has documented that no rehabilitation services were indicated, there is no need for exclusions or exceptions. All patients that receive the appropriate care are captured in the numerator of the measure. Therefore, if rehabilitation services were not ordered and there is no reason documented for the services not being indicated, the physician will not meet the measure.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation. In regards to harmonization, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible and requested an update on progress with harmonization at the time of annual review.

0441 STK-10: Assessed for Rehabilitation

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services during the hospital stay. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, and STK-8: Stroke Education) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services.
Denominator Statement: Ischemic or hemorrhagic stroke patients.
Exclusions: • Less than 18 years of age

- Length of Stay > 120 days
- Comfort measures only documented
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention
- Discharged to another hospital
- Left against medical advice
- Expired
- Discharged to home for hospice care
- Discharged to a health care facility for hospice care

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: <u>The measure meets the Importance criteria</u>

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-15; M-7; L-0; I-0**; 1b. Performance Gap: **H-11; M-8 L-3; I-0** 1c. Evidence: **Y-18; N-4**

<u>Rationale</u>:

- Data submitted by the developer reported that each year in the U.S. 795,000 people experience a new or recurrent stroke and that stroke is a leading cause of long-term disability.
- The Committee noted that the evidence for the measure speaks to the value of rehabilitation, but does not directly relate to the value/impact of assessing for rehab prior to discharge.
- The Committee noted that average performance on this measure is high (approximately 96%).
- One member noted the existence of disparities in receipt of rehab services, but questioned whether there are disparities in assessment for rehab. Another Committee member verified that there are disparities in assessment for rehab and noted that rehab is tied to insurance (e.g., how long insurance will cover it, if they cover it at all).

0441 STK-10: Assessed for Rehabilitation

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-19; M-3; L-0; I-0** 2b. Validity**: H-17; M-5; L-0; I-0**
<u>Rationale:</u>

- The Committee did not express any concerns about the reliability or validity of the measure.

3. Usability: H-21; M-1; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*
<u>Rationale</u>:

- This measure is publicly reported by The Joint Commission as well as the CDC Paul Coverdell National Acute Stroke Registry and is included in the Stage I Meaningful Use EHR incentive program.
- This measure is used by more than 900 primary stroke centers for internal quality improvement efforts and is included in the Get With The Guidelines stroke program.
- This measure has been in use nationally since 2009.
- Committee members agreed that this measure is widely used and is believed to be easy to interpret.

4. Feasibility: H-12; M-9; L-1; I-0
(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
<u>Rationale</u>:

- The Committee noted that while this measure does require abstraction from the medical record, the large number of hospitals reporting on it suggests that it is feasible.

5. Related and Competing Measures

- This measure is related to #0244 [Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered]. Measure #0244 is an AMA-PCPI measure. Beyond the difference in the measure focus (#0244 measures the ordering of rehab services and #0441 measures the assessment for rehab services), the main difference between the measures is that one is a clinician-level measure (#0244) while the other is a facility-level measure (#0441).
    - The Committee did not identify any harmonization issues to be addressed by the developers.

Committee response: In response to a comment concerning harmonization, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

Steering Committee Recommendation for Endorsement: Y-21; **N-1**

0441 STK-10: Assessed for Rehabilitation

Public & Member Comment

Comments included**:**

- Concerns about feasibility, as the measure "may require burdensome electronic health record data extraction or medical chart review."
- A concern that the measure will be difficult to implement from administrative claims because there are limitations in identifying relevant physician behavior in hospital claims.
  Developer response: This measure is specified as an inpatient chart-abstracted measure and is not intended to be computed using administrative data only since the level of clinical detail reflected in the evidence cannot be captured using administrative data alone. The intended level of analysis for this measure is inpatient hospitals, and the clinical data elements cited reflect the evidence underlying this measure.
- Another commenter suggested that the numerators, denominator exclusions, and timeframe for measures #0244 and #0441 be harmonized.

  ***Developer response*:** Thank you for your comment and support of the Joint Commission's performance measure. The stroke core measures were developed in collaboration with the American Heart Association/American Stroke Association in 2003. Since that time, extensive efforts have been made to harmonize the measures, including STK-10: Assessed for Rehabilitation, with the American Medical Association Physician Consortium for Performance Improvement Stroke and Stroke Rehabilitation measures, The American Heart Association/American Stroke Association Get With the Guidelines Patient Management Tool, and the Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry. The Joint Commission will continue to work towards further harmonization with these organizations, and appreciates the feedback for future measure development.

Committee response:

While SC members recognize that these measures may require a fair amount of data abstraction, they rated the measures moderate to high on NQF's feasibility criterion, and did not wish to revisit their recommendation. In regards to harmonization, the Committee again acknowledged that measures specified for different levels of analysis may require different specifications. However, they also recommended continued and aggressive efforts for harmonization when possible and requested an update on progress with harmonization at the time of annual review.

0467 Acute Stroke Mortality Rate (IQI 17)

Submission | **Specifications**

Status: Maintenance, Original Endorsement: Jun 23, 2008
Description: Percent of discharges with an in-hospital death among cases with a principal diagnosis code for stroke
Numerator Statement: Number of deaths among cases meeting the inclusion and exclusion rules for the denominator
Denominator Statement: All discharges, age 18 years and older, with a principal diagnosis code for stroke
Exclusions: Exclude cases:
• transferring to another short-term hospital
• MDC 14 (pregnancy, childbirth, and puerperium)
• with missing discharge disposition, gender, age, quarter, year or principal diagnosis
Adjustment/Stratification: Statistical risk model The predicted value for each case is computed using a hierarchical model (logistic regression using Generalized Estimating Equations (GEE) to account for clustering of patients within hospitals) and covariates for gender, age (in 5-year age groups pooled), APR-DRG and APR-DRG Risk of Mortality subclass, MDC and availability of Point of Origin (UB-04). The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2008, a database consisting of 42 states and approximately 30 million adult discharges.

Intercept	
Sex	Female
Age	18 to 59
Age	65 to 84
Age	85+
APR-DRG	´0211´
APR-DRG	´0212´
APR-DRG	´0213´
APR-DRG	´0214´
APR-DRG	´0221´
APR-DRG	´0222´
APR-DRG	´0223´ to ‘0224’
APR-DRG	´0231´ to ‘0232’
APR-DRG	´0233´
APR-DRG	´0234´
APR-DRG	´0241´
APR-DRG	´0242´
APR-DRG	´0243´
APR-DRG	´0244´
APR-DRG	´0261´ to ‘0263’
APR-DRG	´0264´
APR-DRG	´0441´
APR-DRG	´0442´
APR-DRG	´0443´
APR-DRG	´0444´
APR-DRG	´0452´
APR-DRG	´0453´
APR-DRG	´0454´
MDC	OTHER

0467 Acute Stroke Mortality Rate (IQI 17)

NOPOUB04 UB-04 Point-of-Origin Data Not Available Not applicable
Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims
Measure Steward: Agency for Healthcare Research and Quality **Other organizations:** Battelle Memorial Institute, Stanford University and the University of California-Davis

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: <u>The measure meets the Importance criteria</u>
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-19; M-2; L-0; I-0**; 1b. Performance Gap: **H-19; M-2; L-0; I-0** 1c. Evidence: **Y-21; N-0**
<u>Rationale</u>:

- The developer noted that approximately 795,000 strokes occur each year in the U.S. The stroke mortality rate is 17 percent, with almost half of deaths occurring in-hospital and the greatest risk of death in the first 30 days post-stroke.
- The developer reported risk-adjusted mortality rates ranging from 73 per 1,000 to 136 per 1,000; they also demonstrated variations in rates by region, hospital ownership status, hospital location (e.g., metropolitan, micropolitan, noncore, etc.), and hospital bed size.
- The Committee agreed that the developers demonstrated a link between structures/processes of care and stroke mortality. For example, providing access to higher levels of organized stoke care and timely aggressive care (both medical and surgical) has been associated with lower rates of mortality.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-17; M-4; L-0; I-0** 2b. Validity**: H-2; M-10; L-6; I-4**
<u>Rationale:</u>

- To demonstrate the reliability of the measure score, the developer performed a signal-to-noise ratio analysis, which yielded a reliability estimate (a weighted average of reliability estimates across all providers) of 0.776. The 1st, 5th, 10th, 25th, 50th, 75th, 90th, 95th, and 99th percentiles for the reliability estimates are 0.253, 0.442, 0.543, 0.705, 0.821, 0.890, 0.930, 0.947, and 0.965, respectively.
- To demonstrate data element validity, developers provided sensitivity, specificity, positive predictive values, and kappa statistics from 5 published studies that validated a stroke diagnosis from administrative data from several different time periods and facilities; from these studies, the lowest kappa value was .72; sensitivities were generally in the 80% range; specificities were generally in the 90% range; and positive predictive values were between 80% and 94%. They also provided several citations supporting the validity of the inpatient mortality data element, including one that found a sensitivity of 100%, a specificity of 99% and a positive predictive value of 97%.
- A sensitivity analysis to test the effect of excluding transfers to another short-term hospital found no significant association between transfers and mortality.
- The Committee asked for (and was given) assurance that the APR-DRG diagnostic categories are based on diagnoses that are present on admission. When the Committee expressed concern that the APR-DRG categories are a “black box,” the developers described the limited license agreement between 3M and

AHRQ that puts the components of the APR-DRG system into the public domain.

- One Committee member questioned whether the developer had considered excluding from the measure (or including in the risk-adjustment model) patients who are treated under the Federal Emergency Medical Treatment and Labor Act (which prohibits turning patients away due to inability to pay). However, another Committee member noted that, per NQF guidance, such factors should not be included in the risk adjustment.
- The Committee asked for assurance that stroke severity is accounted for in the risk-adjustment model and that complications are not included in the risk-adjustment model. The developer provided some assurance to both questions. However, they noted that some of the APR-DRG categories include procedures performed during the hospital stay for the immediate treatment of stroke (e.g., craniotomy for hemorrhagic stroke), but further stated that the *c* statistic for models with and without those procedures were practically identical and the resulting provider rates were highly correlated, suggesting that these variables do not explain variation across hospitals but instead serve as proxies for stroke severity.
- The Committee asked if the developer has compared hospital rankings based on this measure with rankings based on data from a gold-standard patient database that includes detailed clinical information (e.g., NIH Stroke Scale score or chart-abstracted comorbidities). The developers acknowledged that they have not yet done this type of validation for this measure. Developers did reference a comparative analysis of this measure with a 30-day stroke mortality measure using California state data; this analysis found moderate correlation between in-hospital mortality and 30-day mortality.
- One Committee member suggested that the explanatory power of the risk model (*c* statistic=.894) is due to the inclusion of hemorrhagic stroke, which has a very high mortality rate. However, the developers noted that they had run the models separately for ischemic and hemorrhagic strokes and found *c* statistics (0.88 and 0.87, respectively) that are similar to that from the combined model. The developers stated that these statistics support their assertion that proxy measures of stroke severity are included in the model.
- The Committee also expressed concern about how transferred patients are accounted for in the measure. The developers clarified that they initially included a variable in the risk model to indicate that a patient had been transferred to a particular facility, but that this variable was not statistically significant and thus was not included in the final risk model. The developer also noted that patients who are transferred out of a particular facility are excluded from the measure. When Committee members asked if excluding transfer-out patients from the measure might encourage hospitals to transfer their patients in order to score better on this measure, the developer responded that they had included the transfer-out percentage in other hospital-level models but this variable did not have as much explanatory power as did other hospital characteristics. One Committee member commented that transfer-out patients may not be admitted to a second hospital because death often can occur en route. When asked if transfer status was examined for the different stroke types, the developers stated that they had not done this analysis. Another Committee member again expressed concern that facilities that often transfer their stroke patients may be advantaged with this measure. Finally, another Committee member asked if it is possible to attribute the outcome of a transferred patient back to the facility that transferred the patient (rather than to the facility the patient was transferred to); developers noted that this would be possible if linked datasets were used, but clarified this is not done with this measure.
- One Committee member voiced a concern that measuring mortality as an indicator of quality—

particularly through use of administrative data—may have an unintended consequence of rewarding facilities to have less compassion with patients near the end of life (i.e., providing aggressive care to prolong life).

- The Committee asked whether the risk-adjustment model accounts for patients with a Do-Not-Resuscitate (DNR) or Do-Not-Intubate (DNI) status. The developer confirmed that this patient status is not included in the risk-adjustment model because that information is not available in administrative claims data. The developer also noted that DNR/DNI status is not solely a patient/family decision but can be impacted by provider practice patterns and can be written during the hospital episode and thus may be a marker for patient deterioration after hospital admission.

3. Usability: H-3; M-9; L-8; I-2

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*

Rationale:

- The developer stated that this measure has been in use for four years, with 18 states and 3 other systems publicly reporting the measure and three entities (representing hundreds of hospitals) using the measure for quality improvement efforts. The developer also provided additional anecdotal evidence of use of the measure for quality improvement.
- One Committee member described personal in experience using the measure, noting its usefulness in improving patient care and management.
- Another Committee member expressed concern about the potential use of this measure in the near future for pay-for-performance applications. NQF staff clarified that NQF endorsement implies that the measure is acceptable for a wide range of accountability applications, including accreditation, public reporting, and payment.

4. Feasibility: H-14; M-6; L-2; I-0

(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- Committee members noted that the measure is computed from administrative data.

5. Related and Competing Measures

- This measure directly competes with CMS measure #2026 [Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization] because both examine mortality among stroke patients. The main differences between the measures are that measure #0467 includes patients 18 and older with any type of stroke and assesses in-hospital mortality, while measure #2026 includes patients 65 years and older with ischemic stroke and assesses mortality within 30 days of the stroke admission.
  - The Committee agreed that there is value in having measures of both in-hospital mortality and 30-day mortality.
  - The Committee has asked AHRQ if they can stratify measure #0467 to obtain rates for ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage and also to stratify so as to obtain rates for patients ages 65 and older.

    AHRQ response: We agree that in addition to the ability to calculate the measure with the present

denominator, we will create the capability for the user to stratify within the measure by ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage. In regard to age, users already have the functionality to stratify by age. So that capacity – as with other AHRQ QIs – would of course be maintained going forward.

- The Committee has encouraged CMS to extend measure #2026 to ages 18 and older.
  CMS/Yale response: We have re-specified this measure to include both non-FFS Medicare patients aged 65+ years and all-payer patients aged 18-64 years.
- The Committee has asked the developers to respond regarding the possibility of harmonization of the measure exclusions.
  Joint AHRQ/CMS response: AHRQ's measure excludes cases:
  • Transferring to another short-term hospital
  • MDC 14 (pregnancy, childbirth, and puerperium)
  • With missing discharge disposition, gender, age, quarter, year or principal diagnosis

  CMS's measure excludes admissions for patients:
  • transferred from another acute care hospital
  • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date)
  • who were discharged alive and against medical advice (AMA)
  • enrolled in the Medicare Hospice program at any time in the 12 months prior to the index hospitalization including the first day of the index admission

  Harmonized Exclusions
  The measure developers view the following exclusions as consistent and harmonized between the two measures:
  • Exclusion of pregnancy-related admissions: the current CMS measure includes only patients 65 years and older. YNHHSC/CORE/CMS plans to exclude pregnancy-related admissions in all-payer specified measure.
  • Exclusion of admissions with missing or unreliable data: the measures have slightly different approaches to handling missing or unreliable data but both address the issue of missing or unreliable data. Given the difference in data source we do not see a need to further harmonize.

  Plans for Exclusions not Currently Harmonized
  For the exclusions that are not harmonized between the measures, we provide rationales and adjustments (when appropriate) below.
  - The AHRQ measure excludes cases *transferred to* another acute care facility, while CMS's measure excludes admissions for patients *transferred from* another acute care facility. This is a necessary difference given the scope of the respective measures. Since AHRQ's measure is an in-hospital mortality measure, transfers to another acute care facility are excluded because the outcome of interest is not observed. CMS's 30-day mortality measure attributes death to the hospital where the patient was initially admitted, thereby excluding admissions that are transferred from another acute care facility. These exclusions will remain unharmonized as they are specific to the outcome being assessed by each measure.
  - CMS excludes admissions for patients who are discharged against medical advice (AMA) as providers were not given the opportunity to deliver full care and prepare the patient for discharge. Given that AHRQ's measure focuses on in-patient mortality, patients with the status of AMA are irrelevant to the assessment of in-hospital mortality. As such, this exclusion will remain the same.
  - CMS excludes admissions for patients enrolled in Medicare Hospice since it is likely these patients continued to seek comfort measures only. Given the AHRQ measure is computed using

inpatient data, the AHRQ QI is not able to employ exclusions based on other data sets, which in this case would involve hospice claims prior to the inpatient admission.

- In regard to inpatient administrative data that we have historically had access to, CMS and AHRQ are in agreement that the V66.7 palliative care code is not sufficient to use as an exclusion for it does not specify that the decision to only provide palliative care occurred at admission. However, additional data has recently become available regarding hospice care that AHRQ is exploring as whether inpatient mortality measures would benefit from using the data as either an exclusion or a covariate. The data element is: Point of origin code for admitted from hospice (value of "F"). At the present time, this data element is being analyzed for potential use in the AHRQ QIs. At the time the analysis is complete, results will be discussed between CMS and AHRQ in regard to the potential to benefit either or both measures. One possible outcome could be that the point of origin code for admitted from hospice is used as a reasonable proxy to the CMS exclusion.

Committee response: In response to a comment concerning harmonization for another group of measures, the Committee recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

Steering Committee Recommendation for Endorsement: Y-15; N-7

Public & Member Comment

Comments included**:**

- A concern that the measure includes both ischemic and hemorrhagic stroke and changing distributions of ischemic and hemorrhagic stroke patients may impact the measure.
  Developer response: The current measure risk-adjusts for the substantial difference in mortality between ischemic and hemorrhagic strokes. We have assessed the model for residual bias with respect to stroke type, but we found none. Although there is no empirical evidence that the current measure is biased against hospitals with atypical distributions of ischemic versus hemorrhagic strokes, AHRQ has committed to stratifying this measure by stroke type, in harmonization with CMS, to improve its usability by providers. These stratified measures will include stratified risk-adjustment models.
- A concern that transfer status may become more problematic as the measure is more widely used
  Developer response: Transfer status was tested in the risk-adjustment model and found not to be statistically significantly associated with mortality. This happens in the setting of two countervailing forces: (1) transfer patients are often sicker, from the receiving hospital's perspective, than patients who are brought directly to that hospital from the surrounding community; but (2) the sickest transfer patients die immediately prior to transfer, en route, or in the Emergency Department of the receiving hospital, leading to what epidemiologists describe as a "healthy survivor effect." Transfer status is reexamined with each annual update of the AHRQ risk adjustment models, so AHRQ will identify any future changes.
- A concern that the measure does not account for DNR or DNI status and that pregnant patients are excluded.
  Developer response: Because the AHRQ measure is computed using inpatient data, AHRQ is not able to employ exclusions based on other data sets, which in this case would involve hospice claims prior to the inpatient admission. Through recent harmonization discussions, CMS and AHRQ agree that the V66.7 palliative care code is not sufficient to use as an exclusion because it does not specify that a decision to provide only palliative care occurred at admission. However, an additional data element has recently become available (Point of origin code for "admitted from hospice," value "F") in all-payer hospital administrative data sets, and AHRQ is exploring whether inpatient mortality measures would benefit from using this data element as either an exclusion or as a risk-adjustment covariate. AHRQ is also exploring the potential utility of a new ICD-9-CM code for "do not resuscitate" status (V49.86), when

reported as present on admission, and a "condition code" denoting whether "a DNR order was written at the time of or within the first 24 hours of the patient's admission to the hospital and is clearly documented in the patient's medical record." Pregnant women are excluded from this measure, as for all AHRQ risk-adjusted mortality measures, because coding rules and practices are very different for pregnant patients than for non-pregnant patients. All cerebrovascular disorders in the puerperium are coded to 674.0x, regardless of their nature or severity.

- Several commenters expressed the concern that an indicator of stroke severity (particularly, the value of the NIH Stroke Scale) is not included in the risk-adjustment models for stroke mortality; most specifically cited a recent JAMA article (*308(3)*, 257-264) by Fonarow and colleagues.
  Developer response: AHRQ acknowledges that optimal risk-adjustment would include clinical markers of stoke severity, such as the NIH Stroke Scale, which may vary across hospitals in association with socioeconomic factors (Kleindorfer D, et al. Stroke 2012;43:2055-9). However, the recent paper by Fonarow et al. is likely to exaggerate the magnitude of this problem. Further, the applicability of their findings to the AHRQ measure is uncertain, because the risk-adjustment model that Fonarow et al. estimated using Medicare administrative data is markedly inferior to AHRQ's model using all-payer administrative data. The AHRQ model, fully stratified for ischemic stroke, has a c statistic of 0.866, which is similar to that of Fonarow et al's combined model and much higher than their model based only on administrative data. The superiority of AHRQ's risk-adjustment model is not due to combining ischemic and hemorrhagic stroke, and it is also not due to adjustment for procedures performed after admission. The superiority of AHRQ's risk-adjustment model appears to be attributable to: (1) more complete data, with 25 or more available diagnosis fields instead of 9; (2) inclusion of a wider age spectrum, with adjustment for age; and (3) adjustment for markers of stroke severity that are present on admission and codable in ICD-9-CM, such as coma, other alteration of consciousness, convulsions, and hemiplegia. For example, among patients with ischemic stroke (APR DRG 045), we are able to stratify patients into four risk of mortality categories, with the following numbers of patients and death rates: Minor (referent) 112,533 0.0038 (0.38%); Moderate (OR=2.92) 160,536 0.0282 (2.82%); Major (OR=10.99) 53,457 0.0883 (8.83%);Extreme (OR=98.15) 23,077 0.3916 (39.2%). AHRQ will continue to work with the "Get With The Guidelines" team, the VA, and other interested entities that have linked clinical and administrative data to test and improve risk-adjustment modeling.

Committee response:
The Committee discussed at length the concern regarding inclusion of stroke severity in the risk-adjustment model. Points of discussion included the need for adjustment for stroke severity, the success (or not) in adjustment for severity using only administrative data, the potential timing and feasibility of collecting the NIH stroke scale value, the findings from the Fonarow paper that inclusion of the NIH stroke score resulted in changes in hospital rankings, the high discriminatory power of the risk-adjustment model (*c* statistic=0.894) even though only administrative data are used, and the trade-offs between a possibly imperfect measure against having no measure of readmissions at all.

The developer hypothesized that their use of the HCUP data, which includes 25+ diagnosis fields, contributes to the high discriminatory power of the model. The developer also noted the inclusion of stoke patients ages 18+ and their adjustment for age in the model and also suggested that the inclusion of several diagnoses (e.g., coma, hemiplegia, etc.) seem to serve as reasonable proxies for stroke severity.

Due to their concern regarding inclusion of stroke severity in the risk-adjustment model, the Committee agreed to re-vote on the measure. In addition to the abridged developer responses noted above (full responses are included in the Comment table posted to the public website), additional materials were made available to the Committee, as follows:

- Yale-New Haven Hospital Comment Letter

0467 Acute Stroke Mortality Rate (IQI 17)
• Yale Follow-up to Steering Committee Meeting on August 27, 2012 (PDF) • GWTG Supplementary Response After 27 Call (PDF) These materials are posted on NQF's public website. **Vote Following Consideration of Public and Member Comments:** **1. Importance to Measure and Report** *(based on decision logic):* **Yes** **1a.** Impact: **H-15; M-5; L-1; I-1 1b.** Performance Gap: **H-10; M-10; L-1; I-0 1c.** Evidence: **Y-17; N-5; I-0** **2. Scientific Acceptability of Measure Properties** *(based on decision logic):* **Yes** **2a.** Reliability: **H-8; M-10; L-1; I-3 2b.** Validity: **H-4; M-10; L-4; I-4** **Usability: H-6; M-9; L-4; I-3** **Feasibility: H-11; M-7; L-2; I-2**
Steering Committee Recommendation on Overall Suitability for Endorsement: Y-14; N-8

Measures where consensus is not yet reached

2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization

Submission | **Specifications**

Status: New Submission
Description: The measure estimates a hospital-level risk-standardized readmission rate (RSRR) for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke. We define this as readmission for any cause within 30 days from the date of discharge of the index stroke admission.
Numerator Statement: The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as readmission for any cause within 30 days from the date of discharge of the index stroke for patients discharged from the hospital with a principal diagnosis of ischemic stroke. If a patient has one or more admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission. For more details on how planned readmissions were identified and removed from the outcome, please refer to the attached report, Re-specifying the Hospital 30-Day Ischemic Stroke Readmission Measure by adding a Planned Readmission Algorithm.
Denominator Statement: ~~The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.~~
This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.
Exclusions: An index admission is the hospitalization considered for the readmission outcome (readmitted within 30 days of the date of discharge from the initial admission).
The measure excludes admissions for patients:
• with an in hospital death (because they are not eligible for readmission).
• transferred to another acute care facility (because the readmission is attributed to the hospital that discharges the patient to a non-acute setting).
• discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge).
• without at least 30 days post-discharge claims data (because the 30-day readmission outcome cannot be assessed in this group).
In addition, if a patient has more than one admission within 30 days of discharge from the index admission, only one is counted as a readmission, as we are interested in a dichotomous yes/no readmission outcome, as opposed to the number of readmissions. No admissions within 30 days of discharge from an index admission are considered as additional index admissions, thus no hospitalization will be counted as both a readmission and an index admission. The next eligible index admission is 30 days after the discharge date of the previous index admission.
Adjustment/Stratification: Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes"1.
The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level, the model adjusts the log-

odds of readmission within 30 days of discharge for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercepts represent the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.
Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.
Frequencies and odds ratios for the 2007 cohort (n=174,024 admissions) are presented below.
Final set of risk-adjustment variables:
Variable//Frequency (%)//Odds Ratio (95% confidence interval)
Demographic

- Age-65 (continuous)/Mean (SD)=80.12(7.83)/ OR (95% CI)=1.004(1.003 - 1.006)
- Male/Frequency =40.44/ OR (95% CI)=1.045(1.016 - 1.045)

Cardiovascular/Cerebrovascular

- Congestive Heart Failure (CC 80)/Frequency =25.68/ OR (95% CI)=1.221(1.182 - 1.261)
- Hypertensive heart disease (CC 90)/Frequency =6.91/ OR (95% CI)=1.100(1.047 - 1.157)
- Cerebral Hemorrhage (CC 95)/Frequency =1.81/ OR (95% CI)=1.079(0.954 - 1.182)
- Ischemic or Unspecified Stroke (CC 96)/Frequency =26.41/ OR (95% CI)=1.042(1.008 - 1.078)
- Cerebrovascular Disease (CC 97)/Frequency =23.75/ OR (95% CI)=1.045(1.010 - 1.080)
- Hemiplegia, paraplegia, paralysis, functional disability (CC 100-102)/Frequency =9.70/ OR (95% CI)=0.951(0.907 - 0.997)
- Vascular or circulatory disease (CC 104-106)/Frequency =31.09/ OR (95% CI)=1.070(1.038 - 1.103)

Comorbid Conditions

- Metastatic cancer and acute leukemia (CC 7)/Frequency =2.27/ OR (95% CI)=1.264(1.163 - 1.373)
- Cancer (CC 8-12)/Frequency =18.52/ OR (95% CI)=1.034(0.998 - 1.071)
- Diabetes and DM complications (CC 15-20, 119-120)/Frequency =37.84/ OR (95% CI)=1.156(1.124 - 1.364)
- Protein-calorie malnutrition (CC 21)/Frequency =4.45/ OR (95% CI)=1.288(1.216 - 1.364)
- Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/Frequency = 23.72/ OR (95% CI)=1.142(1.104 - 1.181)
- Obesity/disorders of thyroid, cholesterol, lipids (CC 24)/Frequency = 68.03/ OR (95% CI)=0.916(0.890 - 0.943)
- Severe Hematological Disorders (CC 44)/Frequency = 1.53/ OR (95% CI)=1.266(1.153 - 1.391)
- Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/Frequency = 30.90/ OR (95% CI)=1.142(1.108 - 1.178)
- Dementia and senility (CC 49-50)/Frequency = 28.56/ OR (95% CI)=1.015(0.985 - 1.047)
- Quadriplegia, paraplegia, functional disability (CC 67-69, 177-178)/Frequency = 1.99/ OR (95%

CI)=1.139(1.046 - 1.242)

- Seizure Disorders and Convulsions (CC 74)/Frequency = 7.45/ OR (95% CI)=1.161(1.107 - 1.218)
- COPD (CC 108)/Frequency =22.96/ OR (95% CI)=1.133(1.098 - 1.170)
- Other lung disorder (CC 115)/Frequency =22.04/ OR (95% CI)=1.082(1.047 - 1.117)
- End-stage renal disease or dialysis (CC 130)/Frequency =1.51/ OR (95% CI)=1.356(1.237 - 1.487)
- Renal Failure (CC 131)/Frequency =14.29/ OR (95% CI)=1.163(1.117 - 1.211)
- Other urinary tract disorders (CC 136)/Frequency =18.57/ OR (95% CI)=1.101(1.064 - 1.140)
- Decubitus ulcer or chronic skin ulcer (CC 148-149)/Frequency =6.79/ OR (95% CI)=1.079(1.026 - 1.134)
- Major Symptoms, Abnormalities (CC 166)/Frequency =61.63/ OR (95% CI)=1.098(1.063 - 1.134)

References:

1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462.

2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. N/A

Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims
Measure Steward: Centers for Medicare & Medicaid Services (CMS) **Other organizations:** MPR: Mathematica Policy Research; RTI: Research Triangle Institute

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: <u>The measure meets the Importance criteria</u>

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-17; M-3; L-0; I-0**; 1b. Performance Gap: **H-15; M-7; L-0; I-0** 1c. Evidence: **Y-19; N-2**

<u>Rationale</u>:

- Data submitted by the developer noted that stroke is a leading cause of morbidity and is associated with high rates of preventable complications and discharge to settings with substantial requirements for ongoing care, thus providing numerous opportunities for potential readmissions, and, consequently, opportunities to reduce readmission rates with appropriate interventions and care decisions.
- Data submitted by the developer reported that in their analysis of Medicare Fee-For-Service patients, non-adjusted readmission rates for stroke patients are generally high (median=14.0%), with large variations between facilities (25th percentile =10.0; 75th percentile =18.9%).
- The Committee agreed that the developers demonstrated a link between structures/processes of care and hospital readmissions. For example, the developer cited one study that found that patients with follow-up interventions such as post-discharge home visits had lower readmission rates than those with standard follow-up and another study that found that system-level strategies have the potential to improve outcomes and reduce readmissions.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>

(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)

2a. Reliability: **H-10; M-12; L-0; I-0** 2b. Validity**: H-0; M-12; L-4; I-6**

2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization

Rationale:

- The Committee questioned why admissions unrelated to stroke are not excluded. The developer noted that while planned readmissions are excluded, it is very difficult to differentiate related from non-related readmissions and also emphasized that any readmission is important to the patient. The developer stated that they are not suggesting that the readmission rate should be zero, and also noted that while some readmissions (e.g., car crash injuries) may be completely unrelated, they assume that such random events are both unlikely and evenly distributed across hospitals.
- The Committee questioned how planned readmissions are accounted for in the measure. The developer explained that they had identified certain follow-up procedures that physicians often perform as a continuation of treatment after the discharge from the index admission (e.g., carotid endarterectomy). Admissions where these procedures are documented (but where acute stroke is not listed as a principal discharge diagnosis) are excluded from the measure.
- The Committee also questioned the *c* statistic value (0.6) from the risk-adjustment model, noting that such a low value indicates that the model does not have high discriminatory power. The developer noted that the risk-adjustment model includes only patient-level factors that are present at the start of care, which is consistent with NQF criteria (i.e., risk models do not include other types of explanatory variables such as hospital characteristics or care processes that relate to quality of care). They also stated that other studies have shown that patient characteristics often do not have good explanatory power for readmissions. The developers noted that hospital-level factors (e.g., care transitions, follow-up, communication) influence readmission rates—but these are the care practices for which improvement is needed and are therefore not included in the risk-adjustment model.
- The Committee questioned whether anyone had modeled hospital readmission rates so as to better understand the relative contributions of patient and hospital factors. They developers stated that they had not done those analyses, although other researchers have done similar types of analyses in other care settings. However, the developer also noted that many influential hospital-level factors are very difficult to measure. Some Committee members noted a lack of data to support the assumption that hospital-based factors can influence readmission rates.
- Committee members also questioned whether anyone had modeled hospital readmission rates when accounting for community-based or post-discharge risk factors, or other factors such as state law and family choice decisions. The developer acknowledged the multi-factorial causal pathway to readmissions but noted the difficulties in trying to conduct this type of analysis. The developer noted that while their risk-model may not be comprehensive, it does level the playing field as best as possible.
- The Committee questioned the assumption by the developers that hospital practices actually can influence readmission rates. The developer responded that they are starting to see evidence in the published literature showing that effective interventions by hospitals can lower readmission rates. Other Committee members, as well as the measure developer, provided evidence that hospital practices can affect readmission rates (e.g., sending patients to a better rehab facility rather than just the one that will accept the patient the soonest). Several Committee members agreed that the utility of this measure is to drive the discovery of interventions that would influence their readmission rates.
- The Committee also noted that while hospital practices may affect readmission rates, hospitals cannot control patient behaviors once the patient leaves the hospital. Although the developer agreed that hospitals do not have full control over readmissions, they stated that there are many factors that the

hospitals can influence that might affect readmission rates (e.g., medication reconciliation, clear discharge instructions, better post-discharge support).

