NATIONAL QUALITY FORUM
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Memo

July 28, 2020

To: Consensus Standards Approval Committee (CSAC)

From: Neurology Project Team

Re: Neurology Fall 2019, Track 1 Measures

COVID-19 Updates

Considering the recent COVID-19 global pandemic, many organizations needed to focus their attention on the public health crisis. In order to provide greater flexibility for stakeholders and continue the important work in quality measurement, the National Quality Forum (NQF) extended commenting periods and adjusted measure endorsement timelines for the Fall 2019 cycle.

Commenting periods for all measures evaluated in the Fall 2019 cycle were extended from 30 days to 60 days. Based on the comments received during this 60-day extended commenting period, measures entered one of two tracks:

Track 1: Measures Continuing in Fall 2019 Cycle
Measures that did not receive public comments or only received comments in support of the Standing Committees' recommendations will be reviewed by the CSAC.

- **Exceptions**
  Exceptions were granted to measures if non-supportive comments received during the extended post-comment period were similar to those received during the pre-evaluation meeting period and have already been adjudicated by the respective Standing Committees during the measure evaluation Fall 2019 meetings.

Track 2: Measures Deferred to Spring 2020 Cycle
Fall 2019 measures requiring further action or discussion from a Standing Committee were deferred to the Spring 2020 cycle. This includes measures where consensus was not reached or those that require a response to public comments received. Measures undergoing maintenance review will retain endorsement during that time. Track 2 measures will be reviewed during the CSAC's meeting in November.

During the CSAC meeting on July 28-29, the CSAC will review Fall 2019 measures assigned to Track 1. Evaluation summaries for measures in Track 1 have been described in this memo and are included in the Neurology draft report. There are no Neurology measures assigned to Track 2 from the Fall 2019 review cycle.

CSAC Action Required

The CSAC will review recommendations from the Neurology,Track 1 project at its July 28-29, 2020 meeting and vote on whether to uphold the recommendations from the Committee.

This memo includes a summary of the project, measure recommendations, themes identified and

responses to the public and member comments and the results from the NQF member expression of support. The following documents accompany this memo:

1. Neurology Fall 2019, Track 1 Draft Report**.** The draft report includes measure evaluation details on all measures that followed Track 1. Measures that followed Track 2 will be reviewed during the CSAC's meeting in November. The complete draft report and supplemental materials are available on the project webpage.

Background

Neurological conditions and injuries affect millions of Americans each year, taking a significant toll on patients, families, and caregivers. Stroke is the fifth-leading cause of death in the United States, and costs billions of dollars in treatment, rehabilitation, and lost wages.[1]

The NQF Neurology portfolio currently contains 17 endorsed measures for neurological conditions addressing diagnosis, treatments, and procedures. The portfolio contains 16 measures for stroke, which include six measures that are NQF-endorsed with reserve status, and one for dementia.

Draft Report

The Neurology Fall 2019, Track 1 draft report presents the results of the evaluation of the two measures considered under the Consensus Development Process (CDP). Both measures were recommended for endorsement, and will follow the Track 1 option for the Fall 2019 cycle.

The measures were evaluated against the 2019 version of the measure evaluation criteria.

	Maintenance	New	Total
Measures under consideration	2	0	2
Measures recommended for endorsement	2	0	2

CSAC Action Required

Pursuant to the CDP, the CSAC is asked to consider endorsement of two candidate consensus measures.

Measures Recommended for Endorsement

- NQF 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 (Mathematica)

Overall Suitability for Endorsement: Yes-11; No-0

- NQF 1952: Time to Intravenous Thrombolytic Therapy (American Heart Association)

Overall Suitability for Endorsement: Yes-11; No-0

Comments and Their Disposition

NQF received no comments from organizations and individuals pertaining to the draft report and to the measures under consideration.

Member Expression of Support

Throughout the 16-week continuous public commenting period, NQF members had the opportunity to express their support ('support' or 'do not support') for each measure submitted for endorsement consideration to inform the Committee's recommendations. No NQF members provided their expression of support or non-support.

Removal of NQF Endorsement

No measures previously endorsed by NQF have had their endorsement removed.

Appendix A: CSAC Checklist

The table below lists the key considerations to inform the CSAC's review of the measures submitted for endorsement consideration.

Key Consideration	Yes/No	Notes
Were there any process concerns raised during the CDP project? If so, briefly explain.	No	
Did the Standing Committee receive requests for reconsideration? If so, briefly explain.	No	
Did the Standing Committee overturn any of the Scientific Methods Panel's ratings of Scientific Acceptability? If so, state the measure and why the measure was overturned.	No	
If a recommended measure is a related and/or competing measure, was a rationale provided for the Standing Committee's recommendation? If not, briefly explain.	N/A	
Were any measurement gap areas addressed? If so, identify the areas.	No	
Are there additional concerns that require CSAC discussion? If so, briefly explain.	No	

Appendix B: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Measures Recommended

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

Submission | Specifications

Description: This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the emergency department (ED) within two hours of the onset of symptoms and have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan interpreted within 45 minutes of ED arrival. The measure is calculated using chart-abstracted data, on a rolling, quarterly basis and is publicly reported, in aggregate, for one calendar year. The measure has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012.

Numerator Statement: Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head CT or MRI scan whose time from ED arrival to interpretation of the Head CT scan is within 45 minutes of arrival.

Denominator Statement: Emergency department acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within two hours of the time last known well with an order for a head CT or MRI scan.

Exclusions: Studies are excluded for any patients under 18 years of age, patients who expired in the ED, or patients who left the ED against medical advice or discontinued care.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Other

Setting of Care: Emergency Department and Services

Type of Measure: Process

Data Source: Claims, Electronic Health Records, Paper Medical Records

Measure Steward: Centers for Medicare and Medicaid Services

STANDING COMMITTEE MEETING 3/3/2020

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-2**; **M-9**; **L-0**; **I-0**; 1b. Performance Gap: **H-7**; **M-4**; **L-0**; **I-0**

Rationale:

- This measure is supported by the guidelines from the American Heart Association/American Stroke Association for the early management of patients with acute ischemic stroke including endovascular treatment.
- The guidelines recommend conducting brain imaging before initiating any specific therapy for treatment of acute ischemic stroke.
- However, there wasn't a specific guideline recommendation as to interpretation of the brain imaging within a 45-minute window.
- This performance gap has narrowed since 2012-2013, but a gap remains within recent data (July 1, 2017 – June 30, 2018).
- Among 1,550 facilities, the mean performance from July 1, 2017 – June 30, 2018 was 75.0% (the higher the better) with a standard deviation of 82.2.
- More recent data (July 1, 2017 – June 30, 2018) show no race disparities for head CT or MRI scan interpreted within 45 minutes of ED arrival; however, Hispanic patients remained less likely to be included in the measure's numerator compared to non-Hispanic patients.
- Females also remained less likely than males to have a head CT or MRI scan interpreted within 45 minutes of ED arrival.

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

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

2a. Reliability: **H-3**; **M-8**; **L-0**; **I-0** 2b. Validity: **H-3**; **M-7**; **L-1**; **I-0**

Rationale:

- The data set used for testing included cases submitted from 1,550 facilities to Hospital Compare from July 1, 2017 – June 30, 2018. The sample included 31,939 denominator cases (initial population) and 23,953 numerator cases (CT/MRI interpretation within 45 minutes of ED arrival).
- The developer calculated the signal-to-noise ratio using a beta-binomial model for each facility meeting the minimum case count (n=10). [Note: 10 is the minimum number of cases required for public reporting. It is unclear whether the measure itself is limited to facilities with 10 or more cases; if it is not, then testing was not conducted with the measure as specified].
- Reliability scores ranged from 0.52 to 1.00. The median reliability score was 0.76.
- Empirical validity of critical data elements was assessed by examining kappa statistics (for categorical variables and the constructed outcomes of the numerator and denominator) and Pearson's correlation coefficient (for noncategorical variables) between facility abstraction and auditor Clinical Data Abstraction Center (CDAC) abstraction for each of the data elements used to calculate the measure.
- The analysis used data elements for 2,622 cases abstracted by CDAC, which were previously abstracted by facilities; these data were collected from July 1, 2016 – December 31, 2018.
- Validity testing was conducted for the eight data elements. The agreement between facility and CDAC-abstracted data elements ranged from moderate to strong across the data elements. Kappa values ranged from 0.77-0.93 for categorical data elements; Pearson's correlation coefficients for noncategorical variables ranged from 0.51-0.92; and Kappa values for the constructed variables of the numerator and denominator were each 0.85.
- Using data from July 1, 2017 – June 30, 2018, the developer tested the statistical significance of the difference between facility performance scores and the mean performance value for 1,550 facilities meeting public reporting requirements.
- Results of the analysis indicated that the performance of 5.9% of the 1,550 facilities (n=92) was statistically significantly different from the average performance rates.
- This measure was not risk adjusted, as it is a process measure.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified; 3d. Data collection strategy can be implemented)

Rationale:

- This measure uses administrative claims, electronic clinical data, electronic health records, and paper method of data collections.
- An electronic data collection tool is made available from vendors or facilities or from the CMS Abstraction & Reporting Tool. Some data elements are in defined fields in electronic sources.
- Data abstracted from a paper record is done by someone other than the person obtaining original information (e.g., chart abstraction for quality measure or registry).

