



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 2866

Corresponding Measures:

De.2. Measure Title: CSTK-03: Severity Measurement Performed for Subarachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH) Patients (Overall Rate)

Co.1.1. Measure Steward: The Joint Commission

De.3. Brief Description of Measure: Proportion of SAH and ICH stroke patients age 18 years or older for whom a severity measurement (i.e., Hunt and Hess Scale for SAH patients or ICH Score for ICH patients) is performed prior to surgical intervention (e.g., clipping, coiling, or any surgical intervention) in patients undergoing surgical intervention and documented in the medical record; OR, documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

This is the third measure in a set of measures developed for Joint Commission Comprehensive Stroke Certification. Although it is not required that these measures are reported in conjunction with each other, The Joint Commission develops measures in sets in order to provide as comprehensive a view of quality for a particular clinical topic as possible.

1b.1. Developer Rationale: Subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) are medical emergencies requiring rapid diagnosis and assessment. Early deterioration is common in the first few hours after onset, and associated with increased mortality rates of > 75% compared to 30-day mortality rates of 35%-52%. More than half of all deaths from these conditions occur within the first two days.

According to the American Heart Association/American Stroke Association, the severity of SAHs should be documented with the Hunt and Hess Scale (Connolly, 2012), and the severity of ICHs (Broderick, 2007) should be documented with ICH score to capture the clinical state of the patient. The severity of initial neurological injury should be determined and documented in the emergency department because it is a useful predictor of outcome and helpful in planning future care with family and physicians. For both severity methodologies, higher scores are associated with increased mortality.

S.4. Numerator Statement: CSTK-03 The number of SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

CSTK-03a The number of SAH stroke patients for whom a Hunt and Hess Scale is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

CSTK-03b The number of ICH stroke patients for whom an ICH Score is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

S.6. Denominator Statement: SAH and ICH stroke patients.

S.8. Denominator Exclusions: • Patients less than 18 years of age

• Patients who have a Length of Stay greater than 120 days

• Patients with Comfort Measures Only documented on the day of or day after hospital arrival

• Non-surgical patients discharged within 6 hours of arrival at this hospital

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- Patients with admitting diagnosis of traumatic brain injury (TBI), unruptured arteriovenous malformation (AVM), and non-traumatic subdural hematoma (ICD-9-CM Other Diagnosis Codes as defined in Appendix A, Table 8.2f)
- Patients who have an ICD-10-CM Principal Diagnosis Code in Appendix A, Table 8.2a Subarachnoid Hemorrhage assigned at discharge and documentation of non-aneurysmal SAH or SAH related to head trauma any time during the hospital stay

De.1. Measure Type: [Process](#)

S.17. Data Source: [Electronic Health Records, Paper Medical Records](#)

S.20. Level of Analysis: [Facility, Other](#)

IF Endorsement Maintenance – Original Endorsement Date: [Sep 23, 2016](#) Most Recent Endorsement Date: [Sep 23, 2016](#)

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? [Not Applicable](#)

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. ***Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.***

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[CSTK-03_Measure__Evidence_6.5.docx](#)

1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.

Subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) are medical emergencies requiring rapid diagnosis and assessment. Early deterioration is common in the first few hours after onset, and associated with increased mortality rates of > 75% compared to 30-day mortality rates of 35%-52%. More than half of all deaths from these conditions occur within the first two days.

According to the American Heart Association/American Stroke Association, the severity of SAHs should be documented with the Hunt and Hess Scale (Connolly, 2012), and the severity of ICHs (Broderick, 2007) should be documented with ICH score to capture the clinical state of the patient. The severity of initial neurological injury should be determined and documented in the emergency department because it is a useful predictor of outcome and helpful in planning future care with family and physicians. For both severity methodologies, higher scores are associated with increased mortality.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (*This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.*) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

[Pilot Test Findings:](#)

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During the six-month pilot test (October 1, 2012-March 31, 2013), sixty-six sites submitted data for 10,218 completed patient records. For this measure, 2471 cases were assigned an ICD-9-CM Principal Diagnosis Code of 430 Subarachnoid Hemorrhage or 431 Intracerebral Hemorrhage at discharge and captured in the denominator population, and 485 of these cases met the numerator requirements. The performance rates varied widely across sites for this measure with results ranging from a low of 0% to a high of 100%. The average rate for all sites collecting data for this measure was 19.63%, indicating a potential performance gap of approximately 80% if the optimal rate is 100%.

In January, 2015, The Joint Commission implemented data collection for the comprehensive stroke (CSTK) measure set to meet performance measurement requirements for its Comprehensive Stroke Certification Program. Below is the specified level of analysis for CSTK-03 Severity Measurement for SAH and ICH Patients for the two quarters of data received to date for this measure.

1Q 2015 (Overall Rate): 1786 denominator cases; 1042 numerator cases; 39 hospitals; 0.58343 national aggregate rate; 0.58578 mean of hospital rates; 0.2295 standard deviation; 0.86057 90th percentile rate; 0.78049 75th percentile rate/upper quartile; 0.58333 50th percentile rate/median rate; 0.42857 25th percentile rate/lower quartile; and, 0.23684 10th percentile rate.

1Q 2015 (SAH): 578 denominator cases; 362 numerator cases; 39 hospitals; 0.6263 national aggregate rate; 0.63778 mean of hospital rates; 0.25176 standard deviation; 0.95455 90th percentile rate; 0.8 75th percentile rate/upper quartile; 0.66667 50th percentile rate/median rate; 0.5 25th percentile rate/lower quartile; and, 0.22222 10th percentile rate.

1Q 2015 (ICH): 1208 denominator cases; 680 numerator cases; 39 hospitals; 0.56291 national aggregate rate; 0.55635 mean of hospital rates; 0.2585 standard deviation; 0.88889 90th percentile rate; 0.76667 75th percentile rate/upper quartile; 0.55 50th percentile rate/median rate; 0.42424 25th percentile rate/lower quartile; and, 0.2 10th percentile rate.

