CBE ID

0661

Title

Head CT or MRI Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan Interpretation within 45 minutes of ED Arrival

Project

Initial Recognition and Management

Endorsement Status

Endorsed with Conditions

E&M Committee Rationale/Justification

Explore, with the developer's technical experts, and facilities why the measure has leveled out in performance ratings. Have the measure submitted for maintenance review in three years.

Is Under Review

No

Next Maintenance Cycle

Fall 2026

Previous Endorsement Cycle

Fall 2023

Initial Endorsement

Mon, 01/17/2011 - 12:15

Steward

Centers for Medicare & Medicaid Services

1.0 New or Maintenance

Maintenance

1.3 Electronic Clinical Quality Measure (eCQM)

No

1.6 Measure Description

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

has been publicly reported, annually, by CMS as a component of its Hospital Outpatient Quality Reporting (OQR) Program since 2012.

1.7 Composite Measure

No

1.7 Measure Type

Process

1.8 Level of Analysis

Facility

1.9 Care Setting

Emergency Department, Hospital: Outpatient

1.10 Measure Rationale

Not applicable; this measure is not a paired or grouped measure.

1.11 Measure Webpage

https://qualitynet.cms.gov/files/6491ba2304f753001cd0591c?filename=OQR_v17.0_Sp...

1.13 Data Dictionary

Attached

1.13a Attach Data Dictionary

AppendixA.zip

1.14 Numerator

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

1.14a Numerator Details

Time from ED arrival to interpretation of the Head CT scan is within 45 minutes of arrival.

First determine if the patient encounter meets the denominator criteria (i.e., age 18 or older who were last known well within two hours of ED arrival and had a head CT or MRI ordered) if so, then assess the chart for the time the head scan was interpreted.

Next calculate the time difference between ED arrival and interpretation time of the head scan. The Head CT or MRI Scan Interpretation Date and Time is defined as the month, day, and year date and time (military time) represented in hours and minutes at which the earliest head CT or MRI scan interpretation was completed or reported.

1.15 Denominator

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

1.15a Denominator Details

First, the patient encounter must meet the stroke population criteria which includes an ED encounter identified by one of these six CPT® evaluation and management codes:

99281 Emergency department visit, new or established patient

99282 Emergency department visit, new or established patient

99283 Emergency department visit, new or established patient

99284 Emergency department visit, new or established patient

99285 Emergency department visit, new or established patient

99291 Critical care, evaluation and management

The encounter date is during the appropriate calendar year and that the patient is 18 years or older with a principal diagnosis of ischemic and hemorrhagic stroke as identified by detailed lists located in the Excel file titled “OP Table 8.0: Ischemic Hemorrhagic Stroke.”

If the patient encounter meets the stroke population criteria, they are evaluated for inclusion in the denominator. For the denominator, first assess the Emergency Department Acute Ischemic Stroke or Hemorrhagic Stroke patient to determine the “Time Last Known Well”. The last known well is defined as the time prior to hospital arrival at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. Next, calculate the difference between the time the patient arrived in the ED and the time of the last known well, if difference in minutes is 45 minutes or less, determine if an order for a head CT or MRI scan exists.

1.15b Denominator Exclusions

Patients are excluded when less than 18 years of age, expired in the ED, or left the ED against medical advice, discontinued care, or those without a documented Discharge Code or Discharge code was unable to be determined.

1.15c Denominator Exclusions Details

Patients excluded are those who meet any of the following criteria:

- less than 18 years of age at the start of the encounter

- expired (discharge code = 6)
- left the emergency department against medical advice or discontinued care (discharge
- code = 7)
- discharge code is not documented or was unable to be determined (discharge code=8)

1.16 Type of Score

Rate/proportion

1.17 Measure Score Interpretation

Better performance = Higher score

1.18 Calculation of Measure Score

This measure calculates the percentage of acute ischemic stroke or hemorrhagic stroke patient encounters where the arrival time to the ED is within two hours of the last known well/onset of symptoms and have a head CT or MRI interpreted within 45 minutes of ED arrival. The measure is calculated based on four consecutive quarters of hospital outpatient encounter claims data, as follows:

