

NATIONAL QUALITY FORUM

Measure Submission and Evaluation Worksheet 5.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the [submitting standards web page](#).

NQF #: 2017	NQF Project: Neurology Project
(for Endorsement Maintenance Review)	
Original Endorsement Date: Most Recent Endorsement Date: Last Updated Date: Jul 17, 2015	
BRIEF MEASURE INFORMATION	
De.1 Measure Title: Stroke and Stroke Rehabilitation: Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) Reports	
Co.1.1 Measure Steward: AMA-convened Physician Consortium for Performance Improvement	
De.2 Brief Description of Measure: Percentage of final reports for CT or MRI studies of the brain performed either: In the hospital within 24 hours of arrival, OR In an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage For patients aged 18 years and older with either a diagnosis of ischemic stroke or transient ischemic attack (TIA) or intracranial hemorrhage OR at least one documented symptom consistent with ischemic stroke or TIA or intracranial hemorrhage that includes documentation of the presence or absence of each of the following: hemorrhage and mass lesion and acute infarction	
2a1.1 Numerator Statement: Final reports of the initial CT or MRI that include documentation of the presence or absence of each of the following: hemorrhage and mass lesion and acute infarction	
2a1.4 Denominator Statement: All final reports for CT or MRI studies of the brain performed either: In the hospital within 24 hours of arrival, OR In an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage. For patients aged 18 years and older with either a diagnosis of ischemic stroke or TIA or intracranial hemorrhage OR at least one documented symptom consistent with ischemic stroke or TIA or intracranial hemorrhage	
2a1.8 Denominator Exclusions: None	
1.1 Measure Type: Process	
2a1. 25-26 Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Imaging/Diagnostic Study, Electronic Clinical Data : Registry	
2a1.33 Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team	
1.2-1.4 Is this measure paired with another measure? No	
De.3 If included in a composite, please identify the composite measure (title and NQF number if endorsed): This measure is not included in a composite.	

STAFF NOTES (issues or questions regarding any criteria)

Comments on Conditions for Consideration:
Is the measure untested? Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> If untested, explain how it meets criteria for consideration for time-limited endorsement:
1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (check De.5): 5. Similar/related endorsed or submitted measures (check 5.1): Other Criteria:
Staff Reviewer Name(s):

1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT
<p>Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See guidance on evidence.</p> <p>Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria. (evaluation criteria)</p>
1a. High Impact: H <input checked="" type="radio"/> M <input checked="" type="radio"/> L <input checked="" type="radio"/> I <input checked="" type="radio"/> <i>(The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.)</i>
De.4 Subject/Topic Areas (Check all the areas that apply): Neurology , Neurology : Stroke/Transient Ischemic Attack (TIA) De.5 Cross Cutting Areas (Check all the areas that apply):
1a.1 Demonstrated High Impact Aspect of Healthcare: Affects large numbers, Frequently performed procedure 1a.2 If "Other," please describe: 1a.3 Summary of Evidence of High Impact (Provide epidemiologic or resource use data): An estimated 7,000,000 Americans > or = 20 years of age have had a stroke. Overall stroke prevalence during this period is an estimated 3.0%.(1) Stroke is the leading cause of serious long-term disability in the United States.(1) The high rate of early neurological deterioration after ICH is in part related to active bleeding that may proceed for hours after symptom onset. The earlier time from symptom onset to first neuroimage, the more likely subsequent neuroimages will demonstrate hematoma expansion. Among patients undergoing head CT within 3 hours of ICH onset, 28% to 38% have hematoma expansion of greater than one third on follow-up CT. Hematoma expansion is predictive of clinical deterioration and increased morbidity and mortality.(2) CT and MRI imaging (MRI) are used for imaging of the density and intensity, respectively, of the cerebral parenchyma and its anatomic structure. The 3 roles of these imaging modalities in assessing the status of brain tissue in the acute stroke patient are the same: the exclusion of hemorrhage, the detection of the ischemic tissue, and the exclusion of conditions that mimic acute cerebral ischemia. The ability of each modality to determine the amount of salvageable versus nonviable tissue depends on the perfusion techniques that each can perform.(3) Several studies have shown that many patients meeting the clinical criteria for TIA demonstrate neuroanatomically relevant infarcts on standard neuroimaging (2% to 48% using CT, 31% using MRI).(4)

1a.4 Citations for Evidence of High Impact cited in 1a.3: 1. Roger VL, Go AS, Lloyd-Jones DM, Benjamin EJ, et al. Heart Disease and Stroke Statistics-2012 Update: A Report from the American Heart Association. Circulation 2012;125:e2-e220.