- The Committee also asked whether similar readmission models that include stroke severity have been conducted. The developer stated that they had done this but stroke severity wasn't consistently found to be an important predictor.
- One Committee member asked whether patients admitted under observation status are excluded from the measure. The developer clarified that those patients would be excluded.

3. Usability: H-7; M-11; L-4; I-0

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*

Rationale:

- The Committee agreed that a high readmission rate should prompt hospitals to conduct their own investigations to determine what interventions should be implemented to reduce readmissions.
- One Committee member voiced a concern about the interpretability of hospital rankings based on this measure. The developer noted that the measure has typically been used to identify poor-performing outliers.

4. Feasibility: H-11; M-10; L-1; I-0

(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- The Committee did not express any concerns about the feasibility of the measure.

5. Related and Competing Measures

- This measure is related to #2026 [Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization] because both have the same target population.
  - The developer stated that the measures are completely harmonized and the Committee did not identify any other harmonization issues with this measure.

Steering Committee Recommendation for Endorsement: Y-13; N-9

Public & Member Comment

Comments included**:**

- A concern that hospitals may not be able to influence readmission rates.
  Developer response: We would like to clarify that the measure is a relative measure meant to identify hospitals whose readmission rate is higher than would be expected based on the performance of an average hospital caring for similar patients. We do not assume all readmissions are preventable. The measure is not intended to drive hospitals to a zero readmission rate, but rather is designed to encourage hospitals to identify opportunities to reduce readmission risks in their environment. Careful discharge planning and instructions, communication with outpatient providers, attention to patient safety and prevention of infections, are all important for reducing readmissions and there is increasing evidence in the peer review literature to show that hospital interventions can lower readmission rates.
- A concern that the risk-adjustment model does not have a high discriminatory power (*c* statistic=0.6).
  Developer response: We would like to clarify the important difference between predictive models

intended for patient-level risk-stratification versus models used to profile hospital performance. In the first, a patient-level predictive model the objective is to best predict patient outcomes and the risk-adjustment variables are a means to better predict of these outcomes. As an example, a patient who has a serious complication of care may be at higher risk of mortality and readmission and therefore complications might be useful to include in a model used for patient-level prediction.
By contrast, the role of risk-adjustment in hospital profiling models is to level the playing field for hospitals in measures that assess hospitals on their relative performance – that is, on how well they are doing compared to hospitals with similar patients. The risk adjustment variables should be only those that are inherent to the patient and present at the start of the time period. Although risk-adjusting for complications of care could increase the statistical power of a profiling model, it would not make sense to risk adjust for complications since it could lead hospitals with high rates of complications to appear to be performing better than hospitals that admitted similar patients even though the quality of care is worse.

- Several commenters expressed the concern that an indicator of stroke severity is not included in the risk-adjustment model.
  Developer response: Our published systematic review of papers examining readmission after stroke demonstrated found limited evidence for stroke severity as a predictor of readmission. Not all papers considered stroke severity as a predictor. Those that did, measured it in a variety of ways and in some cases found it was not predictive of readmission. (Lichtman et al, Stroke, November 2010). The Kansagra et al., article in JAMA (Oct 19, 2011) highlights that few models of readmission have high c-statistics. It also suggests, consistent with our beliefs, that it is likely that factors such as the quality of hospital and post-discharge care may play a larger role in readmission outcomes than patient factors, thus accounting for the lower c-statistics of these models.

Committee response:
The Committee discussed at length the concern regarding inclusion of stroke severity in the risk-adjustment model. Points of discussion included the need for adjustment for stroke severity, the success (or not) in adjustment for severity using only administrative data, the potential timing and feasibility of collecting the NIH stroke scale value, the face validity of the risk-adjustment model, given that some covariates seem to be paradoxically protective against readmission, the concern that the measure unfairly categorizes tertiary care facilities that accept many transfer patients (e.g., stroke centers/safety net hospitals), and the trade-offs between a possibly imperfect measure against having no measure of readmissions at all.

The developer noted that the concern that the measure potentially could unfairly categorize tertiary care facilities was an underlying reason that they created the transfer-from-emergency-department variable. Further, regarding the concern about the face validity of their risk-adjustment model, the developer noted that they are careful not to adjust for things that happen to the patient after hospital arrival and that one consequence of this is a lower *c* statistic. They also voiced a belief that if a model based on administrative claims correlates well with a model based on clinical data (as presented in the reports initially submitted by the developer), then the behavior of the individual model covariates is less important.

Measure Changes:
As part of their measure harmonization efforts, the developer made two material changes to the measure after the in-person meeting, as follows:

- This measure now includes all-payer patients ages 18 and over (rather than Medicare FFS patient ages 65+ only)
- This measure now incorporates an algorithm for identifying and excluding planned readmissions from the measure

- Originally, the measure excluded readmissions that were planned for procedures that are related to follow-up care after an ischemic stroke (e.g., carotid endarterectomy). The revised algorithm identifies commonly planned readmissions for all types of patients, not just those that are planned as follow-up post-stroke (e.g., maintenance chemotherapy, rehabilitation).
- The new planned readmission algorithm harmonizes the stroke readmission measures with other CMS/Yale readmission measures.

The developer provided detailed reports describing the effects of the changes on the measure.

Due to the material changes made to the measure, as well as the concern regarding inclusion of stroke severity in the risk-adjustment model, the Committee was asked to re-vote on the measure. Committee members we instructed to consider the revised specifications in their decision. Also, in addition to the abridged developer responses noted above (full responses are included in the Comment table posted to the public website), additional materials were made available to the Committee, as follows:

- Yale-New Haven Hospital Comment Letter
- Yale Follow-up to Steering Committee Meeting on August 27, 2012 (PDF)
- GWTG Supplementary Response After 27 Call (PDF)

These materials are posted on NQF's public website.

Vote Following Consideration of Public and Member Comments:
1. Importance to Measure and Report *(based on decision logic):* **Yes**
1a. Impact: **H-16; M-4; L-1; I-1 1b.** Performance Gap: **H-11; M-9; L-1; I-1 1c.** Evidence: **Y-17; N-5; I-0**
2. Scientific Acceptability of Measure Properties *(based on decision logic):* **Yes**
2a. Reliability: **H-5; M-10; L-3; I-4 2b.** Validity: **H-4; M-7; L-6; I-5**
Usability: H-3; M-11; L-4; I-4
Feasibility: H-8; M-10; L-2; I-2
Steering Committee Recommendation on Overall Suitability for Endorsement: Y-10-; N-12

Steering Committee Recommendation for Endorsement: Consensus Not Reached

2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization

Submission | Specifications

Status: New Submission
Description: The measure estimates a hospital-level, risk-standardized mortality rate (RSMR) for patients 18 and older discharged from the hospital with a principal diagnosis of acute ischemic stroke. Mortality is defined as death from any cause within 30 days of the index admission date for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke.
Numerator Statement: The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days from the index admission date for patients 18 and older discharged from the index hospital with a principal diagnosis of acute ischemic stroke.
Denominator Statement: ~~The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of acute ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.~~This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of acute ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.
Exclusions: An index admission is the hospitalization considered for mortality outcome.
The measure excludes admissions for patients:
• transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted);
• with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date).
• who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);
For Medicare FFS patients, the measure additionally excludes admissions for patients:
• enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all-payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.
Adjustment/Stratification: Statistical risk model Our approach to risk adjustment was tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes".1
The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals(Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail.
Candidate and Final Risk-adjustment Variables: The measure was initially developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which

contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979)

We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

Following initial model development, in response to suggestions from our working group and Technical Expert Panel (TEP) members, we evaluated the mortality rates of patients admitted for stroke after having been evaluated at a different hospital's emergency department. Our experts expressed concern that such patients may be at higher risk and that the admitting hospital would not have had the opportunity to evaluate and treat such patients at first presentation. They also felt that certain hospitals may receive substantially greater proportions of patients transferred from outside EDs. Based on our analyses, we updated the measure to include a risk factor that indicates if a patient was transferred in from an outside ED, that is, the patient was seen in a different hospital's ED prior to being admitted for the index admission. This revision was done using 2008 data.

Frequencies and odds ratios for the model are presented below (2008 Medicare FFS patients aged 65 and older; n=175,267 admissions):

Final set of risk-adjustment variables:

Variable//Frequency (%)//Odds Ratio (95% confidence interval)

• Transfer from another ED/Frequency= 5.64/OR (95% CI)= 1.37 (1.29-1.45)

Demographic

• Age-65 (continuous)/mean (SD)=15.31 (7.93)/OR (95% CI)= 1.069 (1.067-1.07)

• Male /Frequency= 40.28/OR (95% CI)= 0.99 (0.96-1.03)

Cardiovascular/Cerebrovascular

• Congestive Heart Failure /Frequency= 26.03/OR (95% CI)= 1.38 (1.34-1.43)

• Valvular and Rheumatic Heart Disease /Frequency= 23.03/OR (95% CI)= 0.87 (0.84-0.89)

• Congenital Cardiac/Circulatory Defects /Frequency= 2.04/OR (95% CI)= 0.71 (0.64-0.8)

• Hypertensive Heart Disease /Frequency= 6.54/OR (95% CI)= 0.83 (0.78-0.88)

• Specified Heart Arrhythmias /Frequency= 29.37/OR (95% CI)= 1.59 (1.54-1.64)

• Cerebral Hemorrhage /Frequency= 1.88/OR (95% CI)= 1.16 (1.06-1.27)

• Ischemic or Unspecified Stroke /Frequency= 24.81/OR (95% CI)= 1.00 (0.96-1.03)

• Precerebral Arterial Occlusion and Transient Cerebral Ischemia /Frequency= 22.83/OR (95% CI)= 0.82 (0.8-0.85)

• Cerebral Atherosclerosis and Aneurysm /Frequency= 10.67/OR (95% CI)= 0.83 (0.80-0.87)

• Hemiplegia/Hemiparesis /Frequency= 5.60/OR (95% CI)= 1.17 (1.10-1.24)

Comorbidities

• History of Infection/Frequency= 26.72/OR (95% CI)= 1.15 (1.11-1.18)

• Metastatic Cancer and Acute Leukemia and Other Major Cancers /Frequency= 3.65/OR (95% CI)= 2.77 (2.61-2.95)

• Lymphatic, Head and Neck, Brain, Breast, Colorectal and Other Major Cancers/Frequency= 23.92/OR (95% CI)= 0.92 (0.89-0.95)

• Protein-Calorie Malnutrition /Frequency= 5.42/OR (95% CI)= 1.69 (1.61-1.77)

• Other Significant Endocrine and Metabolic Disorders /Frequency= 75.98/OR (95% CI)= 0.75 (0.72-0.77)

• Other Gastrointestinal Disorders /Frequency= 43.64/OR (95% CI)= 0.90 (0.88-0.93)

• Disorders of the Vertebrae and Spinal Discs /Frequency= 17.06/OR (95% CI)= 0.89 (0.86-0.93)

• Osteoarthritis of Hip or Knee /Frequency= 10.36/OR (95% CI)= 0.82 (0.78-0.86)

• Other Musculoskeletal and Connective Tissue Disorders /Frequency= 63.50/OR (95% CI)= 0.86 (0.84-0.89)

• Iron Deficiency and Other/Unspecified Anemia and Blood Disease /Frequency= 31.86/OR (95% CI)= 1.09 (1.05-1.12)

• Dementia or senility /Frequency= 28.64/OR (95% CI)= 1.24 (1.20-1.28)

2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization

• Major Psychiatric Disorders /Frequency= 9.12/OR (95% CI)= 1.08 (1.04-1.13)
• Quadriplegia, Other Extensive Paralysis /Frequency= 1.54/OR (95% CI)= 1.39 (1.26-1.53)
• Multiple Sclerosis /Frequency= 10.27/OR (95% CI)= 0.83 (0.79-0.87)
• Seizure Disorders and Convulsions /Frequency= 6.92/OR (95% CI)= 1.27 (1.21-1.33)
• Hypertension /Frequency= 88.00/OR (95% CI)= 0.77 (0.74-0.81)
• Peripheral Vascular Disease /Frequency= 23.02/OR (95% CI)= 1.07 (1.04-1.11)
• Chronic Obstructive Pulmonary Disease /Frequency= 21.92/OR (95% CI)= 1.06 (1.03-1.10)
• Pneumonia /Frequency= 17.36/OR (95% CI)= 1.49 (1.44-1.54)
• Pleural Effusion/Pneumothorax /Frequency= 6.92/OR (95% CI)= 1.13 (1.07-1.18)
• Other Eye Disorders /Frequency= 19.34/OR (95% CI)= 0.91 (0.88-0.94)
• Other Ear, Nose, Throat, and Mouth Disorders /Frequency= 26.99/OR (95% CI)= 0.87 (0.84-0.90)
• Dialysis Status /Frequency= 1.47/OR (95% CI)= 1.38 (1.24-1.52)
• Renal Failure /Frequency= 15.45/OR (95% CI)= 1.16 (1.12-1.21)
• Urinary Tract Infection /Frequency= 21.55/OR (95% CI)= 1.14 (1.10-1.18)
• Male Genital Disorders /Frequency= 11.95/OR (95% CI)= 0.78 (0.74-0.82)
• Decubitus Ulcer of Skin /Frequency= 2.52/OR (95% CI)= 1.29 (1.20-1.39)
• Chronic Ulcer of Skin, Except Decubitus /Frequency= 5.52/OR (95% CI)= 1.16 (1.10-1.23)
• Other Dermatological Disorders /Frequency= 29.38/OR (95% CI)= 0.92 (0.89-0.95)

References:

1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462.
2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. N/A

Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims, Other
Measure Steward: Centers for Medicare & Medicaid Services (CMS) **Other organizations:** MPR: Mathematica Policy Research; RTI: Research Triangle Institute

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: **The measure meets the Importance criteria**

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-21; M-1; L-0; I-0**; 1b. Performance Gap: **H-20; M-2; L-0; I-0** 1c. Evidence: **Y-22; N-0**

Rationale:

- The developer noted that stroke is the fourth leading cause of death in the U.S.; they also noted the frequent sequelae of stroke, including severe and long-term disability and the associated costs and healthcare resource demands.
- The developers reported an inter-quartile range of hospital unadjusted mortality rates between 9.1 and 21.4 percent, which they note is consistent with the literature. They also reported an inter-quartile range of hospital risk-standardized mortality rates between 14.4 and 16.4 percent.
- The Committee agreed that there is a rationale linking stroke mortality to at least one healthcare structure, process, intervention, or service.

2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>
(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)
2a. Reliability: **H-3; M-18; L-1; I-0** 2b. Validity**: H-3; M-13; L-5; I-1**
<u>Rationale:</u>

- To demonstrate reliability of the measure score, developers randomly split 3 years of Medicare Fee-For-Service data, computed the RSMR, and then computed an intra-class correlation coefficient of 0.4 from the two samples. The Committee interpreted this statistic to reflect a moderate level of agreement.
- The Committee asked for additional information regarding the comparisons of the hospital ratings based on this measure with those based on chart-abstracted data. Developers stated that they created a risk-adjustment model based on the medical record data, computed hospital-specific risk-standardized mortality rates, and then correlated those with the rates found based on administrative data. The reported correlation from this analysis was 0.8. One Committee member noted, however, that the high correlation would be less meaningful if both models have poor predictive ability.
- One Committee member expressed concern that indicators of stroke severity did not seem to be included in the risk-adjustment model (*c* statistic=0.732). The developers noted that the NIH Stroke Scale score is not available on claims data. They also noted their use of the condition grouper that includes diagnoses that are potentially related to stroke severity (e.g., coma).
- Developers clarified their approach to excluding complications of care in the risk-adjustment model, noting that they first developed a list of potential complications and included those in the risk model only if they appear in the claims data in the 12-months prior to the index admission.
- Several Committee members raised concerns about co-morbid medical conditions that appear to be paradoxically protective for mortality (e.g., hypertension) in the risk-adjustment model. The developers offered their interpretation of this result by suggesting that such diagnoses from the historical ambulatory care claims data are indicators of patients who are less severely sick because of coding practices. However, Committee members expressed some skepticism about this interpretation. The developers noted that for at least some of these questionable conditions, the confidence intervals include one and are thus not statistically significant in the model.
- One Committee member questioned the validity of using administrative billing data for this measure, noting particularly a concern that additional clinical information (e.g., coma) may not be included on the claims data. Other Committee members noted that while this concern may not be applicable for the diagnoses included on the facility-level claim, it might be for the historical physician-level data.
- One Committee member noted a concern that the risk-adjustment model does not take into account how a patient entered a facility (e.g., Life Flight) or where a patient was discharged to (e.g., home versus a nursing facility). Developers explained that they purposively did not risk-adjust for discharge location because this may reflect the quality of care that was provided. They also noted that while they cannot adjust for Life Flight status, they do include in the risk-adjustment model an indicator of whether the patient came into a facility from an outside Emergency Department.

2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization

3. Usability: H-4; M-18; L-0; I-0

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)*

Rationale:

- The developers stated that this measure is not currently used in public reporting or quality improvement efforts.
- One Committee member expressed concern about the potential use of this measure for pay-for-performance applications. NQF staff clarified that NQF endorsement implies that the measure is acceptable for a wide range of accountability applications, including accreditation, public reporting, and payment.

4. Feasibility: H-14; M-8; L-0; I-0

(4a. Clinical data generated during care delivery; 4b. Electronic sources; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- Committee members noted that the measure is computed from administrative data, although there was some question about whether mortality data are routinely gathered. The developers stated that researchers have validated that Medicare is very good at collecting mortality data.

5. Related and Competing Measures

- This measure directly competes with #0467 [Acute Stroke Mortality Rate (IQI 17)] because both address mortality among stroke patients. The main differences between the measures are that measure #0467 includes patients 18 and older with any type of stroke and assesses in-hospital mortality, while measure #2026 includes patients 65 years and older with ischemic stroke and assesses mortality within 30 days of the stroke admission.
  - The Committee agreed that there is value in having measures of both in-hospital mortality as well as 30-day mortality.
  - The Committee has asked AHRQ if they can stratify their measure to obtain rates for ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage and also stratify for ages 65 and older.
  - ***AHRQ response***: We agree that in addition to the ability to calculate the measure with the present denominator, we will create the capability for the user to stratify within the measure by ischemic stroke, intracerebral hemorrhage, and subarachnoid hemorrhage. In regard to age, users already have the functionality to stratify by age. So that capacity – as with other AHRQ QIs – would of course be maintained going forward. The Committee has encouraged CMS to extend the measure to ages 18 and older.

    CMS/Yale response: We have re-specified this measure to include both non-FFS Medicare patients aged 65+ years and all-payer patients aged 18-64 years.
  - The Committee has asked the developers to respond regarding the possibility of harmonization of the measure exclusions.

    Joint AHRQ/CMS response: AHRQ's measure excludes cases:
    • Transferring to another short-term hospital
    • MDC 14 (pregnancy, childbirth, and puerperium)

• With missing discharge disposition, gender, age, quarter, year or principal diagnosis

CMS's measure excludes admissions for patients:
• transferred from another acute care hospital
• with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date)
• who were discharged alive and against medical advice (AMA)
• enrolled in the Medicare Hospice program at any time in the 12 months prior to the index hospitalization including the first day of the index admission

Harmonized Exclusions
The measure developers view the following exclusions as consistent and harmonized between the two measures:
• Exclusion of pregnancy-related admissions: the current CMS measure includes only patients 65 years and older. YNHHSC/CORE/CMS plans to exclude pregnancy-related admissions in all-payer specified measure.
• Exclusion of admissions with missing or unreliable data: the measures have slightly different approaches to handling missing or unreliable data but both address the issue of missing or unreliable data. Given the difference in data source we do not see a need to further harmonize.

Plans for Exclusions not Currently Harmonized
For the exclusions that are not harmonized between the measures, we provide rationales and adjustments (when appropriate) below.

- The AHRQ measure excludes cases *transferred to* another acute care facility, while CMS's measure excludes admissions for patients *transferred from* another acute care facility. This is a necessary difference given the scope of the respective measures. Since AHRQ's measure is an in-hospital mortality measure, transfers to another acute care facility are excluded because the outcome of interest is not observed. CMS's 30-day mortality measure attributes death to the hospital where the patient was initially admitted, thereby excluding admissions that are transferred from another acute care facility. These exclusions will remain unharmonized as they are specific to the outcome being assessed by each measure.
- CMS excludes admissions for patients who are discharged against medical advice (AMA) as providers were not given the opportunity to deliver full care and prepare the patient for discharge. Given that AHRQ's measure focuses on in-patient mortality, patients with the status of AMA are irrelevant to the assessment of in-hospital mortality. As such, this exclusion will remain the same.
- CMS excludes admissions for patients enrolled in Medicare Hospice since it is likely these patients continued to seek comfort measures only. Given the AHRQ measure is computed using inpatient data, the AHRQ QI is not able to employ exclusions based on other data sets, which in this case would involve hospice claims prior to the inpatient admission.
- In regard to inpatient administrative data that we have historically had access to, CMS and AHRQ are in agreement that the V66.7 palliative care code is not sufficient to use as an exclusion for it does not specify that the decision to only provide palliative care occurred at admission. However, additional data has recently become available regarding hospice care that AHRQ is exploring as whether inpatient mortality measures would benefit from using the data as either an exclusion or a covariate. The data element is: Point of origin code for admitted from hospice (value of "F"). At the present time, this data element is being analyzed for potential use in the AHRQ QIs. At the time the analysis is complete, results will be discussed between CMS and AHRQ in regard to the potential to benefit either or both measures. One possible outcome could be that the point of origin code for

admitted from hospice is used as a reasonable proxy to the CMS exclusion.

Committee response: In response to a comment concerning harmonization for another group of measures, the Committee recommended continued and aggressive efforts for harmonization when possible, and requested an update on progress on harmonization at the time of annual review.

- This measure is also related to #2027 [Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization] because both have the same target population.
  - The developer stated that the measures are completely harmonized and the Committee did not identify any other harmonization issues with this measure.

Steering Committee Recommendation for Endorsement: Y-18; N-4

Public & Member Comment

Comments included**:**

- A concern that administrative data rather than clinical data is used for the measure.
  Developer response: There are a number of things that contribute to the success of administrative models for risk-adjustment of hospital outcomes measures. Although a few covariates may appear counterintuitive, most are clinically coherent. What is most important to note is that the stroke measure has been validated against a chart measure in our development process with high degree of correlation between the two models (0.8). We have demonstrated, through our validation, the effectiveness of claims data for risk-adjustment by showing that the measure produces similar results as a medical record model. Moreover, it does not carry the burden for hospitals of collecting chart abstracted data.
- A concern that the most severely disabled stroke patients are re-directed to referral stroke centers, which may result in excess mortality at those sites.
  Developer response: During the development process we examined the performance of referral stroke centers, both looking at teaching hospitals and at stroke centers, but we do not find any evidence that these hospitals are shown to have excess mortality on this measure. Teaching centers, stroke centers have been shown to have overall similar distribution of performance as other hospitals.
- A concern that hospitals may "cherry pick" stroke patients with mild or moderate strokes and may not want to accept more severely ill patients.
  Developer response: We have aimed to develop a measure that will not have any such incentives. If the patient is admitted to one hospital and then transferred, the first admitting hospital is accountable for the mortality outcome. Additionally, if a patient is transferred from an outside Emergency Department, this is accounted for in the risk-adjustment of the measure.
- A concern that the measures are not well validated.
  Developer response: The measure development process has been fully transparent. We had a public call to convene members for a Technical Expert Panel and the summary of this panel's discussion on the measure specifications was publicly available. The measure also went through a public comment period during development. We have aimed for full transparency in the process of developing and validating the measure.
- Several commenters expressed the concern that an indicator of stroke severity (particularly, the value of the NIH Stroke Scale) is not included in the risk-adjustment models for stroke mortality; most specifically cited a recent JAMA article (*308(3)*, 257-264) by Fonarow and colleagues.
  Developer response: Although the paper shows, not surprisingly, that that model discrimination is improved with the inclusion of NIHSS, there are a number of concerns about this paper which limit it applicability to our measure. The paper uses a model that differs in meaningful ways from the measure

we have put forth. Although presented as being modeled on our measure it includes both ischemic and hemorrhagic stroke patients, fails to account for transfers from outside EDs (which likely account in part for stroke severity), and includes a large number of covariates. The paper is also dependent on the NIHSS, which is present in fewer than half the patients; this both limits interpretation of paper's results and speaks to the hurdles to producing a measure that could be used nationally for public reporting that included NIHSS. Finally, the paper suggests changes in hospital ranking (based on intercept terms not full risk-standardized rates) but does not indicate whether the shifts across categories are due to relatively small changes in the risk-standardized rates that move the hospitals across the boundaries of the categories or more significant changes in hospital scores change between the two measures. Further, the analysis of the outliers was done solely by comparing the random intercepts to the average hospital intercepts which does not take into account the case-mix of each hospital. For all of these reasons we do not feel the paper should change the Steering Committee's assessment of our measure.

Committee response:
The Committee discussed at length the concern regarding inclusion of stroke severity in the risk-adjustment model. Points of discussion included the need for adjustment for stroke severity, the success (or not) in adjustment for severity using only administrative data, the potential timing and feasibility of collecting the NIH stroke scale value, the findings from the Fonarow paper that inclusion of the NIH stroke score resulted in changes in hospital rankings, the potential discriminatory ability of the CMS/Yale model if the NIH stroke scale also was included, the concern that the measure unfairly categorizes tertiary care facilities that accept many transfer patients (e.g., stroke centers/safety net hospitals), and the trade-offs between a possibly imperfect measure against having no measure of readmissions at all.

Regarding the change in hospital rankings in the Fonarow study, the developer noted that most hospitals did not change classifications and suggested that, rather than focus on reclassifications based on arbitrary cut-points, it would have been more informative to know how much agreement there was in the actual risk-adjusted rates. Regarding the potential discriminatory ability of the CMS/Yale model if the NIH stroke scale also was included, the developer stated that addition of an extra variable in a model will always result in improved predictive performance (i.e., a higher R^2 value). The developer also noted that in the mortality model they developed from clinical data (*c* statistic = 0.80), they used a stroke severity scale that performs similarly to the NIH stroke scale. The developer also noted that less than half of the patients in the Fonarow study had an NIH stroke scale value (and thus more than half of the stroke patients were excluded from the study) and that the percentage of patients without the NIHSS value was not uniform across all hospitals.

Measure Changes:
As part of their measure harmonization efforts, the developer made a material change to the measure after the in-person meeting. Specifically, the measure now includes all-payer patients ages 18 and over (rather than Medicare FFS patient ages 65+ only). The developer provided a detailed report describing the effects of this change on the measure.

Due to the material change made to the measure, as well as the concern regarding inclusion of stroke severity in the risk-adjustment model, the Committee was asked to re-vote on the measure. Committee members we instructed to consider the revised specifications in their decision. Also, in addition to the abridged developer responses noted above (full responses are included in the Comment table posted to the public website), additional materials were made available to the Committee, as follows:

- Yale-New Haven Hospital Comment Letter
- Yale Follow-up to Steering Committee Meeting on August 27, 2012 (PDF)
- GWTG Supplementary Response After 27 Call (PDF)

2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization
These materials are posted on NQF's public website. **Vote Following Consideration of Public and Member Comments:** **1. Importance to Measure and Report** *(based on decision logic):* **Yes** **1a.** Impact: **H-16; M-4; L-1; I-1 1b.** Performance Gap: **H-11; M-9; L-1; I-1 1c.** Evidence: **Y-18; N-4; I-0** **2. Scientific Acceptability of Measure Properties** *(based on decision logic):* **Yes** **2a.** Reliability: **H-6; M-10; L-3; I-3 2b.** Validity: **H-3; M-9; L-5; I-5** **Usability: H-4; M-10; L-4; I-4** **Feasibility: H-9; M-8; L-3; I-2** **Recommendation for Endorsement: Y-11; N-11**
Steering Committee Recommendation for Endorsement: Consensus Not Reached

Measures Not Recommended

0242 Stroke and Stroke Rehabilitation: Tissue Plasminogen Activator (t-PA) Considered

Submission

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke who arrive at the hospital within 4.5 hours of time last known well who were considered for t-PA administration
Numerator Statement: Patients who were considered for t-PA administration
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke who arrive at the hospital within 4.5 hours of time last known well
Exclusions: None
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Facility
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: **H-2; M-8; L-10; I-2**;
Rationale:

- The Committee questioned why a measure of t-PA consideration was put forward rather than simply a measure of t-PA administration. The developer explained that this measure was created to encourage consideration of t-PA out to the 4.5-hour window, noting that administration of t-PA during the 3-to-4.5-hour post-stroke period is recommended by the guidelines. They also clarified their intent to pair this measure with #2022 (which measures administration of IV t-PA within the first 3 hours post-stroke). The Committee questioned whether a measure of "consideration" would really reflect a process of care or whether it would simply reflect documentation (i.e., a "check-box" measure). While the Committee agreed that measures that would increase the use of t-PA would have a big impact on stroke patients, they were not convinced that having a check-box measure to force consideration of t-PA administration would actually increase t-PA use.

Steering Committee Recommendation for Endorsement: No
Rationale

- The measure did not pass the criterion of Importance to Measure and Report.

2022 Stroke and Stroke Rehabilitation: Tissue Plasminogen Activator (t-PA) Initiated

Submission

Status: New Submission
Description: Percentage of all patients aged 18 years and older with a diagnosis of ischemic stroke who present within two hours of time last known well and who are eligible for t-PA, for whom t-PA was initiated within three hours of time last known well
Numerator Statement: Patients for whom t-PA was initiated within three hours of time last known well
Denominator Statement: All patients aged 18 years and older with a diagnosis of ischemic stroke who present within two hours of time last known well and who are eligible for t-PA
Exclusions: Documentation of medical reason(s) for not initiating Tissue Plasminogen Activator (t-PA) within three hours of time last known well (eg, contraindications, conditions that might lead to increased risk of bleeding or unfavorable outcomes, other medical reasons)
Contraindications*

- CT findings of intracranial hemorrhage, subarachnoid hemorrhage, or major infarct signs
- History of intracranial hemorrhage, brain aneurysm, vascular malformation, or brain tumor
- Internal bleeding (less than 22 days)
- IV or IA t-PA given at a transferring hospital
- No IV access
- Platelets less than 100,000, PTT greater than 40 sec after heparin use
- PT greater than 15 or INR greater than 1.7, or unknown bleeding diathesis
- Recent intracranial or spinal surgery, head trauma, or stroke (less than 3 months)
- Recent surgery/trauma (less than 15 days)
- Seizure with postictal residual neurological impairments
- Suspicion of subarachnoid hemorrhage
- Systolic blood pressure greater than 185 or diastolic blood pressure greater than 110 mm hg.
- Unable to determine eligibility

Warnings/Conditions that might lead to increased risk of bleeding or unfavorable outcomes*:

- Acute pericarditis
- Advanced age
- Diabetic hemorrhagic retinopathy or other ophthalmic bleeding
- Glucose less than 50 or greater than 400 mg/dl
- Hemostatic defects including those secondary to severe renal or hepatic disease
- Left heart thrombus
- Life expectancy less than 1 year or severe co-morbid illness
- Patient currently receiving oral anticoagulants (e.g. Warfarin sodium, Coumadin)
- Pregnancy
- Rapid improvement
- Septic thrombophlebitis or occluded AV cannula at seriously infected site
- Stroke severity – Too mild
- Stroke severity – Too severe (e.g., NIHSS greater than 22)
- Subacute bacterial endocarditis

*Lists harmonized with The Joint Commission measure.
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Facility
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement **Other**

organizations: American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING 06/20-21/2012

Importance to Measure and Report: <u>The measure meets the Importance criteria</u>

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-14; M-6; L-2; I-0** 1b. Performance Gap: **H-21; M-1; L-0; I-0** 1c. Evidence: **Y-18; N-4**

<u>Rationale</u>:

- Data submitted by the developer reports that an estimated 7,000,000 Americans ≥20 years of age have had a stroke, that t-PA increases recovery from stroke symptoms by up to 50% with a low serious complication rate, and that, ideally, more than 40% of all stroke patients should receive t-PA.
- One Committee member questioned whether this measure simply assesses documentation as opposed to driving quality improvement. However, another member noted that while it might be more about documentation for high-quality stroke centers, it is a relevant measure for other facilities. In general the Committee agreed that the measure would bring attention to the consideration of t-PA for appropriate patients and help to improve care.
- Published literature cited by the developer reports that only 3% to 8.5% of potentially eligible patients receive t-PA; the developer also cited literature that seems to demonstrate disparities in t-PA administration among minorities.
- The developer cited an evidence-based clinical practice guideline, a systematic literature review, and additional selected studies as the underlying evidence for the measure.