1. Check E/M Code; if on Table 1.0 proceed
2. Calculate Patient Age (Outpatient Encounter Date –minus Birthdate)
3. Check Patient Age; if >= 18, proceed
4. Check ICD-10-CM Principal Diagnosis Code; if on Table 8.0, proceed
5. Check Discharge Code; exclude any patients with code 6, 7, or 8
6. Check for a Head CT or MRI Scan Order; if "Yes," proceed
7. Check Last Known Well documented; if "Yes," proceed
8. Check Date Last Known Well; if a Unable to Determine (UTD) value, proceed
9. Check Time Last Known Well; if a UTD value, proceed
10. Check Arrival Time; if a UTD value, proceed
11. Calculate measurement value (Outpatient encounter date and arrival time minus Date Last Known Well and Time last known well (in minutes)
12. Check Last Known Well Minutes measurement value; if >= 0 min and <= 120 min, record as the denominator and proceed
13. Check Head CT or MRI Scan Interpretation Date; if a Unable to Determine (UTD) value, proceed
14. Check Head CT or MRI Scan Interpretation Time; if a Unable to Determine (UTD) value, proceed
15. Calculate Head CT/CTA or MRI/ MRA measurement value *Head Ct or MRI scan Interpretation Date and Head CT or MRI Scan Interpretation Time minus Outpatient Encounter Date and Arrival Time (in minutes)*)

16.Check Head CT, CTA or MRA/MRI scan Minutes measurement value; if >= 0 min and <= 45 min, record as the numerator

17. Aggregate denominator and numerator counts by Medicare provider number Measure = numerator counts / denominator counts [The value should be recorded as a percentage]

1.19 Measure Stratification Details

Not Applicable; this measure is not stratified.

1.20 Types of Data Sources

Claims Data, Electronic Health Records, Paper Patient Medical Records

1.25 Data Source Details

This measure is derived from medical record abstraction (paper or electronic). This is not an eMeasure. Administrative claims are listed as a data source as the measure is calculated based on four consecutive quarters of hospital outpatient claims data.

An electronic data collection tool is made available from vendors or facilities can download the free CMS Abstraction & Reporting Tool (CART). Paper tools for manual abstraction, which are posted on www.QualityNet.org, are also available for the CART tool. These tools are posted on www.QualityNet.org

1.26 Minimum Sample Size

Eleven is the minimum number of cases required for public reporting.

2.1 Attach Logic Model

0661_OP-23_Logic Modelv3.pdf

2.2 Evidence of Measure Importance

Powers et al. (2019) and the AHA/ASA Clinical Guidelines Writing Group published updated clinical guideline recommendations for the management of acute ischemic stroke which supports the measures intent. Several strategies in the guide have demonstrated improvement in door-to-imaging times (e.g., Emergency Medical Services activation, assessment, and management of patients). Other strategies, such as telemedicine and teleradiology, can improve access to care. Non-contrast CT and MRI remain effective in excluding intracerebral hemorrhage before intravenous alteplase administration, which aligns with OP-23. To identify patients who may benefit from mechanical thrombectomy between 6 and 24 hours after last know well time, the guidelines also recommend computed tomography angiography or magnetic resonance (MR) angiography with diffusion-weighted magnetic resonance imaging with or without MR perfusion. (Citation: Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., Biller, J., Brown, M., Demaerschalk, B. M., Hoh, B., Jauch, E. C., Kidwell, C. S., Leslie-Mazwi, T. M., Ovbiagele, B., Scott, P. A., Sheth, K. N., Southerland, A. M., Summer, D., & Tirschwell, D. L. (2019). Guidelines for the early management of patients with acute ischemic stroke: 2019 update to the 2018 guidelines for the early management of acute ischemic stroke: A guideline for healthcare professionals from the American Heart Association/American Stroke Association.

Stroke, 50(12), e344–e418. http://doi.org/doi: 10.1161/STR.0000000000000211)

The updated guideline include the following recommendations:

Recommendation 1: All patients with suspected acute stroke should receive emergency brain imaging evaluation on first arrival to a hospital before initiating any specific therapy to treat AIS.