2Q 2015 (Overall Rate): 2310 denominator cases; 1443 numerator cases; 51 hospitals; 0.62468 national aggregate rate; 0.65156 mean of hospital rates; 0.23596 standard deviation; 0.90323 90th percentile rate; 0.82432 75th percentile rate/upper quartile; 0.73913 50th percentile rate/median rate; 0.4901 25th percentile rate/lower quartile; and, 0.2931 10th percentile rate.

2Q 2015 (SAH): 854 denominator cases; 572 numerator cases; 51 hospitals; 0.66979 national aggregate rate; 0.67815 mean of hospital rates; 0.25727 standard deviation; 1.0 90th percentile rate; 0.88 75th percentile rate/upper quartile; 0.72727 50th percentile rate/median rate; 0.52174 25th percentile rate/lower quartile; and, 0.33333 10th percentile rate.

2Q 2015 (ICH): 1456 denominator cases; 871 numerator cases; 51 hospitals; 0.59821 national aggregate rate; 0.62517 mean of hospital rates; 0.26669 standard deviation; 0.875 90th percentile rate; 0.83333 75th percentile rate/upper quartile; 0.725 50th percentile rate/median rate; 0.42857 25th percentile rate/lower quartile; and, 0.25 10th percentile rate.

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

Citation:

Brain Aneurysm Foundation. Understanding: Brain Aneurysm Statistics and Facts.
[http:// www.bafound.org/Statistics_and_Facts](http://www.bafound.org/Statistics_and_Facts). Published 2014. Accessed June 5, 2014.

Summary:

Accurate early diagnosis is critical, as the initial hemorrhage may be fatal, may result in devastating neurologic outcomes, or may produce minor symptoms. Despite widespread neuroimaging availability, misdiagnosis or delays in diagnosis occurs in up to 25% of patients with subarachnoid hemorrhage (SAH) when initially presenting for medical treatment. Failure to do a scan results in 73% of these misdiagnoses. This makes SAH a low-frequency, high-risk disease.

Citation:

Mayer PL, Awad IA, Todor R, et. al. Misdiagnosis of symptomatic cerebral aneurysm: prevalence and correlation with outcome at four institutions. *Stroke*. 1996;27:1558-1563.

Summary:

Data analyzed: 1990's; 4 Connecticut, U.S. neurosurgical units; 217 SAH patients. Fifty-four (25%) of patients with subarachnoid

hemorrhage initially received an incorrect diagnosis; most of them were in good clinical condition at presentation. The condition of the 54 patients with incorrect diagnosis worsened, usually as a result of recurrent bleeding, before definitive treatment was begun. Of the 163 patients given a correct diagnosis, the condition of only 2.5% worsened.

Citation:

Kowalski RG, Claassen J, Kreiter KT, Bates JE, Ostapkovich ND, Connolly ES, Mayer SA. Initial misdiagnosis and outcome after subarachnoid hemorrhage. JAMA. 2004 Feb 18;291(7): 866-869.

Summary:

Data analyzed: August 1996 – August 2001; U.S. tertiary care urban hospital; 482 SAH patients. Misdiagnosis of SAH occurred in 12% of patients and was associated with a smaller hemorrhage and normal mental status. Among individuals who initially present in good condition, misdiagnosis is associated with increased mortality and morbidity.

Citation:

Vermeulen MJ, Schull MJ. Missed diagnosis of subarachnoid hemorrhage in the emergency department. Stroke. 2007;38:1216-1221.

Summary:

Data analyzed: April 1, 2002 – March 31, 2005; 176 Canadian hospitals with emergency departments (EDs); 1603 patients hospitalized with a diagnosis of nontraumatic SAH. Among all nontraumatic SAH patients admitted to an Ontario hospitals, 5.4% had been misdiagnosed on a prior visit to an ED. About 1 in 20 persons with SAH are missed on their first presentation to an ED, and the risk is greater in patients with low acuity presentations.

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

This is the initial submission of this measure.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4

Brain Aneurysm Foundation. Understanding: Brain Aneurysm Statistics and Facts.
[http:// www.bafound.org/Statistics_and_Facts](http://www.bafound.org/Statistics_and_Facts). Published 2014. Accessed June 5, 2014.

Ruptured brain aneurysms account for 3-5% of all new strokes. Women compared to men suffer from brain aneurysms at a ratio of 3:2.

Morgenstern LB, Smith MA, Lisabeth LD, Risser JM, Uchino K, Garcia N, Longwell PJ, McFarling DA, Akuwumi O, Al-Wabil A, Al-Senani F, Brown DL, Moyé LA. Excess Stroke in Mexican Americans compared with non-Hispanic Whites: the Brain Attack Surveillance in Corpus Christi Project. Am J Epidemiol. 2004 Aug 15;160(4):376-383.

The project studied 2,350 cerebrovascular events occurring from January 2000 to December 2002 in Nueces County, Texas. Of the completed strokes, 53% were in Mexican Americans. The crude cumulative incidence was 168/10,000 in Mexican Americans and 136/10,000 in non-Hispanic Whites. Mexican Americans experienced a higher incidence of intracerebral hemorrhage and subarachnoid hemorrhage than non-Hispanic whites, adjusted for age. Intracerebral hemorrhage was more common in Mexican Americans (age-adjusted risk ratio = 1.63, 95% confidence interval: 1.24, 2.16). The subarachnoid risk age-adjusted risk ratio was 1.57 (95% confidence interval: 0.86, 2.89).

Schievink WI, Riedinger M, Jhutti TK, Simon P. Racial disparities in subarachnoid hemorrhage mortality: Los Angeles County,

California, 1985-1998. *Neuroepidemiology*. 2004 Nov-Dec;23(6):299-305.

The number of SAH deaths was 2,897. The age-adjusted SAH mortality rate was 1.9 in whites, 2.7 in Hispanics, 3.0 in Asians and 3.7 in blacks. In those younger than 70 years of age, the SAH mortality rate among blacks was 2.2 times that of whites and 1.8 times that of Hispanics and Asians. The SAH mortality rate declined after age 70 in blacks. The SAH mortality rate was higher in women than in men in all races and it was highest in elderly Asian women (23.5 per 100,000). An inverse relationship was observed between income and SAH mortality rates in all racial groups except whites.