2. Scientific Acceptability of Measure Properties: <u>The measure did not meet the Scientific Acceptability criteria.</u>

(2a. Reliability – precise specifications, testing; 2b. Validity – testing, threats to validity)

2a. Reliability: **H-1; M-12; L-4; I-5** 2b. Validity**: H-1; M-5; L-5; I-11**

<u>Rationale:</u>

- The Steering Committee expressed concern about the exclusions and contraindications that were cited in the measure, noting that the list of contraindications may provide a rationale for not administering t-PA. The developer clarified that exceptions allow for clinical judgment of the physician and that the list of contraindications are meant to be examples of potential exceptions and are not exclusions for the measure. The developer also noted that the list of contraindications comes from the FDA label for t-PA.
- The Committee asked for clarification for how potentially eligible patients are defined. The developer explained that the denominator for the measure includes all patients 18 years and older who have a diagnosis of ischemic stroke, present within two hours of time last-known well, and are eligible for t-PA (i.e., have an acute neurologic deficit, a clearly-defined time of onset of less than 180 minutes before treatment, and a baseline CT showing no evidence of intracranial hemorrhage). Committee members noted that the diagnosis of ischemic stroke reflects the discharge diagnosis, not the admission diagnosis.
- The Committee expressed concern that, although the measure is specified at the facility level, the reliability testing was conducted at four physician practice sites. One member noted that there are often several practices that operate within one hospital.
- The Committee questioned why, at the time of testing, the measure did not have any exclusions. The developer stated that testing results were based on the data elements in a previous version of the measure (which assessed consideration of t-PA administration), noting their belief that the testing results were relevant for this new measure. They also noted that in the prior testing, information was collected and tested on the reasons why a patient may not have been treated with t-PA; however, they acknowledged that this information was not included in the measure submission. The Committee expressed concern that some

of the needed testing results were not made available.
Steering Committee Recommendation for Endorsement: No **Rationale** • The measure did not pass the criterion of Scientific Acceptability.

2017 Stroke and Stroke Rehabilitation: Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) Reports

Submission

Status: New Submission
Description: Percentage of final reports for CT or MRI studies of the brain performed either:
In the hospital within 24 hours of arrival, OR
In an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage
For patients aged 18 years and older with either a diagnosis of ischemic stroke or transient ischemic attack (TIA) or intracranial hemorrhage OR at least one documented symptom consistent with ischemic stroke or TIA or intracranial hemorrhage that includes documentation of the presence or absence of each of the following: hemorrhage and mass lesion and acute infarction
Numerator Statement: Final reports of the initial CT or MRI that include documentation of the presence or absence of each of the following: hemorrhage and mass lesion and acute infarction
Denominator Statement: All final reports for CT or MRI studies of the brain performed either:
In the hospital within 24 hours of arrival, OR
In an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage.
For patients aged 18 years and older with either a diagnosis of ischemic stroke or TIA or intracranial hemorrhage OR at least one documented symptom consistent with ischemic stroke or TIA or intracranial hemorrhage
Exclusions: None
Adjustment/Stratification: No risk adjustment or risk stratification Not applicable We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Imaging/Diagnostic Study, Electronic Clinical Data : Registry
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement **Other organizations:** American Academy of Neurology
American College of Radiology
National Committee for Quality Assurance

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: **The measure does not meet the Importance criteria**

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-1; M-1; L-15; I-5**;

Rationale:

- Committee members were concerned that the link between documenting results of neuroimaging studies and improved outcomes was not well-established.
- One Committee member noted that t-PA treatments often are initiated hours or even days before the radiology readings come back, and thus questioned whether meeting this measure would actually improve rates of t-PA treatment.
- Another member questioned whether actual documentation of the absence of a finding (e.g., a mass lesion) would, in fact, change practice and thus be important to measure. The developer noted that the intent of the measure is to have a clear and unambiguous interpretation of a CT or MRI that can be relied on in the emergency room, particularly in facilities with only telephone (or no) neurology back-up.
- The Committee noted that the measure includes all patients who have one documented symptom

consistent with ischemic stroke or TIA or intracerebral hemorrhage, but was concerned about how to identify all the people who at least one symptom. The developer clarified that the denominator was defined by the procedure (CT or MRI) as well as symptoms suggestive of a stroke, but acknowledged that the measure might "cast too wide of a net."

- Committee members noted that this measure does not include any requirements as to the timeliness of the imaging reports beyond the inclusion of imaging studies that are performed within 24 hours of hospital arrival. The developer acknowledged this shortcoming, noting that they hope to address timing of the reports in the future.

Steering Committee Recommendation for Endorsement: <u>No</u>

Rationale

- The measure did not pass the criterion of Importance to Measure and Report. The Committee encouraged the developer to construct a measure to assess the provision of a comprehensively-worded, accurate, and timely imaging report.

0440 STK-08: Stroke Education

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure captures the proportion of ischemic or hemorrhagic stroke patients with documentation that they or their caregivers were given stroke education materials. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy,STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Numerator Statement: Ischemic or hemorrhagic stroke patients with documentation that they or their caregivers were given educational material addressing all of the following:
1. Activation of emergency medical system
2. Need for follow-up after discharge
3. Medications prescribed at discharge
4. Risk factors for stroke
5. Warning signs and symptoms of stroke

Denominator Statement: Ischemic stroke or hemorrhagic stroke patients discharged home
Exclusions: • Less than 18 years of age
- Length of Stay > 120 days
- Comfort measures only documented
- Enrolled in clinical trials related to stroke
- Admitted for elective carotid intervention

Adjustment/Stratification: No risk adjustment or risk stratification N/A Not applicable, the measure is not stratified.
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records
Measure Steward: The Joint Commission **Other organizations:** The stroke measure set was developed in collaboration with the American Heart Association/American Stroke Association. Input was also provided by the U.S. Centers for Disease Control and Prevention Paul Coverdell National Acute Stroke Registry.

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure does not meet the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-2; M-4; L-4; I-12**

Rationale:

- The Committee noted that the measure submission did not adequately address the impact of stoke education on patient outcomes—particularly for patients who previously had a stroke (as opposed to stroke education for the general population).
- One Committee member noted that a challenge with stoke education programs is that they tend to measure whether or not a patient is presented with education materials, but not whether the patient can understand the materials or if behavior changes because of the education intervention.
- The Committee expressed the concern that this measure could be a "check-box" measure, given the lack of direction regarding language and literacy requirements and the absence of a teach-back requirement. The developer noted that when the measure was changed from a simple measure of providing education

to actually specifying the five domains that must be addressed with the patient, they received pushback from hospitals that the measure was now too onerous.

- While the developer expressed a belief that this less intensive measure wouldn't cause harm, one Committee member suggested that it might cause harm if it leads to a false conclusion that education does not work.
- One Committee member expressed concern that removing endorsement would send a message that education isn't important. However, while other members agreed that providing education is important, they also noted that some educational efforts may be more intensive—and thus more effective—than others. The Committee encouraged developers to consider development of a stronger measure for stroke education in the near future.

Steering Committee Recommendation for Endorsement: No

- **The measure did not pass the criterion of Importance to Measure and Report.**

1955 NIH Stroke Scale Recorded

Submission

Status: New Submission
Description: Percent of patients aged 18 and older with ischemic stroke, or stroke not otherwise specified, with an initial NIH Stroke Scale recorded.
Numerator Statement: Patients in whom a NIH Stroke scale test was measured, and a total score is recorded for these patients, as part of initial evaluation upon arrival at the hospital.
Denominator Statement: Patients with a final clinical diagnosis of ischemic stroke or stroke not otherwise specified.
Exclusions: • Patient is less than 18 years
• Stroke occurred while patient was an inpatient at the hospital
• Stroke symptoms resolved at time of presentation
• Patient underwent elective carotid intervention
Adjustment/Stratification: No risk adjustment or risk stratification Not Applicable. Not Applicable.
Level of Analysis: Facility, Population : National, Population : Regional, Population : State
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data : Registry
Measure Steward: American Heart Association/American Stroke Association **Other organizations:** Not Applicable.

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure does not meet the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-5; M-10; L-3; I-4**; 1c. Evidence: **Y-10; N-12**

Rationale:

- While the Committee agreed that the NIH Stroke Scale is good for predicting outcomes (particularly mortality) and for evaluating stroke patients, members did not see the link with improved outcomes. The developer acknowledged that measuring the NIH Stroke Scale would not change a patient's outcome, but argued that it would enable decision-making that could affect outcomes (e.g., initiation of t-PA treatment, identifying patients who could benefit from transfer to stroke units/centers).
- One Committee member argued that the NIH Stroke Scale under-represents the severity of right brain stroke.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0446 Functional Communicaton Measure: Reading

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment of patients with reading disorders.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Reading Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the Reading Functional Communication Measure (FCM).
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Reading Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A
Level of Analysis: Clinician : Group/Practice, Facility, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Medical Records
Measure Steward: American Speech-Language-Hearing Association

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure does not meet the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-4; M-8; L-4; I-5**; 1c. Evidence: **Y-5; N-16**

Rationale:

- The developer stated that of the 15,114 episodes of care involving stroke patients who received speech-language pathology services in 2011 that were reported in the National Outcomes Measurement System for Speech-Language Pathology, 16.5% were treated for reading disorders. They also cited literature suggesting that 21%-38% of acute stroke patients are aphasic, and of these, 25%-32% have global aphasia (i.e., impairments across reading, writing, spoke language comprehension, and spoken language expression). However, Committee members were unsure from this information what percentage of stoke patients would have a reading deficit.
- One Committee asked whether improvement of one level on the FCM scale could happen without rehab services. Another Committee member noted that outcome measures for rehabilitation services would help to answer this difficult question. Although the developer acknowledged that some patients would likely make progress on the FCM scale without rehab services, he also argued that data from their registry indicates that the likelihood of making progress is strongly related to the amount of treatment received.
- Another Committee member expressed the concern that the link between the intervention (provision of rehab services) and the desired outcome was not well established for this measure. Although the developer showed some data to demonstrate that higher percentages of patients showed improvement in reading with more hours of treatment, the Committee did not agree that this demonstrated a sufficient rationale for the measure.

0446 Functional Communicaton Measure: Reading

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0442 Functional Communication Measure: Writing

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: Number of stroke patients who make progress as defined by an increase of one or more levels on the Writing Functional Communication Measure (FCM).
Numerator Statement: Number of stroke patients who make progress on the Writing Functional Communication Measure.
Denominator Statement: Number of stroke patients scored on the Writing Functional Communication Measure.
Exclusions: Patients discharged from speech-language pathology services after only one treatment session.
Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Writing Functional Communication Measure).
Patients using an augmentative-alternative communication system.
Adjustment/Stratification: Stratification by risk category/subgroup N/A.
Level of Analysis: Clinician : Group/Practice, Facility, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Medical Records
Measure Steward: American Speech-Language-Hearing Association

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure does not meet the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: **H-4; M-7; L-8; I-2**; 1c. Evidence: **Y-3; N-18**

Rationale:

- The developer stated that of the 15,114 episodes of care involving stroke patients who received speech-language pathology services in 2011 that were reported in the National Outcomes Measurement System for Speech-Language Pathology, 10.1% were treated for writing disorders. They also cite literature suggesting that 21%-38% of acute stroke patients are aphasic, and of these, 25%-32% have global aphasia (i.e., impairments across reading, writing, spoke language comprehension, and spoken language expression). However, Committee members were unsure from this information what percentage of stoke patients would have a writing deficit.
- Although the developer presented some data to demonstrate that higher percentages of patients showed improvement in writing with more hours of treatment, the Committee did not agree that this demonstrated a sufficient rationale for the measure. Further, the Committee expressed uncertainly about whether evidence for this measure was just not presented by the developer or if that evidence actually does not exist.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0443 Functional Communicaton Measure: Swallowing

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment of patients who exhibit difficuty in swallowing.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Swallowing Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the Swallowing Functional Communication Measure.
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Swallowing Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A
Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry
Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18
Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report**.**

0444 Functional Communication Measure: Spoken Language Expression

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008

Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment related to spoken language expression.

Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Spoken Language Expression Functional Communication Measure (FCM).

Denominator Statement: Number of stroke patients scored on the Spoken Language Expression Functional Communication Measure (FCM).

Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Spoken Language Expression Functional Communication Measure).

Adjustment/Stratification: Stratification by risk category/subgroup N/A.

Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System

Type of Measure: Outcome

Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry

Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]

Importance to Measure and Report: The measure does not meet the Importance criteria

(1a. High Impact: 1b. Performance Gap, 1c. Evidence)

1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18

Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0445 Functional Communication Measure: Spoken Language Comprehension

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment related to spoken language comprehension.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Spoken Language Comprehension Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the Spoken Language Comprehension Functional Communication Measure (FCM).
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Spoken Langauge Comprehension Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A.
Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry
Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18
Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0447 Functional Communication Measure: Motor Speech

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment of patients who exhibit deficits in speech-production.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Motor Speech Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the the Motor Speech Functional Communication Measure (FCM).
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Motor Speech Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A
Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry
Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18
Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0449 Functional Communicaton Measure: Attention

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment of patients who have attention deficits.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the Attention Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the Attention Functional Communication Measure (FCM).
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not candidates for memory treatment as demonstrated by the highest level of functioning on admission (Level 7 on the Attention Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A
Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry
Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18
Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

0448 Functional Communication Measure: Memory

Submission

Status: Maintenance, Original Endorsement: Jul 31, 2008
Description: This measure describes the change in functional communication status subsequent to speech-language pathology treatment of patients with memory deficits.
Numerator Statement: Number of stroke patients who make progress as defined by an increase of one or more levels on the scale the Memory Functional Communication Measure (FCM).
Denominator Statement: Number of stroke patients scored on the Memory Functional Communication Measure (FCM).
Exclusions: Patients discharged from speech-language pathology services after only one treatment session. Patients who are not a candidate for memory treaments as demonstrated by the highest level of functioning at admission (Level 7 on the Memory Functional Communication Measure).
Adjustment/Stratification: Stratification by risk category/subgroup N/A
Level of Analysis: Facility, Clinician : Group/Practice, Integrated Delivery System
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Medical Records, Electronic Clinical Data : Registry
Measure Steward: American Speech-Language-Hearing Association **Other organizations:**

STEERING COMMITTEE MEETING [June 20-21, 2012]
Importance to Measure and Report: The measure does not meet the Importance criteria
(1a. High Impact: 1b. Performance Gap, 1c. Evidence)
1a. Impact: H-4; M-7; L-8; I-2; 1c. Evidence: Y-3; N-18
Rationale:

- Because the evidence for this measure was similar to that that presented for measures #0442 and #0446, both the Committee and the developer agreed that this measure would not be recommended as suitable for endorsement (i.e., this measure would fail for the same reasons as did measures #0442 and #0446). The Committee's votes on measure #0442 have been administratively applied to the remaining six functional communication measures. Please see the discussion of measure #0442 for further information.

Steering Committee Recommendation for Endorsement: No

- The measure did not pass the criterion of Importance to Measure and Report.

Measures Withdrawn from Consideration

TwoEight measures previously endorsed by NQF have not been re-submitted or have been withdrawn from maintenance of endorsement. The following measures are being retired from endorsement:

Measure	Reason for retirement
602: Adult(s) with frequent use of acute medications that also received prophylactic medications (Ingenix)	Developer elected not to pursue maintenance of endorsement.
644: Patients with a transient ischemic event ER visit that had a follow up office visit (Ingenix)	Developer elected not to pursue maintenance of endorsement.
~~***443: Functional Communication Measure: Swallowing (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~
~~***444: Functional Communication Measure: Spoken Language Expression (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~
~~***445: Functional Communication Measure: Spoken Language Comprehension (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~
~~***447: Functional Communication Measure: Motor Speech (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~
~~***448: Functional Communication Measure: Memory (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~
~~***449: Functional Communication Measure: Attention (ASHA)***~~	~~Measure withdrawn during Steering Committee discussion. See summary for measures #0446 and #0442.~~

Appendix A: Measure Specifications

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who were administered DVT prophylaxis by the end of hospital day two
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_1.STROKE.DVTprophylaxis_MAY2012.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients who were administrated Deep Vein Thrombosis (DVT) prophylaxis by the end of hospital day two
Numerator Details	**Time Window:** Once during each hospital stay during the measurement period Definition: DVT Prophylaxis – Can include Low Molecular Weight Heparin (LMWH), Low-Dose Unfractionated Heparin (LDUH), low-dose subcutaneous heparin, or intermittent pneumatic compression devices. Day Two – Ends at 11:59 pm on the second day of hospitalization; day one is day patient was admitted EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: DVT Prophylaxis Received CPT II 4070F: Deep Vein Thrombosis (DVT) prophylaxis received by end of hospital day 2 *The above list of medications/drug names and devices is based on clinical guidelines and other evidence. The specified drugs and devices were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs and devices may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications, and to the FDA's web site page entitled "Medical Device Safety" for up-to-date device recall and alert information when utilizing medical devices. Day two- ends at 11:59pm on the second day of hospitalization; day one is day patient was admitted. For EHR: eMeasure developed; available upon request For Claims, Numerator Action Met: CPT II 4070F: Deep Vein Thrombosis (DVT) prophylaxis received by end of hospital day 2
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage
Denominator Details	**Time Window:** Each hospital stay during 12 consecutive month measurement period EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: Diagnosis for ischemic stroke or intracranial hemorrhage (ICD-9-CM): 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91 OR

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage
	Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99291, 99251, 99252, 99253, 99254, 99255
Exclusions	All patients that expired during inpatient stay are excluded. Documentation of medical reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) Documentation of patient reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For measure this measure, exclusions include all patients that expired during inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s))patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))for not administering DVT Prophylaxis by end of hospital day 2. Where examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded (For claims-based registry, use CPT II with 1P modifier) Exceptions: DVT Prophylaxis not Received for Medical or Patient Reasons

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage
	4070F with 1P: Documentation of medical reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (e.g., patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) 4070F with 2P: Documentation of patient reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (e.g., patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Risk Adjustment	No risk adjustment or risk stratification Not applicable
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified [for this measure: medical reason(s) (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, exception rates (ie, the percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717341845184518.pdf
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	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage
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	0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation who were prescribed an anticoagulant at discharge.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_3.STROKE.afib.anticoagulant_MAY2012.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients who were prescribed an anticoagulant at discharge Discharge refers to discharge from the acute care setting, whether patient received care in the emergency department or as an inpatient or a rehabilitation facility.
Numerator Details	**Time Window:** At each hospital discharge during measurement period Definitions: Anticoagulants – warfarin, low molecular weight heparin, dabigatran, rivaroxaban* *The above list of medications/drug names is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications. Prescribed – May include prescription given to the patient for an anticoagulant at discharge or anticoagulant to be continued after discharge as documented in the discharge medication list. NUMERATOR NOTE: In order to meet the measure, anticoagulant therapy is to be prescribed at the time of discharge. If a physician other than the discharging physician (e.g., consulting physician) is reporting on this measure, it should be clear from the documentation that the prescription is being ordered for the patient at the time of discharge, and included in the "medications prescribed at discharge." EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: CPT II Code: 4075F - Anticoagulant therapy prescribed at discharge
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation
Denominator Details	**Time Window:** Each hospital stay during 12 consecutive month measurement period First Detected – only one diagnosed episode Persistent Atrial Fibrillation – Recurrent episodes that last more than 7 days Paroxysmal Atrial Fibrillation – Recurrent episodes that self terminate in less than 7 days Permanent Atrial Fibrillation – An ongoing long term episode EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Registry Specifications: Diagnosis for ischemic stroke or transient ischemic attack (TIA) (ICD-9-CM): 433.01, 433.11, 433.21, 433.31,

	0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge
	433.81, 433.91, 434.01, 434.11, 434.91, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9 AND Diagnosis for atrial fibrillation (ICD-9-CM): 427.31 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for TIA (ICD-10-CM): G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2 AND Diagnosis for Atrial Fibrillation (ICD-10-CDM): I48.0, I48.1, I48.2 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99238, 99239, 99251, 99252, 99253, 99254, 99255 AND CPT Category II code(s) designated for this Atrial Fibrillation: 1060F – Documentation of permanent OR persistent OR paroxysmal atrial fibrillation
Exclusions	All patients that expired during inpatient stay are excluded. Documentation of medical reason(s) for not prescribing anticoagulant therapy at discharge (eg, other medical reason(s)) Documentation of patient reason(s) for not prescribing anticoagulant therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For this measure, exclusions include all patients that expired during the inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, other medical reasons) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s)) for not prescribing an anticoagulant at discharge(eg, vaccine not available, other system reasons). Where examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows:

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	EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded (For claims-based registry, use CPT II with 1P modifier) Exceptions: CPT II Codes: 4075F-1P: Anticoagulant therapy not prescribed at discharge for medical reason (e.g. other medical reason(s)) OR 4075F-2P: Anticoagulant therapy not prescribed at discharge for patient reason (e.g., patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or stratitification
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator when exceptions have been specified [for this measure: medical reason(s) (eg, other medical reasons) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. ----Although the exception cases are removed from the denominator population for the performance calculation, the exception rates (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717453303465768.pdf
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	Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the Measures require a license agreement between the user and the AMA, (on behalf of the PCPI) or NCQA. Neither the AMA, NCQA, PCPI nor its members shall be responsible for any use of the Measures. THE MEASURES AND SPECIFICATIONS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND © 2012 American Medical Association and the National Committee for Quality Assurance. All Rights Reserved. Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, NCQA, the PCPI and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. CPT® contained in the Measure specifications is copyright 2004- 2011 American Medical Association. LOINC® copyright 2004--2011 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms® (SNOMED CT®) copyright 2004-2011 International Health Terminology Standards Development Organisation. ICD-10 Copyright 2011 World Health Organization. All Rights Reserved. See copyright statement above.

	0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who receive any food, fluids or medication by mouth (PO) for whom a dysphagia screening was performed prior to PO intake in accordance with a dysphagia screening tool approved by the institution in which the patient is receiving care
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_5.STROKE.dysphagia.screen_MAY2012-634717433277215768.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Hospital/Acute Care Facility, Other Emergency Department
Numerator Statement	Patients for whom a dysphagia screening was performed prior to PO intake in accordance with a dysphagia screening tool approved by the institution in which the patient is receiving care
Numerator Details	**Time Window:** Once during each hospital stay during measurement period Definition: Dysphagia Screening – May include, but is not limited to Videofluoroscopic Swallow Evaluation (VSE), fiberoptic endoscopic evaluation of swallowing (FEES), modified barium swallow, structured bedside swallowing assessment. EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Dysphagia Screening Conducted CPT II 6010F: Dysphagia screening conducted prior to order for or receipt of any foods, fluids or medication by mouth
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who receive any food, fluids or medication by mouth (PO)
Denominator Details	**Time Window:** Each hospital stay during 12 consecutive month measurement period EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Diagnosis for ischemic stroke or intracranial hemorrhage (ICD-9-CM): 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9

	0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia
	AND Patient encounter during the reporting period (CPT): 99218, 99219, 99220, 99221, 99222, 99223, 99234, 99235, 99236, 99251, 99252, 99253, 99254, 99255, 99281, 99282, 99283, 99284, 99285, 99291 AND CPT II 6015F: Patient receiving or eligible to receive foods, fluids or medication by mouth
Exclusions	All patients that expired during inpatient stay are excluded Exceptions: Documentation of medical reason(s) for not performing a dysphagia screening prior to taking any foods, fluids or medication by mouth (eg, patient without any focal findings and not thought to be having a stroke when initially evaluated, other medical reason(s)) Documentation of patient reason(s) for performing a dysphagia screening prior to taking any foods, fluids or medication by mouth (eg, patient left against medical advice, other patient reason(s))
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For measure ABCD, exclusions include all patients that expired during inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, patient without any focal findings and not thought to be having a stroke when initially evaluated, other medical reason(s)) or patient reason(s) (eg, patient left against medical advice, other patient reason(s)) for not performing a dysphagia screening prior to taking any foods, fluids or medication by mouth. Where examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded (For claims-based registry, use CPT II with 1P modifier) Exceptions: Dysphagia Screening not Conducted for Medical or Patient Reasons 6010F with 1P: Documentation of medical reason(s) for not conducting dysphagia screening prior to taking any foods, fluids or medication by mouth (e.g., patient without any focal findings and not thought to be having a stroke when initially evaluated, other medical reason[s]).

	0243 Stroke and Stroke Rehabilitation: Screening for Dysphagia
	6010F with 2P: Documentation of patient reasons(s) for not performing a dysphagia screening prior to taking any foods, fluids or medication by mouth (e.g., patient left against medical advice, other patient reason[s]).
Risk Adjustment	No risk adjustment or risk stratification Not applicable
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator when exceptions have been specified [for this measure: medical reason(s) (eg, patient without any focal findings and not thought to be having a stroke when initially evaluated, other medical reason(s)) or patient reason(s) (eg, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rates (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717433187684518.pdf
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	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_6.STROKE.rehab.ordered_MAY2012.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge
Numerator Details	**Time Window:** Once during each hospital stay during measurement period Definition: Rehabilitation Services – Includes services required in order to improve physical, cognitive (including neuropsychological), behavioral, and speech functions. Rehabilitation order can include one or more of the services listed. EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Rehabilitation Services Ordered G8699: Rehabilitation services (occupational, physical, or speech) ordered at or prior to discharge OR 4XXXF (In development) - Rehabilitation services (occupational, physical, or speech) ordered at or prior to discharge
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage
Denominator Details	**Time Window:** Each hospital stay during 12 consecutive month measurement period EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Diagnosis for ischemic stroke or intracranial hemorrhage (ICD-9-CM): 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9 Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2,

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered
	I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99234, 99235, 99236, 99238, 99239, 99251, 99252, 99253, 99254, 99255
Exclusions	None
Exclusion Details	EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Exclusions: Not Applicable Claims Specifications: G8700: Rehabilitation services (occupational, physical, or speech) not indicated at or prior to discharge OR 4XXXF (In development) - Rehabilitation services (occupational, physical, or speech) not indicated at or prior to discharge
Risk Adjustment	No risk adjustment or risk stratification Not applicable
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator If the patient does not meet the numerator, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment (2a1.30). Attachment PCPI_Measure_Calculation_V2.0.pdf
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	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) who were prescribed antithrombotic therapy at discharge
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_2.STROKE.discharge.antithrombotic_MAY2012.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients who were prescribed antithrombotic therapy at discharge
Numerator Details	**Time Window:** At each hospital discharge during measurement period Numerator Instructions: If the consulting physician orders or agrees with a prior antithrombotic therapy order (from current or previous episodes of care during the reporting period) and there is supporting documentation, report G8696. Definitions: Antithrombotic Therapy – Aspirin, combination of aspirin and extended-release dipyridamole, clopidogrel, ticlopidine, warfarin, low molecular weight heparin, dabigatran, rivaroxaban* *The above list of medications/drug names is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications. Prescribed – May include prescription given to the patient for antithrombotic therapy at discharge OR antithrombotic therapy to be continued after discharge as documented in the discharge medication list NUMERATOR NOTE: In order to meet the measure, antithrombotic therapy is to be prescribed at the time of discharge. If a physician other than the discharging physician (e.g., consulting physician) is reporting on this measure, it should be clear from the documentation that the prescription is being ordered for the patient at the time of discharge, and included in the "medications prescribed at discharge." EHR Specifications: eMeasure developed – see attached Claims Specifications: G8696: Antithrombotic therapy prescribed at discharge OR 4XXXF (in development) – Antithrombotic therapy prescribed at discharge
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA)
Denominator Details	**Time Window:** Each hospital discharge during 12 consecutive month measurement period eMeasure developed – see attached Claims Specifications: Diagnosis for ischemic stroke or TIA (ICD-9-CM): 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039,

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy
	I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for TIA (ICD-10-CM): G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99234, 99235, 99236, 99238, 99239, 99251, 99252, 99253, 99254, 99255
Exclusions	All patient that expired during inpatient stay are excluded. Documentation of medical reason(s) for not prescribing antithrombotic therapy at discharge (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)) Documentation of patient reason(s) for not prescribing antithrombotic therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For measure this measure, exclusions include all patients that expired during inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, patients admitted for performance of elective carotid intervention, patient had a stroke during hospital stay, other medical reason(s))patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))for not prescribing antithrombotic therapy at discharge.. Where examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eMeasure developed – see attached Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded Exceptions: G8697: Antithrombotic therapy not prescribed for documented reasons OR 4XXXF-1P (in development) - Documentation of medical reason(s) for not prescribing antithrombotic therapy

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	at discharge (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)). OR 4XXXF-2P (in development) - Documentation of patient reason(s) for not prescribing antithrombotic therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s)).
Risk Adjustment	No risk adjustment or risk stratification Not applicable
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator when exceptions have been specified [for this measure: medical reason(s) (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rates (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717469407389834.pdf
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	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission.
Numerator Details	**Time Window:** Two days. Day 0 = Day of admission to the hospital (Admission Date) and Day 1= the day after hospital admission. VTE prophylaxis must be administered on the day of or the day after hospital admission. Three data elements are used to calculate the numerator: • Reason for No VTE Prophylaxis – Hospital Admission - Documentation of a reason why no mechanical or pharmacological prophylaxis was administered at hospital admission. Allowable values: Yes or No/UTD. • VTE Prophylaxis – The type of venous thromboembolism prophylaxis documented in the medical record. Allowable values: 1 Low dose unfractionated heparin (LDUH); 2 Low molecular weight heparin (LMWH); 3 Intermittent pneumatic compression devices (IPC); 4 Graduated compression stockings (GCS); 5 Factor Xa Inhibitor; 6 Warfarin; 7 Venous foot pumps (VFP); 8 Oral Factor Xa Inhibitor; A None of the above or not documented or unable to determine from medical record documentation. • VTE Prophylaxis Date – The month, day, and year that the initial VTE prophylaxis (mechanical and/or pharmacological) was administered after hospital admission. Patients are eligible for the numerator population when VTE Prophylaxis equals 1,2,3,5,6,7, or allowable value equals "yes" for Reason for No VTE Prophylaxis-Hospital Admission and VTE Prophylaxis Date = 0 or 1.
Denominator Statement	Ischemic or hemorrhagic stroke patients
Denominator Details	**Time Window:** Episode of care Seven data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born.

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	3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 7. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic or hemorrhagic stroke as defined in Appendix A, Table 8.1 or Table 8.2.
Exclusions	• Less than 18 years of age • Length of Stay < 2 days • Length of Stay > 120 days • Comfort measures only documented on day of or day after hospital arrival • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is less than 2 days or greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure are excluded: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.

	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 3. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 4. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Length of Stay calculation. 5. Calculate the Length of Stay (LOS). Length of Stay, in days, is equal to the Discharge Date minus the Admission Date. 6. Check Length of Stay (LOS) a. If the Length of Stay is greater than or equal to zero and less than 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Length of Stay is greater than or equal to 2, continue processing and proceed to VTE Prophylaxis. 7. Check VTE Prophylaxis a. If VTE Prophylaxis is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Any of VTE Prophylaxis equals 4 or A, continue processing and proceed to Reasons for No VTE Prophylaxis-Hospital Admission. c. If VTE Prophylaxis equals 1, 2, 3, 5, 6, or 7 and None = 4 or A, continue processing and proceed to VTE Prophylaxis Date. 8. Check Reasons for No VTE Prophylaxis-Hospital Admission a. If Reasons for No VTE Prophylaxis-Hospital Admission is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reasons for No VTE Prophylaxis-Hospital Admission equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Reasons for No VTE Prophylaxis-Hospital Admission equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 9. Check VTE Prophylaxis Date a. If VTE Prophylaxis Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If VTE Prophylaxis Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the VTE Prophylaxis Date equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to VTE Prophylaxis Day calculation. 10. Calculate VTE Prophylaxis Day. The VTE Prophylaxis Day, in days, is equal to the VTE Prophylaxis Date minus the Admission Date. 11. Check VTE Prophylaxis Day a. If the VTE Prophylaxis Day is equal to zero or 1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. b. If the VTE Prophylaxis Day is greater than or equal to 2, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the VTE Prophylaxis Day is less than 0, the case will proceed to a Measure Category Assignment of

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	X and will be rejected. Stop processing. Attachment 2zx_STK1.pdf
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	0435 STK 02: Discharged on Antithrombotic Therapy
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic stroke patients prescribed antithrombotic therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy,STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge
Numerator Details	**Time Window:** Hospital discharge One data element is used to calculate the numerator: • Antithrombotic Therapy Prescribed at Discharge – Documentation that antithrombotic therapy was prescribed at hospital discharge. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	Ischemic stroke patients
Denominator Details	**Time Window:** Episode of care Nine data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Discharge Disposition – The place or setting to which the patient was discharged on the day of

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	hospital discharge. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 9. Reason For Not Prescribing Antithrombotic Therapy at Discharge – Documentation of a reason for not prescribing antithrombotic therapy at discharge. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1.
Exclusions	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Documented reason for not prescribing antithrombotic therapy at discharge
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Prescribing Antithrombotic Therapy at Discharge.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score

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Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Discharge Disposition equals 1, 5, 8 continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 6. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Antithrombotic Therapy Prescribed at Discharge. 7. Check Antithrombotic Therapy Prescribed at Discharge a. If Antithrombotic Therapy Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Antithrombotic Therapy Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Antithrombotic Therapy Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Antithrombotic Therapy at Discharge. 8. Check Reason for Not Prescribing Antithrombotic Therapy at Discharge a. If Reason for Not Prescribing Antithrombotic Therapy at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zy_STK2.pdf
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	0435 STK 02: Discharged on Antithrombotic Therapy
	published manual production timelines.