Recommendation 2: Systems should be established so that brain imaging studies can be performed as quickly as possible in patients who may be candidates for IV fibrinolysis or mechanical thrombectomy or both.

The benefit of IV alteplase is time dependent, with earlier treatment within the therapeutic window leading to bigger proportional benefits. A brain imaging study to exclude ICH is recommended as part of the initial evaluation of patients who are potentially eligible for these therapies. With respect to endovascular treatment, a pooled analysis of 5 randomized trials comparing EVT with medical therapy alone in which the majority of the patients were treated within 6 hours found that the odds of improved disability outcomes at 90 days (as measured by the mRS score distribution) declined with longer time from symptom onset to arterial puncture.42 The 6- to 16- and 6- to 24-hour treatment windows trials, which used advanced imaging to identify a relatively uniform patient group, showed limited variability of treatment effect with time in these highly selected patients. The absence of detailed screening logs in these trials limits estimations of the true impact of time in this population. To ensure that the highest proportion of eligible patients presenting in the 6- to 24-hour window have access to mechanical thrombectomy, evaluation and treatment should be as rapid as possible. Reducing the time interval from ED presentation to initial brain imaging can help to reduce the time to treatment initiation. Studies have shown that median or mean door-to-imaging times of ≤20 minutes can be achieved in a variety of different hospital settings.

Recommendation 3: Noncontrast CT (NCCT) is effective to exclude ICH before IV alteplase administration.

Recommendation 4: Magnetic resonance (MR) imaging (MRI) is effective to exclude ICH before IV alteplase administration.

Recommendation 5: (new recommendation) CTA with CTP or MR angiography (MRA) with diffusion-weighted magnetic resonance imaging (DW-MRI) with or without MR perfusion is recommended for certain patients. In many patients, the diagnosis of ischemic stroke can be made accurately on the basis of the clinical presentation and either a negative NCCT or one showing early ischemic changes, which can be detected in the majority of patients with careful attention. NCCT scanning of patients with acute stroke is effective for the rapid detection of acute ICH. NCCT was the only neuroimaging modality used in the National Institute of Neurological Disorders and Stroke (NINDS) rt-PA (Recombinant Tissue-Type Plasminogen Activator) trials and in ECASS (European Cooperative Acute Stroke Study) III and is therefore sufficient neuroimaging for decisions about IV alteplase in most patients. Immediate CT scanning provides high value for patients with acute stroke. MRI was as accurate as NCCT in detecting hyperacute intraparenchymal hemorrhage in patients presenting with stroke symptoms within 6 hours of

onset when gradient echo sequences were used. In patients who awake with stroke or have unclear time of onset >4.5 hours from baseline or last known well, MRI to identify diffusion-positive fluid-attenuated inversion recovery (FLAIR)–negative lesions can be useful for selecting those who can benefit from IV alteplase administration within 4.5 hours of stroke symptom recognition. CTA with CTP or MRA with DW-MRI with or without MR perfusion is useful for selecting candidates for mechanical thrombectomy between 6 and 24 hours after last known well.

Waqas et al. (2019) reviewed clinical practice guidelines and literature and recommended that emergency departments (1) develop specific protocols to triage patients based on whether a patient is admitted to the ED via an emergency medical services (EMS) transport, ED walk-in, or in-hospital stroke; (2) initiate imaging orders including non-contrast brain computed tomography (CT) scans, CT angiograms, CT perfusion imaging, and/or magnetic resonance imaging; (3) interpret scans within 20 minutes of presentation (based on the Stroke Process Time Metrics recommended by the Society of Neurointerventional Surgery); and (4) coordinate care transitions with ED facilities or an appropriate stroke center (Waqas 2019). Overall, this article reinforces the intent of OP-23 to provide timely stroke diagnosis and recommends strategies hospitals can take, such as developing context-specific protocols and coordinating care within the ED, to reduce the time from door to imaging results interpretation. (Citation: Waqas, M., Vakharia, K., Munich, S., Morrison, J., Mokin, M., Levy, E., & Siddiqui, A. (2019). Emergency Room Triage of Acute Ischemic Stroke. Neurosurgery, 85(suppl_1).S38-S46. https://doi.org/10.1093/neuros/nyz067)