Jaja BNR, Saposnik G, Nisenbaum R, Lo BWY, Schweizer TA, Thorpe KE, Macdonald RL. Racial/ethnic differences in outcomes following subarachnoid hemorrhage. 2013 Sep 10; DOI: 10.3171/2013.7.JNS13544.

Using 2005-2010 data from the Nationwide Inpatient Sample, Jaja and colleagues conducted a cross-sectional study of hospital discharges for patients whose principal diagnosis was SAH unrelated to trauma (n=31,631). In this study, inpatient mortality was the primary outcome and discharge to institutional care was the secondary outcome. The researchers found a crude inpatient mortality rate of 22% and a 42% rate of hospital discharge to institutional care. Multivariable analyses identified race/ethnicity as a significant predictor of both inpatient mortality (p=0.003) and discharge to institutional care (p < 0001). Hispanic, black, Native American, and Asian/Pacific Islander patients were compared to whites. The study found that Hispanic patients were the least likely to have a poor outcome, and Asian/Pacific Islander patients were most likely to have a poor outcome.

Stansbury JP, Jia H, Williams LS, Vogel WB, Duncan PW. Ethnic disparities in stroke: epidemiology, acute care, and postacute outcomes. *Stroke*. 2005;36:374-386.

In Stansbury's, et. al., analysis of current literature, it was noted that the mortality rates with ICH for blacks and Asian/Pacific Islanders were 1.7- and 1.5-times those of whites in 1995 to 1998 data, and the rates from SAH were higher for all ethnic minorities. Black stroke mortality was the highest across all stroke types in all but the eldest age groups.

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. ***Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.***

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):

Neurology : Stroke/Transient Ischemic Attack (TIA)

De.6. Non-Condition Specific(check all the areas that apply):

Care Coordination, Health and Functional Status : Change

De.7. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Elderly, Populations at Risk

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

https://www.jointcommission.org/specifications_manual_joint_commission_national_quality_core_measures.aspx

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of

the specifications)

This is not an eMeasure Attachment:

S.2b. Data Dictionary, Code Table, or Value Sets (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

No data dictionary Attachment:

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

No, this is not an instrument-based measure Attachment:

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Not an instrument-based measure

S.3.1. For maintenance of endorsement: Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

Yes

S.3.2. For maintenance of endorsement, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

A denominator exclusion was added for patients who have an ICD-10-CM Principal Diagnosis Code of subarachnoid hemorrhage (SAH) and documentation of non-aneurysmal SAH or SAH related to head trauma.

A data element was added to exclude non-aneurysmal patients from the denominator population.

Updates were made to the data element Discharge Time.

ICD-10 codes were updated to reflect the ICD-10 code updates for Fiscal Year (FY) 2018.

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

CSTK-03 The number of SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

CSTK-03a The number of SAH stroke patients for whom a Hunt and Hess Scale is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

CSTK-03b The number of ICH stroke patients for whom an ICH Score is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention.

S.5. Numerator Details (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Twelve data elements are used to calculate the numerator. Data elements and definitions:

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- Arrival Date - The earliest documented month, day, and year, the patient arrived at the hospital.
- Arrival Time - The earliest documented time (military time) the patient arrived at the hospital.
- ICD-10-PCS Other Procedure Code Date – The month, date, and year when the other procedure(s) was performed.
- ICD-10-PCS Other Procedure Code Time - The time (military time) when the other procedure(s) was performed.
- ICD-10-PCS Principal Procedure Code Date – The month, date, and year when the principal procedure was performed.
- ICD-10-PCS Principal Procedure Code Time - The time (military time) when the principal procedure was performed.
- Initial Hunt and Hess Scale Date - The month, date, and year the Hunt and Hess Scale was first performed at the hospital.
- Initial Hunt and Hess Scale Performed - Documentation of the first Hunt and Hess Scale that was done at this hospital. The Hunt and Hess Scale is a grading system used to classify the severity of a subarachnoid hemorrhage based on the patient's clinical condition. The scale ranges from a score of 1 to 5. It is used as a predictor of prognosis and outcome with a higher grade correlating to a lower survival rate. Allowable Values: Yes or No/UTD.
- Initial Hunt and Hess Scale Time - The time (military time) for which the Hunt and Hess Scale was first documented at the hospital.
- Initial ICH Score Date - The month, date, and year the ICH Score was first performed at the hospital.
- Initial ICH Score Performed - Documentation of the first ICH Score that was done at this hospital. The ICH Score is a clinical grading scale composed of factors related to a basic neurological examination (Glasgow Coma Scale/GCS), a baseline patient characteristic (age), and initial neuroimaging (ICH volume, intraventricular hemorrhage (IVH), infratentorial or supratentorial origin). Score documentation may range from 0 to 6. The purpose of this grading scale is to provide a standard assessment tool that can be easily and rapidly determined at the time of ICH presentation by physicians without special training in stroke neurology and that will allow consistency in communication and treatment selection in clinical care and clinical research. Allowable Values: Yes or No/UTD.
- Initial ICH Score Time - The time (military time) for which the ICH score was first documented at the hospital.

Patients are eligible for the numerator population when the ICD-10-PCS Principal or Other Procedure Date and ICD-10-PCS Principal or Other Procedure Time minus the Initial Hunt and Hess Scale or ICH Score Date and Initial Hunt and Hess Scale or ICH Score Time are greater than or equal to zero minutes, OR the Initial Hunt and Hess Scale or ICH Score Date and Initial Hunt and Hess Scale or ICH Score Time minus the Arrival Date and Arrival Time are greater than or equal to zero minutes and less than or equal to 360 minutes.

S.6. Denominator Statement *(Brief, narrative description of the target population being measured)*
SAH and ICH stroke patients.

S.7. Denominator Details *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*
IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Included Populations:

- Discharges with ICD-10-CM Principal Diagnosis Code for hemorrhagic stroke as defined in Appendix A, Table 8.2 (i.e., Table 8.2a and Table 8.2b) with or without aneurysm repair procedure (ICD-10-PCS Principal or Other Procedure Code as defined in Appendix A, Table 8.2d) or surgical intervention (ICD-10-PCS Principal or Other Procedure Code as defined in Appendix A, Table 8.2e)

12 data elements are used to calculate the denominator. Data elements and definitions:

- Admission Date: The month, day, and year of admission to acute inpatient care.