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Pass-11; No Pass-0** 4b. Usability: **H-8; M-3; L-0; I-0**

Rationale:

- This measure is publicly reported through the CMS Hospital Outpatient Quality Reporting Program (HOQR), a pay-for-quality data reporting program implemented by CMS for outpatient hospital services. Hospital quality of care information gathered through the HOQR Program is publicly available on the Hospital Compare website.
- The developer reports that, to date, they have not received significant feedback about the measure specifications or any unintended consequences.

- The median rate of head CT or MRI scans for acute ischemic or hemorrhagic stroke patients that are interpreted within 45 minutes of ED arrival, who arrived at the ED within two hours of the known onset, has increased from 62.0% in 2012 to 79.0% in 2018.

5. Related and Competing Measures

- The measure *NQF #0437 - STK 04: Thrombolytic Therapy* (used in the Hospital Inpatient Quality Reporting [HIQR] Program) is similar to *NQF #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* (Hospital Outpatient Quality Reporting [HOQR] Program).
- The two measures serve different target populations and purposes: the HOQR measure focuses on imaging in the ED setting, while the HIQR measure focuses on administration of thrombolytic therapy in an inpatient setting.

6. Standing Committee Recommendation for Endorsement: **Y-11**; **N-0**

7. Public and Member Comment

- No public and member comments were received.

8. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

9. Appeals

1952 Time to Intravenous Thrombolytic Therapy

Submission | Specifications

Description: Percent of acute ischemic stroke patients receiving intravenous alteplase therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy (door-to-needle time) of 60 minutes or less

Numerator Statement: Patients who receive IV alteplase at my hospital within 60 minutes after arrival

Denominator Statement: All patients with a final clinical diagnosis of ischemic stroke who received IV alteplase at my hospital

Exclusions: Denominator exclusions:

- Age <18 years
- Stroke occurred after hospital arrival (in ED/Obs/inpatient)
- Patients whose date/time of ED arrival and/or date/time of IV alteplase administration is blank, unknown, or MM/DD/YYYY only.
- Patients with a negative calculated time difference
- Patients with a Date Last Known Well, but no Time Last Known Well
- Patients that receive IV alteplase greater than 4.5 hours after Last Known Well
- Patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit
- Clinical Trial

Denominator exceptions:

- Patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Inpatient/Hospital

Type of Measure: Process

Data Source: Registry Data

Measure Steward: American Heart Association

1952 Time to Intravenous Thrombolytic Therapy

STANDING COMMITTEE MEETING 3/3/2020

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-6**; **M-5**; **L-0**; **I-0** 1b. Performance Gap: **H-7**; **M-4**; **L-0**; **I-0**

Rationale:

- This measure is supported by the American Heart Association/American Stroke Association 2018 Guidelines, which recommend that for patients eligible for intravenous alteplase, benefit of therapy is time dependent, and treatment should be initiated as quickly as possible (Class 1; Level A).
- Specifically, the door-to-needle time (time of bolus administration) should be within 60 minutes from hospital arrival (Class 1, Level B-nonrandomized).
- Despite some improvements, recent studies have shown that ~50% of patients receive tissue plasminogen activator treatment (alteplase) within the guideline-recommended 60-minute door-to-needle times, with a median door-to-needle time of 71 minutes).
- Recent testing data from 2016-2018 show that the mean performance score using data from the Get with the Guidelines (GWTG) registry increased from 53.5% to 76.1%.
- Data, stratified by age, sex, and race/ethnicity, indicate lower performance for women compared to men, and higher performance for some minorities but not others.

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

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

2a. Reliability: **H-1**; **M-10**; **L-0**; **I-0** 2b. Validity: **H-2**; **M-9**; **L-0**; **I-0**

Rationale:

- Empirical reliability testing at the performance measure score level was conducted via a signal-to-noise analysis using the beta-binomial model.
- Data used for testing included information from 1,619 of the 2,063 hospitals (78.5%) that reported data on this measure to the GWTG-Stroke registry and had at least one eligible patient for the measure between January 1, 2018 through December 31, 2018.
- The mean reliability for hospitals with at least one eligible patient was 0.76.
- Correlation analyses were conducted using *NQF #0437STK 04 Thrombolytic Therapy* and hypothesized that the higher the hospital performance on time to thrombolytic therapy (i.e., the percent treated with alteplase for acute ischemic stroke within 60 minutes of hospital arrival), the higher hospital performance on STK 04 (i.e., the percent of patients with acute ischemic stroke who arrive within two hours that are treated with alteplase within three hours).
- Hospitals included in the analysis had at least one patient in the denominator after exclusions and exceptions were removed.
- Data from the AHA/ASA 2018 GWTG Stroke Program were used to perform the correlation analysis for this measure.
- Time to Intravenous Thrombolytic Therapy (NQF 1952) was positively correlated with STK 04 Thrombolytic Therapy (NQF 0437) and found to be statistically significant: Coefficient of correlation = 0.43 (Moderate); P-value = <0.001; Number of shared hospitals based on hospital identifier = 1,612.
- Among the 1,619 included hospitals, there were a total of 12,379 exceptions and exclusions reported. The average number of exceptions and exclusions per hospital in this sample is 7.65. The proportion of exceptions to patients is 0.37. According to the results, 50% of hospitals had five or fewer exceptions and exclusions across eligible patients for the year under study.
- No risk adjustment was performed, as this is a process measure.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified; 3d. Data collection strategy can be implemented)

Rationale:

1952 Time to Intravenous Thrombolytic Therapy

- These data are collected through a clinical registry, the GWTG Stroke registry.
- The developer states that there are no issues with data collection have been identified and no modifications have been made to this measure, as collected in the GWTG Stroke registry, due to issues with data collection, sampling, or cost.
- The data for this measure are abstracted from a record by someone other than the person obtaining original information (e.g., chart abstraction for quality measure or registry).

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Pass-11; No Pass-0** 4b. Usability: **H-8; M-3; L-0; I-0**

Rationale:

- This measure is used within a Professional Certification or Recognition Program - Stroke Hospital Recognition Program through the GWTG Stroke registry.
- This measure is used for the Quality Improvement with Benchmarking - Stroke Hospital Recognition Program.
- The developer reports that no feedback has been received regarding unintended consequences.
- The developer presented data demonstrating a mean performance score from the GWTG registry that increased from 26.4% to 66.2% (2008-2018).

5. Related and Competing Measures

- The current measure captures acute ischemic stroke patients aged 18 years and older receiving intravenous alteplase 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.
- This measure is similar to *NQF #0437 STK 04: Thrombolytic Therapy.* This measure captures the proportion of acute ischemic stroke patients who arrive at this hospital within two hours of time last known well for whom IV t-PA was initiated at this hospital within three hours of time last known well.

6. Standing Committee Recommendation for Endorsement: **Y-11**; **N-0**

7. Public and Member Comment

- No public and member comments were received.

8. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

9. Appeals

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Neurology Fall 2019 Review Cycle

CSAC Review and Endorsement

July 28-29, 2020

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Standing Committee Recommendations

- Two measures reviewed for Fall 2019
  - No measures reviewed by the Scientific Methods Panel
- Two measures recommended for endorsement
  - NQF 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
  - NQF 1952: Time to Intravenous Thrombolytic Therapy
- No measures deferred to Spring 2020 due to COVID-19 extended commenting periods

Public and Member Comment and Member Expressions of Support

- No comments received
- No NQF member expressed support or concern for the measures

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Timeline and Next Steps

Process Step	Timeline
CSAC Endorsement Meeting	July 28 – 29, 2020
Appeals Period	August 3 – September 1, 2020

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Questions?

- Project team:
  - Matthew Pickering, Senior Director
  - Oroma Igwe, Manager
  - Ngozi Ihenacho, Analyst
  - Yemsrach Kidane, Project Manager

- Project webpage: https://www.qualityforum.org/Neurology_.aspx

- Project email address: Neurology@qualityforum.org

THANK YOU.