Table 1. Performance Scores by Decile

Performance Gap

	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Mean Performance Score	74.10	5.56	36.70	56.54	64.80	71.41	76.00	79.66	83.10	87.06	91.89	97.96	100
N of Entities	1431	1	161	130	139	144	149	142	151	137	141	137	78
N of Persons / Encounters / Episodes	28174	18	2866	2350	2663	2798	3165	2985	2972	3227	2490	2658	1237

2.6 Meaningfulness to Target Population

Lang et al. performed a cohort study to examine the benefit of tPA on patient-reported outcomes and health care utilization on 6-month stroke patients by analyzing patients who received tPA as part of usual stroke management and patients who would have received tPA had they arrived to the hospital within the therapeutic time window. Data were collected from surveys 6 months after stroke using standardized patient-reported outcome measures and questions about health care utilization. Demographic and medical data were acquired from hospital records. The tPA (n = 78) and control (n = 156) groups were matched across variables, except for stroke severity, which was better in the control group; subsequent analyses controlled for this mismatch. Patients who received tPA were compared with those who would have received tPA had they arrived to the hospital within the therapeutic window. The tPA group reported better physical function, communication, cognitive ability, depressive symptomatology, and quality of life/participation compared with the control group and fewer people in the tPA group reported skilled nursing facility stays, emergency department visits, and rehospitalizations after their stroke. Lang et al.

found that the use of tPA provides a large benefit to the daily lives of people with ischemic stroke. (Reference: Lang C, Bland M, Cheng N, Corbetta M, et al. A case-control study of the effectiveness of tissue plasminogen activator on 6 month patients—Reported outcomes and health care utilization. Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association. 2014; 23(10):2914–2919).

3.1 Contributions Towards Closing Care Gaps

Optional question

4.1 Feasibility Assessment

Not applicable during the Fall 2023 cycle.

4.3 Feasibility Informed Final Measure

Not applicable. This measure is being submitted for maintenance.

4.4 Proprietary Information

Proprietary measure or components (e.g., risk model, codes), without fees

4.4a Fees, Licensing, or Other Requirements

No fees, licensure, or other requirements are necessary to use this measure; however, CPT codes, descriptions, and other data are copyright 2022 American Medical Association. All rights reserved. CPT is a registered trademark of the American Medical Association. Applicable FARS\DFARS Restrictions Apply to Government Use. Fee schedules, relative value units, conversion factors, and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

5.1.1 Data Used for Testing

This measure was tested using patient record data abstracted from paper record, claims, and electronic health records stored in the Clinical Data Warehouse (CDW) and the Clinical Data Abstraction Center (CDAC). Data was obtained for 01-01-2018 through 12-31-2021 exclusive of January 1 through June 30, 2020 arrival date times. There are no differences in data for different aspects of testing.

5.1.2 Differences in Data

Not applicable. There are no differences in data for different aspects of testing.

5.1.3 Characteristics of Measured Entities

Data for both Clinical Data Abstraction Center (CDAC) and Clinical Data Warehouse (CDW) was obtained for 01-01-2018 through 12-31-2021 exclusive of January 1 through June 30, 2020 arrival date times due to COVID-19 considerations. The CDAC data contained 2,654 patients in 968 facilities and CDW contained 213,527 patients in 3,881 facilities. The data presented below in table 2 represents additional characteristics of the data used for testing.

Table 2. Characteristics of Facilities Meeting Minimum Case Count

Characteristics	CDAC	CDW
Date Collected	2018-01-01 to 2021-12-31	2018-01-01 to 2021-12-31
Sampled Population	2,654	213,527
Number of Facilities	968	3,881
Denominator Cases	1,650	139,865
Numerator Cases	1,195	104,023
Level of Analysis	Facility Level	Facility Level

5.1.4 Characteristics of Units of the Eligible Population

The data presented below in table 3 represents characteristics of patients included in the testing analysis. There are no differences in data for different aspects of testing. The majority of patients were white, non-Hispanic from ages 60-79 who suffered from Ischemic stroke. There was a fairly even split between male and female patients.