- **Birthdate:** The month, day, and year the patient was born.
- **Comfort Measures Only:** Comfort Measures Only refers to medical treatment of a dying person where the natural dying process is permitted to occur while assuring maximum comfort. It includes attention to the psychological and spiritual needs of the patient and support for both the dying patient and the patient's family. Comfort Measures Only is commonly referred to as "comfort care" by the general public. It is not equivalent to a physician order to withhold emergency resuscitative measures such as Do Not Resuscitate (DNR).
Allowable Values: 1 (Day 0 or Day 1); 2 (Day 2 or after); 3 (Timing unclear); 4 Not documented/UTD.
- **Direct Admission –** Documentation that the patient was transferred from another acute care facility and taken directly to the operating room or interventional suite prior to hospital admission, or admitted directly to intensive care or other unit of the hospital. Allowable Values: Yes or No/UTD.
- **Discharge Date -** The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay.
- **Discharge Time –** The documented time (military time) the patient was discharged from acute care, left against medical advice or expired during the stay.
- **ED Patient -** Documentation that the patient received care in a dedicated emergency department of the facility.
Allowable Values: Yes or No/UTD.
- **ICD-10-CM Other Diagnosis Code:** The other or secondary International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes associated with the diagnosis for this hospitalization.
- **ICD-10-PCS Other Procedure Codes:** The International Classification of Diseases, Tenth Revision, Master Code Table (ICD-10-PCS) codes identifying all significant procedures other than the principal procedure.
- **ICD-10-CM Principal Diagnosis Code:** The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization.
- **ICD-10-PCS Principal Procedure Code:** The International Classification of Diseases, Tenth Revision, Master Code Table (ICD-10-PCS) code that identifies the principal procedure performed during this hospitalization. The principal procedure is the procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication.
- **Non-aneurysmal:** Patients with documentation of non-aneurysmal SAH or SAH related to head trauma any time during the hospital stay. Non-aneurysmal SAH refers to hemorrhage in the subarachnoid space that is not attributed to the rupture of a cerebral aneurysm. Allowable Values: Yes or No/UTD.

S.8. Denominator Exclusions *(Brief narrative description of exclusions from the target population)*

- Patients less than 18 years of age
- Patients who have a Length of Stay greater than 120 days
- Patients with Comfort Measures Only documented on the day of or day after hospital arrival
- Non-surgical patients discharged within 6 hours of arrival at this hospital
- Patients with admitting diagnosis of traumatic brain injury (TBI), unruptured arteriovenous malformation (AVM), and non-traumatic subdural hematoma (ICD-9-CM Other Diagnosis Codes as defined in Appendix A, Table 8.2f)
- Patients who have an ICD-10-CM Principal Diagnosis Code in Appendix A, Table 8.2a Subarachnoid Hemorrhage assigned at discharge and documentation of non-aneurysmal SAH or SAH related to head trauma any time during the hospital stay

S.9. Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes*

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with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

- Patients less than 18 years of age.
 - o Patient age (in years) equals Admission Date minus Birthdate.
- Patients who have a Length of Stay greater than 120 days.
 - o Length of Stay (in days) equals Discharge Date minus Admission Date.
- Patients with Comfort Measures Only documented:
Physician/APN/PA documentation of comfort measures only (hospice, comfort care, etc.) when the earliest day of documented CMO was on the day of arrival (Day 0) or Day after arrival (Day 1).
- Non-surgical patients discharged within 6 hours of arrival at this hospital.
 - o Within 6 hours of hospital arrival equals Discharge Date and Discharge Time minus Arrival Date and Arrival Time for patients who do not have an ICD-10-PCS Principal or Other Procedure Code as defined in Appendix A, Table 8.2d Aneurysm Repair Procedures or Table 8.1e Surgical Intervention Procedures.
- Patients with admitting diagnosis of traumatic brain injury (TBI), unruptured arteriovenous malformation (AVM), and non-traumatic subdural hematoma (ICD-10-CM Other Diagnosis Codes as defined in Appendix A, Table 8.2f)
- Patients who have an ICD-10-CM Principal Diagnosis Code in Appendix A, Table 8.2a Subarachnoid Hemorrhage assigned at discharge and documentation of non-aneurysmal SAH or SAH related to head trauma any time during the hospital stay
 - o Patients are excluded if “Yes” is selected for Non-aneurysmal.

S.10. Stratification Information (Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)

The CSTK-03 measure is reported as an overall rate which includes SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention (e.g., clipping, coiling, or any surgical intervention) in patients undergoing surgical intervention and documented in the medical record; OR, documented within 6 hours of arrival at the hospital emergency department in patients who do not undergo surgical intervention. CSTK-03a and CSTK-03b are submeasures of the overall rate measure, and stratified by the type of stroke patient as defined by the ICD-10-CM Principal Diagnosis Code in Appendix A, Table 8.2 (i.e., Table 8.2a and Table 8.2b).

Stratification Table

Measure Set #	Stratified by Principal Diagnosis Code*	
CSTK-03	Severity Measurement Performed for SAH and ICH Patients (Overall Rate)**	
CSTK-03a	Hunt and Hess Scale Performed for SAH Patients	Table 8.2a
CSTK-03b	ICH Score Performed for ICH Patients	Table 8.2b

- * Refers to the data element ICD-10-CM Principal Diagnosis Code. Each case will be stratified according to the principal diagnosis code, after the Category Assignments are completed and the overall rate calculated.
 - o ICD-10-CM Principal Diagnosis Code: The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization.
- ** No allowable value exists for the overall rate. It includes all diagnoses on Tables 8.2a and 8.2b.

Data element and definition:

- Initial Hunt and Hess Scale Performed - Documentation of the first Hunt and Hess Scale that was done at this hospital. The Hunt and Hess Scale is a grading system used to classify the severity of a subarachnoid hemorrhage based on the patient’s clinical condition. The scale ranges from a score of 1 to 5. It is used as a predictor of prognosis and outcome with a higher grade correlating to a lower survival rate.