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Neurology, Fall 2019 Cycle, Track 1 Measures: CDP Report

DRAFT REPORT FOR CSAC REVIEW
JULY 28-29, 2020

This report is funded by the Department of Health and Human Services under contract HHSM-500-2017-00060I Task Order HHSM-500-T0001

http://www.qualityforum.org

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Executive Summary

Neurological conditions and injuries affect millions of Americans each year, taking a significant toll on patients, families, and caregivers. Stroke is the fifth-leading cause of death in the United States, and costs billions of dollars in treatment, rehabilitation, and lost wages.[1]

The National Quality Forum (NQF) Neurology portfolio currently contains 17 endorsed measures for neurological conditions addressing diagnosis, treatments, and procedures. The portfolio contains 16 measures for stroke, which include six measures that are NQF-endorsed with reserve status, and one for dementia. Appendix B details the full portfolio of NQF-endorsed neurological measures.

Due to circumstances around the COVID-19 global pandemic, commenting periods for all measures evaluated in the Fall 2019 cycle were extended from 30 days to 60 days. Based on the comments received during this 60-day extended commenting period, measures entered into one of two tracks:

Track 1: measures continuing its review in Fall 2019 Cycle:

Recommended for Endorsement:

- **NQF 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

- **NQF 1952** Time to Intravenous Thrombolytic Therapy

Track 2: measures deferred to Spring 2020 Cycle:

- None of the measures in the Neurology Fall 2019 cycle were deferred to the Spring 2020 cycle.

Brief summaries of the Fall 2019 *Track 1* measures currently under review are included in the body of the report; detailed summaries of the Committee's discussion and ratings of the criteria for each measure are in Appendix A.

Introduction

Neurological conditions and injuries affect millions of Americans each year and take a significant toll on patients, families, and caregivers. Additionally, billions of dollars are spent on treatment, rehabilitation, and lost or reduced earnings.

Stroke, a leading cause of neurological injury, is defined by the World Health Organization as "rapidly developing clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than that of vascular origin."[2] Stroke is the fifth-leading cause of death and disability in the United States[3,4] and is ranked as the second-leading cause of death worldwide.[5] Therefore, stroke remains a persistent public health concern and continues to present considerable sociodemographic and economic implications in the United States.

Approximately 795,000 people experience a new or recurrent stroke every year.[6] Additionally, ischemic stroke, the most common type of stroke and one that is characterized by blockage to the brain, accounts for about nine of every 10 stroke events.[7] In 2014, stroke was among the most expensive chronic conditions in the Medicare fee-for-service program and is projected to reach $94 billion in medical costs by 2035.[7]

Between 2000 and 2011, stroke mortality declined at 4.5 percent per year.[8] Evidence suggests that the decline in stroke mortality and morbidity incidence is likely due to the increased use of targeted prevention medications and time-sensitive therapies. However, as life span increases, the prevalence of stroke and associated public health burden is expected to rise steadily by 2030.[6,8]

This NQF project aims to evaluate performance measures that will help guide quality improvement in the care and treatment of neurological conditions. On March 3, 2020, NQF convened the multistakeholder Neurology Standing Committee, composed of 13 individuals, to evaluate two NQF-endorsed stroke measures for maintenance review.

NQF Portfolio of Performance Measures for Neurology Conditions

The Neurology Standing Committee (Appendix C) oversees NQF's portfolio of Neurology measures (Appendix B) that includes measures for dementia and stroke. This portfolio contains 17 measures: 15 process measures, 2 outcome and resource use measures, and 0 composite measure (see table below).

Table 1. NQF Neurology Portfolio of Measures

	Process	Outcome/Resource Use
Dementia	1	0
Stroke	14	2
Total	15	2

Neurology Measure Evaluation

On March 3, 2020, the Neurology Standing Committee evaluated two measures undergoing maintenance review against NQF's standard measure evaluation criteria.

Table 2. Neurology Measure Evaluation Summary

	Maintenance	New	Total
Measures under consideration	2	0	2
Measures recommended for endorsement	2	0	2

Comments Received Prior to Committee Evaluation

NQF solicits comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF solicits comments for a continuous 16-week period during each evaluation cycle via an online tool located on the project webpage. For this evaluation cycle, the commenting period opened on November 26, 2020 and closed on May 28, 2020. No comments were submitted and shared with the Committee prior to the measure evaluation meeting(s) (Appendix F).

Comments Received After Committee Evaluation

Considering the recent COVID-19 global pandemic, many organizations needed to focus their attention on the public health crisis. In order to provide greater flexibility for stakeholders and continue the important work in quality measurement, the National Quality Forum (NQF) extended commenting periods and adjusted measure endorsement timelines for the Fall 2019 cycle.

Commenting periods for all measures evaluated in the Fall 2019 cycle were extended from 30 days to 60 days. Based on the comments received during this 60-day extended commenting period, measures entered one of two tracks:

Track 1: Measures Continuing in Fall 2019 Cycle
Measures that did not receive public comments or only received comments in support of the Standing Committees' recommendations will move forward to the CSAC for review and discussion during its meeting on July 28-29.

- **Exceptions**
  Exceptions were granted to measures if non-supportive comments received during the extended post-comment period were similar to those received during the pre-evaluation meeting period and have already been adjudicated by the respective Standing Committees during the measure evaluation Fall 2019 meetings.

Track 2: Measures Deferred to Spring 2020 Cycle
Fall 2019 measures requiring further action or discussion from a Standing Committee were deferred to the Spring 2020 cycle. This includes measures where consensus was not reached or

those that require a response to public comments received. Measures undergoing maintenance review will retain endorsement during that time.

During the Fall 2019 CSAC meeting on July 28-29, the Consensus Standards Approval Committee (CSAC) will review all measures assigned to Track 1. A list of measures assigned to Track 2 can be found in the Executive Summary section of this report for tracking purposes, but these measures will be reviewed by CSAC on November 17 and 18, 2020.

The extended public commenting period with NQF member support closed on May 28,2020. Following the Committee's evaluation of the measures under consideration, NQF received no comments from organizations and individuals pertaining to the draft report and to the measures under consideration. All comments for each measure under consideration have been summarized in Appendix A.

Throughout the extended public commenting period, NQF members had the opportunity to express their support ('support' or 'do not support') for each measure submitted for endorsement consideration to inform the Committee's recommendations. No NQF members provided their expression of support.

Overarching Issues

During the Standing Committee's discussion of the measures, one overarching issue emerged that was factored into the Committee's ratings and recommendations for the two measures.

Clinically Accurate Time Frames

Ensuring that stroke patients receive appropriate care and treatment within a specific window of time has been documented within clinical practice guidelines. However, certain Committee members felt that such time frames may be arbitrary in selection and may not be suitable for the clinical operations of the Emergency Department (ED). The Committee encouraged the developers to review the related clinical performance and modify the respective time frames, as needed, to ensure that it is still clinically accurate and appropriate.

Summary of Measure Evaluation: Fall 2019 Measures, Track 1

Eight out of 13 Committee members attended the web meeting; quorum was not achieved during the web meeting. In order to conduct voting for both measures under review, an asynchronous offline voting survey, accompanied by an audio recording of the web meeting, was made available to the Standing Committee for the March 3, 2020 web meeting. The following brief summaries of the measure evaluation highlight the major issues that the Committee considered. Details of the Committee's discussion and ratings of the criteria for each measure are included in Appendix A.

Stroke

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 (Mathematica): Recommended

Description: This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the emergency department (ED) within two hours of the onset of symptoms and have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan interpreted within 45 minutes of ED arrival. The measure is calculated using chart-abstracted data, on a rolling, quarterly

basis and is publicly reported, in aggregate, for one calendar year. The measure has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012; **Measure Type**: Process; **Level of Analysis**: Facility, Other; **Setting of Care**: Emergency Department and Services; **Data Source**: Claims, Electronic Health Records, Paper Medical Records

The Committee recommended the measure for continued endorsement. The Committee stated that the evidence for the measure remained unchanged since its previous evaluation. The Standing Committee requested that the developer clarify the rationale of using the 45-minute guideline for the CT and MRI scans, instead of the 20-minute guideline suggested by the American Heart Association. The developer explained that the 20-minute procedural guideline referred to the length of time allotted to perform the CT scan, while the 45-minute guideline referred to the time provisioned to interpret the CT results. A Committee member stated that the 45-minute guideline may be arbitrary in selection and may not be suitable for the clinical operations of the ED. The Committee member encouraged the developer to review the related clinical performance and modify the 45-minute time frame to ensure that it is still clinically accurate and appropriate. The Committee member also suggested that there is room for improvement in identifying a more direct relationship between the time frame and clinically relevant outcomes.