Table 3. Patient Characteristics among Facilities Meeting Minimum Case Count

Groups	Number of patients (CDW)	Performance Rates (CDW)	Number of patients

(CDAC)	Performance Rates (CDAC)							
Sex	-			-				
-			-					
Female	105286			73.41%				
1313			70.98%					
Male	108194			75.33%				
1339			73.84%					
Unknown Sex	47			66.67%			2	
		100%						
Age	-			-				
-			-					
18-39	8885			63.48%				
133			57.89%					
40-59	52041			71.82%				
640			68.95%					
60-79	103634			75.19%				
1262			73.51%					
80 and Older	48967			77.66%			619	
		77.69%						
Race	-			-				
-			-					
Asian	4704			73.22%				
45			77.27%					
Black or African American	26352			72.58%			359	
		71.62%						
Unknown or Other	14339			71.15%			171	
		75.45%						
White	168132			74.95%				
2079			72.22%					
Ethnicity	-			-				
-			-					
Hispanic/Latino	15977			68.56%			203	
		68.50%						
Not Hispanic/Latino	197550			74.81%				
2451			72.75%					
Diagnosis	-			-				
-			-					
Hemorrhagic stroke	47385			66.38%			593	
		61.20%						

Ischemic stroke 2061	166142	76.19%	76.93%

5.2.1 Level(s) of Reliability Testing Conducted

Accountable entity level (i.e., measure score) (e.g., signal-to-noise analysis)

5.2.2 Method(s) of Reliability Testing

Reliability was calculated in accordance with the signal-to-noise method discussed in The Reliability of Provider Profiling: A Tutorial (2009). This approach calculates the ability of the measure to distinguish between facility performance. We calculated the signal-to-noise ratio for each facility meeting the minimum case count of 11, established by the measure calculation contractor during the data collection period, with higher scores indicating greater reliability. The reliability score is estimated using a beta-binomial model, which is appropriate for the reliability testing of pass/fail measures. The reliability score for each facility is a function of the facility's sample size and score on the measure, and the variance across facilities.

Adams JL. The reliability of provider profiling: a tutorial. Santa Monica, CA: RAND Corporation. 2009. Retrieved from http://www.rand.org/pubs/technical_reports/TR653.

5.2.3 Reliability Testing Results

Table 4 displays the distribution of signal to noise scores from 2021. Higher scores denote greater reliability. Reliability scores ranged from 0.43 to 1.00 and mean reliability score was 0.68.

Table 4. Results of Reliability Testing Based on Signal-to-noise analysis
Year: 2021

Number of Facilities : 1431

Mean: 0.68

Standard Deviation: 0.15

Min: 0.43

5th Percentile:0.45

10th Percentile: 0.48

25th Percentile: 0.56

50th Percentile: 0.67

75th Percentile:0.77

90th Percentile:0.87

95th Percentile:1.00

Max:1.00

5.2.4 Interpretation of Reliability Results

While there is no universal standard cut off for signal to noise, a reliability of 0.70 is considered the acceptable threshold for reliability. Our results for 2021 of a median reliability score of 0.67 and mean reliability score of 0.68 approach the 0.7 cut off indicating moderate reliability. Our results also align with the *Draft Acceptable Reliability Thresholds* suggested by the National Quality Forum (NQF) Scientific Methods Panel (SMP) in 2021 which propose the threshold of 0.6 ≥ 0.9 for adequate reliability. Our results indicate that the measure is able to identify true differences in performance between individual facilities.

Table 2. Accountable Entity Level Reliability Testing Results by Denominator, Target Population Size

Accountable Entity-Level Reliability Testing Results

	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Reliability	0.68	0.43	0.46	0.52	0.57	0.61	0.65	0.69	0.72	0.77	0.83	0.96	1.00
Mean Performance Score	1431	15	144	153	134	143	146	143	138	144	143	143	78
N of Entities	28174	165	1682	2180	2006	2404	2688	2885	3177	3576	4272	3304	1237

5.3.1 Level(s) of Validity Testing Conducted

Person or encounter level (i.e., data element) (e.g., sensitivity and specificity), Accountable entity level (i.e., measure score) (e.g., criterion validity)

5.3.3 Method(s) of Validity Testing

Data Element Validity.