	0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic stroke patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic stroke patients prescribed anticoagulation therapy at hospital discharge
Numerator Details	**Time Window:** Hospital discharge One data element is used to calculate the numerator: • Anticoagulation Therapy Prescribed at Discharge – Documentation that anticoagulation therapy was prescribed at hospital discharge. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	Ischemic stroke patients with with documented atrial fibrillation/flutter.
Denominator Details	**Time Window:** Episode of care Ten data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Atrial Fibrillation/Flutter – Documentation that the patient has a history of any atrial fibrillation (e.g., remote, persistent, or paroxysmal) or atrial flutter in the past OR current atrial fibrillation or flutter on EKG. Allowable values: Yes or No/UTD. 3. Birthdate - The month, day and year the patient was born. 4. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 5. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 6. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 7. Discharge Disposition – The place or setting to which the patient was discharged on the day of hospital discharge.

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	8. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 9. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 10. Reason For Not Prescribing Anticoagulation Therapy at Discharge – Documentation of a reason for not prescribing anticoagulation therapy at discharge. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1, and patients with documented Atrial Fibrillation/Flutter.
Exclusions	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Documented reason for not prescribing anticoagulation therapy at discharge
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Prescribing Anticoagulation Therapy.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.

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	2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Discharge Disposition equals 1, 5, 8, continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 6. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Atrial Fibrillation/Flutter. 7. Check Atrial Fibrillation/Flutter. a. If Atrial Fibrillation/Flutter is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Atrial Fibrillation/Flutter equals No, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Atrial Fibrillation/Flutter equals Yes, continue processing and check Anticoagulation Therapy Prescribed at Discharge. 8. Check Anticoagulation Therapy Prescribed at Discharge. a. If Anticoagulation Therapy Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Anticoagulation Therapy Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Anticoagulation Therapy Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Anticoagulation Therapy at Discharge. 9. Check Reason for Not Prescribing Anticoagulation Therapy at Discharge. a. If Reason for Not Prescribing Anticoagulation Therapy at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Prescribing Anticoagulation Therapy at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Reason for Not Prescribing Anticoagulation Therapy at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zz_STK3.pdf

	0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter
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	0437 STK 04: Thrombolytic Therapy
Steward	The Joint Commission
Description	This measure captures the proportion of acute ischemic stroke patients who arrive at this hospital within 2 hours of time last known well for whom IV t-PA was initiated at this hospital within 3 hours of time last known well. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Acute ischemic stroke patients for whom IV thrombolytic therapy was initiated at this hospital within 3 hours (less than or equal to 180 minutes) of time last known well.
Numerator Details	**Time Window:** 3 hours (180 minutes) of time last known well IV Thrombolytic Initiation Date and IV Thrombolytic Initiation Time minus Date Last Known Well and Time Last Known Well is less than or equal to 3 hours (180 minutes). Five data elements are used to calculate the numerator: • Date Last Known Well – The month, date, and year prior to hospital arrival at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. • Time Last Known Well – The time (military time) prior to hospital arrival at which the patients was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. • IV Thrombolytic Initiation – Documentation that intravenous (IV) thrombolytic therapy (t-PA) was initiated at this hospital. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. • IV Thrombolytic Initiation Date – The month, date, and year the IV thrombolytic therapy was initiated to a patient with ischemic stroke at this hospital. • IV Thrombolytic Initiation Time - The time (military time) for which IV thrombolytic therapy was initiated to a patient with ischemic stroke at this hospital. Patients are eligible for the numerator population when the IV Thrombolytic Initiation Date and IV Thrombolytic Initiation Time minus Date Last Known Well and Time Last Known Well >/= 0 minutes and </= 180 minutes.
Denominator Statement	Acute ischemic stroke patients whose time of arrival is within 2 hours (less than or equal to 120 minutes) of time last known well.
Denominator	**Time Window:** 2 hours (120 minutes)of time last known well

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Details	Arrival Date and Arrival Time minus Date Last Known Well and Time Last Known Well is less than or equal to 2 hours (120 minutes). Thirteen data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Arrival Date – The earliest documented month, day, and year, the patient arrived at the hospital. 3. Arrival Time - The earliest documented time (military time) the patient arrived at the hospital. 4. Birthdate - The month, day and year the patient was born. 5. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 6. Date Last Known Well – The month, date, and year prior to hospital arrival at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. 7. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 8. ED Patient – Documentation that the patient received care in a dedicated emergency department of the facility. Allowable values: Yes or No/UTD. 9. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 10. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 11. Last Known Well – Documentation of the date and time prior to hospital arrival at which it was witnessed or reported that the patient was last known to be without the signs or symptoms of the current stroke or at his or her baseline state of health. Allowable values: Yes or No/UTD. 12. Reason For Not Initiating IV Thrombolytic – Physician/APN/PA or pharmacist documentation of a reason for not initiating IV thrombolytic. Allowable values: Yes or No/UTD. 13. Time Last Known Well – The time (military time) prior to hospital arrival at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1.
Exclusions	• Less than 18 years of age • Length of Stay > 120 days • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Time last known well to arrival in the emergency department greater than 2 hours • Documented reason for not initiating IV thrombolytic
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s);

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	00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with time last known well to arrival in the emergency department greater than 2 hours are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Initiating IV Thrombolytic.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to ED Patient. 3. Check ED Patient a. If ED Patient is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If ED Patient equals No, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If ED Patient equals Yes, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 5. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Arrival Date. 6. Check Arrival Date a. If the Arrival Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Arrival Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Date equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to Arrival Time. 7. Check Arrival Time only if the Arrival Date is a Non Unable to Determine (non-UTD) Value a. If the Arrival Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

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	b. If the Arrival Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Time equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to Last Known Well. 8. Check Last Known Well a. If Last Known Well is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Last Known Well equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Last Known Well equals Yes, continue processing and proceed to Date Last Known Well. 9. Check Date Last Known Well a. If the Date Last Known Well is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Date Last Known Well equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Date Last Known Well equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to Time Last Known Well. 10. Check Time Last Known Well only if the Date Last Known Well is a Non Unable to Determine (non-UTD) Value a. If the Time Last Known Well is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Time Last Known Well equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Time Last Known Well equals a Non Unable To Determine (non-UTD) Value, continue processing and proceed to the Timing I calculation. 11. Calculate Timing I only if the Time Last Known Well is a Non Unable to Determine (non-UTD) Value. Timing I, in minutes, is equal to the Arrival Date and the Arrival Time minus the Date Last Known Well and the Time Last Known Well. Calculate Timing I for each case that has a Non Unable to Determine (non-UTD) date and time combination. a. If the time in minutes is greater than 120, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the time in minutes is greater than or equal to zero and less than or equal to 120, continue processing and proceed to IV Thrombolytic Initiation. 12. Check IV Thrombolytic Initiation a. If IV Thrombolytic Initiation is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If IV Thrombolytic Initiation equals No, continue processing and proceed to Reason for Not Initiating IV Thrombolytic. c. If IV Thrombolytic Initiation equals Yes, continue processing and check IV Thrombolytic Initiation Date. 13. Check Reason for Not Initiating IV Thrombolytic a. If Reason for Not Initiating IV Thrombolytic is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Initiating IV Thrombolytic equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Reason for Not Initiating IV Thrombolytic equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 14. Check IV Thrombolytic Initiation Date a. If the IV Thrombolytic Initiation Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

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	b. If the IV Thrombolytic Initiation Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the IV Thrombolytic Initiation Date equals a Non Unable To Determine (non-UTD) Value, continue processing and proceed to IV Thrombolytic Initiation Time. 15. Check IV Thrombolytic Initiation Time only if the IV Thrombolytic Initiation Date is a Non Unable to Determine (non-UTD) Value a. If the IV Thrombolytic Initiation Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the IV Thrombolytic Initiation Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the IV Thrombolytic Initiation Time equals a Non Unable To Determine (non-UTD) Value, continue processing and proceed to the Timing II calculation. 16. Calculate Timing II only if the IV Thrombolytic Initiation Time is a Non Unable to Determine Value (non-UTD). Timing II, in minutes, is equal to the IV Thrombolytic Initiation Date and the IV Thrombolytic Initiation Time minus the Date Last Known Well and the Time Last Known Well. Calculate Timing II for each case that has a Non Unable to Determine (non-UTD) date and time combination. a. If the time in minutes is greater than 180, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b. If the time in minutes is greater than or equal to zero and less than or equal to 180, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. Attachment 2zza_STK4.pdf
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	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic stroke patients who had antithrombotic therapy administered by end of hospital day two (with the day of arrival being day 1). This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-6: Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic stroke patients who had antithrombotic therapy administered by end of hospital day two.
Numerator Details	**Time Window:** To compute the end of hospital day 2, count the arrival date as hospital day 1, (i.e. Arrival Date = Day 1; day after Arrival Date = Day 2). Antithrombotic therapy must be administered by 11:59 PM of hospital day 2. One data element is used to calculate the numerator: • Antithrombotic Therapy Administered by End of hospital Day 2 – Documentation that antithrombotic therapy is administered by the end of hospital day 2. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	Ischemic stroke patients
Denominator Details	**Time Window:** Episode of care Ten data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Arrival Date – The earliest documented month, day, and year the patient arrived at the hospital. 3. Birthdate - The month, day and year the patient was born. 4. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 5. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 6. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay.

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	7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 9. IV OR IA Thrombolytic (t-PA) Therapy Administered at this Hospital or within 24 Hours Prior to Arrival – Documentation demonstrates that the patient received intravenous (IV) or intra-arterial (IA) thrombolytic therapy (t-PA) at this hospital or within 24 hours prior to arrival. Allowable values: Yes or No/UTD. 10. Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 – Physician/APN/PA or pharmacist documentation of a reason for not administering antithrombotic therapy by end of hospital day 2. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1
Exclusions	• Less than 18 years of age • Duration of Stay < 2 days • Length of Stay > 120 days • Comfort measures only documented on the day of or day after hospital arrival • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • IV OR IA thrombolytic therapy administered at this hospital or within 24 hours prior to arrival • Documented reason for not administering antithrombotic therapy by end of hospital day 2
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Duration of Stay (in days) is equal to the Discharge Date minus the Arrival Date. If the Duration of Stay is less than 2 days, the patient is excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients are excluded if "Yes" is selected for IV (intravenous) or IA (intra- arterial)Thrombolytic Therapy (t-PA)Administered at This Hospital or Within 24 Hours Prior to Arrival. • Patients are excluded if "Yes" is selected for Reason For Not Administering Antithrombotic Therapy By End of Hospital Day 2.
Risk Adjustment	No risk adjustment or risk stratification N/A

	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Comfort Measures Only. 3. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 5. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Arrival Date. 6. Check Arrival Date a. If the Arrival Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Arrival Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Date equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to Duration of Stay calculation. 7. Calculate the Duration of Stay. The Duration of Stay, in days, is equal to the Discharge Date minus the Arrival Date. 8. Check Duration of Stay a. If the Duration of Stay is greater than or equal to zero and less than 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Duration of Stay is greater than or equal to 2, continue processing and proceed to IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival. 9. Check IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival a. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to

	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	Arrival equals No, continue processing and proceed to Antithrombotic Therapy Administered By End of Hospital Day 2. 10. Check Antithrombotic Therapy Administered By End of Hospital Day 2 a. If Antithrombotic Therapy Administered By End of Hospital Day 2 is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Antithrombotic Therapy Administered By End of Hospital Day 2 equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Antithrombotic Therapy Administered By End of Hospital Day 2 equals No, continue processing and check Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2. 11. Check Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 a. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zzb_STK5.pdf
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	0439 STK-06: Discharged on Statin Medication
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic stroke patients with LDL greater than or equal to 100 mg/dL, or LDL not measured, or who were on a lipid-lowering medication prior to hospital arrival who are prescribed statin medication at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic stroke patients prescribed statin medication at hospital discharge
Numerator Details	**Time Window:** Hospital discharge. One data element is used to calculate the numerator: • Statin Medication Prescribed at Discharge – Documentation that a statin medication was prescribed at hospital discharge. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	Ischemic stroke patients with an LDL greater than or equal to 100 mg/dL, OR LDL not measured, OR who were on a lipid-lowering medication prior to hospital arrival.
Denominator Details	**Time Window:** Episode of care Twelve data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Discharge Disposition – The place or setting to which the patient was discharged on the day of hospital discharge. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for

	the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 9. LDL-c Greater Than or Equal to 100 mg/dL – LDL-c greater than or equal to 100 mg/dL in the first 48 hours or within 30 days prior to hospital arrival. Allowable values: Yes or No/UTD. 10. LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival- LDL-c measured within the first 48 hours or within 30 days prior to hospital arrival. Allowable values: Yes or No/UTD. 11. Pre-Arrival Lipid-Lowering Agent – Documentation that the patient was on a lipid-lowering medication prior to hospital arrival. Allowable values: Yes or No/UTD. 12. Reason For Not Prescribing Statin Medication at Discharge – Documentation of a reason for not prescribing a statin medication at discharge. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1 who were on a lipid-lowering medication prior to hospital arrival as defined in Appendix C, Table 1.6, or LDL-c not measured, or LDL-c greater than or equal to 100 mg/dL.
Exclusions	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Documented reason for not prescribing statin medication at discharge
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure are excluded: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care

	0439 STK-06: Discharged on Statin Medication
	Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Prescribing Statin Medication at Discharge.
Risk Adjustment	No risk adjustment or risk stratification Not applicable.
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7 the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Discharge Disposition equals 1, 5, 8, continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 6. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Pre-Arrival Lipid-Lowering Agent. 7. Check Pre-Arrival Lipid-Lowering Agent a. If Pre-Arrival Lipid-Lowering Agent is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Pre-Arrival Lipid-Lowering Agent equals No, continue processing and check LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival. c. If Pre-Arrival Lipid-Lowering Agent equals Yes, continue processing and check Statin Medication Prescribed at Discharge. 8. Check LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival a. If LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival equals Yes, continue processing and check LDL-c Greater Than or Equal to 100 mg/dL.

	0439 STK-06: Discharged on Statin Medication
	c. If LDL-c Measured Within the First 48 Hours or 30 Days Prior to Hospital Arrival equals No, continue processing and check Statin Medication Prescribed at Discharge. 9. Check LDL-c Greater Than or Equal to 100 mg/dL a. If LDL-c Greater Than or Equal to 100 mg/dL is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If LDL-c Greater Than or Equal to 100 mg/dL equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If LDL-c Greater Than or Equal to 100 mg/dL equals Yes, continue processing and check Statin Medication Prescribed at Discharge. 10. Check Statin Medication Prescribed at Discharge a. If Statin Medication Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Statin Medication Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Statin Medication Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Statin Medication at Discharge. 11. Check Reason for Not Prescribing Statin Medication at Discharge a. If Reason for Not Prescribing Statin Medication at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Prescribing Statin Medication at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Prescribing Statin Medication at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zzc_STK6.pdf
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	0441 STK-10: Assessed for Rehabilitation
Steward	The Joint Commission
Description	This measure captures the proportion of ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services during the hospital stay. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, and STK-8: Stroke Education) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services.
Numerator Details	**Time Window:** Hospital admission to discharge One data element is used to calculate the numerator: • Assessed for Rehabilitation Services – Documentation that the patient was assessed for or received rehabilitation services during this hospitalization. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	Ischemic or hemorrhagic stroke patients.
Denominator Details	**Time Window:** Episode of care Eight data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Discharge Disposition – The place or setting to which the patient was discharged on the day of hospital discharge. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty,

	0441 STK-10: Assessed for Rehabilitation
	carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. Population: Discharges with an ICD-9-CM Principal Diagnosis Code for ischemic or hemorrhagic stroke as defined in Appendix A, Table 8.1 or Table 8.2.
Exclusions	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care
Exclusion Details	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure are excluded: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b. If Discharge Disposition equals 1, 5, 8, continue processing and proceed to Comfort Measures Only. 3. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

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	b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 5. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Assessed for Rehabilitation Services. 6. Check Assessed for Rehabilitation Services a. If Assessed for Rehabilitation Services is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Assessed for Rehabilitation Services equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If Assessed for Rehabilitation Services equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. Attachment 2zze_STK10.pdf
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	0467 Acute Stroke Mortality Rate (IQI 17)
Steward	Agency for Healthcare Research and Quality
Description	Percent of discharges with an in-hospital death among cases with a principal diagnosis code for stroke
Type	Outcome
Data Source	Administrative claims HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. URL http://www.hcup-us.ahrq.gov/sidoverview.jsp None URL http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V44/Software%20Instructions%20(WinQI)%20V4.4.pdf None
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of deaths among cases meeting the inclusion and exclusion rules for the denominator
Numerator Details	**Time Window:** Time window may be determined by the user, but is generally a calendar year In-hospital death (DISP=20)
Denominator Statement	All discharges, age 18 years and older, with a principal diagnosis code for stroke
Denominator Details	**Time Window:** Time window may be determined by the user, but is generally a calendar year ICD-9-CM Stroke diagnosis codes: 430 SUBARACHNOID HEMORRHAGE 431 INTRACEREBRAL HEMORRHAGE 4320 NONTRAUM EXTRADURAL HEM 4321 SUBDURAL HEMORRHAGE 4329 INTRACRANIAL HEMORR NOS 43301 OCL BSLR ART W INFRCT 43311 OCL CRTD ART W INFRCT 43321 OCL VRTB ART W INFRCT 43331 OCL MLT BI ART W INFRCT 43381 OCL SPCF ART W INFRCT 43391 OCL ART NOS W INFRCT 43401 CRBL THRMBS W INFRCT 43411 CRBL EMBLSM W INFRCT 43491 CRBL ART OCL NOS W INFRC 436 CVA* *Only for discharges before September 30, 2004 (FY2004). Does not apply to discharges on or after October 1, 2004 (FY2005)
Exclusions	Exclude cases: • transferring to another short-term hospital • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition, gender, age, quarter, year or principal diagnosis
Exclusion Details	• transferring to another short-term hospital (DISP=2) • missing discharge disposition (DISP=missing) • missing gender (SEX=missing) • missing age (AGE=missing) • missing quarter (DQTR=missing) • missing year (YEAR=missing)

	• missing principal diagnosis (DX1=missing)
Risk Adjustment	Statistical risk model The predicted value for each case is computed using a hierarchical model (logistic regression using Generalized Estimating Equations (GEE) to account for clustering of patients within hospitals) and covariates for gender, age (in 5-year age groups pooled), APR-DRG and APR-DRG Risk of Mortality subclass, MDC and availability of Point of Origin (UB-04). The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2008, a database consisting of 42 states and approximately 30 million adult discharges. Intercept Sex Female Age 18 to 59 Age 65 to 84 Age 85+ APR-DRG ´0211´ APR-DRG ´0212´ APR-DRG ´0213´ APR-DRG ´0214´ APR-DRG ´0221´ APR-DRG ´0222´ APR-DRG ´0223´ to ‘0224’ APR-DRG ´0231´ to ‘0232’ APR-DRG ´0233´ APR-DRG ´0234´ APR-DRG ´0241´ APR-DRG ´0242´ APR-DRG ´0243´ APR-DRG ´0244´ APR-DRG ´0261´ to ‘0263’ APR-DRG ´0264´ APR-DRG ´0441´ APR-DRG ´0442´ APR-DRG ´0443´ APR-DRG ´0444´ APR-DRG ´0452´ APR-DRG ´0453´ APR-DRG ´0454´ MDC OTHER NOPOUB04 UB-04 Point-of-Origin Data Not Available URL http://qualityindicators.ahrq.gov/Downloads/Modules/IQI/V44/Risk%20Adjustment%20Tables%20IQI%204.4.pdf None
Stratification	Not applicable
Type Score	Rate/proportion better quality = lower score
Algorithm	The indicator is expressed as a rate, defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI) software performs six steps to produce the rates. 1) Discharge-level records are flagged to identify the outcome of interest and 2) the population at risk. 3) Calculate observed rates as the sum of the records flagged in the numerator divided by the sum of the records flag in the denominator for user-specified combinations of stratifiers. 4) Calculate expected rates. Regression coefficients from a reference population database are applied to the discharge records to

	0467 Acute Stroke Mortality Rate (IQI 17)
	compute a predicted value. For indicators that are not risk-adjusted, this is the reference population rate. The expected rate is computed as the sum of the predicted value for each record divided by the number of records flagged in the population at risk for the unit of analysis of interest (i.e., hospital). 5) Calculate risk-adjusted rate using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. For indicators that are not risk-adjusted, this is the same as the observed rate. 6) Calculate smoothed rate using an Empirical Bayes shrinkage estimator (W) as the weighted average of the risk-adjusted rate and the reference population rate. The shrinkage estimate reflects a reliability adjustment unique to each indicator. URL None http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf
Copyright/ Disclaimer	Not applicable Not applicable

	1952 Time to Intravenous Thrombolytic Therapy
Steward	American Heart Association/American Stroke Association
Description	Acute ischemic stroke patients aged 18 years and older receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay and having a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less. Median time from hospital arrival to administration of intravenous tissue plasminogen activator (tPA) therapy in acute ischemic stroke patients aged 18 years and older.
Type	Process
Data Source	~~Administrative claims,~~ Electronic Clinical Data : Registry Clinical registry or electronic health record or patient medical records. URL http://www.heart.org/idc/groups/heart-public/@wcm/@private/@hcm/@gwtg/documents/downloadable/ucm_432072.pdf Attachment Specifications_2a1.30_Importance_1b.4_and_Feasibility_4d.1_NQF_DTN-634716586672320918.pdf
Level	Facility, Population : National, Population : Regional, Population : State
Setting	Hospital/Acute Care Facility
Numerator Statement	Acute ischemic stroke patients aged 18 years and older receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay and having a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less. Median time from hospital arrival to administration of intravenous tissue plasminogen activator (tPA) therapy in acute ischemic stroke patients aged 18 years and older.
Numerator Details	**Time Window:** Within the first 4.5 hours of acute ischemic stroke symptom onset. All patients with the diagnosis acute ischemic stroke: -ED/hospital arrival date/time -Treated with IV tPA -IV tPA initiation time -Last Known Well Date/Time
Denominator Statement	All acute ischemic stroke patients who received intravenous thrombolytic therapy within 4.5 hours of symptom onset. Included populations: Discharges with an ICD-9-CM Principal Diagnosis Code for Acute Ischemic Stroke. -Diagnosis for ischemic stroke ICD-9: 433.01, 433.10, 433.11, 433.21, 433.31, 433.81, 433.91, 434.00, 434.01, 434.11, 434.91, 436 -Diagnosis for ischemic stroke ICD-10:I6322, I6529, I63139, I63239, I63019, I63119, I63219, I6359, I6359, I6320, I6609, I6619, I6629, I6330, I6340, I6350, I678.
Denominator Details	**Time Window:** 4.5 hours after stroke symptom onset. An ICD-9-CM/ICD-10 Principal Diagnosis Code for acute ischemic stroke. Diagnosis for ischemic stroke ICD-9: 433.01, 433.10, 433.11, 433.21, 433.31, 433.81, 433.91, 434.00, 434.01, 434.11, 434.91, 436 Diagnosis for ischemic stroke ICD-10 :I6322, I6529, I63139, I63239, I63019, I63119, I63219, I6359, I6359, I6320, I6609, I6619, I6629, I6330, I6340, I6350, I678.
Exclusions	• Patients less than 18 years of age • Patient stroke occurred while in hospital • Patients received in transfer from the inpatient, or outpatient of another facility • Patients who did not receive thrombolytic therapy within 60 minutes and had a reason for delay documented by a physician/advanced practice nurse/physician assistant as the cause for delay: social, religious, initial refusal, hypertension requiring aggressive control with intravenous medications, inability

	1952 Time to Intravenous Thrombolytic Therapy
	to confirm patients eligibility, or further diagnostic evaluation to confirm stroke for patients with hypoglycemia (blood glucose < 50); seizures, or major metabolic disorders, or management of concomitant emergent/acute conditions such as cardiopulmonary arrest, respiratory failure requiring intubation), or investigational or experimental protocol for thrombolysis. • Clinical trial
Exclusion Details	-Age<18 -Arrival date/time -Date/time IV thrombolytic therapy initiated less than arrival date/time -Symptom onset date/time -Stroke occurred while patient was in hospital -Patients received in transfer from the inpatient, or outpatient of another facility -Patients who did not receive thrombolytic therapy within 60 minutes and had a reason for delay documented by a physician/advanced practice nurse/physician assistant as the cause for delay: social, religious, initial refusal, hypertension requiring aggressive control with intravenous medications, inability to confirm patients eligibility, or further diagnostic evaluation to confirm stroke for patients with hypoglycemia (blood glucose < 50); seizures, or major metabolic disorders, or management of concomitant emergent/acute conditions such as cardiopulmonary arrest, respiratory failure requiring intubation), or investigational or experimental protocol for thrombolysis. - Clinical Trial
Risk Adjustment	No risk adjustment or risk stratification Not Applicable.
Stratification	Not Applicable.
Type Score	Rate/proportion better quality = higher score
Algorithm	Rate is determined by calculating those eligible patients meeting the numerator specification divided by those meeting the denominator specification. 1) Check to see if there is an ICD-9/ICD-10 principal diagnosis of stroke, exclude those patients not on list. 2) Check to see if patient had an inpatient stroke, exclude those patients with inpatient stroke 3) Check to see if patient is 18 years or older; exclude those patients 18 or younger 4) Check to see if patient is in a clinical trial; exclude those patients who were in a clinical trial 5) Check to see patient arrival date is documented; exclude those patients for which unable to determine arrival date (blank/unknown) 6) Check to see if patient arrival time is documented; exclude those patients for which unable to determine arrival time (blank/unknown) 7) Check to see if patient was transferred from other hospital; exclude those patients who were transferred from other hospital 8) Check to see if patient had IV Thrombolytic Initiation; exclude those patients for whom IV thrombolytic therapy was not initiated 9) Check thrombolytic initiation date; exclude those patient for which unable to determine initiation date (blank/unknown) 10) Check thrombolytic initiation time; exclude those patients for which unable to determine thrombolytic initiation time (blank/unknown) 11) IV Thrombolytic Initiation Date/Time should not be less than arrival date/time; exclude those patients for whom arrival IV thrombolytic initiation date/time is less than arrival date/time is 12) Check to see date/time last known well, exclude patients for whom unable to determine date/time last known well (blank/unknown) 13) Check to see timing in minutes. Timing (IV Thrombolytic Initiation Date/Time- Date/Time Last Known well) from should be less than or equal to 4.5 hours. If greater than 4.5 hours exclude patients. 14) If timing is less than or equal to 4.5 hours , check to see if timing for IV thrombolytic therapy time (IV Thrombolytic Initiation Date/Time-Arrival Date/Time) is less than or equal to 60. If greater than 60;

	1952 Time to Intravenous Thrombolytic Therapy
	exclude those patients. If time was less than or equal to 60 minutes, but patient did not receive medication, exclude those patients only if there was a documented reason for delay (see list). For detailed measure algorithm see attached. Attachment Specifications_Door_to_Needle_Flow_Chart_Version_4_final.pdf
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	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	The measure estimates a hospital-level, risk-standardized mortality rate (RSMR) for patients 18 and older discharged from the hospital with a principal diagnosis of acute ischemic stroke. Mortality is defined as death from any cause within 30 days of the index admission date for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke.
Type	Outcome
Data Source	Administrative claims, Other The Medicare data sources used to create the measure were: 1. Medicare Part A inpatient and Part B outpatient claims: This database contains claims data for fee-for service inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, skilled nursing facility care, some home health agency services, and hospice care, as well as inpatient and outpatient claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This dataset was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming et al., 1992). Fleming C, Fisher ES, Chang CH, Bubolz TA, Malenda DJ. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs hospitals. Medical Care 1992; 30(5): 377-391. Attachment Stroke_Cohort_ICD9_to_ICD10_Maps.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days from the index admission date for patients 18 and older discharged from the index hospital with a principal diagnosis of acute ischemic stroke.
Numerator Details	**Time Window:** This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we ar This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. Identifying deaths in the FFS measure We identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database. Identifying deaths in the all-payer measure For the purposes of development deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the C This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. Identifying deaths in the FFS measure We identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database. Identifying deaths in the all-payer measure For the purposes of development deaths were identified using the California vital statistics data file.

	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization
	Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI).enters for Disease Control and Prevention's National Death Index (NDI).e using this field to define the outcome. Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. Identifying deaths in the FFS measure We identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database. Identifying deaths in the all-payer measure For the purposes of development deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI). ~~We define this as death from any cause within 30 days from the admission date for the index acute ischemic stroke hospitalization.~~ ~~This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome.~~ ~~Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. We identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database.~~
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of acute ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for acute ischemic stroke. The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort the inclusion criteria required that the patient be continuously enrolled in Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. ~~The denominator includes patients 65 years and older who were admitted to non-federal acute care hospitals for an ischemic stroke as defined by the following ICD-9-CM and ICD-10-CM codes and with a complete claims history for the 12 months prior to admission:~~ ICD-9-CM codes used to define ischemic stroke: 433.01 Occlusion and stenosis of precerebral arteries, Basilar artery with cerebral infarction 433.11 Occlusion and stenosis of precerebral arteries, Carotid artery with cerebral infarction 433.21 Occlusion and stenosis of precerebral arteries, Vertebral artery with cerebral infarction 433.31 Occlusion and stenosis of precerebral arteries, Multiple and bilateral with cerebral infarction 433.81 Occlusion and stenosis of precerebral arteries, Other specified precerebral artery with cerebral infarction 433.91 Occlusion and stenosis of precerebral arteries, Unspecified precerebral artery with cerebral infarction, Precerebral artery NOS 434.01 Occlusion of cerebral arteries, Cerebral thrombosis with cerebral infarction, thrombosis of cerebral arteries

	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization
	434.11 Occlusion of cerebral arteries, Cerebral embolism with cerebral infarction 434.91 Occlusion of cerebral arteries, Cerebral artery occlusion, unspecified, with cerebral infarction 436 Acute, but ill-defined, cerebrovascular disease ICD-10-CM codes used to define ischemic stroke: I6322 Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries I63139 Cerebral infarction due to embolism of unspecified carotid artery I63239 Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries I63019 Cerebral infarction due to thrombosis of unspecified vertebral artery I63119 Cerebral infarction due to embolism of unspecified vertebral artery I63219 Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries I6359 Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery I6320 Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries I6330 Cerebral infarction due to thrombosis of unspecified cerebral artery I6340 Cerebral infarction due to embolism of unspecified cerebral artery I6350 Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery I678 Other specified cerebrovascular diseases
Exclusions	An index admission is the hospitalization considered for mortality outcome. The measure excludes admissions for patients: • transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted); • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date). • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); For Medicare FFS patients, the measure additionally excludes admissions for patients: • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all-payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.
Exclusion Details	Transfers from other acute care facilities are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day; Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years: 2) if the discharge date for a hospitalization is before the admission date; 3) if the patient has a sex other than 'male' or 'female'. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data and the Inpatient standard analytic file (SAF)
Risk Adjustment	Statistical risk model Our approach to risk adjustment was tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes".1 The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals(Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents

the underlying risk of mortality, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail.

Candidate and Final Risk-adjustment Variables: The measure was initially developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979)

We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

Following initial model development, in response to suggestions from our working group and Technical Expert Panel (TEP) members, we evaluated the mortality rates of patients admitted for stroke after having been evaluated at a different hospital's emergency department. Our experts expressed concern that such patients may be at higher risk and that the admitting hospital would not have had the opportunity to evaluate and treat such patients at first presentation. They also felt that certain hospitals may receive substantially greater proportions of patients transferred from outside EDs. Based on our analyses, we updated the measure to include a risk factor that indicates if a patient was transferred in from an outside ED, that is, the patient was seen in a different hospital's ED prior to being admitted for the index admission. This revision was done using 2008 data.