A Committee member questioned whether the measure could be applied to the pediatric population. Noting the contrast in time guidelines, and in reference to the American Heart Association's January 2019 scientific statement, the Committee member also explained that the median time to radiologic confirmation of diagnosis for pediatric stroke is 15-24 hours and recommended that this guideline be considered in future measure development. Acknowledging the importance of pediatric stroke care, another Committee member explained that pediatric stroke would require a different set of measurement considerations and reiterated that measure 0661 is designed for adult patients.

The Committee did not have any concerns regarding reliability. For validity, the Committee and the measure developer discussed whether the measure should be risk adjusted based on the hospital setting, emphasizing that there may be unintended consequences of urging rapid evaluation and treatment among rural or safety net settings that have fewer resources, do not see a considerable amount of stroke patients, or are remotely located. The Committee also noted that the timing of the tests might be an issue for patients who live in remote environments or face barriers to timely access. Although the developer noted that process measures are usually not risk adjusted due to their applicability to all settings, the developer acknowledged the importance of clarifying such unintended consequences and subsequent impacts on payment. The developer also noted that the concern is worth further examination for future measure updates.

The Committee did not have any concerns regarding feasibility. Measure 0661 is publicly reported on Hospital Compare, with little to no concerns from its users. Additionally, the Committee members agreed that the measure met the use and usability criteria.

1952 Time to Intravenous Thrombolytic Therapy (American Heart Association): (Not) Recommended

Description: Percent of acute ischemic stroke patients receiving intravenous alteplase therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy (door-to-

needle time) of 60 minutes or less; **Measure Type**: Process; **Level of Analysis**: Facility; **Setting of Care**: Inpatient/Hospital; **Data Source**: Registry Data

The Committee recommended the measure for continued endorsement. The Committee had no major concerns with the measure's evidence. One Committee member inquired about future efforts to modify the measure toward a more aggressive time goal. The developer stated that their current evidence demonstrates broad improvement, and a reduction in time to treatment may be plausible in the future. The developer also noted that the distributions of patients who are receiving timely treatment continue to shift in a favorable direction.

The Committee noted that even though there have been improvements in measure rates within categories of race, gender, and geographic locations, several gaps still exist in performance that hinge on race, gender, geographic location, and hospitals that have less experience administering the treatment.

When the reliability criteria was discussed, the Committee members shared comments regarding measure exceptions and whether reasons for delay in treatment were documented. The developer noted that they analyzed the recorded delay times and found that improvements in the measure were not a result of inappropriate documentation of delays.

The Committee did not have any comments for discussion concerning the validity, feasibility, use, or usability criteria.

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Appendix A: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Track 1 – Measures Recommended

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

Submission | Specifications

Description: This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the emergency department (ED) within two hours of the onset of symptoms and have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan interpreted within 45 minutes of ED arrival. The measure is calculated using chart-abstracted data, on a rolling, quarterly basis and is publicly reported, in aggregate, for one calendar year. The measure has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012.

Numerator Statement: Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head CT or MRI scan whose time from ED arrival to interpretation of the Head CT scan is within 45 minutes of arrival.

Denominator Statement: Emergency department acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within two hours of the time last known well with an order for a head CT or MRI scan.

Exclusions: Studies are excluded for any patients under 18 years of age, patients who expired in the ED, or patients who left the ED against medical advice or discontinued care.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Other

Setting of Care: Emergency Department and Services

Type of Measure: Process

Data Source: Claims, Electronic Health Records, Paper Medical Records

Measure Steward: Centers for Medicare and Medicaid Services

STANDING COMMITTEE MEETING 3/3/2020

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-2**; **M-9**; **L-0**; **I-0**; 1b. Performance Gap: **H-7**; **M-4**; **L-0**; **I-0**

Rationale:

- This measure is supported by the guidelines from the American Heart Association/American Stroke Association for the early management of patients with acute ischemic stroke including endovascular treatment.
- The guidelines recommend conducting brain imaging before initiating any specific therapy for treatment of acute ischemic stroke.
- However, there wasn't a specific guideline recommendation as to interpretation of the brain imaging within a 45-minute window.
- This performance gap has narrowed since 2012-2013, but a gap remains within recent data (July 1, 2017 – June 30, 2018).
- Among 1,550 facilities, the mean performance from July 1, 2017 – June 30, 2018 was 75.0% (the higher the better) with a standard deviation of 82.2.
- More recent data (July 1, 2017 – June 30, 2018) show no race disparities for head CT or MRI scan interpreted within 45 minutes of ED arrival; however, Hispanic patients remained less likely to be included in the measure's numerator compared to non-Hispanic patients.
- Females also remained less likely than males to have a head CT or MRI scan interpreted within 45 minutes of ED arrival.

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

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

2a. Reliability: **H-3**; **M-8**; **L-0**; **I-0** 2b. Validity: **H-3**; **M-7**; **L-1**; **I-0**

Rationale:

- The data set used for testing included cases submitted from 1,550 facilities to Hospital Compare from July 1, 2017 – June 30, 2018. The sample included 31,939 denominator cases (initial population) and 23,953 numerator cases (CT/MRI interpretation within 45 minutes of ED arrival).
- The developer calculated the signal-to-noise ratio using a beta-binomial model for each facility meeting the minimum case count (n=10). [Note: 10 is the minimum number of cases required for public reporting. It is unclear whether the measure itself is limited to facilities with 10 or more cases; if it is not, then testing was not conducted with the measure as specified].
- Reliability scores ranged from 0.52 to 1.00. The median reliability score was 0.76.
- Empirical validity of critical data elements was assessed by examining kappa statistics (for categorical variables and the constructed outcomes of the numerator and denominator) and Pearson's correlation coefficient (for noncategorical variables) between facility abstraction and auditor Clinical Data Abstraction Center (CDAC) abstraction for each of the data elements used to calculate the measure.
- The analysis used data elements for 2,622 cases abstracted by CDAC, which were previously abstracted by facilities; these data were collected from July 1, 2016 – December 31, 2018.
- Validity testing was conducted for the eight data elements. The agreement between facility and CDAC-abstracted data elements ranged from moderate to strong across the data elements. Kappa values ranged from 0.77-0.93 for categorical data elements; Pearson's correlation coefficients for noncategorical variables ranged from 0.51-0.92; and Kappa values for the constructed variables of the numerator and denominator were each 0.85.
- Using data from July 1, 2017 – June 30, 2018, the developer tested the statistical significance of the difference between facility performance scores and the mean performance value for 1,550 facilities meeting public reporting requirements.
- Results of the analysis indicated that the performance of 5.9% of the 1,550 facilities (n=92) was statistically significantly different from the average performance rates.
- This measure was not risk adjusted, as it is a process measure.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified; 3d. Data collection strategy can be implemented)

Rationale:

- This measure uses administrative claims, electronic clinical data, electronic health records, and paper method of data collections.
- An electronic data collection tool is made available from vendors or facilities or from the CMS Abstraction & Reporting Tool. Some data elements are in defined fields in electronic sources.
- Data abstracted from a paper record is done by someone other than the person obtaining original information (e.g., chart abstraction for quality measure or registry).

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Pass-11; No Pass-0** 4b. Usability: **H-8; M-3; L-0; I-0**

Rationale:

- This measure is publicly reported through the CMS Hospital Outpatient Quality Reporting Program (HOQR), a pay-for-quality data reporting program implemented by CMS for outpatient hospital services. Hospital quality of care information gathered through the HOQR Program is publicly available on the Hospital Compare website.

- The developer reports that, to date, they have not received significant feedback about the measure specifications or any unintended consequences.
- The median rate of head CT or MRI scans for acute ischemic or hemorrhagic stroke patients that are interpreted within 45 minutes of ED arrival, who arrived at the ED within two hours of the known onset, has increased from 62.0% in 2012 to 79.0% in 2018.

5. Related and Competing Measures

- The measure *NQF #0437 - STK 04: Thrombolytic Therapy* (used in the Hospital Inpatient Quality Reporting [HIQR] Program) is similar to *NQF #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* (Hospital Outpatient Quality Reporting [HOQR] Program).
- The two measures serve different target populations and purposes: the HOQR measure focuses on imaging in the ED setting, while the HIQR measure focuses on administration of thrombolytic therapy in an inpatient setting.