Data element and definition:

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• Initial ICH Score Performed - Documentation of the first ICH Score that was done at this hospital. The ICH Score is a clinical grading scale composed of factors related to a basic neurological examination (Glasgow Coma Scale/GCS), a baseline patient characteristic (age), and initial neuroimaging (ICH volume, intraventricular hemorrhage (IVH), infratentorial or supratentorial origin). Score documentation may range from 0 to 6. The purpose of this grading scale is to provide a standard assessment tool that can be easily and rapidly determined at the time of ICH presentation by physicians without special training in stroke neurology and that will allow consistency in communication and treatment selection in clinical care and clinical research.

S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment)

No risk adjustment or risk stratification

If other:

S.12. Type of score:

Rate/proportion

If other:

S.13. Interpretation of Score (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Higher score

S.14. Calculation Algorithm/Measure Logic (Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)

Comprehensive Stroke (CSTK) Initial Patient Population Algorithm

Variable Key: Patient Age, Initial Patient Population Reject Case Flag, Length of Stay, Sub-Population 1 Flag, Sub-Population 2 Flag, and Sub-Population 3 Flag.

1. Start CSTK Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical.

2. Check ICD-10-CM Principal Diagnosis Code

a. If ICD-10-CM Principal Diagnosis Code is not on Table 8.1 and 8.2, the patient is not in the CSTK Initial Patient Population and is not eligible to be sampled for the CSTK measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

b. If ICD-10-CM Principal Diagnosis Code is on Table 8.1 or 8.2, continue processing and proceed to the Patient Age calculation.

3. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age.

4. Check Patient Age

a. If Patient Age is less than 18 years, the patient is not in the CSTK Initial Patient Population and is not eligible to be sampled for the CSTK measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to Length of Stay Calculation.

5. Calculate the Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date.

6. Check Length of Stay

a. If Length of Stay is greater than 120 days, the patient is not in the CSTK Initial Patient Population and is not eligible to be sampled for the CSTK measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

b. If Length of Stay is less than or equal to 120 days, the patient is in the CSTK Initial Patient Population.

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7. Set the Initial Patient Population Reject Case Flag to equal No. Continue processing and proceed to the ICD-10-CM Principal Diagnosis Code to determine the CSTK sub-population.

8. Initialize Sub-Population 1 Flag, Sub-Population 2 Flag and Sub-Population 3 Flag to No.

9. Check ICD-10-CM Principal Diagnosis Code

a. If ICD-10-CM Principal Diagnosis Code is on 8.2, the patient is in the CSTK Sub-Population 3 and is eligible to be sampled for the CSTK Sub-Population 3. Set Sub-Population 3 Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

b. If ICD-10-CM Principal Diagnosis Code is on 8.1, continue processing and proceed to ICD-10-PCS Principal or Other Procedure Codes.

i. If at least one ICD-10-PCS Principal or Other Procedure Codes is on Table 8.1a or 8.1b, the patient is in the CSTK Sub-Population 2 and is eligible to be sampled for the CSTK Sub-Population 2. Set Sub-Population 2 Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

ii. If none of the ICD-10-PCS Principal or Other Procedure Codes are on Table 8.1a or 8.1b, the patient is in the CSTK Sub-Population 1 and is eligible to be sampled for the CSTK Sub-Population 1. Set Sub-Population 1 Flag to Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

CSTK-03: Severity Measurement Performed for SAH and ICH Patients (Overall Rate)

Numerator: The number of SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record, OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.

Denominator: SAH and ICH stroke patients who arrive at this hospital emergency department (ED)

Variable Key: Timing I, Timing II, Timing III, Timing IV, Timing V

1. Start processing. Run cases that are included in the Comprehensive Stroke (CSTK) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.

2. Check ICD-10-CM Principal Diagnosis Code

a. If ICD-10-CM Principal Diagnosis Code is not on Table 8.2, the case will proceed to a Measure Category Assignment of B for Overall Rate CSTK-03 and will not be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If ICD-10-CM Principal Diagnosis Code is on Table 8.2, continue processing and proceed to ICD-10-PCS Other Diagnosis Code.

3. Check ICD-10-PCS Other Diagnosis Code

a. If ICD-10-PCS Other Diagnosis Code is on Table 8.2f, the case will proceed to a Measure Category Assignment of B for Overall Rate CSTK-03 and will not be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If ICD-10-PCS Other Diagnosis Code is not on Table 8.2f or all missing, continue processing and proceed to ED Patient.

4. Check ED patient

a. If ED Patient is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If ED Patient equals No, continue processing and proceed to Step 5 to check direct admission.

c. If ED Patient equals Yes, continue processing and proceed to Step 6 to check Comfort Measures Only.

5. Check Direct Admission

a. If Direct Admission is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

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- b. If Direct Admission equals No, the case will proceed to a Measure Category Assignment of B for Overall Rate CSTK-03 and will not be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - c. If Direct Admission equals Yes, continue processing and proceed to Comfort Measures Only.
6. Check Comfort Measures Only
- a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B for Overall Rate CSTK-03 and will not be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to check ICD-10-CM Principal or Other Procedure Codes.
7. Check ICD-10-PCS Principal or Other Procedure Codes
- a. If all missing or none ICD-10-PCS Principal or Other Procedure Codes is on Table 8.2d or 8.2e, continue processing and proceed to Step 20 to check Discharge Date.
 - b. If any ICD-10-PCS Principal or Other Procedure Codes is on Table 8.2d or 8.2e, continue processing and proceed to Initial Hunt and Hess Scale Performed.
8. Check Initial Hunt and Hess Scale Performed
- a. If Initial Hunt and Hess Scale Performed is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - b. If Initial Hunt and Hess Scale Performed equals No, continue processing and proceed to step 14 to check Initial ICH Score Performed.
 - c. If Initial Hunt and Hess Scale Performed equals Yes, continue processing and proceed to check Initial Hunt and Hess Scale Date.
9. Check Initial Hunt and Hess Scale Date
- a. If Initial Hunt and Hess Scale Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - b. If Initial Hunt and Hess Scale Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - c. If Initial Hunt and Hess Scale Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Initial Hunt and Hess Scale Time.
10. Check Initial Hunt and Hess Scale Time
- a. If Initial Hunt and Hess Scale Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - b. If Initial Hunt and Hess Scale Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - c. If Initial Hunt and Hess Scale Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check ICD-10-PCS Principal or Other Procedure Code Date.
11. Check ICD-10-PCS Principal or Other Procedure Code Date
- a. If ICD-10-PCS Principal or Other Procedure Code Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
 - b. If ICD-10-PCS Principal or Other Procedure Code Date equals Unable to Determine (UTD), the case will proceed to a Measure

Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If ICD-10-PCS Principal or Other Procedure Code Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check ICD-10-PCS Principal or Other Procedure Code Time.