Frequencies and odds ratios for the model are presented below (2008 Medicare FFS patients aged 65 and older; n=175,267 admissions):

Final set of risk-adjustment variables:

Variable//Frequency (%)//Odds Ratio (95% confidence interval)

• Transfer from another ED/Frequency= 5.64/OR (95% CI)= 1.37 (1.29-1.45)

Demographic

• Age-65 (continuous)/mean (SD)=15.31 (7.93)/OR (95% CI)= 1.069 (1.067-1.07)

• Male /Frequency= 40.28/OR (95% CI)= 0.99 (0.96-1.03)

Cardiovascular/Cerebrovascular

• Congestive Heart Failure /Frequency= 26.03/OR (95% CI)= 1.38 (1.34-1.43)

• Valvular and Rheumatic Heart Disease /Frequency= 23.03/OR (95% CI)= 0.87 (0.84-0.89)

• Congenital Cardiac/Circulatory Defects /Frequency= 2.04/OR (95% CI)= 0.71 (0.64-0.8)

• Hypertensive Heart Disease /Frequency= 6.54/OR (95% CI)= 0.83 (0.78-0.88)

• Specified Heart Arrhythmias /Frequency= 29.37/OR (95% CI)= 1.59 (1.54-1.64)

• Cerebral Hemorrhage /Frequency= 1.88/OR (95% CI)= 1.16 (1.06-1.27)

• Ischemic or Unspecified Stroke /Frequency= 24.81/OR (95% CI)= 1.00 (0.96-1.03)

• Precerebral Arterial Occlusion and Transient Cerebral Ischemia /Frequency= 22.83/OR (95% CI)= 0.82 (0.8-0.85)

• Cerebral Atherosclerosis and Aneurysm /Frequency= 10.67/OR (95% CI)= 0.83 (0.80-0.87)

• Hemiplegia/Hemiparesis /Frequency= 5.60/OR (95% CI)= 1.17 (1.10-1.24)

Comorbidities

• History of Infection/Frequency= 26.72/OR (95% CI)= 1.15 (1.11-1.18)

• Metastatic Cancer and Acute Leukemia and Other Major Cancers /Frequency= 3.65/OR (95% CI)= 2.77 (2.61-

	2.95) • Lymphatic, Head and Neck, Brain, Breast, Colorectal and Other Major Cancers/Frequency= 23.92/OR (95% CI)= 0.92 (0.89-0.95) • Protein-Calorie Malnutrition /Frequency= 5.42/OR (95% CI)= 1.69 (1.61-1.77) • Other Significant Endocrine and Metabolic Disorders /Frequency= 75.98/OR (95% CI)= 0.75 (0.72-0.77) • Other Gastrointestinal Disorders /Frequency= 43.64/OR (95% CI)= 0.90 (0.88-0.93) • Disorders of the Vertebrae and Spinal Discs /Frequency= 17.06/OR (95% CI)= 0.89 (0.86-0.93) • Osteoarthritis of Hip or Knee /Frequency= 10.36/OR (95% CI)= 0.82 (0.78-0.86) • Other Musculoskeletal and Connective Tissue Disorders /Frequency= 63.50/OR (95% CI)= 0.86 (0.84-0.89) • Iron Deficiency and Other/Unspecified Anemia and Blood Disease /Frequency= 31.86/OR (95% CI)= 1.09 (1.05-1.12) • Dementia or senility /Frequency= 28.64/OR (95% CI)= 1.24 (1.20-1.28) • Major Psychiatric Disorders /Frequency= 9.12/OR (95% CI)= 1.08 (1.04-1.13) • Quadriplegia, Other Extensive Paralysis /Frequency= 1.54/OR (95% CI)= 1.39 (1.26-1.53) • Multiple Sclerosis /Frequency= 10.27/OR (95% CI)= 0.83 (0.79-0.87) • Seizure Disorders and Convulsions /Frequency= 6.92/OR (95% CI)= 1.27 (1.21-1.33) • Hypertension /Frequency= 88.00/OR (95% CI)= 0.77 (0.74-0.81) • Peripheral Vascular Disease /Frequency= 23.02/OR (95% CI)= 1.07 (1.04-1.11) • Chronic Obstructive Pulmonary Disease /Frequency= 21.92/OR (95% CI)= 1.06 (1.03-1.10) • Pneumonia /Frequency= 17.36/OR (95% CI)= 1.49 (1.44-1.54) • Pleural Effusion/Pneumothorax /Frequency= 6.92/OR (95% CI)= 1.13 (1.07-1.18) • Other Eye Disorders /Frequency= 19.34/OR (95% CI)= 0.91 (0.88-0.94) • Other Ear, Nose, Throat, and Mouth Disorders /Frequency= 26.99/OR (95% CI)= 0.87 (0.84-0.90) • Dialysis Status /Frequency= 1.47/OR (95% CI)= 1.38 (1.24-1.52) • Renal Failure /Frequency= 15.45/OR (95% CI)= 1.16 (1.12-1.21) • Urinary Tract Infection /Frequency= 21.55/OR (95% CI)= 1.14 (1.10-1.18) • Male Genital Disorders /Frequency= 11.95/OR (95% CI)= 0.78 (0.74-0.82) • Decubitus Ulcer of Skin /Frequency= 2.52/OR (95% CI)= 1.29 (1.20-1.39) • Chronic Ulcer of Skin, Except Decubitus /Frequency= 5.52/OR (95% CI)= 1.16 (1.10-1.23) • Other Dermatological Disorders /Frequency= 29.38/OR (95% CI)= 0.92 (0.89-0.95) References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_MortalityMethodologyReport_9.29.10.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of

	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization
	patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a ratio lower than one indicates lower-than-expected mortality or better quality and a ratio higher than one indicates higher-than-expected mortality or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Please see attachment for more details on the calculation algorithm. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Mortality_Calculation_Algorithm.pdf
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	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	The measure estimates a hospital-level risk-standardized readmission rate (RSRR) for patients 18 and older discharged from the hospital with a principal diagnosis of acute ischemic stroke. We define this as readmission for any cause within 30 days from the date of discharge of the index stroke admission, excluding a specified set of planned readmissions.
Type	Outcome
Data Source	Administrative claims The Medicare data sources used to create the measure were: 1. Medicare Part A Inpatient and Outpatient and Part B outpatient claims from the Standard Analytic File, including inpatient and outpatient claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This dataset was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming Fisher et al., 1992). Reference: Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. Attachment Stroke_Cohort_ICD9_to_ICD10_Maps-634717470963767860.pdf Attachment Stroke_Planned_Readmission_ICD-9_to_ICD-10_Map.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day ~~all-cause~~ readmission. We define ~~all-cause~~ readmission as an inpatient readmission for any cause, with the exception of certain planned readmissions, within 30 days from the date of discharge of the index stroke for patients 18 and older discharged from the hospital with a principal diagnosis of ischemic stroke. If a patient has one or more admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission. For more details on how planned readmissions were identified and removed from the outcome, please refer to the attached report, Re-specifying the Hospital 30-Day Ischemic Stroke Readmission Measure by adding a Planned Readmission Algorithm.
Numerator Details	**Time Window:** We define the time period for readmission as within 30 days from the date of discharge of the index stroke admission.~~We define this as readmission for any cause within 30 days from the date of discharge of the index stroke admission.~~ This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. The measure counts readmissions to any acute care hospital for any cause within 30 days of the date of discharge of the index stroke admission, excluding planned readmissions as defined below. Admissions not Counted as Readmissions Unplanned readmissions are acute clinical events experienced by a patient that require urgent rehospitalization. Higher than expected unplanned readmission rates suggest lower quality of hospital and post-discharge care and are the focus of hospital quality measurement as part of quality improvement efforts. In contrast, planned readmissions are generally not a signal of quality of care. Furthermore, there is concern that including planned readmissions in a readmission measure could create a disincentive to provide appropriate care to patients who are scheduled for elective or necessary procedures, unrelated to the quality of the prior admission, within 30 days of discharge. The originally submitted ischemic stroke readmission measure identified planned readmissions specifically for follow on care of the stroke. The following procedures were considered planned unless accompanied by an acute primary discharge diagnosis: carotid

endarterectomy; carotid stenting; percutaneous carotid stenting; inter-cranial and inter-vertebral stenting; patent foramen ovale closure; ablation; aortic or mitral valve replacement; and cranioplasty.

This year, we have developed an algorithm for using claims data to identify additional "planned readmissions" that will not count as outcomes in the readmission measure. Analyzing Medicare FFS data from calendar year 2008, the revised measure increased the number of index hospitalizations for ischemic stroke that were followed by a planned readmission from 0.5% to 1.1%. After accounting for these additional planned readmissions, the crude 30-day measured readmission rate decreased from 14.8% to 14.3%.

Please see the attached report, Re-specifying the Hospital 30-Day Ischemic Stroke Readmission Measure by adding a Planned Readmission Algorithm, that details the algorithm used to identify planned readmissions.

~~Measure includes unplanned readmissions to any acute care hospital for any cause within 30 days from the date of discharge of the index admission.~~

~~Planned Readmissions: Some stroke patients have a scheduled readmission to the hospital after they are discharged for further treatment related to their stroke. We identified these as planned readmissions and they do NOT count as readmissions in the measure. If a patient returns to the hospital within 30 days of their index stroke admission for one of the procedures listed below, the readmission will not count unless the readmission is for a recurrent ischemic stroke (primary ICD-9-CM discharge diagnosis of 433.x1, 434.x1, and 436 for the readmission):~~

- ~~Carotid Endarterectomy~~
- ~~Carotid Stenting~~
- ~~Percutaneous Carotid Stenting~~
- ~~Intracranial and Inter-vertebral Stenting~~
- ~~Patent Foramen Ovale Closure~~
- ~~Ablation~~
- ~~Aortic or Mitral Valve Replacement~~
- ~~Cranioplasty~~

~~The ICD-9-CM codes used to identify these procedures are as follows:~~

~~38.12 Endarterectomy, other vessels of head and neck~~
~~00.63 Percutaneous insertion of carotid artery stent(s)~~
~~00.61 Percutaneous angioplasty or atherectomy of precerebral (extracranial) vessel(s)~~
~~00.64 Percutaneous insertion of other precerebral (extracranial) artery stent(s)~~
~~35.51 Repair of atrial septal defect with prosthesis, open technique~~
~~37.33 Excision or destruction of other lesion or tissue of heart, open approach~~
~~35.21 Replacement of aortic valve with tissue graft~~
~~02.01 Opening of cranial suture~~
~~00.65 Percutaneous insertion of intracranial vascular stent(s)~~
~~35.52 Repair of atrial septal defect with prosthesis, closed technique~~
~~35.61 Repair of atrial septal defect with tissue graft~~
~~35.71 Other and unspecified repair of atrial septal defect~~
~~37.34 Excision or destruction of other lesion or tissue of heart, endovascular approach~~
~~35.22 Other replacement of aortic valve~~
~~35.23 Replacement of mitral valve with tissue graft~~
~~35.24 Other replacement of mitral valve~~
~~02.02 Elevation of skull fracture fragments~~
~~02.03 Formation of cranial bone flap~~
~~02.04 Bone graft to skull~~
~~02.05 Insertion of skull plate~~
~~02.06 Other cranial osteoplasty~~
~~02.07 Removal of skull plate~~

~~The ICD-10 codes identifying these procedures are as follows:~~

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	~~02560ZZ Destruction of Right Atrium, Open Approach~~ ~~02563ZZ Destruction of Right Atrium, Percutaneous Approach~~ ~~02570ZZ Destruction of Left Atrium, Open Approach~~ ~~02573ZZ Destruction of Left Atrium, Percutaneous Approach~~ ~~025K0ZZ Destruction of Right Ventricle, Open Approach~~ ~~025K3ZZ Destruction of Right Ventricle, Percutaneous Approach~~ ~~025L0ZZ Destruction of Left Ventricle, Open Approach~~ ~~025L3ZZ Destruction of Left Ventricle, Percutaneous Approach~~ ~~02B60ZZ Excision of Right Atrium, Open Approach~~ ~~02B63ZZ Excision of Right Atrium, Percutaneous Approach~~ ~~02B70ZZ Excision of Left Atrium, Open Approach~~ ~~02B73ZZ Excision of Left Atrium, Percutaneous Approach~~ ~~02BK0ZZ Excision of Right Ventricle, Open Approach~~ ~~02BK3ZZ Excision of Right Ventricle, Percutaneous Approach~~ ~~02BL0ZZ Excision of Left Ventricle, Open Approach~~ ~~02BL3ZZ Excision of Left Ventricle, Percutaneous Approach~~ ~~02Q50ZZ Repair Atrial Septum, Open Approach~~ ~~02Q53ZZ Repair Atrial Septum, Percutaneous Approach~~ ~~02Q54ZZ Repair Atrial Septum, Percutaneous Endoscopic Approach~~ ~~02RF07Z Replacement of Aortic Valve with Autologous Tissue Substitute, Open Approach~~ ~~02RF08Z Replacement of Aortic Valve with Zooplastic Tissue, Open Approach~~ ~~02RF0JZ Replacement of Aortic Valve with Synthetic Substitute, Open Approach~~ ~~02RF0KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Open Approach~~ ~~02RF37Z Replacement of Aortic Valve with Autologous Tissue Substitute, Percutaneous Approach~~ ~~02RF38Z Replacement of Aortic Valve with Zooplastic Tissue, Percutaneous Approach~~ ~~02RF3JZ Replacement of Aortic Valve with Synthetic Substitute, Percutaneous Approach~~ ~~02RF3KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Percutaneous Approach~~ ~~02RF47Z Replacement of Aortic Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~02RF48Z Replacement of Aortic Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach~~ ~~02RF4JZ Replacement of Aortic Valve with Synthetic Substitute, Percutaneous Endoscopic Approach~~ ~~02RF4KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~02RG07Z Replacement of Mitral Valve with Autologous Tissue Substitute, Open Approach~~ ~~02RG08Z Replacement of Mitral Valve with Zooplastic Tissue, Open Approach~~ ~~02RG0JZ Replacement of Mitral Valve with Synthetic Substitute, Open Approach~~ ~~02RG0KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Open Approach~~ ~~02RG37Z Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Approach~~ ~~02RG38Z Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Approach~~ ~~02RG3JZ Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Approach~~ ~~02RG3KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Approach~~ ~~02RG47Z Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~02RG48Z Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach~~ ~~02RG4JZ Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Endoscopic Approach~~ ~~02RG4KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~02T80ZZ Resection of Conduction Mechanism, Open Approach~~ ~~02U507Z Supplement Atrial Septum with Autologous Tissue Substitute, Open Approach~~ ~~02U508Z Supplement Atrial Septum with Zooplastic Tissue, Open Approach~~

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	02U50JZ Supplement Atrial Septum with Synthetic Substitute, Open Approach 02U50KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Open Approach 02U537Z Supplement Atrial Septum with Autologous Tissue Substitute, Percutaneous Approach 02U538Z Supplement Atrial Septum with Zooplastic Tissue, Percutaneous Approach 02U53JZ Supplement Atrial Septum with Synthetic Substitute, Percutaneous Approach 02U53KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Percutaneous Approach 02U547Z Supplement Atrial Septum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 02U548Z Supplement Atrial Septum with Zooplastic Tissue, Percutaneous Endoscopic Approach 02U54JZ Supplement Atrial Septum with Synthetic Substitute, Percutaneous Endoscopic Approach 02U54KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 037H34Z Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous App 037H3DZ Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Approach 037H3ZZ Dilation of Right Common Carotid Artery, Percutaneous Approach 037H44Z Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous End 037H4DZ Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach 037H4ZZ Dilation of Right Common Carotid Artery, Percutaneous Endoscopic Approach 037J34Z Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Appr 037J3DZ Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Approach 037J3ZZ Dilation of Left Common Carotid Artery, Percutaneous Approach 037J44Z Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endo 037J4DZ Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach 037J4ZZ Dilation of Left Common Carotid Artery, Percutaneous Endoscopic Approach 037K34Z Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous A 037K3DZ Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Approach 037K3ZZ Dilation of Right Internal Carotid Artery, Percutaneous Approach 037K44Z Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous E 037K4DZ Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic App 037K4ZZ Dilation of Right Internal Carotid Artery, Percutaneous Endoscopic Approach 037L34Z Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Ap 037L3DZ Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Approach 037L3ZZ Dilation of Left Internal Carotid Artery, Percutaneous Approach 037L44Z Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous En 037L4DZ Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Appr 037L4ZZ Dilation of Left Internal Carotid Artery, Percutaneous Endoscopic Approach 037M34Z Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous A 037M3DZ Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Approach 037M3ZZ Dilation of Right External Carotid Artery, Percutaneous Approach 037M44Z Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous E 037M4DZ Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic App

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	~~037M4ZZ Dilation of Right External Carotid Artery, Percutaneous Endoscopic Approach~~ ~~037N34Z Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Ap~~ ~~037N3DZ Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Approach~~ ~~037N3ZZ Dilation of Left External Carotid Artery, Percutaneous Approach~~ ~~037N44Z Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous En~~ ~~037N4DZ Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Appr~~ ~~037N4ZZ Dilation of Left External Carotid Artery, Percutaneous Endoscopic Approach~~ ~~037P34Z Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach~~ ~~037P3DZ Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Approach~~ ~~037P3ZZ Dilation of Right Vertebral Artery, Percutaneous Approach~~ ~~037P44Z Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscop~~ ~~037P4DZ Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach~~ ~~037P4ZZ Dilation of Right Vertebral Artery, Percutaneous Endoscopic Approach~~ ~~037Q34Z Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach~~ ~~037Q3DZ Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Approach~~ ~~037Q3ZZ Dilation of Left Vertebral Artery, Percutaneous Approach~~ ~~037Q44ZDilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopi~~ ~~037Q4DZDilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach~~ ~~037Q4ZZDilation of Left Vertebral Artery, Percutaneous Endoscopic Approach~~ ~~03CH0ZZExtirpation of Matter from Right Common Carotid Artery, Open Approach~~ ~~03CH3ZZExtirpation of Matter from Right Common Carotid Artery, Percutaneous Approach~~ ~~03CH4ZZExtirpation of Matter from Right Common Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CJ0ZZ Extirpation of Matter from Left Common Carotid Artery, Open Approach~~ ~~03CJ3ZZ Extirpation of Matter from Left Common Carotid Artery, Percutaneous Approach~~ ~~03CJ4ZZ Extirpation of Matter from Left Common Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CK0ZZ Extirpation of Matter from Right Internal Carotid Artery, Open Approach~~ ~~03CK3ZZ Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Approach~~ ~~03CK4ZZ Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CL0ZZ Extirpation of Matter from Left Internal Carotid Artery, Open Approach~~ ~~03CL3ZZ Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Approach~~ ~~03CL4ZZ Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CM0ZZExtirpation of Matter from Right External Carotid Artery, Open Approach~~ ~~03CM3ZZExtirpation of Matter from Right External Carotid Artery, Percutaneous Approach~~ ~~03CM4ZZExtirpation of Matter from Right External Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CN0ZZExtirpation of Matter from Left External Carotid Artery, Open Approach~~ ~~03CN3ZZExtirpation of Matter from Left External Carotid Artery, Percutaneous Approach~~ ~~03CN4ZZExtirpation of Matter from Left External Carotid Artery, Percutaneous Endoscopic Approach~~ ~~03CP0ZZ Extirpation of Matter from Right Vertebral Artery, Open Approach~~ ~~03CP3ZZ Extirpation of Matter from Right Vertebral Artery, Percutaneous Approach~~ ~~03CP4ZZ Extirpation of Matter from Right Vertebral Artery, Percutaneous Endoscopic Approach~~ ~~03CQ0ZZ Extirpation of Matter from Left Vertebral Artery, Open Approach~~ ~~03CQ3ZZ Extirpation of Matter from Left Vertebral Artery, Percutaneous Approach~~ ~~03CQ4ZZ Extirpation of Matter from Left Vertebral Artery, Percutaneous Endoscopic Approach~~ ~~03CR0ZZ Extirpation of Matter from Face Artery, Open Approach~~

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	~~03CR3ZZExtirpation of Matter from Face Artery, Percutaneous Approach~~ ~~03CR4ZZExtirpation of Matter from Face Artery, Percutaneous Endoscopic Approach~~ ~~03CS0ZZ Extirpation of Matter from Right Temporal Artery, Open Approach~~ ~~03CS3ZZ Extirpation of Matter from Right Temporal Artery, Percutaneous Approach~~ ~~03CS4ZZ Extirpation of Matter from Right Temporal Artery, Percutaneous Endoscopic Approach~~ ~~03CT0ZZ Extirpation of Matter from Left Temporal Artery, Open Approach~~ ~~03CT3ZZ Extirpation of Matter from Left Temporal Artery, Percutaneous Approach~~ ~~03CT4ZZ Extirpation of Matter from Left Temporal Artery, Percutaneous Endoscopic Approach~~ ~~03CU0ZZ Extirpation of Matter from Right Thyroid Artery, Open Approach~~ ~~03CU3ZZExtirpation of Matter from Right Thyroid Artery, Percutaneous Approach~~ ~~03CU4ZZExtirpation of Matter from Right Thyroid Artery, Percutaneous Endoscopic Approach~~ ~~03CV0ZZExtirpation of Matter from Left Thyroid Artery, Open Approach~~ ~~03CV3ZZExtirpation of Matter from Left Thyroid Artery, Percutaneous Approach~~ ~~03CV4ZZExtirpation of Matter from Left Thyroid Artery, Percutaneous Endoscopic Approach~~ ~~057M3DZDilation of Right Internal Jugular Vein with Intraluminal Device, Percutaneous Approach~~ ~~057M4DZDilation of Right Internal Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Appro~~ ~~057N3DZDilation of Left Internal Jugular Vein with Intraluminal Device, Percutaneous Approach~~ ~~057N4DZDilation of Left Internal Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Approa~~ ~~057P3DZDilation of Right External Jugular Vein with Intraluminal Device, Percutaneous Approach~~ ~~057P4DZDilation of Right External Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Appro~~ ~~057Q3DZDilation of Left External Jugular Vein with Intraluminal Device, Percutaneous Approach~~ ~~057Q4DZDilation of Left External Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Approa~~ ~~057R3DZDilation of Right Vertebral Vein with Intraluminal Device, Percutaneous Approach~~ ~~057R4DZDilation of Right Vertebral Vein with Intraluminal Device, Percutaneous Endoscopic Approach~~ ~~057S3DZDilation of Left Vertebral Vein with Intraluminal Device, Percutaneous Approach~~ ~~057S4DZDilation of Left Vertebral Vein with Intraluminal Device, Percutaneous Endoscopic Approach~~ ~~057T3DZDilation of Right Face Vein with Intraluminal Device, Percutaneous Approach~~ ~~057T4DZDilation of Right Face Vein with Intraluminal Device, Percutaneous Endoscopic Approach~~ ~~0NB00ZZExcision of Skull, Open Approach~~ ~~0NB03ZZExcision of Skull, Percutaneous Approach~~ ~~0NB04ZZExcision of Skull, Percutaneous Endoscopic Approach~~ ~~0NP00JZ Removal of Synthetic Substitute from Skull, Open Approach~~ ~~0NP03JZ Removal of Synthetic Substitute from Skull, Percutaneous Approach~~ ~~0NP04JZ Removal of Synthetic Substitute from Skull, Percutaneous Endoscopic Approach~~ ~~0NQ00ZZRepair Skull, Open Approach~~ ~~0NQ03ZZRepair Skull, Percutaneous Approach~~ ~~0NQ04ZZRepair Skull, Percutaneous Endoscopic Approach~~ ~~0NR007ZReplacement of Skull with Autologous Tissue Substitute, Open Approach~~ ~~0NR007ZReplacement of Skull with Autologous Tissue Substitute, Open Approach~~ ~~0NR00JZ Replacement of Skull with Synthetic Substitute, Open Approach~~ ~~0NR00KZReplacement of Skull with Nonautologous Tissue Substitute, Open Approach~~ ~~0NR00KZReplacement of Skull with Nonautologous Tissue Substitute, Open Approach~~ ~~0NR037ZReplacement of Skull with Autologous Tissue Substitute, Percutaneous Approach~~ ~~0NR037ZReplacement of Skull with Autologous Tissue Substitute, Percutaneous Approach~~ ~~0NR03JZ Replacement of Skull with Synthetic Substitute, Percutaneous Approach~~ ~~0NR03KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Approach~~ ~~0NR03KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Approach~~ ~~0NR047ZReplacement of Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~0NR047ZReplacement of Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach~~

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	~~0NR04JZReplacement of Skull with Synthetic Substitute, Percutaneous Endoscopic Approach~~ ~~0NR04KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~0NR04KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~0NS004ZReposition Skull with Internal Fixation Device, Open Approach~~ ~~0NS005ZReposition Skull with External Fixation Device, Open Approach~~ ~~0NS00ZZReposition Skull, Open Approach~~ ~~0NS034ZReposition Skull with Internal Fixation Device, Percutaneous Approach~~ ~~0NS035ZReposition Skull with External Fixation Device, Percutaneous Approach~~ ~~0NS03ZZReposition Skull, Percutaneous Approach~~ ~~0NS044ZReposition Skull with Internal Fixation Device, Percutaneous Endoscopic Approach~~ ~~0NS045ZReposition Skull with External Fixation Device, Percutaneous Endoscopic Approach~~ ~~0NS04ZZReposition Skull, Percutaneous Endoscopic Approach~~ ~~0NS0XZZReposition Skull, External Approach~~ ~~0NU007ZSupplement Skull with Autologous Tissue Substitute, Open Approach~~ ~~0NU00JZSupplement Skull with Synthetic Substitute, Open Approach~~ ~~0NU00KZSupplement Skull with Nonautologous Tissue Substitute, Open Approach~~ ~~0NU037ZSupplement Skull with Autologous Tissue Substitute, Percutaneous Approach~~ ~~0NU03JZSupplement Skull with Synthetic Substitute, Percutaneous Approach~~ ~~0NU03KZSupplement Skull with Nonautologous Tissue Substitute, Percutaneous Approach~~ ~~0NU047ZSupplement Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach~~ ~~0NU04JZSupplement Skull with Synthetic Substitute, Percutaneous Endoscopic Approach~~ ~~0NU04KZSupplement Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach~~
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for acute ischemic stroke. The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort the inclusion criteria required that the patient be continuously enrolled in Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. ~~65 years and older who were admitted to non-federal acute care hospitals for an~~ Acute ischemic stroke ~~is~~as defined by the following ICD-9-CM and ICD-10-CM codes and with a complete claims history for the 12 months prior to admission: ICD-9-CM codes used to define ischemic stroke: 433.01 Occlusion and stenosis of precerebral arteries, Basilar artery with cerebral infarction 433.11 Occlusion and stenosis of precerebral arteries, Carotid artery with cerebral infarction 433.21 Occlusion and stenosis of precerebral arteries, Vertebral artery with cerebral infarction 433.31 Occlusion and stenosis of precerebral arteries, Multiple and bilateral with cerebral infarction 433.81 Occlusion and stenosis of precerebral arteries, Other specified precerebral artery with cerebral infarction 433.91 Occlusion and stenosis of precerebral arteries, Unspecified precerebral artery with cerebral infarction, Precerebral artery NOS

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	434.01 Occlusion of cerebral arteries, Cerebral thrombosis with cerebral infarction, thrombosis of cerebral arteries 434.11 Occlusion of cerebral arteries, Cerebral embolism with cerebral infarction 434.91 Occlusion of cerebral arteries, Cerebral artery occlusion, unspecified, with cerebral infarction 436 Acute, but ill-defined, cerebrovascular disease ICD-10-CM codes used to define ischemic stroke: I6322 Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries I63139 Cerebral infarction due to embolism of unspecified carotid artery I63239 Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries I63019 Cerebral infarction due to thrombosis of unspecified vertebral artery I63119 Cerebral infarction due to embolism of unspecified vertebral artery I63219 Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries I6359 Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery I6320 Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries I6330 Cerebral infarction due to thrombosis of unspecified cerebral artery I6340 Cerebral infarction due to embolism of unspecified cerebral artery I6350 Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery I678 Other specified cerebrovascular diseases
Exclusions	An index admission is the hospitalization considered for the readmission outcome (readmitted within 30 days of the date of discharge from the initial admission). The measure excludes admissions for patients: • with an in hospital death (because they are not eligible for readmission). • transferred to another acute care facility (because the readmission is attributed to the hospital that discharges the patient to a non-acute setting). • discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge). • without at least 30 days post-discharge claims data (because the 30-day readmission outcome cannot be assessed in this group). In addition, if a patient has more than one admission within 30 days of discharge from the index admission, only one is counted as a readmission, as we are interested in a dichotomous yes/no readmission outcome, as opposed to the number of readmissions. No admissions within 30 days of discharge from an index admission are considered as additional index admissions, thus no hospitalization will be counted as both a readmission and an index admission. The next eligible index admission is 30 days after the discharge date of the previous index admission.
Exclusion Details	In-hospital deaths are identified using the discharge disposition vital status indicator. Transfers to other acute care facilities are defined when a patient with an inpatient hospital admission (with at least one qualifying stroke admission) is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator. Lack of claims data for 30 days post-discharge is identified by patient enrollment status in the CMS' Enrollment Database (EDB) (for Medicare FFS patients only).
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes"1. The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when

estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level, the model adjusts the log-odds of readmission within 30 days of discharge for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercepts represent the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

Frequencies and odds ratios for the 2007 cohort (n=174,024 admissions) are presented below.

Final set of risk-adjustment variables:

Variable//Frequency (%)//Odds Ratio (95% confidence interval)

Demographic

- Age-65 (continuous)/Mean (SD)=80.12(7.83)/ OR (95% CI)=1.004(1.003 - 1.006)
- Male/Frequency =40.44/ OR (95% CI)=1.045(1.016 - 1.045)

Cardiovascular/Cerebrovascular

- Congestive Heart Failure (CC 80)/Frequency =25.68/ OR (95% CI)=1.221(1.182 - 1.261)
- Hypertensive heart disease (CC 90)/Frequency =6.91/ OR (95% CI)=1.100(1.047 - 1.157)
- Cerebral Hemorrhage (CC 95)/Frequency =1.81/ OR (95% CI)=1.079(0.954 - 1.182)
- Ischemic or Unspecified Stroke (CC 96)/Frequency =26.41/ OR (95% CI)=1.042(1.008 - 1.078)
- Cerebrovascular Disease (CC 97)/Frequency =23.75/ OR (95% CI)=1.045(1.010 - 1.080)
- Hemiplegia, paraplegia, paralysis, functional disability (CC 100-102)/Frequency =9.70/ OR (95% CI)=0.951(0.907 - 0.997)
- Vascular or circulatory disease (CC 104-106)/Frequency =31.09/ OR (95% CI)=1.070(1.038 - 1.103)

Comorbid Conditions

- Metastatic cancer and acute leukemia (CC 7)/Frequency =2.27/ OR (95% CI)=1.264(1.163 - 1.373)
- Cancer (CC 8-12)/Frequency =18.52/ OR (95% CI)=1.034(0.998 - 1.071)
- Diabetes and DM complications (CC 15-20, 119-120)/Frequency =37.84/ OR (95% CI)=1.156(1.124 - 1.364)
- Protein-calorie malnutrition (CC 21)/Frequency =4.45/ OR (95% CI)=1.288(1.216 - 1.364)
- Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/Frequency = 23.72/ OR (95% CI)=1.142(1.104 - 1.181)
- Obesity/disorders of thyroid, cholesterol, lipids (CC 24)/Frequency = 68.03/ OR (95% CI)=0.916(0.890 - 0.943)
- Severe Hematological Disorders (CC 44)/Frequency = 1.53/ OR (95% CI)=1.266(1.153 - 1.391)

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	• Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/Frequency = 30.90/ OR (95% CI)=1.142(1.108 - 1.178) • Dementia and senility (CC 49-50)/Frequency = 28.56/ OR (95% CI)=1.015(0.985 - 1.047) • Quadriplegia, paraplegia, functional disability (CC 67-69, 177-178)/Frequency = 1.99/ OR (95% CI)=1.139(1.046 - 1.242) • Seizure Disorders and Convulsions (CC 74)/Frequency = 7.45/ OR (95% CI)=1.161(1.107 - 1.218) • COPD (CC 108)/Frequency =22.96/ OR (95% CI)=1.133(1.098 - 1.170) • Other lung disorder (CC 115)/Frequency =22.04/ OR (95% CI)=1.082(1.047 - 1.117) • End-stage renal disease or dialysis (CC 130)/Frequency =1.51/ OR (95% CI)=1.356(1.237 - 1.487) • Renal Failure (CC 131)/Frequency =14.29/ OR (95% CI)=1.163(1.117 - 1.211) • Other urinary tract disorders (CC 136)/Frequency =18.57/ OR (95% CI)=1.101(1.064 - 1.140) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/Frequency =6.79/ OR (95% CI)=1.079(1.026 - 1.134) • Major Symptoms, Abnormalities (CC 166)/Frequency =61.63/ OR (95% CI)=1.098(1.063 - 1.134) References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Readmission_MethodologyReport9.29.10.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The measure employs a hierarchical logistic regression model to create a hospital level 30-day RSRR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSRR is calculated as the ratio of the number of “predicted” to the number of “expected” readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio (“predicted”) is the number of readmissions within 30 days predicted on the basis of the hospital’s performance with its observed case mix, and the denominator (“expected”) is the number of readmissions expected on the basis of the nation’s performance with that hospital’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital’s performance given its case-mix to an average hospital’s performance with the same case-mix. Thus, a ratio lower than one indicates lower-than-expected readmission or better quality and a ratio higher than one indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmission for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors.