6. Standing Committee Recommendation for Endorsement: **Y-11**; **N-0**

7. Public and Member Comment

- None

8. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X (July 28-29,2020)

9. Appeals

1952 Time to Intravenous Thrombolytic Therapy

Submission | Specifications

Description: Percent of acute ischemic stroke patients receiving intravenous alteplase therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy (door-to-needle time) of 60 minutes or less

Numerator Statement: Patients who receive IV alteplase at my hospital within 60 minutes after arrival

Denominator Statement: All patients with a final clinical diagnosis of ischemic stroke who received IV alteplase at my hospital

Exclusions: Denominator exclusions:

- Age <18 years
- Stroke occurred after hospital arrival (in ED/Obs/inpatient)
- Patients whose date/time of ED arrival and/or date/time of IV alteplase administration is blank, unknown, or MM/DD/YYYY only.
- Patients with a negative calculated time difference
- Patients with a Date Last Known Well, but no Time Last Known Well
- Patients that receive IV alteplase greater than 4.5 hours after Last Known Well
- Patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit
- Clinical Trial

Denominator exceptions:

- Patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Inpatient/Hospital

Type of Measure: Process

Data Source: Registry Data

Measure Steward: American Heart Association

STANDING COMMITTEE MEETING 3/3/2020

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

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-6**; **M-5**; **L-0**; **I-0** 1b. Performance Gap: **H-7**; **M-4**; **L-0**; **I-0**

Rationale:

- This measure is supported by the American Heart Association/American Stroke Association 2018 Guidelines, which recommend that for patients eligible for intravenous alteplase, benefit of therapy is time dependent, and treatment should be initiated as quickly as possible (Class 1; Level A).
- Specifically, the door-to-needle time (time of bolus administration) should be within 60 minutes from hospital arrival (Class 1, Level B-nonrandomized).
- Despite some improvements, recent studies have shown that ~50% of patients receive tissue plasminogen activator treatment (alteplase) within the guideline-recommended 60-minute door-to-needle times, with a median door-to-needle time of 71 minutes).
- Recent testing data from 2016-2018 show that the mean performance score using data from the Get with the Guidelines (GWTG) registry increased from 53.5% to 76.1%.
- Data, stratified by age, sex, and race/ethnicity, indicate lower performance for women compared to men, and higher performance for some minorities but not others.

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

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

2a. Reliability: **H-1**; **M-10**; **L-0**; **I-0** 2b. Validity: **H-2**; **M-9**; **L-0**; **I-0**

Rationale:

- Empirical reliability testing at the performance measure score level was conducted via a signal-to-noise analysis using the beta-binomial model.
- Data used for testing included information from 1,619 of the 2,063 hospitals (78.5%) that reported data on this measure to the GWTG-Stroke registry and had at least one eligible patient for the measure between January 1, 2018 through December 31, 2018.
- The mean reliability for hospitals with at least one eligible patient was 0.76.
- Correlation analyses were conducted using *NQF #0437STK 04 Thrombolytic Therapy* and hypothesized that the higher the hospital performance on time to thrombolytic therapy (i.e., the percent treated with alteplase for acute ischemic stroke within 60 minutes of hospital arrival), the higher hospital performance on STK 04 (i.e., the percent of patients with acute ischemic stroke who arrive within two hours that are treated with alteplase within three hours).
- Hospitals included in the analysis had at least one patient in the denominator after exclusions and exceptions were removed.
- Data from the AHA/ASA 2018 GWTG Stroke Program were used to perform the correlation analysis for this measure.
- Time to Intravenous Thrombolytic Therapy (NQF 1952) was positively correlated with STK 04 Thrombolytic Therapy (NQF 0437) and found to be statistically significant: Coefficient of correlation = 0.43 (Moderate); P-value = <0.001; Number of shared hospitals based on hospital identifier = 1,612.
- Among the 1,619 included hospitals, there were a total of 12,379 exceptions and exclusions reported. The average number of exceptions and exclusions per hospital in this sample is 7.65. The proportion of exceptions to patients is 0.37. According to the results, 50% of hospitals had five or fewer exceptions and exclusions across eligible patients for the year under study.
- No risk adjustment was performed, as this is a process measure.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified; 3d. Data collection strategy can be implemented)

Rationale:

- These data are collected through a clinical registry, the GWTG Stroke registry.
- The developer states that there are no issues with data collection have been identified and no modifications have been made to this measure, as collected in the GWTG Stroke registry, due to issues with data collection, sampling, or cost.
- The data for this measure are abstracted from a record by someone other than the person obtaining original information (e.g., chart abstraction for quality measure or registry).

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Pass-11; No Pass-0** 4b. Usability: **H-8; M-3; L-0; I-0**

Rationale:

- This measure is used within a Professional Certification or Recognition Program - Stroke Hospital Recognition Program through the GWTG Stroke registry.
- This measure is used for the Quality Improvement with Benchmarking - Stroke Hospital Recognition Program.
- The developer reports that no feedback has been received regarding unintended consequences.

• The developer presented data demonstrating a mean performance score from the GWTG registry that increased from 26.4% to 66.2% (2008-2018).
5. Related and Competing Measures • The current measure captures acute ischemic stroke patients aged 18 years and older receiving intravenous alteplase 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. • This measure is similar to *NQF #0437 STK 04: Thrombolytic Therapy.* This measure captures the proportion of acute ischemic stroke patients who arrive at this hospital within two hours of time last known well for whom IV t-PA was initiated at this hospital within three hours of time last known well.
6. Standing Committee Recommendation for Endorsement: **Y-11**; **N-0**
7. Public and Member Comment • None
8. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X (July 28-29,2020)
9. Appeals

Appendix B: Neurology Portfolio—Use in Federal Programs[1]

*Measures currently endorsed with reserve status.

NQF #	Title	Federal Programs: Finalized or Implemented as of January 13, 2020
0434e*	STK 01: Venous Thromboembolism (VTE) Prophylaxis	No federal program usage specified for this measure.
0435e*	STK 02: Discharged on Antithrombotic Therapy	Medicare and Medicaid Electronic Health Record Incentive Program for Hospitals and Critical Access Hospitals
0436e*	STK 03: Anticoagulation Therapy for Atrial Fibrillation/Flutter	Medicare and Medicaid Electronic Health Record Incentive Program for Hospitals and Critical Access Hospitals
0437	STK 04: Thrombolytic Therapy	No federal program usage specified for this measure.
0437e	STK 04: Thrombolytic Therapy	Hospital Inpatient Quality Reporting
0438e*	STK 05: Antithrombotic Therapy By End of Hospital Day Two	Medicare and Medicaid Electronic Health Record Incentive Program for Hospitals and Critical Access Hospitals
0439e*	STK 06: Discharged on Statin Medication	Medicare and Medicaid Electronic Health Record Incentive Program for Hospitals and Critical Access Hospitals
0441e*	STK 10: Assessed for Rehabilitation	Medicare and Medicaid Electronic Health Record Incentive Program for Hospitals and Critical Access Hospitals
0467	Acute Stroke Mortality Rate (IQI 17)	No federal program usage specified for this measure.
0507	Diagnostic Imaging: Stenosis Measurement in Carotid Imaging Reports	Merit-Based Incentive Payment System (MIPS) Program
0661	Head CT or MRI Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan	Hospital Compare; Hospital Outpatient Quality Reporting

[1] Per CMS Measures Inventory Tool as of 1/13/2020

	Interpretation within 45 minutes of ED Arrival	
1952	Time to Intravenous Thrombolytic Therapy	No federal program usage specified for this measure.
2863	CSTK-06: Nimodipine Treatment Administered	No federal program usage specified for this measure.
2864	CSTK-01: National Institutes of Health Stroke Scale (NIHSS) Score Performed for Ischemic Stroke Patients	No federal program usage specified for this measure.
2866	CSTK-03: Severity Measurement Performed for Subarachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH) Patients (Overall Rate)	No federal program usage specified for this measure.
2872e	Dementia: Cognitive Assessment	Merit-Based Incentive Payment System (MIPS) Program
2877e	Hybrid hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute ischemic stroke hospitalization with risk adjustment for stroke severity	No federal program usage specified for this measure.