2. Morgenstern LB, Hemphill JC, Anderson C, Becker K, et. al. Guidelines for the Management of Spontaneous Intracerebral Hemorrhage. A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke published online Jul 22, 2010;DOI: 10.1161/STR.0b013e3181ec611b. Stroke. 2010;41:00-00.

3. Latchaw RE, Alberts MJ, Lev MH, Connors JJ, et al. Recommendations for Imaging of Acute Ischemic Stroke. Stroke 2009;40:000-000. DOI: 10.1161/STROKEAHA.108.192616.

4. Kidwell CS, Alger JR, Di Salle F, Starkman S, et al. Diffusion MRI in Patients With Transient Ischemic Attacks. Stroke 1999;30:1174-1180.

1b. Opportunity for Improvement: H● M● L● I●

(There is a demonstrated performance gap - variability or overall less than optimal performance)

1b.1 Briefly explain the benefits (improvements in quality) envisioned by use of this measure:

Neuroimaging tests might improve selection of patients who could be treated with reperfusion therapies by identifying those with regions of salvageable brain tissue, a low risk for hemorrhagic transformation, or occlusions of large arteries that might or might not be amenable to therapy. CT and magnetic resonance imaging (MRI) are being used as initial imaging options. The most commonly obtained brain imaging test is noncontrast CT, but individual centers able to obtain MRI with efficiency equal to that of CT are using an MRI strategy in patients without MR contraindications.(1)

To extend the therapeutic window, improve efficacy, and limit complications, imaging should address 4 essential issues: (1) the presence of hemorrhage; (2) the presence of an intravascular thrombus that can be treated with thrombolysis or thrombectomy; (3) the presence and size of a core of irreversibly infarcted tissue; and (4) the presence of hypoperfused tissue at risk for subsequent infarction unless adequate perfusion is restored. (2)

1. Adams HP, del Zoppo G, Alberts MJ, Bhatt DL, et al. Guidelines for the Early Management of Adults With Ischemic Stroke: A Guideline From the American Heart Association/American Stroke Association Stroke Council, Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council, and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups: The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists. Stroke 2007;38;1655-1711.

2. Latchaw RE, Alberts MJ, Lev MH, Connors JJ, et al. Recommendations for Imaging of Acute Ischemic Stroke. Stroke 2009;40:000-000. DOI: 10.1161/STROKEAHA.108.192616.

1b.2 Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers): [For Maintenance – Descriptive statistics for performance results for this measure – distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.] CMS Physician Quality Reporting Initiative(1):*

This measure was used in the 2007, 2008, 2009, 2010, 2011 and 2012 CMS Physician Quality Reporting Initiative/System. There is a gap in care as shown by this data; 66.04% of patients reported on did not meet the measure.

10th percentile: 0.00%
25th percentile: 4.76%
50th percentile: 26.67%
75th percentile: 53.85%
90th percentile: 78.48%

Exception Rate: This measure is not specified with exceptions.

CMS 2010 Reporting Experience(2)
Average Performance Rate per Eligible Professional
2009: 65.4%
2010: 68.0%

It is important to note that PQRS is currently a voluntary reporting program, with about 24% of eligible professionals participating in 2010, and performance rates may not be nationally representative.

Of 4045 reports, 58.1% met the PQRS requirement, documenting all 3 components [required by this measure]. Although the presence of infarct increased the chance of PQRS adherence, the existence of hemorrhage had the opposite effect.(3)

1b.3 Citations for Data on Performance Gap: [*For Maintenance* – Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included]

1. Confidential CMS PQRI 2008 Performance Information by Measure. Jan-Sept TAP file
2. CMS 2010 Physician Quality Reporting System and eRx Experience Report. Accessed at: <http://www.CMS.gov/PQRS>.
3. Prevedello LM, Farkas C, Ip IK, Cohen AB, et al. Large-Scale Automated Assessment of Radiologist Adherence to the Physician Quality Reporting System for Stroke. J Am Coll Radiol 2012;9:414-420.

1b.4 Summary of Data on Disparities by Population Group: [*For Maintenance* –Descriptive statistics for performance results for this measure by population group]

No disparities have been identified.

1b.5 Citations for Data on Disparities Cited in 1b.4: [*For Maintenance* – Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included]

Not applicable.

1c. Evidence (Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.)

Is the measure focus a health outcome? Yes ☒ No ☒ If not a health outcome, rate the body of evidence.