12. Check ICD-10-PCS Principal or Other Procedure Code Time

a. If ICD-10-PCS Principal or Other Procedure Code Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If ICD-10-PCS Principal or Other Procedure Code Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If ICD-10-PCS Principal or Other Procedure Code Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to the Timing I calculation.

13. Calculate Timing I. Timing I, in minutes, is equal to the ICD-10-PCS Principal or Other Procedure Code Date and the ICD-10-PCS Principal or Other Procedure Code Time minus the Initial Hunt and Hess Scale Date and Initial Hunt and Hess Scale Time.

a. If the time in minutes is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If the time in minutes is less than zero, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If the time in minutes is greater than or equal to zero, the case will proceed to a Measure Category Assignment of E for Overall Rate CSTK-03 and will be in the numerator population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

14. Check Initial ICH Score Performed

a. If Initial ICH Score Performed is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial ICH Score Performed equals No, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Initial ICH Score Performed equals Yes, continue processing and proceed to check Initial ICH Score Date.

15. Check Initial ICH Score Date

a. If Initial ICH Score Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial ICH Score Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Initial ICH Score Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Initial ICH Score Time.

16. Check Initial ICH Score Time

a. If Initial ICH Score Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial ICH Score Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Initial ICH Score Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check ICD-10-PCS

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Principal or Other Procedure Code Date.

17. Check ICD-10-PCS Principal or Other Procedure Code Date

- a. If ICD-10-PCS Principal or Other Procedure Code Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If ICD-10-PCS Principal or Other Procedure Code Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If ICD-10-PCS Principal or Other Procedure Code Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check ICD-10-PCS Principal or Other Procedure Code Time.

18. Check ICD-10-PCS Principal or Other Procedure Code Time

- a. If ICD-10-PCS Principal or Other Procedure Code Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If ICD-10-PCS Principal or Other Procedure Code Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If ICD-10-PCS Principal or Other Procedure Code Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to the Timing II calculation.

19. Calculate Timing II. Timing II, in minutes, is equal to the ICD-10-PCS Principal or Other Procedure Code Date and the ICD-10-PCS Principal or Other Procedure Code Time minus the Initial ICH Score Date and Initial ICH Score Time.

- a. If the time in minutes is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If the time in minutes is less than zero, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If the time in minutes is greater than or equal to zero, the case will proceed to a Measure Category Assignment of E for overall rate CSTK-03 and will be in the numerator population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

20. Check Discharge Date

- a. If Discharge Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Discharge Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Discharge Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Discharge Time.

21. Check Discharge Time

- a. If Discharge Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Discharge Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Discharge Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Arrival Date.

Continued in Section Ad.8 Additional Information/Comments.

S.15. Sampling *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter for the measure set cannot sample. Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions, hospitals selecting sample cases **MUST** submit **AT LEAST** the minimum required sample size.

The sub-population for the CSTK-03 measure Initial Patient Population is CSTK 3-Hemorrhagic Stroke. The CSTK 3 sub-population sampling group includes patients admitted to the hospital for inpatient acute care if they have: ICD-10-CM Principal Diagnosis Code as defined in Appendix A, Table 8.2, a Patient Age (Admission Date – Birthdate) > 18 years and a Length of Stay (Discharge Date - Admission Date) less than or equal to 120 days.

Quarterly Sampling

The Quarterly Sample Size “n”, i.e., Minimum Required Sample Size, is based on the Initial Patient Population Size “N” for CSTK sub-population 3. Hospitals performing quarterly sampling for the CSTK-03 measure must ensure that its Initial Patient Population and sample size meet the following conditions for the CSTK 3 sub-population sampling group:

Quarterly Sample Size Based on CSTK Sub-population 3 for Hemorrhagic Stroke (Table 3)

Sub-Population 3: If “N” > 750, then ‘n’ 150

Minimum Required Sample Size: 150 records

Sub-Population 3: If “N” 376-750, then ‘n’ 20%

Minimum Required Sample Size: 20% of Sub-Population records

Sub-Population 3: If “N” 76-375, then ‘n’ 75

Minimum Required Sample Size: 75 records

Sub-Population 3: If “N” < 75, then ‘n’ 100%

Minimum Required Sample Size: No sampling; 100% Sub-Population records required

Monthly Sampling

The Monthly Sample Size “n”, i.e., Minimum Required Sample Size, is based on the Initial Patient Population Size “N” for CSTK sub-population 3. Hospitals performing monthly sampling for the CSTK-03 measure must ensure that its Initial Patient Population and sample size meet the following conditions for each sub-population sampling group:

Monthly Sample Size Based on CSTK Sub-population 3 for Ischemic Stroke (Table 6)

Sub-Population 3: If “N” > 250, then ‘n’ 50

Minimum Required Sample Size: 50 records

Sub-Population 3: If “N” 126-250, then ‘n’ 20%

Minimum Required Sample Size: 20% of Sub-Population size records

Sub-Population 3: If “N” 26-125, then ‘n’ 25

Minimum Required Sample Size: 25 records

Sub-Population 3: If “N” < 25, then ‘n’ 100%

Minimum Required Sample Size: No sampling; 100% Sub-Population records required

S.16. Survey/Patient-reported data *(If measure is based on a survey or instrument, provide instructions for data collection and*

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guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

Not Applicable

S.17. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Electronic Health Records, Paper Medical Records

S.18. Data Source or Collection Instrument (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

A web-based data collection tool was developed by The Joint Commission for the pilot test process. Currently, hospitals have the flexibility of creating their own tool modeled after the pilot tool or they may develop their own data collection tools using the data element dictionary and allowable values specified in the implementation guide. Hospitals also have the option of selecting a vendor-developed data collection tool which has been verified by The Joint Commission.