Appendix C: Neurology Standing Committee and NQF Staff

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Appendix D: Measure Specifications

	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
Steward	Centers for Medicare and Medicaid Services
Description	This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the emergency department (ED) within two hours of the onset of symptoms and have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan interpreted within 45 minutes of ED arrival. The measure is calculated using chart-abstracted data, on a rolling, quarterly basis and is publicly reported, in aggregate, for one calendar year. The measure has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012.
Type	Process
Data Source	Claims, Electronic Health Records, Paper Medical Records An electronic data collection tool is made available from vendors or facilities can download the free CMS Abstraction & Reporting Tool (CART). Paper tools for manual abstraction, which are posted on www.QualityNet.org, are also available for the CART tool. These tools are posted on www.QualityNet.org.
Level	Facility, Other
Setting	Emergency Department and Services
Numerator Statement	Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head CT or MRI scan whose time from ED arrival to interpretation of the Head CT scan is within 45 minutes of arrival.
Numerator Details	The numerator is defined by six evaluation and management (E/M) codes and 102 ICD-10-CM diagnosis codes included in the code set for this measure; these detailed lists can be found in the Excel workbook provided for Section S2b. The numerator includes patients age 18 or older who were last known well within two hours of ED arrival and had a head CT or MRI ordered and interpreted within 45 minutes of ED arrival. Numerator exceptions include: • Date Last Known Well is equal to UTD • Time Last Known Well is equal to UTD • Arrival Time is equal to UTD • Head CT Scan or MRI Interpretation Date is equal to UTD
Denominator Statement	Emergency department acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within two hours of the time last known well with an order for a head CT or MRI scan.
Denominator Details	The denominator is defined by six evaluation and management (E/M) codes and 104 ICD-10-CM diagnosis codes included in the code set for this measure; these detailed lists can be found in the Excel workbook provided for Section S2b. The denominator includes patients age 18 or older who were last known well within two hours of ED arrival and had a head CT or MRI ordered.
Exclusions	Studies are excluded for any patients under 18 years of age, patients who expired in the ED, or patients who left the ED against medical advice or discontinued care.
Exclusion details	Studies are excluded for any patients that meet any of the following criteria: • Patients less than 18 years of age • Patients who expired (discharge code = 6)

	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
	• Patients who left the emergency department against medical advice or discontinued care (discharge code = 7 or 8)
Risk Adjustment	No risk adjustment or risk stratification
Stratification	Not applicable; this measure does not stratify its results.
Type Score	Rate/proportion better quality = higher score
Algorithm	This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the ED within two hours of the onset of symptoms and have a head CT or MRI interpreted within 45 minutes of ED arrival. The measure is calculated based on four consecutive quarters of hospital outpatient claims data, as follows: 1. Check E/M Code; if on Table 1.0 (in the Excel workbook provided for Section S2b), proceed 2. Calculate Patient Age (Outpatient Encounter Date - Birthdate) 3. Check Patient Age; if >= 18, proceed 4. Check ICD-10-CM Principal Diagnosis Code; if on Table 8.0 (in the Excel workbook provided for Section S2b), proceed 5. Check Discharge Code; exclude any patients with code 6, 7, or 8 6. Check Head CT or MRI Scan Order; if "Yes," proceed 7. Check Last Known Well; if "Yes," proceed 8. Check Date Last Known Well; if a Non-Unable to Determine (UTD) value, proceed 9. Check Time Last Known Well; if a Non-UTD value, proceed 10. Check Arrival Time; if a Non-UTD value, proceed 11. Calculate measurement value (Arrival Time minus Time Last Known Well) 12. Check measurement value; if >= 0 min and <= 120 min, record as the denominator and proceed 13. Check Head CT or MRI Scan Interpretation Date; if a Non-Unable to Determine (UTD) value, proceed 14. Check Head CT or MRI Scan Interpretation Time; if a Non-Unable to Determine (UTD) value, proceed 15. Calculate measurement value (Arrival Time minus Head CT or MRI Scan Interpretation Time) 16. Check measurement value; if >= 0 min and <= 45 min, record as the numerator 17. Aggregate denominator and numerator counts by Medicare provider number Measure = numerator counts / denominator counts [The value should be recorded as a percentage] 109316| 130761| 138817| 138553| 141592| 146188| 113612| 150979| 151003| 141015
Copyright / Disclaimer	This measure does not have a copyright.

	1952 Time to Intravenous Thrombolytic Therapy
Steward	American Heart Association
Description	Percent of acute ischemic stroke patients receiving intravenous alteplase therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy (door-to-needle time) of 60 minutes or less
Type	Process
Data Source	Registry Data Get with the Guidelines Stroke Data Collection Form. This is a paper version of the electronic data collection tool which is called the Patient Management Tool (PMT).
Level	Facility
Setting	Inpatient/Hospital
Numerator Statement	Patients who receive IV alteplase at my hospital within 60 minutes after arrival
Numerator Details	All denominator patients with the following: ['Date/time IV alteplase initiated' minus 'Arrival Date/Time'] <= 60 minutes **Data elements referenced align with information found in Appendix A.1. 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment.
Denominator Statement	All patients with a final clinical diagnosis of ischemic stroke who received IV alteplase at my hospital
Denominator Details	An ICD-10-CM Principal Diagnosis Code for acute ischemic stroke: Diagnosis for ischemic stroke ICD-10-CM: I63.00, I63.011, I63.012, I63.013, I63.019, I63.02, I63.031, I63.032, I63.033, I63.039, I63.09, I63.10, I63.111, I63.112, I63.113, I63.119, I63.12, I63.131, I63.132, I63.133, I63.139, I63.19, I63.20, I63.211, I63.212, I63.213, I63.219, I63.22, I63.231, I63.232, I63.233, I63.239, I63.29, I63.30, I63.311, I63.312, I63.313, I63.319, I63.321, I63.322,I63.323, I63.329, I63.331, I63.332, I63.333, I63.339, I63.341, I63.342, I63.343, I63.349, I63.39, I63.40, I63.411, I63.412, I63.413, I63.419, I63.421, I63.422, I63.423, I63.429, I63.431, I63.432, I63.433, I63.439, I63.441, I63.442, I63.443, I63.449, I63.49, I63.50, I63.511, I63.512, I63.513, I63.519, I63.521, I63.522, I63.523, I63.529, I63.531, I63.532, I63.533, I63.539, I63.541, I63.542, I63.543, I63.549, I63.59, I63.6, I63.81, I63.89, I63.9 OR: 'Final Clinical Dx. of stroke' = Ischemic Stroke AND: 'IV alteplase initiated at this hospital' = Yes* *Thrombolytic therapy for stroke includes: Activase, Alteplase, IV Alteplase, or Recombinant Alteplase **Data elements referenced align with information found in Appendix A.1 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment
Exclusions	Denominator exclusions: • Age < 18 years • Stroke occurred after hospital arrival (in ED/Obs/inpatient) • Patients whose date/time of ED arrival and/or date/time of IV alteplase administration is blank, unknown, or MM/DD/YYYY only. • Patients with a negative calculated time difference • Patients with a Date Last Known Well, but no time Last Known Well • Patients that receive IV alteplase greater than 4.5 hours after Last Known Well • Patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit • Clinical Trial

	Denominator exceptions: • Patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment
Exclusion details	The AHA/ASA follows the PCPI methodology in distinguishing between denominator exceptions and denominator exclusions. Denominator exclusions arise when the clinical action indicated in the numerator is not appropriate for a particular group of patients who otherwise meet the denominator criteria. These are absolute and would be removed from the denominator of a measure in order to determine the eligible population. Exclusions are included in the measure specifications. Denominator exceptions are used to remove a patient from the denominator when the patient does not receive the action required in the numerator AND that action would not be appropriate due to a patient-specific reason(s). The patient would otherwise meet the denominator criteria. Exceptions are not absolute and are based on clinical judgment or individual patient characteristics or preferences. The PCPI methodology includes two categories of exceptions for which a patient may be removed from the denominator of an individual measure: 1) medical OR 2) patient or non-medical reasons. These exception categories are not uniformly relevant across all measures. The denominator exception language may include specific examples of instances that may constitute an exception, which are intended to serve as a guide to hospitals. For measure #1952, Time to Intravenous Thrombolytic Therapy, the exception is patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment. For example, Eligibility reasons include social/religious, initial refusal, and care-team unable to determine eligibility. Medical reasons include hypertension requiring aggressive control with IV medications, further diagnostic evaluation to confirm stroke for patients with hypoglycemia (blood glucose < 50), seizures, or major metabolic disorders, and management of concomitant emergent/acute conditions such as cardiopulmonary arrest, respiratory failure (requiring intubation). Although this methodology does not require the external reporting of more detailed exception data, the AHA/ASA recommends that hospitals document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The AHA/ASA also advocates for the systematic review and analysis of each hospital's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details are as follows: Measure Exclusions: 'Age' < 18 years OR 'Patient location when stroke symptoms discovered' = stroke occurred after hospital 'Arrival Date/Time' OR 'Date/time IV alteplase initiated' < 'Arrival Date/Time' OR ['Date/time IV alteplase initiated' minus 'Date/Time Last Known Well'] > 4.5 hours OR 'IV alteplase at an outside hospital or EMS / Mobile Stroke Unit' = Yes OR 'During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied' = Yes OR If any of the following is unknown, blank, or incomplete (aka, missing time): 'Arrival Date/Time', 'Date/time IV alteplase initiated' OR