Quantity: H ☒ M ☒ L ☒ I ☒ Quality: H ☒ M ☒ L ☒ I ☒ Consistency: H ☒ M ☒ L ☒ I ☒

Quantity	Quality	Consistency	Does the measure pass subcriterion 1c?
M-H	M-H	M-H	Yes <input checked="" type="radio"/>
L	M-H	M	Yes <input checked="" type="radio"/> IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise No <input checked="" type="radio"/>

M-H	L	M-H	Yes● IF potential benefits to patients clearly outweigh potential harms: otherwise No●	
L-M-H	L-M-H	L	No ●	
Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service			Does the measure pass subcriterion1c? Yes● IF rationale supports relationship	
1c.1 Structure-Process-Outcome Relationship (<i>Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome</i>): The process of documenting specific findings in the CT or MRI reports for patients with symptoms or a diagnosis of ischemic stroke, TIA or ICH, is linked to improved health outcomes such as reducing delays in treatment as well as ensuring that patients receive the appropriate treatment based on the findings.				
1c.2-3 Type of Evidence (<i>Check all that apply</i>): Clinical Practice Guideline, Selected individual studies (rather than entire body of evidence), Systematic review of body of evidence (other than within guideline development)				
1c.4 Directness of Evidence to the Specified Measure (<i>State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population</i>): The AHA/ASA clinical practice guidelines highlight the importance of imaging in order to correctly diagnose the patient, by distinguishing between stroke, TIA, and ICH, and also to initiate the appropriate therapy. The ACR guideline specifically emphasizes the importance of reporting the specific details of the findings and diagnosis within the imaging report. The measure focuses on documenting the presence or absence of specific findings from the CT or MRI study, in patients that have a diagnosis or symptom of stroke, TIA, or ICH.				
1c.5 Quantity of Studies in the Body of Evidence (<i>Total number of studies, not articles</i>): The AHA/ASA guidelines do not address the overall quantity of studies in the body of evidence. However, the grades assigned to the levels of evidence for the recommendations, indicate the following: The level of evidence supporting two of the guideline recommendations was based on data derived from multiple randomized clinical trials The level of evidence supporting 1 of the guideline recommendations was based on data derived from either a single randomized trial or nonrandomized studies. The ACR guideline does not address the overall quantity of studies in the body of evidence. The systematic review conducted by Poll and Goergen, includes the review of 25 studies and 4 guidelines. The National Institute of Neurological Disorders and Stroke (NINDS) study, the European Cooperative Acute Stroke Study, a secondary analysis of the European-Australasian Acute Stroke Study (ECASS II), and the PROACT II Study are included in the evidence review. An individual study by Kidwell et al, is also included in the evidence review.				
1c.6 Quality of Body of Evidence (<i>Summarize the certainty or confidence in the estimates of benefits and</i>				

harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events): The AHA/ASA guidelines do not address the overall quality of studies in the body of evidence. However, the grades assigned to the levels of evidence for the recommendations, indicate the following:

The level of evidence supporting two of the guideline recommendations was based on data derived from multiple randomized clinical trials

The level of evidence supporting 1 of the guideline recommendations was based on data derived from either a single randomized trial or nonrandomized studies.

The ACR guideline does not address the overall quality of studies in the body of evidence.

The systematic review conducted by Poll and Goergen, includes the review of 25 studies and 4 guidelines. The study methodologies included 1 randomized controlled trial; 1 before-and-after study of interventions; 10 observational studies, audits, or analyses; 12 surveys; and 1 narrative review of the literature.

The NINDS study was separated into two parts. Part 1 included 291 patients and Part 2 included 333 patients. The studies were both randomized controlled trials. The study tested the clinical activity of tPA and also assessed clinical outcome at three months. In order to be eligible for inclusion in this important study, patients had to have had an ischemic stroke with a clearly defined time of onset, a deficit measurable on the NIHSS, and a base-line computed tomographic (CT) scan of the brain that showed no evidence of intracranial hemorrhage.

The ECASS study was a randomized, prospective, multicenter, double-blind, placebo-controlled clinical trial. A total of 620 patients with acute ischemic hemispheric stroke and moderate to severe neurologic deficit and without major early infarct signs on initial computed tomography (CT) were included.

ECASS II was a nonangiographic, randomized, placebo-controlled, double-blind trial of intravenous rtPA in acute ischemic stroke. Eligible patients were men or women aged 18 to 80 years who had a clinical diagnosis of moderate to severe ischemic hemispheric stroke and who could be treated within 6 hours of symptom onset. Analysis was conducted on 793 randomized patients who received treatment.

The PROACT II Study was a randomized, controlled, multicenter, open-label clinical trial with blinded follow-up conducted between February 1996 and August 1998.

The study by Kidwell et al, included a review of 42 consecutive patients with symptoms of cerebral TIA. Clinical, conventional MRI, and diffusion MRI data were collected. TIA imaging data were compared with those from a contemporaneous group of 23 completed stroke patients.