	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	Please see attachment for more details on the calculation algorithm. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Readmission_Calculation_Algorithm.pdf
Copyright/ Disclaimer	N/A

Appendix B: Project Steering Committee and NQF Staff

STEERING COMMITTEE

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Appendix C: Neurology Measures Endorsed Since January, 2011

NQF Number	Title	Steward
0661	Head CT or MRI Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan Interpretation Within 45 minutes of ED Arrival.	Centers for Medicare and Medicaid Services
0668	Appropriate Head CT Imaging in Adults with Mild Traumatic Brain Injury	Partners HealthCare System
0705	Proportion of Patients Hospitalized with Stroke that have a Potentially Avoidable Complication (during the Index Stay or in the 30-day Post-Discharge Period)	Bridges to Excellence

Appendix D: Related and Competing Measures

Contents

Measure Group #1: Antithrombotic Therapy

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)	The Joint Commission	The Joint Commission
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) who were prescribed antithrombotic therapy at discharge	This measure captures the proportion of ischemic stroke patients prescribed antithrombotic therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy,STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.	This measure captures the proportion of ischemic stroke patients who had antithrombotic therapy administered by end of hospital day two (with the day of arrival being day 1). This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-6: Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process	Process	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_2.STROKE.discharge.antithrombotic_MAY2012.pdf	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team	Facility, Population : National	Facility, Population : National
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator	Patients who were prescribed antithrombotic	Ischemic stroke patients prescribed antithrombotic	Ischemic stroke patients who had antithrombotic therapy

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
Statement	therapy at discharge	therapy at hospital discharge	administered by end of hospital day two.
Numerator Details	Time Window: At each hospital discharge during measurement period Numerator Instructions: If the consulting physician orders or agrees with a prior antithrombotic therapy order (from current or previous episodes of care during the reporting period) and there is supporting documentation, report G8696. Definitions: Antithrombotic Therapy – Aspirin, combination of aspirin and extended-release dipyridamole, clopidogrel, ticlopidine, warfarin, low molecular weight heparin, dabigatran, rivaroxaban* *The above list of medications/drug names is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications. Prescribed – May include prescription given to the patient for antithrombotic therapy at discharge OR antithrombotic therapy to be continued after discharge as documented in the discharge medication list NUMERATOR NOTE: In order to meet the measure, antithrombotic therapy is to be prescribed at the time of discharge. If a physician other than the discharging physician (e.g., consulting physician) is reporting on this measure, it should be clear from the documentation that the prescription is being ordered for the patient at the time of discharge, and included in the "medications prescribed at	Time Window: Hospital discharge One data element is used to calculate the numerator: • Antithrombotic Therapy Prescribed at Discharge – Documentation that antithrombotic therapy was prescribed at hospital discharge. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.	Time Window: To compute the end of hospital day 2, count the arrival date as hospital day 1, (i.e. Arrival Date = Day 1; day after Arrival Date = Day 2). Antithrombotic therapy must be administered by 11:59 PM of hospital day 2. One data element is used to calculate the numerator: • Antithrombotic Therapy Administered by End of hospital Day 2 – Documentation that antithrombotic therapy is administered by the end of hospital day 2. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	discharge." EHR Specifications: eMeasure developed – see attached Claims Specifications: G8696: Antithrombotic therapy prescribed at discharge OR 4XXXF (in development) – Antithrombotic therapy prescribed at discharge		
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA)	Ischemic stroke patients	Ischemic stroke patients
Denominator Details	Time Window: Each hospital discharge during 12 consecutive month measurement period eMeasure developed – see attached Claims Specifications: Diagnosis for ischemic stroke or TIA (ICD-9-CM): 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for TIA (ICD-10-CM): G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2	Time Window: Episode of care Nine data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Discharge Disposition – The place or setting to which the patient was discharged on the day of hospital discharge. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the	Time Window: Episode of care Ten data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Arrival Date – The earliest documented month, day, and year the patient arrived at the hospital. 3. Birthdate - The month, day and year the patient was born. 4. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 5. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 6. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99234, 99235, 99236, 99238, 99239, 99251, 99252, 99253, 99254, 99255	performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 9. Reason For Not Prescribing Antithrombotic Therapy at Discharge – Documentation of a reason for not prescribing antithrombotic therapy at discharge. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1.	stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 9. IV OR IA Thrombolytic (t-PA) Therapy Administered at this Hospital or within 24 Hours Prior to Arrival – Documentation demonstrates that the patient received intravenous (IV) or intra-arterial (IA) thrombolytic therapy (t-PA) at this hospital or within 24 hours prior to arrival. Allowable values: Yes or No/UTD. 10. Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 – Physician/APN/PA or pharmacist documentation of a reason for not administering antithrombotic therapy by end of hospital day 2. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1
Exclusions	All patient that expired during inpatient stay are excluded. Documentation of medical reason(s) for not prescribing antithrombotic therapy at discharge (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)) Documentation of patient reason(s) for not prescribing antithrombotic therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Documented reason for not prescribing antithrombotic therapy at discharge	• Less than 18 years of age • Duration of Stay < 2 days • Length of Stay > 120 days • Comfort measures only documented on the day of or day after hospital arrival • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • IV OR IA thrombolytic therapy administered at this hospital or within 24 hours prior to arrival • Documented reason for not administering antithrombotic therapy by end of hospital day 2
Exclusion Details	The PCPI distinguishes between measure	• The patient age in years is equal to the	• The patient age in years is equal to the Discharge

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For measure this measure, exclusions include all patients that expired during inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, patients admitted for performance of elective carotid intervention, patient had a stroke during hospital stay, other medical reason(s))patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))for not prescribing antithrombotic therapy at discharge.. Where	Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Prescribing Antithrombotic Therapy at Discharge.	Date minus the Birthdate. Patients less than 18 years are excluded. • The Duration of Stay (in days) is equal to the Discharge Date minus the Arrival Date. If the Duration of Stay is less than 2 days, the patient is excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients are excluded if "Yes" is selected for IV (intravenous) or IA (intra- arterial)Thrombolytic Therapy (t-PA)Administered at This Hospital or Within 24 Hours Prior to Arrival. • Patients are excluded if "Yes" is selected for Reason For Not Administering Antithrombotic Therapy By End of Hospital Day 2.

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eMeasure developed – see attached Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded Exceptions: G8697: Antithrombotic therapy not prescribed for documented reasons OR 4XXXF-1P (in development) - Documentation of medical reason(s) for not prescribing antithrombotic therapy at discharge (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)). OR 4XXXF-2P (in development) - Documentation of patient reason(s) for not prescribing antithrombotic therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s)).		
Risk Adjustment	No risk adjustment or risk stratification Not applicable	No risk adjustment or risk stratification N/A	No risk adjustment or risk stratification N/A

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.	Not applicable, the measure is not stratified.	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator when exceptions have been specified [for this measure: medical reason(s) (eg, patients admitted for performance of elective carotid intervention, patient had stroke during hospital stay, other medical reason(s)) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Discharge Disposition equals 1, 5, 8 continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Comfort Measures Only. 3. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 5. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
	the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rates (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717469407389834.pdf	rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 6. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Antithrombotic Therapy Prescribed at Discharge. 7. Check Antithrombotic Therapy Prescribed at Discharge a. If Antithrombotic Therapy Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Antithrombotic Therapy Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Antithrombotic Therapy Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Antithrombotic Therapy at Discharge. 8. Check Reason for Not Prescribing Antithrombotic Therapy at Discharge a. If Reason for Not Prescribing Antithrombotic Therapy at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.	case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Arrival Date. 6. Check Arrival Date a. If the Arrival Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Arrival Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Date equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to Duration of Stay calculation. 7. Calculate the Duration of Stay. The Duration of Stay, in days, is equal to the Discharge Date minus the Arrival Date. 8. Check Duration of Stay a. If the Duration of Stay is greater than or equal to zero and less than 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Duration of Stay is greater than or equal to 2, continue processing and proceed to IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival. 9. Check IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival a. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
		b. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Prescribing Antithrombotic Therapy at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zy_STK2.pdf	b. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If IV or IA Thrombolytic (t-PA) Therapy Administered at This Hospital or Within 24 Hours Prior to Arrival equals No, continue processing and proceed to Antithrombotic Therapy Administered By End of Hospital Day 2. 10. Check Antithrombotic Therapy Administered By End of Hospital Day 2 a. If Antithrombotic Therapy Administered By End of Hospital Day 2 is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Antithrombotic Therapy Administered By End of Hospital Day 2 equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Antithrombotic Therapy Administered By End of Hospital Day 2 equals No, continue processing and check Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2. 11. Check Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 a. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Administering Antithrombotic Therapy By End of Hospital Day 2 equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment

	0325 Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy	0435 STK 02: Discharged on Antithrombotic Therapy	0438 STK 05: Antithrombotic Therapy By End of Hospital Day Two
			2zzb_STK5.pdf
Submission items	5.1 Identified measures: 0435 : STK 02: Discharged on Antithrombotic Therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure is specified at the physician level and also contains the use of exceptions, which allow for the physician´s clinical judgment. 5b.1 If competing, why superior or rationale for additive value: Our measure is specified at the clinician level, but measure results can be aggregated at a higher level of measurement. We have developed and will maintain specifications for multiple data sources, including Electronic Health Records (EHRs) and Claims-Based Reporting. Our specifications for EHRs are developed in accordance with the terminology standards (eg, SNOMED, RxNorm, LOINC) named in the Meaningful Use Program (CMS EHR Incentive Program).	5.1 Identified measures: 0068 : Ischemic Vascular Disease (IVD): Use of Aspirin or another Antithrombotic 0438 : STK 05: Antithrombotic Therapy By End of Hospital Day Two 0325 : Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0438 Antithrombotic Therapy By End of Hospital Day 2 is the fifth (STK-5) measure in The Joint Commission stroke core measure set and also targets the ischemic stroke population; however, the timeframe for antithrombotic administration is different in this measure than STK-2. STK-5 focuses on the early management of stroke care and antithrombotic therapy administered within the first 48 hours of acute ischemic stroke onset rather than discharge. Measures 0325 and 0068 are physician performance measures and could extend to the outpatient setting. Measure 0325 targets ischemic stroke patients identified through CPT codes, and is very similar in construct to STK-2 Discharged on Antithrombotic Therapy. As mentioned previously, Joint Commission testing indicated that the TIA population could not be reliably identified, so TIA patients were removed from the final measure. Measure 0068 encompasses a different target population, specifically patients with ischemic vascular disease who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI). Both of these measures evaluate physician practice as opposed to hospital processes. 5b.1 If competing, why superior or rationale for additive value: Not Applicable	5.1 Identified measures: 0068 : Ischemic Vascular Disease (IVD): Use of Aspirin or another Antithrombotic 0325 : Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy 0435 : STK 02: Discharged on Antithrombotic Therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0435 Discharged on Antithrombotic Therapy is the second (STK-2) measure in The Joint Commission stroke core measure set and also targets the ischemic stroke population; however, the timeframe for antithrombotic administration is different in this measure than STK-5. STK-2 focuses on hospital discharge and the prescription of antithrombotic medications at that time. Measures 0325 and 0068 are physician performance measures and could extend to the outpatient setting. Measure 0325 targets ischemic stroke patients identified through CPT codes, and is harmonized with STK-2 Discharged on Antithrombotic Therapy in terms of numerator statement, although 0325 includes TIA patients in the denominator population. As mentioned previously, Joint Commission testing indicated that the TIA population could not be reliably identified, so TIA patients were removed from the final measure. Measure 0068 encompasses a different target population, specifically patients with ischemic vascular disease who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI). Both of these measures evaluate physician practice as opposed to hospital processes. 5b.1 If competing, why superior or rationale for additive value: Not Applicable

Measure Group #2: VTE Prophylaxis

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)	The Joint Commission	The Joint Commission
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage who were administered DVT prophylaxis by the end of hospital day two	Percentage of patients aged 18 years and older undergoing procedures for which VTE prophylaxis is indicated in all patients, who had an order for Low Molecular Weight Heparin (LMWH), Low-Dose Unfractionated Heparin (LDUH), adjusted-dose warfarin, fondaparinux or mechanical prophylaxis to be given within 24 hours prior to incision time or within 24 hours after surgery end time.	This measure assesses the number of patients who received venous thromboembolism (VTE) prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission. This measure is part of a set of six nationally implemented prevention and treatment measures that address VTE (VTE-2: ICU VTE Prophylaxis, VTE-3: VTE Patients with Anticoagulation Overlap Therapy, VTE-4: VTE Patients Receiving UFH with Dosages/Platelet Count Monitoring, VTE-5: VTE Warfarin Therapy Discharge Instructions and VTE-6: Incidence of Potentially-Preventable VTE) that are used in The Joint Commission's accreditation process.	This measure captures the proportion of ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process	Process	Process	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_1.STROKE.DVTprophylaxis_MAY 2012.pdf	Electronic administrative data/claims	Administrative claims, Electronic Clinical Data : Electronic Health Record, Paper Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
			tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. Attachment VTE 4.0 ManuaLF-634469565251741848.pdf	specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team	Clinicians : Individual	Facility, Population : National	Facility, Population : National
Setting	Hospital/Acute Care Facility	Hospital	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	Patients who were administrated Deep Vein Thrombosis (DVT) prophylaxis by the end of hospital day two	Surgical patients, who had an order for VTE prophylaxis (low molecular weight heparin (LMWH), low-dose unfractionated heparin (LDUH), adjusted-dose warfarin, fondaparinux or mechanical prophylaxis) to be given within 24 hours prior to incision time or within 24 hours after surgery end time.	Patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given: • the day of or the day after hospital admission • the day of or the day after surgery end date for surgeries that start the day of or the day after hospital admission	Ischemic or hemorrhagic stroke patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given on the day of or the day after hospital admission.
Numerator Details	Time Window: Once during each hospital stay during the measurement period Definition: DVT Prophylaxis – Can include Low Molecular Weight Heparin (LMWH), Low-Dose Unfractionated Heparin (LDUH), low-dose subcutaneous heparin, or intermittent pneumatic compression devices. Day Two – Ends at 11:59 pm on the	Time Window:	Time Window: Episode of Care Five data elements are used to calculate the numerator: 1. Reason for No VTE Prophylaxis – Hospital Admission - Documentation why mechanical or pharmacologic VTE prophylaxis was not administered at hospital admission. Allowable values: Yes or No/UTD. 2. Surgery End Date - The date the surgical procedure ended after	Time Window: Two days. Day 0 = Day of admission to the hospital (Admission Date) and Day 1= the day after hospital admission. VTE prophylaxis must be administered on the day of or the day after hospital admission. Three data elements are used to calculate the numerator: • Reason for No VTE Prophylaxis – Hospital Admission - Documentation of a reason why no mechanical or

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	second day of hospitalization; day one is day patient was admitted EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: DVT Prophylaxis Received CPT II 4070F: Deep Vein Thrombosis (DVT) prophylaxis received by end of hospital day 2 *The above list of medications/drug names and devices is based on clinical guidelines and other evidence. The specified drugs and devices were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs and devices may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications, and to the FDA's web site page entitled "Medical Device Safety" for up-to-date device recall and alert information when utilizing medical devices. Day two- ends at 11:59pm on the second day of hospitalization; day one is day patient was admitted. For EHR: eMeasure developed; available upon request For Claims, Numerator Action Met:		hospital admission. 3. Surgical Procedure - A surgical procedure was performed using general or neuraxial anesthesia the day of or the day after hospital admission. Allowable values: Yes or No/UTD 4. VTE Prophylaxis - The type of venous thromboembolism (VTE) prophylaxis documented in the medical record. Allowable values: 1 - 7 or A - None of the above, not documented or UTD. 5. VTE Prophylaxis Date - The month, day, and year that the initial VTE prophylaxis (mechanical and/or pharmacologic) was administered after hospital admission.	pharmacological prophylaxis was administered at hospital admission. Allowable values: Yes or No/UTD. • VTE Prophylaxis – The type of venous thromboembolism prophylaxis documented in the medical record. Allowable values: 1 Low dose unfractionated heparin (LDUH); 2 Low molecular weight heparin (LMWH); 3 Intermittent pneumatic compression devices (IPC); 4 Graduated compression stockings (GCS); 5 Factor Xa Inhibitor; 6 Warfarin; 7 Venous foot pumps (VFP); 8 Oral Factor Xa Inhibitor; A None of the above or not documented or unable to determine from medical record documentation. • VTE Prophylaxis Date – The month, day, and year that the initial VTE prophylaxis (mechanical and/or pharmacological) was administered after hospital admission. Patients are eligible for the numerator population when VTE Prophylaxis equals 1,2,3,5,6,7, or allowable value equals "yes" for Reason for No VTE Prophylaxis-Hospital Admission and VTE Prophylaxis Date = 0 or 1.

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	CPT II 4070F: Deep Vein Thrombosis (DVT) prophylaxis received by end of hospital day 2			
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage	All surgical patients aged 18 years and older undergoing procedures for which VTE prophylaxis is indicated in all patients.	All discharged hospital inpatients	Ischemic or hemorrhagic stroke patients
Denominator Details	Time Window: Each hospital stay during 12 consecutive month measurement period EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: Diagnosis for ischemic stroke or intracranial hemorrhage (ICD-9-CM): 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419,	Time Window:	Time Window: Episode of care Eleven data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with VTE were being studied. Allowable values: Yes or No/UTD 4. Comfort Measures Only - Physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation of comfort measures only. Commonly referred to as “palliative care” in the medical community and “comfort care” by the general public. Palliative care includes attention to the psychological and spiritual needs of the patient and support for the dying patient and the patient´s family. Comfort Measures Only are not equivalent to the following: Do Not Resuscitate (DNR), living will, no	Time Window: Episode of care Seven data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99291, 99251, 99252, 99253, 99254, 99255		code, no heroic measure. Allowable values represent the earliest physician/APN/PA documentation: Day 0 or 1, Day 2 or after, Timing unclear or Not Documented/UTD. 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. ICD-9-CM Other Diagnosis Codes - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes associated with the diagnosis for this hospitalization. 7. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 8. ICD-9-CM Principal Procedure Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies the principal procedure performed during this hospitalization. The principal procedure is the procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication. 9. ICU Admission Date - The day, month and year that the order was	performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 7. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic or hemorrhagic stroke as defined in Appendix A, Table 8.1 or Table 8.2.

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
			written for the patient to be directly admitted or transferred (from a lower level of care) to the intensive care unit (ICU). 10. ICU Admission or Transfer - Documentation that the patient was admitted or transferred to the intensive care unit (ICU) at this hospital. The definition of an ICU for the purpose of the measures noted above is that used by the CDC in the NHSN Patient Safety Project. An intensive care unit can be defined as a nursing care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill. An ICU excludes nursing areas that provide step-down, intermediate care or telemetry only and specialty care areas. 11. ICU Discharge Date - The day, month and year that the order was written to discharge the patient from the intensive care unit (ICU), left against medical advice (AMA) or expired.	
Exclusions	All patients that expired during inpatient stay are excluded. Documentation of medical reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) Documentation of patient reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (eg, patient is	Documentation of medical reason(s) for patient not receiving any accepted form of VTE prophylaxis (LMWH, LDUH, adjusted-dose warfarin, fondaparinux or mechanical prophylaxis) within 24 hours prior to incision time or 24 hours after surgery end time Exclude patients for whom VTE prophylaxis was not ordered by reason of appropriate denominator exclusion. If using electronic data, exclude patients	• Patients less than 18 years of age • Patients who have a length of stay (LOS) less than two days and greater than 120 days • Patients with Comfort Measures Only documented on day of or day after hospital arrival • Patients enrolled in clinical trials • Patients who are direct admits	• Less than 18 years of age • Length of Stay < 2 days • Length of Stay > 120 days • Comfort measures only documented on day of or day after hospital arrival • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	receiving comfort care only, patient left against medical advice, other patient reason(s))	using the following code: Append a modifier (1P) to the CPT Category II code to report patients with documented circumstances that meet the denominator exclusion criteria.	to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU LOS greater than or equal to one day • Patients with ICD-9-CM Principal Diagnosis Code of Mental Disorders or Stroke as defined in Appendix A, Table 7.01, 8.1 or 8.2 • Patients with ICD-9-CM Principal or Other Diagnosis Codes of Obstetrics or VTE as defined in Appendix A, Table 7.02, 7.03 or 7.04 • Patients with ICD-9-CM Principal Procedure Code of Surgical Care Improvement Project (SCIP) VTE selected surgeries as defined in Appendix A, Tables 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24	
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For measure this measure, exclusions include all patients that expired during inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance		• The patient age in years is equal to the Admission Date minus the Birthdate. Patients less than 18 years are excluded. • Length of stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days or equal to or less than 2 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1) are excluded. • Patients are excluded if “Yes” is selected for Clinical Trial. • The data element ICU Admission or Transfer is used to determine if the patient was admitted to the ICU. If “Yes” is selected, the case	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is less than 2 days or greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure are excluded: 00.61

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s))patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))for not administering DVT Prophylaxis by end of hospital day 2. Where examples of exceptions are included in the measure language, value sets for these examples are developed		flows to the ICU Admission Date. If the ICU Admission Date is equal to the hospital admission or the ICU Admission Date is the day after the hospital admission date, the ICU Admission and ICU Discharge Date are used to determine if the patient was in the ICU for one or more days. If the LOS is less than one day, the patient is excluded from VTE-1. In addition, if the patient's ICU Admission Date is prior to the hospital admission day, the patient is excluded (direct admit to ICU). • Patients with ICD-9-CM Principal Diagnosis Code of Mental Disorders or Stroke are excluded. • Patients with ICD-9-CM Principal or Other Diagnosis Codes of Obstetrics or VTE are excluded. • Patients with ICD-9-CM Principal Procedure Code of Surgical Care Improvement Project (SCIP) VTE selected surgeries are excluded.	Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries.

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	and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eSpecifications currently under development. Data elements (using Quality Data Model) required for the measure attached Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded (For claims-based registry, use CPT II with 1P modifier) Exceptions: DVT Prophylaxis not Received for Medical or Patient Reasons 4070F with 1P: Documentation of medical reason(s) for not administering DVT Prophylaxis by end of hospital day 2 (e.g., patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) 4070F with 2P: Documentation of patient reason(s) for not administering DVT Prophylaxis by end of hospital day 2			

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	(e.g., patient is receiving comfort care only, patient left against medical advice, other patient reason(s))			
Risk Adjustment	No risk adjustment or risk stratification Not applicable	No risk adjustment or risk stratification	No risk adjustment or risk stratification Not applicable	No risk adjustment or risk stratification N/A
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.		Not Applicable, the measure is not stratified.	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score		Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the		1. Start processing. Run cases that are included in the VTE Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date. 3. Check Length of Stay a. If Length of Stay is less than 2 days, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b. If Length of Stay is greater than or equal to 2 days, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. 4. Check ICD-9-CM Principal Diagnosis Code	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 3. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified [for this measure: medical reason(s) (eg, patient is ambulatory, patient already on warfarin or another anticoagulant, other medical reason(s)) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, exception rates (ie, the percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30.		a. If the ICD-9-CM Principal Diagnosis Code is on Table 7.01, 8.1, or 8.2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is not on Table 7.01, 8.1, or 8.2, continue processing and proceed to ICD-9-CM Principal or Other Diagnosis Code. 5. Check ICD-9-CM Principal or Other Diagnosis Code a. If at least one of the ICD-9-CM Principal or Other Diagnosis Code is on Table 7.02, 7.03, or 7.04, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If none of the ICD-9-CM Principal or Other Diagnosis Code is on Table 7.02, 7.03, or 7.04, continue processing and proceed to ICD-9-CM Principal Procedure Code. 6. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Procedure Code is missing or not on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing and	b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 4. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Length of Stay calculation. 5. Calculate the Length of Stay (LOS). Length of Stay, in days, is equal to the Discharge Date minus the Admission Date. 6. Check Length of Stay (LOS) a. If the Length of Stay is greater than or equal to zero and less than 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Length of Stay is greater than or equal to 2, continue processing and proceed to VTE Prophylaxis. 7. Check VTE Prophylaxis a. If VTE Prophylaxis is missing, the

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	Attachment PCPI_Measure_Calculation_V2.0-634717341845184518.pdf		proceed to Comfort Measures Only. 7. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 8. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to VTE Prophylaxis. 9. Check ICU Admission or Transfer a. If ICU Admission or Transfer is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If ICU Admission or Transfer is equal to 2 or 3, the case will proceed to VTE Prophylaxis.	case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Any of VTE Prophylaxis equals 4 or A, continue processing and proceed to Reasons for No VTE Prophylaxis-Hospital Admission. c. If VTE Prophylaxis equals 1, 2, 3, 5, 6, or 7 and None = 4 or A, continue processing and proceed to VTE Prophylaxis Date. 8. Check Reasons for No VTE Prophylaxis-Hospital Admission a. If Reasons for No VTE Prophylaxis-Hospital Admission is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reasons for No VTE Prophylaxis-Hospital Admission equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Reasons for No VTE Prophylaxis-Hospital Admission equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 9. Check VTE Prophylaxis Date a. If VTE Prophylaxis Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If VTE Prophylaxis Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment

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			c. If ICU Admission or Transfer is equal to 1, continue processing and proceed to ICU Admission Date. 10. Check ICU Admission Date a. If ICU Admission Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If ICU Admission Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If ICU Admission Date equals a Non Unable to Determine Value, continue processing and proceed to the Initial ICU Day calculation. 11. Calculate Initial ICU Day. Initial ICU Day, in days, is equal to ICU Admission Date minus Admission Date. 12. Check Initial ICU Day a. If the Initial Day is less than 0 days, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b. If the Initial Day is equal to 0 days or 1 day, the case will proceed to ICU Discharge Date. c. If the Initial Day is greater than or equal to 2 days, continue processing and proceed to VTE Prophylaxis. 13. Check ICU Discharge Date only if Initial ICU Day is less than or equal to 1 day	of D and will be in the Measure Population. Stop processing. c. If the VTE Prophylaxis Date equals a Non-Unable To Determine (non-UTD) Value, continue processing and proceed to VTE Prophylaxis Day calculation. 10. Calculate VTE Prophylaxis Day. The VTE Prophylaxis Day, in days, is equal to the VTE Prophylaxis Date minus the Admission Date. 11. Check VTE Prophylaxis Day a. If the VTE Prophylaxis Day is equal to zero or 1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. b. If the VTE Prophylaxis Day is greater than or equal to 2, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the VTE Prophylaxis Day is less than 0, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. Attachment 2zx_STK1.pdf

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			a. If the ICU Discharge Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the ICU Discharge Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the ICU Discharge Date equals a Non Unable to Determine Value, continue processing and proceed to the ICU LOS calculation. 14. Calculate ICU LOS. ICU LOS is equal to ICU Discharge Date minus ICU Admission Date. 15. Check ICU LOS a. If ICU LOS is less than zero days, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If ICU LOS is greater than or equal to 1 day, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If ICU LOS is equal to zero days, the case will proceed to VTE Prophylaxis. 16. Check VTE Prophylaxis a. If VTE Prophylaxis is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If VTE Prophylaxis is equal to A, continue processing and proceed to	

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
			check Reason for No VTE Prophylaxis – Hospital Admission. 1. If Reason for No VTE Prophylaxis - Hospital Admission is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2. If Reason for No VTE Prophylaxis – Hospital Admission equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3. If Reason for No VTE Prophylaxis - Hospital Admission equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If VTE Prophylaxis is equal to 1,2,3,4,5,6,7 and not equal to A, continue processing and proceed to VTE Prophylaxis Date. 17. Check VTE Prophylaxis Date a. If the VTE Prophylaxis Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the VTE Prophylaxis Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the VTE Prophylaxis Date equals a Non Unable to Determine Value, continue processing and proceed	

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
			to the Initial Prophylaxis Day calculation. 18. Calculate Initial Prophylaxis Day. Initial Prophylaxis Day, in days, is equal to the VTE Prophylaxis Date minus the Admission Date. 19. Check Initial Prophylaxis Day a. If Initial Prophylaxis Day is less than zero days, the case will proceed to a Measure category Assignment of X and will be rejected. Stop processing. b. If Initial Prophylaxis Day is equal to zero days or 1 day, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Initial Prophylaxis Day is greater than or equal to 2 days, continue processing and proceed to Surgical Procedure. 20. Check Surgical Procedure a. If Surgical Procedure is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Surgical Procedure equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If Surgical Procedure equals Yes, continue processing and proceed to Surgery End Date. 21. Check Surgery End Date a. If the Surgery End Date is	

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
			missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Surgery End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Surgery End Date equals a Non Unable to Determine Value, continue processing and proceed to the Initial Surgical Prophylaxis Day calculation. 22. Calculate Initial Surgical Prophylaxis Day. Initial Surgical Prophylaxis Day, in days, is equal to the VTE Prophylaxis Date minus Surgery End Date. 23. Check Initial Surgical Prophylaxis Day a. If the Initial Surgical Prophylaxis Day is greater than or equal to 2 days, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. If the Initial Surgical Prophylaxis Day is equal to zero days or 1 day, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. Attachment 2zq_VTE1.pdf	
Submission items	5.1 Identified measures: 0371 : Venous Thromboembolism Prophylaxis 0473 : Appropriate DVT prophylaxis in women undergoing cesarean delivery	5.1 Identified measures: 5a.1 Are specs completely harmonized?	5.1 Identified measures: 0218 : Surgery Patients Who Received Appropriate Venous Thromboembolism (VTE) Prophylaxis Within 24 Hours Prior to	5.1 Identified measures: 0239 : Venous Thromboembolism (VTE) Prophylaxis 0218 : Surgery Patients Who Received Appropriate Venous Thromboembolism

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	0239 : Venous Thromboembolism (VTE) Prophylaxis 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The measure denominator specifically captures thiose patients that have a diagnosis of ischemic stroke or intracranial hemorrhage. The guideline recommendations, specifically directed at stroke patients, support this measure. 5b.1 If competing, why superior or rationale for additive value: This measure was developed specifically for patients with a diagnosis of ischemic stroke or intracranial hemorrhage, as the AHA/ASA guideline specifically recommends that "Early implementation of anticoagulant therapy or physical compression modalities should be considered for all stroke patients who cannot ambulate at 2 days and who are at risk for DVT or pulmonary embolus." This measure does not focus on patients undergoing surgical procedures, as do measures 0239 and 0473. Measure 0239 was developed for surgical patients, who have different risk factors and time frames. Measure 0473 was developed for female patients only, who are undergoing cesarean delivery. This measure has been partially	5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:	Surgery to 24 Hours After Surgery End Time 0239 : Venous Thromboembolism (VTE) Prophylaxis 0217 : Surgery Patients with Recommended Venous Thromboembolism (VTE) Prophylaxis Ordered 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0217, 0218, are SCIP measures (Surgical Care Improvement Project). They are part of the Centers for Medicare & Medicaid Services/The Joint Commission aligned measures relatingto the administration of VTE prophylaxis for hospital inpatients and are harmonized with 0371 to the extent that the measures utilize some of the same data elements. The target population for 0217 and 0218 is surgical inpatients within a select group of surgical procedures. The target population for 0371 differs in that it includes all hospitalized patients with the exception of those captured in measures 0217 and 0218. Measure 0239 is a physician performance measure with a targeted population of surgical patients identified through CPT codes and could extend to the outpatient setting. This measure evaluates physician practice as opposed to hospital	(VTE) Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery End Time 0217 : Surgery Patients with Recommended Venous Thromboembolism (VTE) Prophylaxis Ordered 0372 : Intensive Care Unit Venous Thromboembolism Prophylaxis 0371 : Venous Thromboembolism Prophylaxis 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures NQF# 0371 and NQF# 0372 are Venous Thromboembolism (VTE) measures which specifically exclude the stroke population. The measures are completely harmonized in terms of measure specifications and data element definitions; NQF# 0217 and NQF# 0218 address the surgical population only, and therefore do not apply to stroke patients. Common data elements with this measure have been completely harmonized. Measure 0239 is a physician performance measure with a targeted population of surgical patients identified through CPT codes and could extend to the outpatient setting. This measure evaluates physician practice as opposed to hospital processes. 5b.1 If competing, why superior or rationale for additive value: Not Applicable

	0240 Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage	0239 Venous Thromboembolism (VTE) Prophylaxis	0371 Venous Thromboembolism Prophylaxis	0434 STK-01: Venous Thromboembolism (VTE) Prophylaxis
	harmonized with Measure 0371. In particular, the Stroke and Stroke Rehabilitation Work Group opted to partially align the measure language and also opted to include warfarin in the list of medical exceptions, for the purposes of harmonization. The Work Group decided not to include the documentation of reasons why no DVT prophylaxis was administered by the end of day two, as these patients will be captured in the exceptions. The Work Group thought that capturing this information in the exceptions allowed for a more straightforward measure, focusing on whether or not the patient received the appropriate therapy. Additionally, this measure is specified at the clinician level, but measure results can be aggregated at a higher level of measurement. We have developed and will maintain specifications for multiple data sources, including Electronic Health Records (EHRs) and Claims-Based Reporting. Our specifications for EHRs are developed in accordance with the terminology standards (eg, SNOMED, RxNorm, LOINC) named in the Meaningful Use Program (CMS EHR Incentive Program).		processes. 5b.1 If competing, why superior or rationale for additive value: Not Applicable	