	'Date/time Last Known Well' = Date included but time is blank or unknown Measure Exceptions: ['Date/time IV alteplase initiated' minus 'Arrival Date/Time'] > 60 minutes AND Eligibility Reason OR Medical Reason = Present **Data elements referenced align with information found in appendix A.1 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment.
Risk Adjustment	No risk adjustment or risk stratification
Stratification	Consistent with CMS' Measures Management System Blueprint and national recommendations put forth by the IOM (now NASEM) and NQF to standardize the collection of race and ethnicity data, we encourage the results of this measure to be stratified by race, ethnicity, administrative sex, and payer.
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-10 principal diagnosis of ischemic stroke; exclude those patients without an appropriate diagnosis code. 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 less than 18 years of age 4) Check to see if patient is enrolled in a clinical trial; exclude those patients who were enrolled, at the time of the hospital stay, in a clinical trial related to the study of patients with the same condition as the measure or measure set. 5) Check to see if patient arrival date is documented; exclude those patients for which arrival date is unable to be determined (blank/unknown/ or MM/DD/YYYY only) 6) Check to see if patient arrival time is documented; exclude those patients for which arrival time is unable to be determined (blank, unknown, or MM/DD/YYYY only) 7) Check to see if patient received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit; exclude those patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit 8) Check to see if patient had IV alteplase initiated; exclude those patients for whom IV alteplase was not initiated 9) Check IV alteplase initiation date; exclude those patients for which alteplase initiation date is unable to be determined (blank, unknown, or MM/DD/YYYY only) 10) Check IV alteplase initiation time; exclude those patients for which alteplase initiation time is unable to be determined (blank, unknown, or MM/DD/YYYY only) 11) IV alteplase Initiation Date/Time should not be less than (aka, should not be documented as occurring prior to) hospital arrival date/time; exclude those patients for whom arrival IV alteplase initiation date/time is less than hospital arrival date/time 12) Check to see date/time last known well; exclude patients for whom time last known well is unable to be determined (blank/unknown) 13) Check to see timing in hours. Timing (IV Alteplase Initiation Date/Time - Date/Time Last Known well) 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 alteplase therapy time (IV Alteplase Initiation Date/Time - Arrival Date/Time) is less than or equal to 60 minutes. If time was greater than 60 minutes, determine if patient had a valid documented exception/reason for delay. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure.

	For detailed measure algorithm see attached within the Appendix. 133700| 107246| 140560
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Appendix E: Related and Competing Measures

Comparison of NQF # 0661 and NQF #1952

	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	1952: Time to Intravenous Thrombolytic Therapy
Steward	Centers for Medicare and Medicaid Services	American Heart Association
Description	This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the emergency department (ED) within two hours of the onset of symptoms and have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan interpreted within 45 minutes of ED arrival. The measure is calculated using chart-abstracted data, on a rolling, quarterly basis and is publicly reported, in aggregate, for one calendar year. The measure has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012.	Percent of acute ischemic stroke patients receiving intravenous alteplase therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy (door-to-needle time) of 60 minutes or less
Type	Process	Process
Data Source	Claims, Electronic Health Records, Paper Medical Records An electronic data collection tool is made available from vendors or facilities can download the free CMS Abstraction & Reporting Tool (CART). Paper tools for manual abstraction, which are posted on www.QualityNet.org, are also available for the CART tool. These tools are posted on www.QualityNet.org. No data collection instrument provided Attachment AppendixA_v12.0a_010119_0930190.xlsx	Registry Data Get with the Guidelines Stroke Data Collection Form. This is a paper version of the electronic data collection tool which is called the Patient Management Tool (PMT). Available in attached appendix at A.1 Attachment Time_to_Thrombolytic_Data_Dictionary_Updated_07152019.xlsx
Level	Facility, Other	Facility
Setting	Emergency Department and Services	Inpatient/Hospital
Numerator Statement	Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head CT or MRI scan whose time from ED arrival to interpretation of the Head CT scan is within 45 minutes of arrival.	Patients who receive IV alteplase at my hospital within 60 minutes after arrival
Numerator Details	The numerator is defined by six evaluation and management (E/M) codes and 102 ICD-10-CM diagnosis codes included in the code set for this measure; these detailed lists can be found in the Excel workbook provided for Section S2b. The numerator includes patients age 18 or older who were last known well within two hours of ED arrival and had a head CT or MRI ordered and	All denominator patients with the following: ['Date/time IV alteplase initiated' minus 'Arrival Date/Time'] <= 60 minutes **Data elements referenced align with information found in Appendix A.1. 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment.

	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	1952: Time to Intravenous Thrombolytic Therapy
	interpreted within 45 minutes of ED arrival. Numerator exceptions include: • Date Last Known Well is equal to UTD • Time Last Known Well is equal to UTD • Arrival Time is equal to UTD • Head CT Scan or MRI Interpretation Date is equal to UTD	
Denominator Statement	Emergency department acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within two hours of the time last known well with an order for a head CT or MRI scan.	All patients with a final clinical diagnosis of ischemic stroke who received IV alteplase at my hospital
Denominator Details	The denominator is defined by six evaluation and management (E/M) codes and 104 ICD-10-CM diagnosis codes included in the code set for this measure; these detailed lists can be found in the Excel workbook provided for Section S2b. The denominator includes patients age 18 or older who were last known well within two hours of ED arrival and had a head CT or MRI ordered.	An ICD-10-CM Principal Diagnosis Code for acute ischemic stroke: Diagnosis for ischemic stroke ICD-10-CM: I63.00, I63.011, I63.012, I63.013, I63.019, I63.02, I63.031, I63.032, I63.033, I63.039, I63.09, I63.10, I63.111, I63.112, I63.113, I63.119, I63.12, I63.131, I63.132, I63.133, I63.139, I63.19, I63.20, I63.211, I63.212, I63.213, I63.219, I63.22, I63.231, I63.232, I63.233, I63.239, I63.29, I63.30, I63.311, I63.312, I63.313, I63.319, I63.321, I63.322,I63.323, I63.329, I63.331, I63.332, I63.333, I63.339, I63.341, I63.342, I63.343, I63.349, I63.39, I63.40, I63.411, I63.412, I63.413, I63.419, I63.421, I63.422, I63.423, I63.429, I63.431, I63.432, I63.433, I63.439, I63.441, I63.442, I63.443, I63.449, I63.49, I63.50, I63.511, I63.512, I63.513, I63.519, I63.521, I63.522, I63.523, I63.529, I63.531, I63.532, I63.533, I63.539, I63.541, I63.542, I63.543, I63.549, I63.59, I63.6, I63.81, I63.89, I63.9 OR: 'Final Clinical Dx. of stroke' = Ischemic Stroke AND: 'IV alteplase initiated at this hospital' = Yes* *Thrombolytic therapy for stroke includes: Activase, Alteplase, IV Alteplase, or Recombinant Alteplase **Data elements referenced align with information found in Appendix A.1 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment
Exclusions	Studies are excluded for any patients under 18 years of age, patients who expired in the ED, or patients who left the ED against medical advice or discontinued care.	Denominator exclusions: • Age < 18 years • Stroke occurred after hospital arrival (in ED/Obs/inpatient) • Patients whose date/time of ED arrival and/or date/time of IV alteplase administration is blank, unknown, or MM/DD/YYYY only.