1c.7 Consistency of Results across Studies (Summarize the consistency of the magnitude and direction of the effect): The consistency of results across studies reviewed is not addressed within the AHA/ASA guidelines.

The consistency of results across studies reviewed is not addressed within the ACR guideline.

According to the systematic review conducted by Poll and Goergen, published studies and guidelines generally support report content, including clinical history, examination quality, description of findings, comparison, and diagnosis. However, there is wide variation in the language used to describe imaging

findings and diagnostic certainty.

The NINDS study inclusion criteria required that patients have a baseline CT scan of the brain, showing no evidence of intracranial hemorrhage. This emphasizes the importance of baseline imaging for stroke management and for safety.

The ECASS study lead to conclusions that intravenous thrombolysis in acute ischemic stroke is effective in improving some functional measures and neurologic outcome in a defined subgroup of stroke patients with moderate to severe neurologic deficit and without extended infarct signs on the initial CT scan. However, the identification of the subgroup is difficult and depends on recognition of early major CT signs of early infarction. This conclusion supports the use of baseline CT in ischemic stroke patients, as a means of identifying patients without extended infarct signs. The results of the CT scan can determine stroke management/treatment.

According to ECASS II, the risk of a severe hemorrhagic transformation was related to the extent of cerebral ischemia as depicted by baseline CT scan. This may be interpreted as a straightforward relationship between the initial extent of ischemia and the volume of HT. The data are consistent with such an interpretation because 8.3% of patients with the larger type of parenchymal hemorrhage and only 4.2% of patients with PH1 had parenchymal hypoattenuation in >33% of the middle cerebral artery territory on baseline CT scan. Therefore, the baseline CT scan was again shown to be valuable, in identifying hemorrhagic transformation and edema in the patient population, which is valuable information, as it relates to stroke management and patient safety.

The detailed CT scan exclusion criteria for the PROACT II study, again support the importance of the baseline CT scan in detecting abnormalities including hemorrhage and mass lesions.

The Kidwell et al review study showed that diffusion MRI demonstrates ischemic abnormalities in nearly half of clinically defined TIA patients. The authors also concluded that diffusion imaging results have significant clinical utility, frequently changing the presumed localization and etiologic mechanism.

The FDA package insert for Alteplase (thrombolytic therapy), indicates that patients with evidence of intracranial hemorrhage on pretreatment evaluation are contraindicated. The package insert also includes a warning, which indicates that the risks of this therapy may be increased in patients with major early infarct signs on a computerized cranial tomography (CT) scan (eg, substantial edema, mass effect, or midline shift) and should be weighed against the anticipated benefits. This information is consistent with the studies included in the evidence review, as the results of the CT scan are instrumental in evaluating stroke patients for treatment.

1c.8 Net Benefit (*Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms*):

CT and MRI findings are critical to initiating care for the patient with stroke. All CT and MRI reports should address the presence or absence of the three important findings, listed in the measure. This documentation is particularly vital in the report of the first imaging study performed after arrival at the hospital (whether or not the patient is admitted), on which initial treatment decisions will be based. The denominator language and specifications also allow for inclusion of CT or MRI studies performed in an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage (i.e., not including follow-up studies performed after acute treatment for these diagnoses), regardless of whether the patient is subsequently referred to the hospital.

1c.9 Grading of Strength/Quality of the Body of Evidence. Has the body of evidence been graded? **Yes**

1c.10 If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: [Guideline #1:](#)

[Harold P. Adams, Jr.](#)
[Gregory del Zoppo](#)
[Mark J. Alberts](#)
[Deepak L. Bhatt](#)
[Lawrence Brass](#)
[Anthony Furlan](#)
[Robert L. Grubb](#)
[Randall T. Higashida](#)
[Edward C. Jauch](#)
[Chelsea Kidwell](#)
[Patrick D. Lyden](#)
[Lewis B. Morgenstern](#)
[Adnan I. Qureshi](#)
[Robert H. Rosenwasser](#)
[Phillip A. Scott](#)
[Eelco F.M. Wijdicks](#)

[Guideline #2:](#)

[Lewis B. Morgenstern](#)
[J. Claude Hemphill, III](#)
[Craig Anderson](#)
[Kyra Becker](#)
[Joseph P. Broderick](#)
[E. Sander Connolly, Jr.](#)
[Steven M. Greenberg](#)
[James N. Huang](#)
[R. Loch Macdonald](#)
[Steven R. Messe](#)
[Pamela H. Mitchell](#)
[Magdy Selim](#)
[Rafael J. Tamargo](#)