Measure Group #3: Anticoagulant Therapy for Atrial Fibrillation

	0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge	0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter	1525 Chronic Anticoagulation Therapy
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)	The Joint Commission	American College of Cardiology Foundation/ American Heart Association/American Medical Association´s Physician Consortium for Performance Improvement
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation who were prescribed an anticoagulant at discharge.	This measure captures the proportion of ischemic stroke patients with atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, STK-8: Stroke Education, and STK-10: Assessed for Rehabilitation) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.	Prescription of warfarin or another oral anticoagulant drug that is FDA approved for the prevention of thromboembolism for all patients with nonvalvular atrial fibrillation or atrial flutter at high risk for thromboembolism, according to CHADS2 risk stratification.
Type	Process	Process	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_3.STROKE.afib.anticoagulant_MAY2012.pdf	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records ACCF PINNACLE Registry URL http://content.onlinejacc.org/cgi/content/full/51/8/865 https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf Journal- see Appendix E URL https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf
Level	Clinician : Group/Practice, Clinician : Individual,	Facility, Population : National	Clinician : Individual

	0241 Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge	0436 STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter	1525 Chronic Anticoagulation Therapy
	Clinician : Team		
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility	Ambulatory Care : Clinician Office
Numerator Statement	Patients who were prescribed an anticoagulant at discharge Discharge refers to discharge from the acute care setting, whether patient received care in the emergency department or as an inpatient or a rehabilitation facility.	Ischemic stroke patients prescribed anticoagulation therapy at hospital discharge	All patients with nonvalvular atrial fibrillation or atrial flutter at high risk of thromboembolism (i.e., those with any high-risk factor or more than 1 moderate-risk factor) who are prescribed warfarin OR another oral anticoagulant drug that is FDA approved for the prevention of thromboembolism.
Numerator Details	Time Window: At each hospital discharge during measurement period Definitions: Anticoagulants – warfarin, low molecular weight heparin, dabigatran, rivaroxaban* *The above list of medications/drug names is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. This list of selected drugs may not be all-inclusive or current. Physicians and other health care professionals should refer to the FDA's web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications. Prescribed – May include prescription given to the patient for an anticoagulant at discharge or anticoagulant to be continued after discharge as documented in the discharge medication list. NUMERATOR NOTE: In order to meet the measure, anticoagulant therapy is to be prescribed at the time of discharge. If a physician other than the discharging physician (e.g., consulting physician) is reporting on this measure, it should be clear from the documentation that the prescription is being ordered for the patient at the time of discharge, and included in the "medications prescribed at discharge." EHR Specifications:	Time Window: Hospital discharge One data element is used to calculate the numerator: • Anticoagulation Therapy Prescribed at Discharge – Documentation that anticoagulation therapy was prescribed at hospital discharge. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.	Time Window: Reporting year

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	eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: CPT II Code: 4075F - Anticoagulant therapy prescribed at discharge		
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or transient ischemic attack (TIA) with documented permanent, persistent, or paroxysmal atrial fibrillation	Ischemic stroke patients with with documented atrial fibrillation/flutter.	Patients with nonvalvular AF or atrial flutter for whom assessment of the specified thromboembolic risk factors documented one or more high-risk factor or more than one moderate-risk factor.
Denominator Details	Time Window: Each hospital stay during 12 consecutive month measurement period First Detected – only one diagnosed episode Persistent Atrial Fibrillation – Recurrent episodes that last more than 7 days Paroxysmal Atrial Fibrillation – Recurrent episodes that self terminate in less than 7 days Permanent Atrial Fibrillation – An ongoing long term episode EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Registry Specifications: Diagnosis for ischemic stroke or transient ischemic attack (TIA) (ICD-9-CM): 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9 AND Diagnosis for atrial fibrillation (ICD-9-CM): 427.31 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20,	Time Window: Episode of care Ten data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Atrial Fibrillation/Flutter – Documentation that the patient has a history of any atrial fibrillation (e.g., remote, persistent, or paroxysmal) or atrial flutter in the past OR current atrial fibrillation or flutter on EKG. Allowable values: Yes or No/UTD. 3. Birthdate - The month, day and year the patient was born. 4. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 5. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 6. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 7. Discharge Disposition – The place or setting	Time Window: Reporting year Claims/Administrative: Denominator (Eligible Population): All patients aged 18 years and older with a diagnosis of nonvalvular AF or atrial flutter at high risk for thromboembolism ICD-9 diagnosis codes: 427.31, 427.32 AND Not ICD-9 diagnosis codes: 394.0, 394.2 (mitral stenosis); 996.02, 996.71, V42.2, V43.3 (prosthetic heart valve) AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99245 AND (Report a CPT Category II code for risk of thromboembolism) • CPT Category II code: 3552F- High risk for thromboembolism • CPT Category II code: 3551F- Intermediate risk for thromboembolism • CPT Category II code: 3550F- Low risk for thromboembolism NOTE: ONLY PATIENTS AT HIGH RISK FOR THROMBOEMBOLISM ARE INCLUDED IN THE MEASURE'S DENOMINATOR WHEN CALCULATING PERFORMANCE

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	I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9. Diagnosis for TIA (ICD-10-CM): G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2 AND Diagnosis for Atrial Fibrillation (ICD-10-CDM): I48.0, I48.1, I48.2 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99238, 99239, 99251, 99252, 99253, 99254, 99255 AND CPT Category II code(s) designated for this Atrial Fibrillation: 1060F – Documentation of permanent OR persistent OR paroxysmal atrial fibrillation	to which the patient was discharged on the day of hospital discharge. 8. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 9. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. 10. Reason For Not Prescribing Anticoagulation Therapy at Discharge – Documentation of a reason for not prescribing anticoagulation therapy at discharge. Allowable values: Yes or No/UTD. Population: Discharges with ICD-9-CM Principal Diagnosis Code for ischemic stroke as defined in Appendix A, Table 8.1, and patients with documented Atrial Fibrillation/Flutter.	Numerator: Patients who were prescribed warfarin during the 12 month reporting period • CPT Category II code: 4012F-Warfarin therapy prescribed Denominator Exclusion: Documentation of medical reason(s) for not prescribing warfarin during the 12 month reporting period • Append modifier to CPT Category II code: 4012F-1P Documentation of patient reason(s) for not prescribing warfarin during the 12 month reporting period • Append modifier to CPT Category II code: 4012F-2P Electronic Specifications: The assessment of patients with nonvalvular AF for thromboembolic risk factors should include the following criteria: Risk factors: prior stroke or transient ischemic attack--> High risk Age = 75 years--> Moderate risk Hypertension--> Moderate risk Diabetes mellitus--> Moderate risk Heart failure or impaired LV systolic function--> Moderate risk
Exclusions	All patients that expired during inpatient stay are excluded. Documentation of medical reason(s) for not prescribing anticoagulant therapy at discharge (eg, other medical reason(s)) Documentation of patient reason(s) for not prescribing anticoagulant therapy at discharge (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Documented reason for not prescribing anticoagulation therapy at discharge	-Patients with mitral stenosis or prosthetic heart valves. -Patients at low risk for thromboembolism (i.e., those with none of the risk factors listed above). -Patients with only one moderate risk factor. -Postoperative patients. -Patients with transient or reversible causes of AF (e.g., pneumonia or hyperthyroidism). -Patients who are pregnant. -Medical reason(s) documented by a physician, nurse practitioner, or physician assistant for not prescribing warfarin or another oral anticoagulant drug that is FDA approved for the prevention of thromboembolism. Examples of medical reasons include, but are not limited to: -Allergy

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			-Risk of bleeding -Documentation of patient reason(s) for not prescribing warfarin or another oral anticoagulant drug that is FDA approved for the prevention of thromboembolism (e.g., economic, social, and/or religious impediments, noncompliance or patient refusal)
Exclusion Details	The PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For this measure, exclusions include all patients that expired during the inpatient stay. Exclusions, including applicable value sets, are included in the measure specifications. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions are based on clinical judgment, individual patient characteristics, or patient preferences. The PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure . These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s) (eg, other medical reasons)	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients are excluded with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective performance of this procedure: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries.	None

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	or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s)) for not prescribing an anticoagulant at discharge(eg, vaccine not available, other system reasons). Where examples of exceptions are included in the measure language, value sets for these examples are developed and are included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Exclusions: All patients that expired during inpatient stay are excluded (For claims-based registry, use CPT II with 1P modifier) Exceptions: CPT II Codes: 4075F-1P: Anticoagulant therapy not prescribed at discharge for medical reason (e.g. other medical reason(s)) OR 4075F-2P: Anticoagulant therapy not prescribed at discharge for patient reason (e.g., patient is receiving comfort care only, patient left against medical advice, other patient reason(s))	• Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded. • Patients are excluded if "Yes" is selected for Reason For Not Prescribing Anticoagulation Therapy.	
Risk	No risk adjustment or risk stratification	No risk adjustment or risk stratification	no risk adjustment necessary

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Adjustment	No risk adjustment or stratitification	N/A	N/A
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.	Not applicable, the measure is not stratified.	None
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator when exceptions have been specified [for this measure: medical reason(s) (eg, other medical reasons) or patient reason(s) (eg, patient is receiving comfort care only, patient left against medical advice, other patient reason(s))]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. ----	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is not on Table 8.1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the ICD-9-CM Principal Diagnosis Code is on Table 8.1, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Discharge Disposition equals 1, 5, 8, continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial.	The ACCF Pinnacle Registry flowchart: 1.) Check if patient is documented to be 18 years of age or older; Exclude those patients younger than 18 or NULL 2.) Check encounter date in reporting period; exclude No or NULL 3.) System checks current and all previous encounters for this patient for documentation of atrial fibrillation/atrial flutter; Exclude NULL or no 4.) Check for diagnosis of atrial fibrillation/atrial flutter; Exclude NULL or No 5.) Check for Non-valvular atrial fibrillation/atrial flutter (Include if no documentation); Exclude Valvular atrial fibrillation 6.) Exclude transient/reversible cause (e.g. pneumonia, hyperthyroidism) 7.) Exclude cardiac surgery within past 3 months 8.) Exclude patients who are pregnant 9.) Check for documentation of 1 or more thromembolic high risk factors 10.) Check for documentation of 2 or more thromembolic moderate risk factors 11.) Check for the prescription of warfarin 12.) Exclude patients who have medical reasons (e.g. allergy to warfarin or risk of bleeding) 13.)Exclude patients who have patient reasons for not prescribing warfarin (e.g. economic, social, and/religious impediments, noncompliance) 14.) Exclude patients with system reasons Assumes that if multiple date of births are found for a patient the most recent date of birth will be used. 111730|

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	Although the exception cases are removed from the denominator population for the performance calculation, the exception rates (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment PCPI_Measure_Calculation_V2.0-634717453303465768.pdf	5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 6. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Atrial Fibrillation/Flutter. 7. Check Atrial Fibrillation/Flutter. a. If Atrial Fibrillation/Flutter is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Atrial Fibrillation/Flutter equals No, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Atrial Fibrillation/Flutter equals Yes, continue processing and check Anticoagulation Therapy Prescribed at Discharge. 8. Check Anticoagulation Therapy Prescribed at Discharge. a. If Anticoagulation Therapy Prescribed at Discharge is missing, the case will proceed to a	109921 111730| 109921 111730| 109921

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		Measure Category Assignment of X and will be rejected. Stop processing. b. If Anticoagulation Therapy Prescribed at Discharge equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Anticoagulation Therapy Prescribed at Discharge equals No, continue processing and check Reason for Not Prescribing Anticoagulation Therapy at Discharge. 9. Check Reason for Not Prescribing Anticoagulation Therapy at Discharge. a. If Reason for Not Prescribing Anticoagulation Therapy at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Prescribing Anticoagulation Therapy at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. c. If Reason for Not Prescribing Anticoagulation Therapy at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Attachment 2zz_STK3.pdf	
Submission items	5.1 Identified measures: 0436 : STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter 1525 : Chronic Anticoagulation Therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure specifically focuses on the ischemic stroke and TIA patient population with atrial fibrillation, in the inpatient setting, which is a different target population than	5.1 Identified measures: 0241 : Stroke and Stroke Rehabilitation: Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge 0624 : Atrial Fibrillation - Warfarin Therapy 0084 : Heart Failure (HF) : Warfarin Therapy Patients with Atrial Fibrillation 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0241, 0624,	5.1 Identified measures: 5a.1 Are specs completely harmonized? 0241- Measure is being retired; care setting is inpatient 0624- Measure has different source; clinically enriched level 2 data which is better than Level 1, but essentially is still claims data 0084- The patient population focus is stroke 0600- The condition focus is thyroid function and measure has different source; clinically enriched level 2 data which is better than Level 1, but essentially is still claims data

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	measure 1525. Patients with a diagnosis of stroke have and atrial fibrillation should be treated for prevention of a secondary stroke. 5b.1 If competing, why superior or rationale for additive value: Our measure is specified at the clinician level, but measure results can be aggregated at a higher level of measurement. We have developed and will maintain specifications for multiple data sources, including Electronic Health Records (EHRs) and Claims-Based Reporting. Our specifications for EHRs are developed in accordance with the terminology standards (eg, SNOMED, RxNorm, LOINC) named in the Meaningful Use Program (CMS EHR Incentive Program).	and 0084 are physician performance measures identified through CPT codes and could extend to the outpatient setting. These measures evaluate physician practice as opposed to hospital processes. The target population for measure 0241 is similar to 0436, focusing on ischemic stroke and TIA patients. As mentioned previously, Joint Commission testing indicated that the TIA population could not be reliably identified, so TIA patients were removed from the final measure. Measure 0624 targets patients with risk factors for atrial fibrillation. One of the specified risk factors for this measure is prior stroke. Measure 0084 targets the heart failure patient population. 5b.1 If competing, why superior or rationale for additive value: Not Applicable	0436- Care Setting focus is inpatient; proposed measure for submission is outpatient settings 5a.2 If not completely harmonized, identify difference, rationale, impact: 111730| 109921 5b.1 If competing, why superior or rationale for additive value:

Measure Group #4: Stroke Rehabilitation

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)	The Joint Commission
Description	Percentage of patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge	This measure captures the proportion of ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services during the hospital stay. This measure is a part of a set of eight nationally implemented measures that address stroke care (STK-1: Venous Thromboembolism (VTE) Prophylaxis, STK-2: Discharged on Antithrombotic Therapy, STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter, STK-4: Thrombolytic Therapy, STK-5: Antithrombotic Therapy By End of Hospital Day 2, STK-6 Discharged on Statin Medication, and STK-8: Stroke Education) that are used in The Joint Commission's hospital accreditation and Disease-Specific Care certification programs.
Type	Process	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Not applicable Attachment AMA-PCPI_6.STROKE.rehab.ordered_MAY2012.pdf	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed. URL http://www.jointcommission.org/specifications_manual_for_national_hospital_inpatient_quality_measures.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team	Facility, Population : National
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	Patients for whom occupational, physical, or speech rehabilitation services were ordered at or prior to inpatient discharge OR documentation that no rehabilitation services are indicated at or prior to inpatient discharge	Ischemic or hemorrhagic stroke patients assessed for or who received rehabilitation services.
Numerator Details	Time Window: Once during each hospital stay during measurement period	Time Window: Hospital admission to discharge

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
	Definition: Rehabilitation Services – Includes services required in order to improve physical, cognitive (including neuropsychological), behavioral, and speech functions. Rehabilitation order can include one or more of the services listed. EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Rehabilitation Services Ordered G8699: Rehabilitation services (occupational, physical, or speech) ordered at or prior to discharge OR 4XXXF (In development) - Rehabilitation services (occupational, physical, or speech) ordered at or prior to discharge	One data element is used to calculate the numerator: • Assessed for Rehabilitation Services – Documentation that the patient was assessed for or received rehabilitation services during this hospitalization. Allowable values: Yes, No/UTD or unable to determine from medical record documentation. Patients are eligible for the numerator population when the allowable value equals "yes" for the data element.
Denominator Statement	All patients aged 18 years and older with a diagnosis of ischemic stroke or intracranial hemorrhage	Ischemic or hemorrhagic stroke patients.
Denominator Details	Time Window: Each hospital stay during 12 consecutive month measurement period EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Claims Specifications: Diagnosis for ischemic stroke or intracranial hemorrhage (ICD-9-CM): 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91 OR Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442,	Time Window: Episode of care Eight data elements are used to calculate the denominator: 1. Admission Date – The month, day and year of admission to acute inpatient care. 2. Birthdate - The month, day and year the patient was born. 3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with stroke were being studied. Allowable values: Yes or No/UTD. 4. Comfort Measures Only – The earliest day the physician/APN/PA documented comfort measures only after hospital arrival. Allowable values: 1 (Day 0 or 1); 2 (Day 2 or after); 3 (Timing Unclear); 4 (Not Documented/UTD). 5. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay. 6. Discharge Disposition – The place or setting to which

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
	I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9 Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9 AND Patient encounter during the reporting period (CPT): 99221, 99222, 99223, 99231, 99232, 99233, 99234, 99235, 99236, 99238, 99239, 99251, 99252, 99253, 99254, 99255	the patient was discharged on the day of hospital discharge. 7. Elective Carotid Intervention – Documentation demonstrates that the current admission is solely for the performance of an elective carotid intervention (e.g., elective carotid endarterectomy, angioplasty, carotid stenting). Allowable values: Yes or No/UTD. 8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. Population: Discharges with an ICD-9-CM Principal Diagnosis Code for ischemic or hemorrhagic stroke as defined in Appendix A, Table 8.1 or Table 8.2.
Exclusions	None	• Less than 18 years of age • Length of Stay > 120 days • Comfort measures only documented • Enrolled in clinical trials related to stroke • Admitted for elective carotid intervention • Discharged to another hospital • Left against medical advice • Expired • Discharged to home for hospice care • Discharged to a health care facility for hospice care
Exclusion Details	EHR Specifications: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. Exclusions: Not Applicable Claims Specifications: G8700: Rehabilitation services (occupational, physical, or speech) not indicated at or prior to discharge OR 4XXXF (In development) - Rehabilitation services (occupational, physical, or speech) not indicated at or prior to discharge	• The patient age in years is equal to the Discharge Date minus the Birthdate. Patients less than 18 years are excluded. • The Length of Stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients with Comfort Measures Only allowable value of 1 (Day 0 or 1), 2 (Day 2 or after), and 3 (Timing unclear) are excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Patients with the following ICD-9-CM procedure codes, if medical record documentation states that the patient was admitted for the elective

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
		performance of this procedure are excluded: 00.61 Percutaneous angioplasty of extracranial vessel(s); 00.62 Percutaneous angioplasty of intracranial vessel(s); 00.63 Percutaneous insertion of carotid artery stent(s); 00.64 Percutaneous insertion of other extrancranial artery stent(s); 00.65 Percutaneous insertion of intrancranial vascular stent(s); 38.02 Embolectomy/thrombectomy of other vessels of head and neck; 38.12 Endarterectomy head and neck; 38.22 Percutaneous angioscopy; 38.30 Resection of vessel with anastomosis; 38.31 Intracranial vessel resection with anastomosis; 38.32 Resection of vessel of head and neck with anastomosis; 38.42 Resection of vessel of head and neck with replacement; 39.28 Extracranial-intracranial (EC-IC) vascular bypass; 88.41 Arteriography of cerebral arteries. • Patients with Discharge Disposition allowable value of 2 (Hospice-Home), 3 (Hospice-Health Care Facility), 4 (Acute Care Facility), 6 (Expired), or 7 (Left Against Medical Advice/AMA) are excluded.
Risk Adjustment	No risk adjustment or risk stratification Not applicable	No risk adjustment or risk stratification N/A
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.	Not applicable, the measure is not stratified.
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs).	1. Start processing. Run cases that are included in the Stroke (STK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Discharge Disposition a. If Discharge Disposition equals 2, 3, 4, 6, 7, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b. If Discharge Disposition equals 1, 5, 8, continue processing and proceed to Comfort Measures Only. 3. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
	Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator If the patient does not meet the numerator, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment (2a1.30). Attachment PCPI_Measure_Calculation_V2.0.pdf	proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Elective Carotid Intervention. 5. Check admitted for Elective Carotid Intervention a. If Elective Carotid Intervention is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Elective Carotid Intervention equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Elective Carotid Intervention equals No, continue processing and proceed to Assessed for Rehabilitation Services. 6. Check Assessed for Rehabilitation Services a. If Assessed for Rehabilitation Services is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Assessed for Rehabilitation Services equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If Assessed for Rehabilitation Services equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. Attachment 2zze_STK10.pdf
Submission items	5.1 Identified measures: 0441 : STK-10: Assessed for Rehabilitation	5.1 Identified measures: 0244 : Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered

	0244 Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered	0441 STK-10: Assessed for Rehabilitation
	5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure is more specific regarding the types of rehabilitation services, which are most appropriate and beneficial to the stroke population. The order can also include one or more of the services listed in the measure, as oftentimes, stroke patients require rehabilitation in several areas. 5b.1 If competing, why superior or rationale for additive value: This measure is more specific in including and defining the types of rehabilitation services which may be ordered for stroke patients. This measure also notes that the order for rehabilitation services can include one or more of the services listed. Additionally, our measure is specified at the clinician level, but measure results can be aggregated at a higher level of measurement. We have developed and will maintain specifications for multiple data sources, including Electronic Health Records (EHRs) and Claims-Based Reporting. Our specifications for EHRs are developed in accordance with the terminology standards (eg, SNOMED, RxNorm, LOINC) named in the Meaningful Use Program (CMS EHR Incentive Program).	5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: NQF#0244 focuses on rehabilitation orders written prior to hospital discharge and not tbe rehabiltation assessment or services recieved by the patient. 5b.1 If competing, why superior or rationale for additive value: Although both NQF#0441 STK10: Assessed for Rehabilitation and NQF#0244 target ischemic or hemorrhagic stroke patients in the acute inpatient setting, NQF#0441 is superior for two reasons. First, the numerator statement for NQF#0441 is a broader measure of quality and encompasses the total ischemic or hemorrhagic stroke inpatient population. The proportion of ischemic or hemorrhagic stroke patients who are assessed for or receive rehabilitation services during the acute inpatient hospitalization are captured in the numerator population. Patients must be assessed before services can be ordered. Rehabilitation services may be ordered but not implemented. Consequently, rehabilitation services are not received when orders are not carried out. NQF#0441 includes stroke patients who receive rehabilitation services in the numerator population. Second, NQF#0244 focuses on rehabilitation orders written prior to hospital discharge, but capture these data after hospital discharge in the outpatient setting.
SC Evaluation		

Measure Group #5: Mortality and Readmissions

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
Steward	Agency for Healthcare Research and Quality	Centers for Medicare & Medicaid Services (CMS)	Centers for Medicare & Medicaid Services (CMS)
Description	Percent of discharges with an in-hospital death among cases with a principal diagnosis code for stroke	The measure estimates a hospital-level, risk-standardized mortality rate (RSMR) for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke. Mortality is defined as death from any cause within 30 days of the index admission date for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke.	The measure estimates a hospital-level risk-standardized readmission rate (RSRR) for patients discharged from the hospital with a principal diagnosis of acute ischemic stroke. We define this as readmission for any cause within 30 days from the date of discharge of the index stroke admission.
Type	Outcome	Outcome	Outcome
Data Source	Administrative claims HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality, Rockville, MD. URL http://www.hcup-us.ahrq.gov/sidoverview.jsp None URL http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V44/Software%20Instructions%20(WinQI)%20V4.4.pdf None	Administrative claims, Other The Medicare data sources used to create the measure were: 1. Medicare Part A inpatient and Part B outpatient claims: This database contains claims data for fee-for service inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, skilled nursing facility care, some home health agency services, and hospice care, as well as inpatient and outpatient claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This dataset was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming et al., 1992). Fleming C, Fisher ES, Chang CH, Bubolz TA, Malenda DJ. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs hospitals. Medical Care 1992; 30(5): 377-391. Attachment Stroke_Cohort_ICD9_to_ICD10_Maps.pdf	Administrative claims The Medicare data sources used to create the measure were: 1. Medicare Part A Inpatient and Outpatient and Part B outpatient claims from the Standard Analytic File, including inpatient and outpatient claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This dataset was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming Fisher et al., 1992). Reference: Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. Attachment Stroke_Cohort_ICD9_to_ICD10_Maps-634717470963767860.pdf Attachment Stroke_Planned_Readmission_ICD-9_to_ICD-10_Map.pdf
Level	Facility	Facility	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator	Number of deaths among cases meeting the	The outcome for this measure is 30-day all-cause mortality.	The outcome for this measure is 30-day all-cause

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
Statement	inclusion and exclusion rules for the denominator	We define mortality as death from any cause within 30 days from the index admission date for patients discharged from the index hospital with a principal diagnosis of acute ischemic stroke.	readmission. We define all-cause readmission as readmission for any cause within 30 days from the date of discharge of the index stroke for patients discharged from the hospital with a principal diagnosis of ischemic stroke. If a patient has one or more admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.
Numerator Details	Time Window: Time window may be determined by the user, but is generally a calendar year In-hospital death (DISP=20)	Time Window: We define this as death from any cause within 30 days from the admission date for the index acute ischemic stroke hospitalization. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. We identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database.	Time Window: We define this as readmission for any cause within 30 days from the date of discharge of the index stroke admission. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes unplanned readmissions to any acute care hospital for any cause within 30 days from the date of discharge of the index admission. Planned Readmissions: Some stroke patients have a scheduled readmission to the hospital after they are discharged for further treatment related to their stroke. We identified these as planned readmissions and they do NOT count as readmissions in the measure. If a patient returns to the hospital within 30 days of their index stroke admission for one of the procedures listed below, the readmission will not count unless the readmission is for a recurrent ischemic stroke (primary ICD-9-CM discharge diagnosis of 433.x1, 434.x1, and 436 for the readmission): • Carotid Endarterectomy • Carotid Stenting • Percutaneous Carotid Stenting • Intracranial and Inter-vertebral Stenting • Patent Foramen Ovale Closure • Ablation • Aortic or Mitral Valve Replacement • Cranioplasty

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			The ICD-9-CM codes used to identify these procedures are as follows: 38.12 Endarterectomy, other vessels of head and neck 00.63 Percutaneous insertion of carotid artery stent(s) 00.61 Percutaneous angioplasty or atherectomy of precerebral (extracranial) vessel(s) 00.64 Percutaneous insertion of other precerebral (extracranial) artery stent(s) 35.51 Repair of atrial septal defect with prosthesis, open technique 37.33 Excision or destruction of other lesion or tissue of heart, open approach 35.21 Replacement of aortic valve with tissue graft 02.01 Opening of cranial suture 00.65 Percutaneous insertion of intracranial vascular stent(s) 35.52 Repair of atrial septal defect with prosthesis, closed technique 35.61 Repair of atrial septal defect with tissue graft 35.71 Other and unspecified repair of atrial septal defect 37.34 Excision or destruction of other lesion or tissue of heart, endovascular approach 35.22 Other replacement of aortic valve 35.23 Replacement of mitral valve with tissue graft 35.24 Other replacement of mitral valve 02.02 Elevation of skull fracture fragments 02.03 Formation of cranial bone flap 02.04 Bone graft to skull 02.05 Insertion of skull plate 02.06 Other cranial osteoplasty 02.07 Removal of skull plate The ICD-10 codes identifying these procedures are as follows: 02560ZZ Destruction of Right Atrium, Open Approach 02563ZZ Destruction of Right Atrium, Percutaneous Approach 02570ZZ Destruction of Left Atrium, Open Approach 02573ZZ Destruction of Left Atrium, Percutaneous Approach 025K0ZZ Destruction of Right Ventricle, Open Approach

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			025K3ZZ Destruction of Right Ventricle, Percutaneous Approach 025L0ZZ Destruction of Left Ventricle, Open Approach 025L3ZZ Destruction of Left Ventricle, Percutaneous Approach 02B60ZZ Excision of Right Atrium, Open Approach 02B63ZZ Excision of Right Atrium, Percutaneous Approach 02B70ZZ Excision of Left Atrium, Open Approach 02B73ZZ Excision of Left Atrium, Percutaneous Approach 02BK0ZZ Excision of Right Ventricle, Open Approach 02BK3ZZ Excision of Right Ventricle, Percutaneous Approach 02BL0ZZ Excision of Left Ventricle, Open Approach 02BL3ZZ Excision of Left Ventricle, Percutaneous Approach 02Q50ZZ Repair Atrial Septum, Open Approach 02Q53ZZ Repair Atrial Septum, Percutaneous Approach 02Q54ZZ Repair Atrial Septum, Percutaneous Endoscopic Approach 02RF07Z Replacement of Aortic Valve with Autologous Tissue Substitute, Open Approach 02RF08Z Replacement of Aortic Valve with Zooplastic Tissue, Open Approach 02RF0JZ Replacement of Aortic Valve with Synthetic Substitute, Open Approach 02RF0KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Open Approach 02RF37Z Replacement of Aortic Valve with Autologous Tissue Substitute, Percutaneous Approach 02RF38Z Replacement of Aortic Valve with Zooplastic Tissue, Percutaneous Approach 02RF3JZ Replacement of Aortic Valve with Synthetic Substitute, Percutaneous Approach 02RF3KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Percutaneous Approach 02RF47Z Replacement of Aortic Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 02RF48Z Replacement of Aortic Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			02RF4JZ Replacement of Aortic Valve with Synthetic Substitute, Percutaneous Endoscopic Approach 02RF4KZ Replacement of Aortic Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 02RG07Z Replacement of Mitral Valve with Autologous Tissue Substitute, Open Approach 02RG08Z Replacement of Mitral Valve with Zooplastic Tissue, Open Approach 02RG0JZ Replacement of Mitral Valve with Synthetic Substitute, Open Approach 02RG0KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Open Approach 02RG37Z Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Approach 02RG38Z Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Approach 02RG3JZ Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Approach 02RG3KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Approach 02RG47Z Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 02RG48Z Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach 02RG4JZ Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Endoscopic Approach 02RG4KZ Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 02T80ZZ Resection of Conduction Mechanism, Open Approach 02U507Z Supplement Atrial Septum with Autologous Tissue Substitute, Open Approach 02U508Z Supplement Atrial Septum with Zooplastic Tissue, Open Approach 02U50JZ Supplement Atrial Septum with Synthetic Substitute, Open Approach

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			02U50KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Open Approach 02U537Z Supplement Atrial Septum with Autologous Tissue Substitute, Percutaneous Approach 02U538Z Supplement Atrial Septum with Zooplastic Tissue, Percutaneous Approach 02U53JZ Supplement Atrial Septum with Synthetic Substitute, Percutaneous Approach 02U53KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Percutaneous Approach 02U547Z Supplement Atrial Septum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 02U548Z Supplement Atrial Septum with Zooplastic Tissue, Percutaneous Endoscopic Approach 02U54JZ Supplement Atrial Septum with Synthetic Substitute, Percutaneous Endoscopic Approach 02U54KZ Supplement Atrial Septum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 037H34Z Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous App 037H3DZ Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Approach 037H3ZZ Dilation of Right Common Carotid Artery, Percutaneous Approach 037H44Z Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous End 037H4DZ Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach 037H4ZZ Dilation of Right Common Carotid Artery, Percutaneous Endoscopic Approach 037J34Z Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Appr 037J3DZ Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Approach 037J3ZZ Dilation of Left Common Carotid Artery, Percutaneous Approach 037J44Z Dilation of Left Common Carotid Artery with Drug-

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			eluting Intraluminal Device, Percutaneous Endo 037J4DZ Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach 037J4ZZ Dilation of Left Common Carotid Artery, Percutaneous Endoscopic Approach 037K34Z Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous A 037K3DZ Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Approach 037K3ZZ Dilation of Right Internal Carotid Artery, Percutaneous Approach 037K44Z Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous E 037K4DZ Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic App 037K4ZZ Dilation of Right Internal Carotid Artery, Percutaneous Endoscopic Approach 037L34Z Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Ap 037L3DZ Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Approach 037L3ZZ Dilation of Left Internal Carotid Artery, Percutaneous Approach 037L44Z Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous En 037L4DZ Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Appr 037L4ZZ Dilation of Left Internal Carotid Artery, Percutaneous Endoscopic Approach 037M34Z Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous A 037M3DZ Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Approach 037M3ZZ Dilation of Right External Carotid Artery, Percutaneous Approach 037M44Z Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous E

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			037M4DZ Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic App 037M4ZZ Dilation of Right External Carotid Artery, Percutaneous Endoscopic Approach 037N34Z Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Ap 037N3DZ Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Approach 037N3ZZ Dilation of Left External Carotid Artery, Percutaneous Approach 037N44Z Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous En 037N4DZ Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Appr 037N4ZZ Dilation of Left External Carotid Artery, Percutaneous Endoscopic Approach 037P34Z Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach 037P3DZ Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Approach 037P3ZZ Dilation of Right Vertebral Artery, Percutaneous Approach 037P44Z Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscop 037P4DZ Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach 037P4ZZ Dilation of Right Vertebral Artery, Percutaneous Endoscopic Approach 037Q34Z Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach 037Q3DZ Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Approach 037Q3ZZ Dilation of Left Vertebral Artery, Percutaneous Approach 037Q44Z Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopi 037Q4DZ Dilation of Left Vertebral Artery with Intraluminal