	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	1952: Time to Intravenous Thrombolytic Therapy
		• Patients with a negative calculated time difference • Patients with a Date Last Known Well, but no time Last Known Well • Patients that receive IV alteplase greater than 4.5 hours after Last Known Well • Patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit • Clinical Trial Denominator exceptions: • Patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment
Exclusion Details	Studies are excluded for any patients that meet any of the following criteria: • Patients less than 18 years of age • Patients who expired (discharge code = 6) • Patients who left the emergency department against medical advice or discontinued care (discharge code = 7 or 8)	The AHA/ASA follows the PCPI methodology in distinguishing between denominator exceptions and denominator exclusions. Denominator exclusions arise when the clinical action indicated in the numerator is not appropriate for a particular group of patients who otherwise meet the denominator criteria. These are absolute and would be removed from the denominator of a measure in order to determine the eligible population. Exclusions are included in the measure specifications. Denominator exceptions are used to remove a patient from the denominator when the patient does not receive the action required in the numerator AND that action would not be appropriate due to a patient-specific reason(s). The patient would otherwise meet the denominator criteria. Exceptions are not absolute and are based on clinical judgment or individual patient characteristics or preferences. The PCPI methodology includes two categories of exceptions for which a patient may be removed from the denominator of an individual measure: 1) medical OR 2) patient or non-medical reasons. These exception categories are not uniformly relevant across all measures. The denominator exception language may include specific examples of instances that may constitute an exception, which are intended to serve as a guide to hospitals. For measure #1952, Time to Intravenous Thrombolytic Therapy, the exception is patients who received IV alteplase greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment. For example, Eligibility reasons

	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	1952: Time to Intravenous Thrombolytic Therapy
		include social/religious, initial refusal, and care-team unable to determine eligibility. Medical reasons include hypertension requiring aggressive control with IV medications, further diagnostic evaluation to confirm stroke for patients with hypoglycemia (blood glucose < 50), seizures, or major metabolic disorders, and management of concomitant emergent/acute conditions such as cardiopulmonary arrest, respiratory failure (requiring intubation). Although this methodology does not require the external reporting of more detailed exception data, the AHA/ASA recommends that hospitals document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The AHA/ASA also advocates for the systematic review and analysis of each hospital's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details are as follows: Measure Exclusions: 'Age' < 18 years OR 'Patient location when stroke symptoms discovered' = stroke occurred after hospital 'Arrival Date/Time' OR 'Date/time IV alteplase initiated' < 'Arrival Date/Time' OR ['Date/time IV alteplase initiated' minus 'Date/Time Last Known Well'] > 4.5 hours OR 'IV alteplase at an outside hospital or EMS / Mobile Stroke Unit' = Yes OR 'During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied' = Yes OR If any of the following is unknown, blank, or incomplete (aka, missing time): 'Arrival Date/Time', 'Date/time IV alteplase initiated' OR 'Date/time Last Known Well' = Date included but time is blank or unknown

	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	1952: Time to Intravenous Thrombolytic Therapy
		Measure Exceptions: ['Date/time IV alteplase initiated' minus 'Arrival Date/Time'] > 60 minutes AND Eligibility Reason OR Medical Reason = Present **Data elements referenced align with information found in appendix A.1 'TimetoIntravenousThrombolyticTherapySpecDataCollectionForm_07152019.pdf' attachment.
Risk Adjustment	No risk adjustment or risk stratification	No risk adjustment or risk stratification
Stratification	Not applicable; this measure does not stratify its results.	Consistent with CMS' Measures Management System Blueprint and national recommendations put forth by the IOM (now NASEM) and NQF to standardize the collection of race and ethnicity data, we encourage the results of this measure to be stratified by race, ethnicity, administrative sex, and payer.
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patients who arrive at the ED within two hours of the onset of symptoms and have a head CT or MRI interpreted within 45 minutes of ED arrival. The measure is calculated based on four consecutive quarters of hospital outpatient claims data, as follows: 1. Check E/M Code; if on Table 1.0 (in the Excel workbook provided for Section S2b), proceed 2. Calculate Patient Age (Outpatient Encounter Date - Birthdate) 3. Check Patient Age; if >= 18, proceed 4. Check ICD-10-CM Principal Diagnosis Code; if on Table 8.0 (in the Excel workbook provided for Section S2b), proceed 5. Check Discharge Code; exclude any patients with code 6, 7, or 8 6. Check Head CT or MRI Scan Order; if "Yes," proceed 7. Check Last Known Well; if "Yes," proceed 8. Check Date Last Known Well; if a Non-Unable to Determine (UTD) value, proceed 9. Check Time Last Known Well; if a Non-UTD value, proceed	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-10 principal diagnosis of ischemic stroke; exclude those patients without an appropriate diagnosis code. 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 less than 18 years of age 4) Check to see if patient is enrolled in a clinical trial; exclude those patients who were enrolled, at the time of the hospital stay, in a clinical trial related to the study of patients with the same condition as the measure or measure set. 5) Check to see if patient arrival date is documented; exclude those patients for which arrival date is unable to be determined (blank/unknown/ or MM/DD/YYYY only) 6) Check to see if patient arrival time is documented; exclude those patients for which arrival time is unable to be determined (blank, unknown, or MM/DD/YYYY only) 7) Check to see if patient received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit;

	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	1952: Time to Intravenous Thrombolytic Therapy
	10. Check Arrival Time; if a Non-UTD value, proceed 11. Calculate measurement value (Arrival Time minus Time Last Known Well) 12. Check measurement value; if >= 0 min and <= 120 min, record as the denominator and proceed 13. Check Head CT or MRI Scan Interpretation Date; if a Non-Unable to Determine (UTD) value, proceed 14. Check Head CT or MRI Scan Interpretation Time; if a Non-Unable to Determine (UTD) value, proceed 15. Calculate measurement value (Arrival Time minus Head CT or MRI Scan Interpretation Time) 16. Check measurement value; if >= 0 min and <= 45 min, record as the numerator 17. Aggregate denominator and numerator counts by Medicare provider number Measure = numerator counts / denominator counts [The value should be recorded as a percentage]	exclude those patients who received IV alteplase at an outside hospital or by EMS/Mobile Stroke Unit 8) Check to see if patient had IV alteplase initiated; exclude those patients for whom IV alteplase was not initiated 9) Check IV alteplase initiation date; exclude those patients for which alteplase initiation date is unable to be determined (blank, unknown, or MM/DD/YYYY only) 10) Check IV alteplase initiation time; exclude those patients for which alteplase initiation time is unable to be determined (blank, unknown, or MM/DD/YYYY only) 11) IV alteplase Initiation Date/Time should not be less than (aka, should not be documented as occurring prior to) hospital arrival date/time; exclude those patients for whom arrival IV alteplase initiation date/time is less than hospital arrival date/time 12) Check to see date/time last known well; exclude patients for whom time last known well is unable to be determined (blank/unknown) 13) Check to see timing in hours. Timing (IV Alteplase Initiation Date/Time - Date/Time Last Known well) 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 alteplase therapy time (IV Alteplase Initiation Date/Time - Arrival Date/Time) is less than or equal to 60 minutes. If time was greater than 60 minutes, determine if patient had a valid documented exception/reason for delay. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. For detailed measure algorithm see attached within the Appendix.
Submission items	5.1 Identified measures: 0437 : STK 04: Thrombolytic Therapy 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: Although NQF #0437 (used in the Hospital Inpatient Quality Reporting [HIQR] Program) is similar to NQF #0661 (Hospital OQR), the two measures serve	5.1 Identified measures: 0437 : STK 04: Thrombolytic Therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measure #1952 assesses the percentage of patients who received alteplase within 60 minutes of door-to-needle, amongst patients who received alteplase within 4.5

	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	1952: Time to Intravenous Thrombolytic Therapy
	different target populations and purposes: the Hospital OQR measure focuses on imaging in the ED setting, while the HIQR measure focuses on administration of thrombolytic therapy in an inpatient setting. Both measures do, however, share a number of key data elements (i.e., Last Known Well, Date Last Known Well, Time Last Known Well, and Arrival Time). The specifications for the two measures are generally aligned, where possible. As appropriate, the measure maintenance team for the Hospital OQR measure (NQF #0661) incorporates specification updates added by the measure maintenance team for the HIQR measure (NQF #0437) to maintain harmonization (e.g., updates to the appropriate ICD-10 codes to determine measure inclusion). The measure-maintenance teams for both reporting programs meet periodically to resolve any inconsistencies in the interpretation or guidance provided for the shared data elements. While the ICSI measure is related to NQF #0661, it focuses on head CT completion, which is an intermediate step for head CT interpretation (NQF #0661). NQF #0661 includes an additional imaging modality—MRI interpretation. Details about the measure algorithm, data elements, and measure specifications for the ICSI measure are not readily available to compare. 5b.1 If competing, why superior or rationale for additive value: We did not identify any competing measures that address both the same measure focus and target population as NQF #0661.	hours. This measure focuses on the timely administration of alteplase rather than whether the treatment should be administered. Data demonstrates that shortening door-to-needle times improves outcomes for acute ischemic stroke. Conversely, Measure #0437 assesses whether therapy was administered in eligible patients. As a result, the specifications differ where needed based on different populations and different focal points of the measure. 5b.1 If competing, why superior or rationale for additive value: Not applicable

Appendix F: Pre-Evaluation Comments

No NQF member comments were received during the pre-commenting period.

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