S.19. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

No data collection instrument provided

S.20. Level of Analysis (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility, Other

S.21. Care Setting (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital

If other:

S.22. COMPOSITE Performance Measure - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

Not Applicable

2. Validity – See attached Measure Testing Submission Form

2866_MeasureTesting_MS6.5.docx

2.1 For maintenance of endorsement

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.2 For maintenance of endorsement

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.3 For maintenance of endorsement

Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1, 2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. Data Elements Generated as Byproduct of Care Processes.

Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score), Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims), Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry), Other

If other: Data element allowable values are selected, either manually or electronically, from clinical and coded data available in medical record documentation. All medical record documentation is used in the abstraction process. Vendor data collection tools are used to import data elements needed for measure rate calculation.

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields) Update this field for **maintenance of endorsement**.

Some data elements are in defined fields in electronic sources

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources. For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

The Joint Commission recognizes that not all hospitals currently have the capacity to abstract this measure electronically, so offers a chart-abstracted version which allows for data capture from unstructured data fields. The Joint Commission plans to retool the measure for capture from electronic sources within the next several years.

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.

Attachment:

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

This measure was collected during a 6 month pilot process for Joint Commission Comprehensive Stroke Certification. It was learned via discussions and written pilot evaluation materials that there were some issues related to data abstraction for the following data elements:

- Initial Hunt and Hess Scale Performed
 - o Clarification was requested regarding the use of abbreviations and alternative terms for the Hunt and Hess Scale.
- Initial ICH Score Performed

o Clarification was requested regarding the components of the ICH score and how to calculate the ICH score.

These issues related to data abstraction have been easily resolved through clarification of guidelines for abstraction.

Based on feedback from the pilot sites, the measure algorithm was modified to add the following data elements:

- Direct Admission

o Addition of this data element was requested to capture in the denominator population those stroke patients transferred from another acute care facility and taken directly to the interventional suite or operating room, bypassing the emergency department prior to hospital admission.

- Comfort Measures Only

o Addition of this data element was requested to exclude stroke patients who are Comfort Measures Only on the day of or day after hospital arrival.

Other information impacting the feasibility and implementation of the measure was also obtained from the pilot process and is summarized as follows:

Staff Training and Education:

To prepare for and support continuous data collection throughout the pilot test, a total of ten hours were spent on staff training and education. Training was accomplished via two 2-hour webinars and monthly conference calls with pilot site participants. Additionally, some sites reported that physician education was needed to ensure Hunt and Hess Scale and ICH Score completion and documentation.

Case Identification/Medical Record Retrieval:

Case identification was not a problem; cases were identified by the ICD-9-CM principal diagnosis codes for subarachnoid hemorrhage (430) and intracerebral hemorrhage (431). Record retrieval time varied depending on the type of medical record. On average, 10 minutes were spent for record retrieval with more time spent to retrieve a paper record than electronic health record.

Case Selection:

For the pilot test of the measures, 100% record review without sampling was requested. During the pilot process it was noted that some facilities treated more than 25 hemorrhagic stroke patients per month. A sampling methodology for the hemorrhagic sub-population was added to the measure specifications post-pilot to ease abstraction burden for hospitals with a large number of hemorrhagic cases.

Data Abstraction:

Medical record review to abstract all data elements required for the measure set averaged 45 minutes per record. Time spent on record review varied with case complexity and the number of procedures and interventions performed, as well as, the number of data elements collected for the measure. In general, hemorrhagic stroke cases required less time for review than did ischemic stroke cases.

Data abstraction was primarily done by nurses, (e.g., Registered Nurse(s) with a quality improvement background, Stroke Coordinators, and Advanced Practice Nurses). Some pilot sites reported that the abstractor reviewed the record with the medical director or neurologist at least initially to identify documentation of measure specific data elements. Data specialists or administrative staff were utilized to enter abstracted data into the on-line data collection tool.

Cost of Data Abstraction:

Using 2012 national wage averages, it is estimated that the cost per case to abstract for this measure was approximately \$3.50.

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).

This measure is one in a set of measures implemented with discharges effective January 1, 2015 for Joint Commission Comprehensive Stroke Certification. There are no fees or licensing requirements to use the Joint Commission performance measures, all of which are in the public domain.

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting	Quality Improvement (Internal to the specific organization)
Public Health/Disease Surveillance	Disease-Specific Care Certification for Comprehensive Stroke Centers http://www.jointcommission.org/certification/dsc_home.aspx

4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting
- Name of program and sponsor: Disease-Specific Care Certification for Comprehensive Stroke Centers; The Joint Commission
- Purpose: A certification program that recognizes the specific capabilities of hospitals that treat the most complex stroke cases.
- Geographic area and number and percentage of accountable entities and patients included: Nationwide; 95 hospitals

4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

Not Applicable

4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

Not Applicable

4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

Not applicable. Not seeking endorsement + designation at this time

4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

Not applicable. Not seeking endorsement + designation at this time

4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.

Describe how feedback was obtained.

Not applicable. Not seeking endorsement + designation at this time

4a2.2.2. Summarize the feedback obtained from those being measured.

Not applicable. Not seeking endorsement + designation at this time

4a2.2.3. Summarize the feedback obtained from other users

Not applicable. Not seeking endorsement + designation at this time

4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.

Not applicable. Not seeking endorsement + designation at this time

Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

Not Applicable

4b2. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

There were no unintended negative consequences reported or detected during testing or since implementation of the measure specifications.

4b2.2. Please explain any unexpected benefits from implementation of this measure.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

No

5.1a. List of related or competing measures (selected from NQF-endorsed measures)

5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

[Not applicable](#)

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

[Not applicable](#)

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

[Available at measure-specific web page URL identified in S.1 Attachment:](#)

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): [The Joint Commission](#)

Co.2 Point of Contact: [JohnMarc, Alban, jalban@jointcommission.org, 630-792-5304-](#)

Co.3 Measure Developer if different from Measure Steward: [The Joint Commission](#)

Co.4 Point of Contact: [Ann, Watt, awatt@jointcommission.org, 630-792-5944-](#)

Additional Information

Ad.1 Workgroup/Expert Panel involved in measure development

Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.