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			Device, Percutaneous Endoscopic Approach 037Q4ZZ Dilation of Left Vertebral Artery, Percutaneous Endoscopic Approach 03CH0ZZ Extirpation of Matter from Right Common Carotid Artery, Open Approach 03CH3ZZ Extirpation of Matter from Right Common Carotid Artery, Percutaneous Approach 03CH4ZZ Extirpation of Matter from Right Common Carotid Artery, Percutaneous Endoscopic Approach 03CJ0ZZ Extirpation of Matter from Left Common Carotid Artery, Open Approach 03CJ3ZZ Extirpation of Matter from Left Common Carotid Artery, Percutaneous Approach 03CJ4ZZ Extirpation of Matter from Left Common Carotid Artery, Percutaneous Endoscopic Approach 03CK0ZZ Extirpation of Matter from Right Internal Carotid Artery, Open Approach 03CK3ZZ Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Approach 03CK4ZZ Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Endoscopic Approach 03CL0ZZ Extirpation of Matter from Left Internal Carotid Artery, Open Approach 03CL3ZZ Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Approach 03CL4ZZ Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Endoscopic Approach 03CM0ZZ Extirpation of Matter from Right External Carotid Artery, Open Approach 03CM3ZZ Extirpation of Matter from Right External Carotid Artery, Percutaneous Approach 03CM4ZZ Extirpation of Matter from Right External Carotid Artery, Percutaneous Endoscopic Approach 03CN0ZZ Extirpation of Matter from Left External Carotid Artery, Open Approach 03CN3ZZ Extirpation of Matter from Left External Carotid Artery, Percutaneous Approach

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			03CN4ZZ Extirpation of Matter from Left External Carotid Artery, Percutaneous Endoscopic Approach 03CP0ZZ Extirpation of Matter from Right Vertebral Artery, Open Approach 03CP3ZZ Extirpation of Matter from Right Vertebral Artery, Percutaneous Approach 03CP4ZZ Extirpation of Matter from Right Vertebral Artery, Percutaneous Endoscopic Approach 03CQ0ZZ Extirpation of Matter from Left Vertebral Artery, Open Approach 03CQ3ZZ Extirpation of Matter from Left Vertebral Artery, Percutaneous Approach 03CQ4ZZ Extirpation of Matter from Left Vertebral Artery, Percutaneous Endoscopic Approach 03CR0ZZ Extirpation of Matter from Face Artery, Open Approach 03CR3ZZ Extirpation of Matter from Face Artery, Percutaneous Approach 03CR4ZZ Extirpation of Matter from Face Artery, Percutaneous Endoscopic Approach 03CS0ZZ Extirpation of Matter from Right Temporal Artery, Open Approach 03CS3ZZ Extirpation of Matter from Right Temporal Artery, Percutaneous Approach 03CS4ZZ Extirpation of Matter from Right Temporal Artery, Percutaneous Endoscopic Approach 03CT0ZZ Extirpation of Matter from Left Temporal Artery, Open Approach 03CT3ZZ Extirpation of Matter from Left Temporal Artery, Percutaneous Approach 03CT4ZZ Extirpation of Matter from Left Temporal Artery, Percutaneous Endoscopic Approach 03CU0ZZ Extirpation of Matter from Right Thyroid Artery, Open Approach 03CU3ZZ Extirpation of Matter from Right Thyroid Artery, Percutaneous Approach 03CU4ZZ Extirpation of Matter from Right Thyroid Artery,

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			Percutaneous Endoscopic Approach 03CV0ZZ Extirpation of Matter from Left Thyroid Artery, Open Approach 03CV3ZZ Extirpation of Matter from Left Thyroid Artery, Percutaneous Approach 03CV4ZZ Extirpation of Matter from Left Thyroid Artery, Percutaneous Endoscopic Approach 057M3DZ Dilation of Right Internal Jugular Vein with Intraluminal Device, Percutaneous Approach 057M4DZ Dilation of Right Internal Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Appro 057N3DZ Dilation of Left Internal Jugular Vein with Intraluminal Device, Percutaneous Approach 057N4DZ Dilation of Left Internal Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Approa 057P3DZ Dilation of Right External Jugular Vein with Intraluminal Device, Percutaneous Approach 057P4DZ Dilation of Right External Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Appro 057Q3DZ Dilation of Left External Jugular Vein with Intraluminal Device, Percutaneous Approach 057Q4DZ Dilation of Left External Jugular Vein with Intraluminal Device, Percutaneous Endoscopic Approa 057R3DZ Dilation of Right Vertebral Vein with Intraluminal Device, Percutaneous Approach 057R4DZ Dilation of Right Vertebral Vein with Intraluminal Device, Percutaneous Endoscopic Approach 057S3DZ Dilation of Left Vertebral Vein with Intraluminal Device, Percutaneous Approach 057S4DZ Dilation of Left Vertebral Vein with Intraluminal Device, Percutaneous Endoscopic Approach 057T3DZ Dilation of Right Face Vein with Intraluminal Device, Percutaneous Approach 057T4DZ Dilation of Right Face Vein with Intraluminal Device, Percutaneous Endoscopic Approach 0NB00ZZ Excision of Skull, Open Approach 0NB03ZZ Excision of Skull, Percutaneous Approach

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			0NB04ZZ Excision of Skull, Percutaneous Endoscopic Approach 0NP00JZ Removal of Synthetic Substitute from Skull, Open Approach 0NP03JZ Removal of Synthetic Substitute from Skull, Percutaneous Approach 0NP04JZ Removal of Synthetic Substitute from Skull, Percutaneous Endoscopic Approach 0NQ00ZZ Repair Skull, Open Approach 0NQ03ZZ Repair Skull, Percutaneous Approach 0NQ04ZZ Repair Skull, Percutaneous Endoscopic Approach 0NR007Z Replacement of Skull with Autologous Tissue Substitute, Open Approach 0NR007Z Replacement of Skull with Autologous Tissue Substitute, Open Approach 0NR00JZ Replacement of Skull with Synthetic Substitute, Open Approach 0NR00KZ Replacement of Skull with Nonautologous Tissue Substitute, Open Approach 0NR00KZ Replacement of Skull with Nonautologous Tissue Substitute, Open Approach 0NR037Z Replacement of Skull with Autologous Tissue Substitute, Percutaneous Approach 0NR037Z Replacement of Skull with Autologous Tissue Substitute, Percutaneous Approach 0NR03JZ Replacement of Skull with Synthetic Substitute, Percutaneous Approach 0NR03KZ Replacement of Skull with Nonautologous Tissue Substitute, Percutaneous Approach 0NR03KZ Replacement of Skull with Nonautologous Tissue Substitute, Percutaneous Approach 0NR047Z Replacement of Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 0NR047Z Replacement of Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 0NR04JZ Replacement of Skull with Synthetic Substitute,

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			Percutaneous Endoscopic Approach 0NR04KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 0NR04KZReplacement of Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach 0NS004Z Reposition Skull with Internal Fixation Device, Open Approach 0NS005Z Reposition Skull with External Fixation Device, Open Approach 0NS00ZZ Reposition Skull, Open Approach 0NS034Z Reposition Skull with Internal Fixation Device, Percutaneous Approach 0NS035Z Reposition Skull with External Fixation Device, Percutaneous Approach 0NS03ZZ Reposition Skull, Percutaneous Approach 0NS044Z Reposition Skull with Internal Fixation Device, Percutaneous Endoscopic Approach 0NS045Z Reposition Skull with External Fixation Device, Percutaneous Endoscopic Approach 0NS04ZZ Reposition Skull, Percutaneous Endoscopic Approach 0NS0XZZReposition Skull, External Approach 0NU007Z Supplement Skull with Autologous Tissue Substitute, Open Approach 0NU00JZ Supplement Skull with Synthetic Substitute, Open Approach 0NU00KZSupplement Skull with Nonautologous Tissue Substitute, Open Approach 0NU037Z Supplement Skull with Autologous Tissue Substitute, Percutaneous Approach 0NU03JZ Supplement Skull with Synthetic Substitute, Percutaneous Approach 0NU03KZSupplement Skull with Nonautologous Tissue Substitute, Percutaneous Approach 0NU047Z Supplement Skull with Autologous Tissue Substitute, Percutaneous Endoscopic Approach 0NU04JZ Supplement Skull with Synthetic Substitute,

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
			Percutaneous Endoscopic Approach 0NU04KZSupplement Skull with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
Denominator Statement	All discharges, age 18 years and older, with a principal diagnosis code for stroke	The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of acute ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.	The cohort includes admissions for patients age 65 years or older discharged from the hospital with a principal diagnosis of ischemic stroke (ICD-9-CM codes 433.x1, 434.x1, 436) and with a complete claims history for the 12 months prior to admission.
Denominator Details	Time Window: Time window may be determined by the user, but is generally a calendar year ICD-9-CM Stroke diagnosis codes: 430 SUBARACHNOID HEMORRHAGE 431 INTRACEREBRAL HEMORRHAGE 4320 NONTRAUM EXTRADURAL HEM 4321 SUBDURAL HEMORRHAGE 4329 INTRACRANIAL HEMORR NOS 43301 OCL BSLR ART W INFRCT 43311 OCL CRTD ART W INFRCT 43321 OCL VRTB ART W INFRCT 43331 OCL MLT BI ART W INFRCT 43381 OCL SPCF ART W INFRCT 43391 OCL ART NOS W INFRCT 43401 CRBL THRMBS W INFRCT	Time Window: This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 65 years and older who were admitted to non-federal acute care hospitals for an ischemic stroke as defined by the following ICD-9-CM and ICD-10-CM codes and with a complete claims history for the 12 months prior to admission: ICD-9-CM codes used to define ischemic stroke: 433.01 Occlusion and stenosis of precerebral arteries, Basilar artery with cerebral infarction 433.11 Occlusion and stenosis of precerebral arteries, Carotid artery with cerebral infarction 433.21 Occlusion and stenosis of precerebral arteries, Vertebral artery with cerebral infarction 433.31 Occlusion and stenosis of precerebral arteries, Multiple and bilateral with cerebral infarction 433.81 Occlusion and stenosis of precerebral arteries, Other specified precerebral artery with cerebral infarction 433.91 Occlusion and stenosis of precerebral arteries, Unspecified precerebral artery with cerebral infarction, Precerebral artery NOS	Time Window: This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 65 years and older who were admitted to non-federal acute care hospitals for an ischemic stroke as defined by the following ICD-9-CM and ICD-10-CM codes and with a complete claims history for the 12 months prior to admission: ICD-9-CM codes used to define ischemic stroke: 433.01 Occlusion and stenosis of precerebral arteries, Basilar artery with cerebral infarction 433.11 Occlusion and stenosis of precerebral arteries, Carotid artery with cerebral infarction 433.21 Occlusion and stenosis of precerebral arteries, Vertebral artery with cerebral infarction 433.31 Occlusion and stenosis of precerebral arteries, Multiple and bilateral with cerebral infarction 433.81 Occlusion and stenosis of precerebral arteries, Other specified precerebral artery with cerebral infarction 433.91 Occlusion and stenosis of precerebral arteries, Unspecified precerebral artery with cerebral infarction, Precerebral artery NOS 434.01 Occlusion of cerebral arteries, Cerebral thrombosis

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	43411 CRBL EMBLSM W INFRCT 43491 CRBL ART OCL NOS W INFRC 436 CVA* *Only for discharges before September 30, 2004 (FY2004). Does not apply to discharges on or after October 1, 2004 (FY2005)	434.01 Occlusion of cerebral arteries, Cerebral thrombosis with cerebral infarction, thrombosis of cerebral arteries 434.11 Occlusion of cerebral arteries, Cerebral embolism with cerebral infarction 434.91 Occlusion of cerebral arteries, Cerebral artery occlusion, unspecified, with cerebral infarction 436 Acute, but ill-defined, cerebrovascular disease ICD-10-CM codes used to define ischemic stroke: I6322 Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries I63139 Cerebral infarction due to embolism of unspecified carotid artery I63239 Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries I63019 Cerebral infarction due to thrombosis of unspecified vertebral artery I63119 Cerebral infarction due to embolism of unspecified vertebral artery I63219 Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries I6359 Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery I6320 Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries I6330 Cerebral infarction due to thrombosis of unspecified cerebral artery I6340 Cerebral infarction due to embolism of unspecified cerebral artery I6350 Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery I678 Other specified cerebrovascular diseases	with cerebral infarction, thrombosis of cerebral arteries 434.11 Occlusion of cerebral arteries, Cerebral embolism with cerebral infarction 434.91 Occlusion of cerebral arteries, Cerebral artery occlusion, unspecified, with cerebral infarction 436 Acute, but ill-defined, cerebrovascular disease ICD-10-CM codes used to define ischemic stroke: I6322 Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries I63139 Cerebral infarction due to embolism of unspecified carotid artery I63239 Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries I63019 Cerebral infarction due to thrombosis of unspecified vertebral artery I63119 Cerebral infarction due to embolism of unspecified vertebral artery I63219 Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries I6359 Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery I6320 Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries I6330 Cerebral infarction due to thrombosis of unspecified cerebral artery I6340 Cerebral infarction due to embolism of unspecified cerebral artery I6350 Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery I678 Other specified cerebrovascular diseases
Exclusions	Exclude cases: • transferring to another short-term hospital • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition, gender, age, quarter, year or principal diagnosis	An index admission is the hospitalization considered for mortality outcome. The measure excludes admissions for patients: • transferred from another acute care hospital (because the death is attributed to the hospital where the patient was	An index admission is the hospitalization considered for the readmission outcome (readmitted within 30 days of the date of discharge from the initial admission). The measure excludes admissions for patients: • with an in hospital death (because they are not eligible for

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
		initially admitted); • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date). • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only).	readmission). • transferred to another acute care facility (because the readmission is attributed to the hospital that discharges the patient to a non-acute setting). • discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge). • without at least 30 days post-discharge claims data (because the 30-day readmission outcome cannot be assessed in this group). In addition, if a patient has more than one admission within 30 days of discharge from the index admission, only one is counted as a readmission, as we are interested in a dichotomous yes/no readmission outcome, as opposed to the number of readmissions. No admissions within 30 days of discharge from an index admission are considered as additional index admissions, thus no hospitalization will be counted as both a readmission and an index admission. The next eligible index admission is 30 days after the discharge date of the previous index admission.
Exclusion Details	• transferring to another short-term hospital (DISP=2) • missing discharge disposition (DISP=missing) • missing gender (SEX=missing) • missing age (AGE=missing) • missing quarter (DQTR=missing) • missing year (YEAR=missing) • missing principal diagnosis (DX1=missing)	Transfers from other acute care facilities are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day; Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years: 2) if the discharge date for a hospitalization is before the admission date; 3) if the patient has a sex other than 'male' or 'female'. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data and the Inpatient standard analytic file (SAF)	In-hospital deaths are identified using the discharge disposition vital status indicator. Transfers to other acute care facilities are defined when a patient with an inpatient hospital admission (with at least one qualifying stroke admission) is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator. Lack of claims data for 30 days post-discharge is identified by patient enrollment status in the CMS' Enrollment Database (EDB).
Risk Adjustment	Statistical risk model The predicted value for each case is computed using	Statistical risk model Our approach to risk adjustment was tailored to and	Statistical risk model Our approach to risk adjustment is tailored to and appropriate

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	a hierarchical model (logistic regression using Generalized Estimating Equations (GEE) to account for clustering of patients within hospitals) and covariates for gender, age (in 5-year age groups pooled), APR-DRG and APR-DRG Risk of Mortality subclass, MDC and availability of Point of Origin (UB-04). The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the years 2008, a database consisting of 42 states and approximately 30 million adult discharges. Intercept Sex Female Age 18 to 59 Age 65 to 84 Age 85+ APR-DRG ´0211´ APR-DRG ´0212´ APR-DRG ´0213´ APR-DRG ´0214´ APR-DRG ´0221´ APR-DRG ´0222´ APR-DRG ´0223´ to '0224' APR-DRG ´0231´ to '0232' APR-DRG ´0233´ APR-DRG ´0234´ APR-DRG ´0241´ APR-DRG ´0242´ APR-DRG ´0243´ APR-DRG ´0244´ APR-DRG ´0261´ to '0263' APR-DRG ´0264´ APR-DRG ´0441´ APR-DRG ´0442´ APR-DRG ´0443´ APR-DRG ´0444´ APR-DRG ´0452´	appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes".1 The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals(Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail. Candidate and Final Risk-adjustment Variables: The measure was initially developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979) We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index	for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes"1. The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level, the model adjusts the log-odds of readmission within 30 days of discharge for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercepts represent the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS 2007 claims data. Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	APR-DRG ´0453´ APR-DRG ´0454´ MDC OTHER NOPOUB04 UB-04 Point-of-Origin Data Not Available URL http://qualityindicators.ahrq.gov/Downloads/Modules/IQI/V44/Risk%20Adjustment%20Tables%20IQI%204.4.pdf None	admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. Following initial model development, in response to suggestions from our working group and Technical Expert Panel (TEP) members, we evaluated the mortality rates of patients admitted for stroke after having been evaluated at a different hospital's emergency department. Our experts expressed concern that such patients may be at higher risk and that the admitting hospital would not have had the opportunity to evaluate and treat such patients at first presentation. They also felt that certain hospitals may receive substantially greater proportions of patients transferred from outside EDs. Based on our analyses, we updated the measure to include a risk factor that indicates if a patient was transferred in from an outside ED, that is, the patient was seen in a different hospital's ED prior to being admitted for the index admission. This revision was done using 2008 data. Frequencies and odds ratios for the model are presented below (2008 Medicare FFS patients aged 65 and older; n=175,267 admissions): Final set of risk-adjustment variables: Variable//Frequency (%)//Odds Ratio (95% confidence interval) • Transfer from another ED/Frequency= 5.64/OR (95% CI)= 1.37 (1.29-1.45) Demographic • Age-65 (continuous)/mean (SD)=15.31 (7.93)/OR (95% CI)= 1.069 (1.067-1.07) • Male /Frequency= 40.28/OR (95% CI)= 0.99 (0.96-1.03) Cardiovascular/Cerebrovascular • Congestive Heart Failure /Frequency= 26.03/OR (95% CI)= 1.38 (1.34-1.43) • Valvular and Rheumatic Heart Disease /Frequency= 23.03/OR (95% CI)= 0.87 (0.84-0.89)	diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. Frequencies and odds ratios for the 2007 cohort (n=174,024 admissions) are presented below. Final set of risk-adjustment variables: Variable//Frequency (%)//Odds Ratio (95% confidence interval) Demographic • Age-65 (continuous)/Mean (SD)=80.12(7.83)/ OR (95% CI)=1.004(1.003 - 1.006) • Male/Frequency =40.44/ OR (95% CI)=1.045(1.016 - 1.045) Cardiovascular/Cerebrovascular • Congestive Heart Failure (CC 80)/Frequency =25.68/ OR (95% CI)=1.221(1.182 - 1.261) • Hypertensive heart disease (CC 90)/Frequency =6.91/ OR (95% CI)=1.100(1.047 - 1.157) • Cerebral Hemorrhage (CC 95)/Frequency =1.81/ OR (95% CI)=1.079(0.954 - 1.182) • Ischemic or Unspecified Stroke (CC 96)/Frequency =26.41/ OR (95% CI)=1.042(1.008 - 1.078) • Cerebrovascular Disease (CC 97)/Frequency =23.75/ OR (95% CI)=1.045(1.010 - 1.080) • Hemiplegia, paraplegia, paralysis, functional disability (CC 100-102)/Frequency =9.70/ OR (95% CI)=0.951(0.907 - 0.997) • Vascular or circulatory disease (CC 104-106)/Frequency =31.09/ OR (95% CI)=1.070(1.038 - 1.103)

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
		• Congenital Cardiac/Circulatory Defects /Frequency= 2.04/OR (95% CI)= 0.71 (0.64-0.8) • Hypertensive Heart Disease /Frequency= 6.54/OR (95% CI)= 0.83 (0.78-0.88) • Specified Heart Arrhythmias /Frequency= 29.37/OR (95% CI)= 1.59 (1.54-1.64) • Cerebral Hemorrhage /Frequency= 1.88/OR (95% CI)= 1.16 (1.06-1.27) • Ischemic or Unspecified Stroke /Frequency= 24.81/OR (95% CI)= 1.00 (0.96-1.03) • Precerebral Arterial Occlusion and Transient Cerebral Ischemia /Frequency= 22.83/OR (95% CI)= 0.82 (0.8-0.85) • Cerebral Atherosclerosis and Aneurysm /Frequency= 10.67/OR (95% CI)= 0.83 (0.80-0.87) • Hemiplegia/Hemiparesis /Frequency= 5.60/OR (95% CI)= 1.17 (1.10-1.24) Comorbidities • History of Infection/Frequency= 26.72/OR (95% CI)= 1.15 (1.11-1.18) • Metastatic Cancer and Acute Leukemia and Other Major Cancers /Frequency= 3.65/OR (95% CI)= 2.77 (2.61-2.95) • Lymphatic, Head and Neck, Brain, Breast, Colorectal and Other Major Cancers/Frequency= 23.92/OR (95% CI)= 0.92 (0.89-0.95) • Protein-Calorie Malnutrition /Frequency= 5.42/OR (95% CI)= 1.69 (1.61-1.77) • Other Significant Endocrine and Metabolic Disorders /Frequency= 75.98/OR (95% CI)= 0.75 (0.72-0.77) • Other Gastrointestinal Disorders /Frequency= 43.64/OR (95% CI)= 0.90 (0.88-0.93) • Disorders of the Vertebrae and Spinal Discs /Frequency= 17.06/OR (95% CI)= 0.89 (0.86-0.93) • Osteoarthritis of Hip or Knee /Frequency= 10.36/OR (95% CI)= 0.82 (0.78-0.86) • Other Musculoskeletal and Connective Tissue Disorders /Frequency= 63.50/OR (95% CI)= 0.86 (0.84-0.89) • Iron Deficiency and Other/Unspecified Anemia and Blood	Comorbid Conditions • Metastatic cancer and acute leukemia (CC 7)/Frequency =2.27/ OR (95% CI)=1.264(1.163 - 1.373) • Cancer (CC 8-12)/Frequency =18.52/ OR (95% CI)=1.034(0.998 - 1.071) • Diabetes and DM complications (CC 15-20, 119-120)/Frequency =37.84/ OR (95% CI)=1.156(1.124 - 1.364) • Protein-calorie malnutrition (CC 21)/Frequency =4.45/ OR (95% CI)=1.288(1.216 - 1.364) • Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/Frequency = 23.72/ OR (95% CI)=1.142(1.104 - 1.181) • Obesity/disorders of thyroid, cholesterol, lipids (CC 24)/Frequency = 68.03/ OR (95% CI)=0.916(0.890 - 0.943) • Severe Hematological Disorders (CC 44)/Frequency = 1.53/ OR (95% CI)=1.266(1.153 - 1.391) • Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/Frequency = 30.90/ OR (95% CI)=1.142(1.108 - 1.178) • Dementia and senility (CC 49-50)/Frequency = 28.56/ OR (95% CI)=1.015(0.985 - 1.047) • Quadriplegia, paraplegia, functional disability (CC 67-69, 177-178)/Frequency = 1.99/ OR (95% CI)=1.139(1.046 - 1.242) • Seizure Disorders and Convulsions (CC 74)/Frequency = 7.45/ OR (95% CI)=1.161(1.107 - 1.218) • COPD (CC 108)/Frequency =22.96/ OR (95% CI)=1.133(1.098 - 1.170) • Other lung disorder (CC 115)/Frequency =22.04/ OR (95% CI)=1.082(1.047 - 1.117) • End-stage renal disease or dialysis (CC 130)/Frequency =1.51/ OR (95% CI)=1.356(1.237 - 1.487) • Renal Failure (CC 131)/Frequency =14.29/ OR (95% CI)=1.163(1.117 - 1.211) • Other urinary tract disorders (CC 136)/Frequency =18.57/ OR (95% CI)=1.101(1.064 - 1.140) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/Frequency =6.79/ OR (95% CI)=1.079(1.026 - 1.134)

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		Disease /Frequency= 31.86/OR (95% CI)= 1.09 (1.05-1.12) • Dementia or senility /Frequency= 28.64/OR (95% CI)= 1.24 (1.20-1.28) • Major Psychiatric Disorders /Frequency= 9.12/OR (95% CI)= 1.08 (1.04-1.13) • Quadriplegia, Other Extensive Paralysis /Frequency= 1.54/OR (95% CI)= 1.39 (1.26-1.53) • Multiple Sclerosis /Frequency= 10.27/OR (95% CI)= 0.83 (0.79-0.87) • Seizure Disorders and Convulsions /Frequency= 6.92/OR (95% CI)= 1.27 (1.21-1.33) • Hypertension /Frequency= 88.00/OR (95% CI)= 0.77 (0.74-0.81) • Peripheral Vascular Disease /Frequency= 23.02/OR (95% CI)= 1.07 (1.04-1.11) • Chronic Obstructive Pulmonary Disease /Frequency= 21.92/OR (95% CI)= 1.06 (1.03-1.10) • Pneumonia /Frequency= 17.36/OR (95% CI)= 1.49 (1.44-1.54) • Pleural Effusion/Pneumothorax /Frequency= 6.92/OR (95% CI)= 1.13 (1.07-1.18) • Other Eye Disorders /Frequency= 19.34/OR (95% CI)= 0.91 (0.88-0.94) • Other Ear, Nose, Throat, and Mouth Disorders /Frequency= 26.99/OR (95% CI)= 0.87 (0.84-0.90) • Dialysis Status /Frequency= 1.47/OR (95% CI)= 1.38 (1.24-1.52) • Renal Failure /Frequency= 15.45/OR (95% CI)= 1.16 (1.12-1.21) • Urinary Tract Infection /Frequency= 21.55/OR (95% CI)= 1.14 (1.10-1.18) • Male Genital Disorders /Frequency= 11.95/OR (95% CI)= 0.78 (0.74-0.82) • Decubitus Ulcer of Skin /Frequency= 2.52/OR (95% CI)= 1.29 (1.20-1.39) • Chronic Ulcer of Skin, Except Decubitus /Frequency= 5.52/OR (95% CI)= 1.16 (1.10-1.23)	• Major Symptoms, Abnormalities (CC 166)/Frequency =61.63/ OR (95% CI)=1.098(1.063 - 1.134) References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Readmission_MethodologyReport9.29.10.pdf

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
		• Other Dermatological Disorders /Frequency= 29.38/OR (95% CI)= 0.92 (0.89-0.95) References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_MortalityMethodologyReport_9.29.10.pdf	
Stratification	Not applicable	N/A	N/A
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	The indicator is expressed as a rate, defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI) software performs six steps to produce the rates. 1) Discharge-level records are flagged to identify the outcome of interest and 2) the population at risk. 3) Calculate observed rates as the sum of the records flagged in the numerator divided by the sum of the records flag in the denominator for user-specified combinations of stratifiers. 4) Calculate expected rates. Regression coefficients from a reference population database are applied to the discharge records to compute a predicted value. For indicators that are not risk-adjusted, this is the reference population rate. The expected rate is computed as the sum of the predicted value for each record divided by the number of records flagged in the	The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSMR is calculated as the ratio of the number of	The measure employs a hierarchical logistic regression model to create a hospital level 30-day RSRR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSRR is calculated as the ratio of the number of

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	population at risk for the unit of analysis of interest (i.e., hospital). 5) Calculate risk-adjusted rate using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. For indicators that are not risk-adjusted, this is the same as the observed rate. 6) Calculate smoothed rate using an Empirical Bayes shrinkage estimator (W) as the weighted average of the risk-adjusted rate and the reference population rate. The shrinkage estimate reflects a reliability adjustment unique to each indicator. URL None http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf	"predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a ratio lower than one indicates lower-than-expected mortality or better quality and a ratio higher than one indicates higher-than-expected mortality or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Please see attachment for more details on the calculation algorithm. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Mortality_Calculation_Algorithm.pdf	"predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio ("predicted") is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a ratio lower than one indicates lower-than-expected readmission or better quality and a ratio higher than one indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmission for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Please see attachment for more details on the calculation algorithm. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment Stroke_Readmission_Calculation_Algorithm.pdf
Submission items	5.1 Identified measures: 0240 : Stroke and Stroke Rehabilitation: Deep Vein Thrombosis (DVT) Prophylaxis for Ischemic Stroke or Intracranial Hemorrhage 0241 : Stroke and Stroke Rehabilitation:	5.1 Identified measures: 0230 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older 0229 : Hospital 30-day, all-cause, risk-standardized	5.1 Identified measures: 0505 : Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization. 0330 : Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization for

	0467 Acute Stroke Mortality Rate (IQI 17)	2026 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following an acute ischemic stroke hospitalization	2027 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following an acute ischemic stroke hospitalization
	Anticoagulant Therapy Prescribed for Atrial Fibrillation at Discharge 0242 : Stroke and Stroke Rehabilitation: Tissue Plasminogen Activator (t-PA) Considered 0244 : Stroke and Stroke Rehabilitation: Rehabilitation Services Ordered 0325 : Stroke and Stroke Rehabilitation: Discharged on Antithrombotic Therapy 0434 : STK-01: Venous Thromboembolism (VTE) Prophylaxis 0435 : STK 02: Discharged on Antithrombotic Therapy 0436 : STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter 0437 : STK 04: Thrombolytic Therapy 0438 : STK 05: Antithrombotic Therapy By End of Hospital Day Two 0439 : STK-06: Discharged on Statin Medication 0440 : STK-08: Stroke Education 0441 : STK-10: Assessed for Rehabilitation 0442 : Functional Communication Measure: Writing 0443 : Functional Communicaton Measure: Swallowing 0444 : Functional Communication Measure: Spoken Language Expression 0445 : Functional Communication Measure: Spoken Language Comprehension 0446 : Functional Communicaton Measure: Reading 0448 : Functional Communication Measure: Memory 0449 : Functional Communicaton Measure: Attention 0661 : Head CT or MRI Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan Interpretation Within 45 minutes of ED Arrival. 0705 : Proportion of Patients Hospitalized with Stroke that have a Potentially Avoidable Complication (during the Index Stay or in the 30-day Post-	mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older 0468 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A	patients 18 and older 0506 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A

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	Discharge Period) 0243 : Stroke and Stroke Rehabilitation: Screening for Dysphagia 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: All but one of the related endorsed measures are measures of the process of care for patients with stroke. Therefore, these measures have similar target populations but different measure foci. The lone endorsed outcome measure other than this measure includes a wide variety of potentially avoidable complicatons. Due to the large number of related measures and incomplete specifications currently available online, we are currently contacting measure developers for additional information to assess and promote harmonization when possible. Comparing the denominator criterion for this measure with the denominator criteria for STK measures from The Joint Commission, there are minor differences. The AHRQ specification includes all ischemic and hemorrhagic infarcts. The Joint Commission specification adds 433.10 (carotid occlusion without infarct) and 434.00 (cerebral thrombosis without infarct), and it drops intracranial hemorrhagic infarcts without specified subarachnoid or intracerebral hemorrhage (e.g., 432.x). AHRQ believes that these differences are justified, but they comprise less than 5% of the total denominator, which would make harmonization potentially appropriate. The AMA-PCPI measures for Stroke and Stroke Rehabilitation also exclude hemorrhagic infarcts other than intracerebral hemorrhages, and they include selected TIA (435.9) and late effects (438.2, 438.89, 438.9) codes, which would not be appropriate for an inpatient mortality		

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	measure. 5b.1 If competing, why superior or rationale for additive value: Not applicable.		

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[ii] The Internet Stroke Center. Available at http://www.strokecenter.org/patients/about-stroke/stroke-statistics/ Last accessed February 2012
[iii]American Stroke Association. Available at http://www.strokeassociation.org/STROKEORG/AboutStroke/Impact-of-Stroke_UCM_310728_Article.jsp Last accessed February 2012
[iv]Centers for Disease Control. Available at http://www.cdc.gov/mentalhealth/data_stats/alzheimers.htm
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[vi]Centers for Disease Control. Available at http://www.cdc.gov/mentalhealth/data_stats/alzheimers.htm Last accessed February 2012
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[vii] Centers for Disease Control. Available at http://www.cdc.gov/epilepsy/basics/fast_facts.htm
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[ix] National Multiple Sclerosis Society. Available at http://www.nationalmssociety.org/about-multiple-sclerosis/what-we-know-about-ms/faqs-about-ms/index.aspx#howmany Last accessed February 2012

[x] Centers for Disease Control. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6005a1.htm?s_cid=ss6005a1_w Last accessed February 2012

Centers for Disease Control. Available at http://www.cdc.gov/traumaticbraininjury/statistics.html Last accessed February 2012