We assessed the data element validity of the measure by calculating a rate of agreement between facility abstraction (sourced from the CDW) and auditor (CDAC) abstraction for each of the data elements used to calculate the measure. The analysis used data element values for 1548 denominator cases abstracted by CDAC, which were previously abstracted by facilities. We then used Gwet's AC-1 statistic to account for chance agreement. A Gwet's AC-1 statistic less than 0.5 indicates a fair agreement, 0.5-0.8 indicates a medium effect size, and greater than or equal to 0.8 indicates a large effect size.

Hypothesis-driven validity.

We assessed the validity of the measure through literature informed hypothesis testing. Based on our reviews of literature,[1,2] we anticipated that female patients would have a longer arrival to CT interpretation time than male patients. In addition to the t-statistic to detect statistical differences, we calculated Cohen's D to show whether a difference is meaningful in practice or not.

1. Sex and Race-Ethnic Disparities in Door-to-CT Time in Acute Ischemic Stroke: The Florida Stroke Registry. Sai P. Polineni MPH, Enmanuel J. Perez MD, PhD, Kefeng Wang MS, Carolina M. Gutierrez PhD, Jeffrey Walker MBA-HCM, Dianne Foster RN, BSN, MBA, Chuanhui Dong PhD, Negar Asdaghi MD, Jose G. Romano MD, Ralph L. Sacco MD, MS, Tatjana Rundek MD, PhD trundek@med.miami.edu, and for the Florida Stroke Registry
2. Predictors of Time From Hospital Arrival to Initial Brain-Imaging Among Suspected Stroke Patients. Kathryn M. Rose, PhD, Wayne D. Rosamond, PhD, Sara L. Huston, PhD, Carol V. Murphy, RN, MPH, and Charles H. Tegeler, MD

5.3.4 Validity Testing Results

As demonstrated in table 5, percent agreement ranged from 85% - 100%. Head CT/MRI Scan Interpretation Time had a percent agreement and Gwet's AC1 score at 85% and 0.83 respectively. Head CT/MRI Scan Order, Last Known Well, Principal ICD code, E/M Code, Date Last Known Well (LKW), and Head CT/MRI Scan Interpretation Date had complete agreement (100%) and Gwet's AC1 scores of 1.

Table 5. Data Element Validity for Categorical Variables, Non-categorical Variables, and Constructed Outcomes

Variable	n	Percent Agreement	Gwet's AC1
Discharge Code	1548	98%	0.98
Head CT/MRI Scan Order	1548	100%	1.00
Last Known Well	1548	100%	1.00
Principal ICD code	1548	100%	1.00
E/M Code	1548	100%	1.00

Arrival time	1548	99%	0.99
Date Last Known Well (LKW)	1548	100%	1.00
Time LKW	1548	93%	0.93
Head CT/MRI Scan Interpretation Date	1548	100%	1.00
Head CT/MRI Scan Interpretation Time	1548	85%	0.83
Numerator	1548	97%	0.97
Denominator	1548	100%	1.00

Hypothesis-driven validity

Table 6 shows that in 2021, the mean difference between females and males was 2.83 with a t-score of 2.47, p-value of 0.01 and Cohen's d of 0.06.

Table 6. Empirical Validity Analysis of Differences between Males and Females

Year: 2021

Category: Patient Sex

Value: Female vs. Male

Mean Difference: 2.83

Confidence Interval Lower Limit:0.58

Confidence Interval Upper Limit : 5.07

t: 2.47

p : 0.01

Cohen's d: 0.06

5.3.5 Interpretation of Validity Results

Data Element Validity.

Results demonstrated that the agreement between the data source and the gold standard is high,

and the measure score correctly reflects the quality of care provided by identifying differences in quality. We used Gwet's AC1 statistic to account for agreement by chance, a more robust measure of concordance than overall agreement.

Hypothesis-driven validity.

For 2021, there was a difference between females and males and that difference was statistically significant but based on the Cohen's d of 0.06, the effect size of that difference is moderate. The groups differ by 0.06 standard deviations. From these results, we conclude that the differences by sex between ED arrival and Head CT/MRI scan are statistically significant. This conclusion aligns with the literature which indicates stroke signs are not always identified as quickly as in women as they are in men.