[The role of the Technical Advisory Panel was to provide advisory oversight in the literature review, measure construct and content, review of testing results, and endorsement of draft and finalized measures. Additionally they may be called upon in the future to provide measure content oversight and updates.](#)

[Technical Advisory Panel](#)

[Harold P. Adams, Jr., MD](#)

[Professor of Neurology](#)

[Director of the Division of Cerebrovascular Diseases](#)

#2866 CSTK-03: Severity Measurement Performed for Subarachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH) Patients (Overall Rate), Last Updated: Jun 11, 2020

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#2866 CSTK-03: Severity Measurement Performed for Subarachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH) Patients (Overall Rate), Last Updated: Jun 11, 2020

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#2866 CSTK-03: Severity Measurement Performed for Subarachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH) Patients (Overall Rate), Last Updated: Jun 11, 2020

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Toledo, OH

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released: 2015

Ad.3 Month and Year of most recent revision: 08, 2015

Ad.4 What is your frequency for review/update of this measure? biannual

Ad.5 When is the next scheduled review/update for this measure? 02, 2016

Ad.6 Copyright statement: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including ORYX® vendors, are required to update their software and associated documentation based on the published manual production timelines.

Ad.7 Disclaimers:

Ad.8 Additional Information/Comments: Continued from Section S.18 Calculation Algorithm/Measure Logic:

22. Check Arrival Date

- a. If Arrival Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Arrival Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Arrival Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Arrival Time.

23. Check Arrival Time

- a. If Arrival Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Arrival Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Arrival Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to the Timing III calculation.

24. Calculate Timing III. Timing III, in minutes, is equal to the Discharge Date and Discharge Time minus the Arrival Date and Arrival Time.

a. If the time in minutes is less than zero, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If the time in minutes is greater than or equal to zero and less than 360, the case will proceed to a Measure Category Assignment of B for overall rate CSTK-03 and will not be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If the time in minutes is greater than or equal to 360, continue processing and proceed to check Initial Hunt and Hess Scale Performed.

25. Check Initial Hunt and Hess Scale Performed

a. If Initial Hunt and Hess Scale Performed is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial Hunt and Hess Scale Performed equals No, continue processing and proceed to Step 29 and check Initial ICH Score Performed.

c. If Initial Hunt and Hess Scale Performed equals Yes, continue processing and proceed to check Initial Hunt and Hess Scale Date.

26. Check Initial Hunt and Hess Scale Date

a. If Initial Hunt and Hess Scale Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial Hunt and Hess Scale Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Initial Hunt and Hess Scale Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Initial Hunt and Hess Scale Time.

27. Check Initial Hunt and Hess Scale Time

a. If Initial Hunt and Hess Scale Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If Initial Hunt and Hess Scale Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If Initial Hunt and Hess Scale Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to the Timing IV calculation.

28. Calculate Timing IV. Timing IV, in minutes, is equal to the Initial Hunt and Hess Scale Date and Initial Hunt and Hess Scale Time minus the Arrival Date and Arrival Time.

a. If the time in minutes is less than zero, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

b. If the time in minutes is greater than 360, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

c. If the time in minutes is greater than or equal to zero and less than or equal to 360, the case will proceed to a Measure Category Assignment of E for overall rate CSTK-03 and will be in the numerator population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

29. Check Initial ICH Score Performed

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- a. If Initial ICH Score Performed is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Initial ICH Score Performed equals No, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Initial ICH Score Performed equals Yes, continue processing and proceed to check Initial ICH Score Date.

30. Check Initial ICH Score Date

- a. If Initial ICH Score Date is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Initial ICH Score Date equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Initial ICH Score Date equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to check Initial ICH Score Time.

31. Check Initial ICH Score Time

- a. If Initial ICH Score Time is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If Initial ICH Score Time equals Unable to Determine (UTD), the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If Initial ICH Score Time equals a Non-Unable to be Determined (non-UTD), continue processing and proceed to the Timing V calculation.

32. Calculate Timing V. Timing V, in minutes, is equal to the Initial ICH Score Date and Initial ICH Score Time minus the Arrival Date and Arrival Time.

- a. If the time in minutes is less than zero, the case will proceed to a Measure Category Assignment of X for Overall Rate CSTK-03 and will be rejected. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- b. If the time in minutes is greater than 360, the case will proceed to a Measure Category Assignment of D for Overall Rate CSTK-03 and will be in the measure population. Continue processing and proceed to Step 33 to Initialize Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.
- c. If the time in minutes is greater than or equal to zero and less than or equal to 360, the case will proceed to a Measure Category Assignment of E for overall rate CSTK-03 and will be in the numerator population. Initialize the Measure Category Assignment for strata measure CSTK-03a and CSTK-03b.

33. Initialize the Measure Category Assignment for CSTK-03a and CSTK-03b equal to B. Do not change the Measure Category Assignment that was already calculated for the overall measure CSTK-03. The rest of the algorithm will reset the appropriate Measure Category Assignment to CSTK-03a and CSTK-03b.

34. Overall Rate Category Assignment

- a. If Overall Rate CSTK-03 Category Assignment equals X, the case will proceed to a Measure Category Assignment of X and will not be in the Measure Population for strata measure CSTK-03a and CSTK-03b. Stop Processing.
- b. If Overall Rate CSTK-03 Category Assignment equals B, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population for strata measure CSTK-03a and CSTK-03b. Stop Processing.
- c. If Overall Rate CSTK-03 Category Assignment equals D or E, continue processing and proceed to check ICD-10-CM Principal or Other Diagnosis Codes.

35. Check ICD-10-CM Principal or Other Diagnosis Codes

- a. If any ICD-10-CM Principal or Other Diagnosis Codes is on table 8.2a, set strata measure CSTK-03a equal to overall rate CSTK-03

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Measure Category Assignment. Stop Processing.

b. If none ICD-10-CM Principal or Other Diagnosis Codes is on table 8.2a, continue processing and proceed to recheck ICD-10-CM Principal or Other Diagnosis Codes.

36. Recheck ICD-10-CM Principal or Other Diagnosis Codes

a. If any ICD-10-CM Principal or Other Diagnosis Codes is on table 8.2b, set strata measure CSTK-03b equal to overall rate CSTK-03 Measure Category Assignment. Stop Processing.