5.3.2 Type of Accountable Entity Level Validity Testing Conducted (derived)

Empirical validity testing at the accountable entity-level (e.g., criterion validity, construct validity, known groups analysis)

5.4.1 Methods Used to Address Risk Factors

No risk adjustment or stratification

5.4.1b Rationale For No Adjustment or Stratification

Not applicable. This measure is not an outcome or resource use measure and is not risk adjusted or stratified.

6.1.3 Current Use(s)

Public Reporting, Payment Program, Regulatory and Accreditation Programs, Quality Improvement with Benchmarking (external benchmarking to multiple organizations)

6.1.3 Program Details

Name of the program and sponsor
The CMS Hospital Outpatient Quality Reporting Program
URL of the program
https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments...
Purpose of the program
The Hospital OQR Program is a pay for quality data reporting program implemented by CMS for outpatient hospital services. In addition to providing hospitals with a financial incentive to report their quality of care measure data.
Geographic area and percentage of accountable entities and patients included
National
Applicable level of analysis and care setting

The publicly reported values (on Hospital Compare) are calculated for all facilities participating in the Hospital OQR Program in the United States that meet minimum case count requirements.

Facilities eligible to report this measure are subject to the Outpatient Prospective Payment System (OPPS) guidelines

6.2.1 Actions of Measured Entities to Improve Performance

In order to improve performance on this measure, measured entities must educate their providers around following guidelines for diagnosing and treating an acute ischemic stroke. These actions do not cause undue burden to the measure entities.

6.2.2 Feedback on Measure Performance

Feedback received from stakeholders (via the ServiceNow tool) is used to revise the measure specifications. Following receipt of a suggestion to adjust the specifications, a literature review is performed to determine if the proposed change aligns with the empirical evidence base for the measure; feedback from the expert work group is obtained to evaluate the change to the specifications. To date, we have received no significant concerns raised by stakeholders about the measure specifications through ServiceNow. In addition, stakeholders may submit comments on the measure through the Outpatient Prospective Payment System (OPPS) annual rule-making process. No comments were received for this measure during the most recent OPPS rule-making cycle.

6.2.3 Consideration of Measure Feedback

To date, we have received no significant feedback about the measure specifications.

6.2.4 Progress on Improvement

Summary statistics of performance scores during the January 1, 2018 through December 31, 2021 data collection periods are provided in the Gap section. In 2015, the average hospital score was 71.28% among 1276 hospitals. In 2016, there was an average change in hospital scores of 1.43%, the average hospital score was 73.27% among 1401 hospitals. In 2017, there was an average change in hospital scores of 1.64%, the average hospital score was 74.33% among 1507 hospitals. In 2018, there was an average change in hospital scores of 0.26%, the average hospital score was 73.21% among 1607 hospitals. In 2019, there was an average change in hospital scores of 0.28%, the average hospital score was 73.73% among 1592 hospitals. In 2020, there was an average change in hospital scores of 0.54%, the average hospital score was 75.89% among 502 hospitals. In 2021, there was an average change in hospital scores of 1.42%, the average hospital score was 71.53% among 1492 hospitals.

Performance scores have remained stable over the years showing continued room for improvement. As noted in prior submissions, the number of patients receiving high-quality healthcare as performance on the measure improves is larger than the number of cases captured by the measure because a hospital can choose to only report a sample cases.

6.2.5 Unexpected Findings

We did not identify any unintended consequences during measure testing. Similarly, no evidence of unintended consequences to individuals or populations has been reported by external stakeholders since its implementation. We will continue to monitor the potential for unintended consequences through an annual review of the literature as well as an ongoing review of stakeholder comments and inquiries. The risk in advancing measures that address timeliness is that there may be a decrease in testing performance to avoid measurement, however this is not likely due to the need to assess diagnostic results to ensure a proper diagnosis.

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Measure Developer POC

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Measured/accountable entity (reliability and/or validity) methodology and results (if available)

Measured entity (reliability and validity) methodology and results (if available)

The measure developer is different from the measure steward

Yes

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