[Guideline #3:](#)

[J. Donald Easton](#)
[Jeffrey L. Saver](#)
[Gregory W. Albers](#)
[Mark J. Alberts](#)
[Seemant Chaturvedi](#)
[Edward Feldmann](#)
[Thomas S. Hatsukami](#)
[Randall T. Higashida](#)
[S. Claiborne Johnston](#)
[Chelsea S. Kidwell](#)
[Helmi L. Lutsep](#)
[Elaine Miller](#)
[Ralph L. Sacco](#)

[Lists of disclosures are included in all three of the guidelines.](#)

1c.11 System Used for Grading the Body of Evidence: Other

1c.12 If other, identify and describe the grading scale with definitions: Level of evidence

A Data derived from multiple randomized clinical trials

B Data derived from a single randomized trial or nonrandomized studies

C Consensus opinion of experts

Level of evidence for diagnostic recommendtaion

A Data derived from multiple prospective cohort studies that used a reference standard applied by a masked evaluator

B Data derived from a single grade A study or one or more case-control studies or studies that used a reference standard

C Consensus opinion of experts

1c.13 Grade Assigned to the Body of Evidence: A, A, B

1c.14 Summary of Controversy/Contradictory Evidence: No controversial evidence has been identified regarding documentation of specific findings within the CT or MRI reports for this patient population.

1c.15 Citations for Evidence other than Guidelines(Guidelines addressed below):

American College of Radiology. ACR Appropriateness Criteria. Cerebrovascular Disease. Available at: http://www.acr.org/SecondaryMainMenuCategories/quality_safety/app_criteria/pdf/ExpertPanelonNeurologicImaging/CerebrovascularDiseaseDoc2.aspx

Pool F, Goergen S. Quality of the written radiology report: a review of the literature. J Am Coll Radiol. 2010 Aug;7(8):634-43.

Schwartz LH, Panicek DM, Berk AR, Li Y, Hricak H. Improving Communication of Diagnostic Radiology Findings through Structured Reporting. Radiology 2011;260:174-181.

The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. Tissue Plasminogen Activator for Acute Ischemic Stroke. N Engl J Med 1995;333:1581-7.

Larrue V, von Kummer R, Muller A, Bluhmki E. Risk Factors for Severe Hemorrhagic Transformation in Ischemic Stroke Patients Treated with Recombinant Tissue Plasminogen Activator. Stroke 2001;32:438-441.

Furlan A, Higashida R, Wechsler L, Gent M, et al. Intra-arterial Prourokinase for Acute Ischemic Stroke. JAMA 1999;282:2003-2011.

Hacke W, Kaste M, Fieschi C, Toni D, et al. Intravenous Thrombolysis with Recombinant Tissue Plasminogen Activator for Acute Hemispheric Stroke. JAMA 1995;274:1017-1025.

Kidwell CS, Alger JR, Di Salle F, Starkman S, et al. Diffusion MRI in Patients With Transient Ischemic Attacks. Stroke 1999;30:1174-1180.

Activase (Alteplase) package insert. Available at:

<http://www.pdr.net/drugpages/concise/monograph.aspx?concise=469>. Accessed on: June 12, 2012.

1c.16 Quote verbatim, the specific guideline recommendation (Including guideline # and/or page #):
Imaging of the brain is recommended before initiating any specific therapy to treat acute ischemic stroke.(1)

Rapid neuroimaging with CT or MRI is recommended to distinguish ischemic stroke from ICH.(2)

Patients with TIA should preferably undergo neuroimaging evaluation within 24 hours of symptom onset. MRI, including DWI, is the preferred brain diagnostic imaging modality. If MRI is not available, head CT should be performed. (3)

Diagnostic Imaging Reports:

Findings

The report should use appropriate anatomic, pathologic, and radiologic terminology to describe the findings.

Clinical Issues

The report should address or answer any specific clinical questions. If there are factors that prevent answering of the clinical question, this should be stated explicitly.

Impression

- a. Unless the report is brief, each report should contain an "impression" section.
- b. A specific diagnosis should be given when possible.
- c. A differential diagnosis should be rendered when appropriate.
- d. Follow-up or additional diagnostic studies to clarify or confirm the impression should be suggested when appropriate.
- e. Any significant patient reaction should be reported.(4)

1c.17 Clinical Practice Guideline Citation: 1. Adams HP, del Zoppo G, Alberts MJ, Bhatt DL, et al. Guidelines for the Early Management of Adults With Ischemic Stroke: A Guideline From the American Heart Association/American Stroke Association Stroke Council, Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council, and the Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups: The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists. Stroke 2007;38;1655-1711.

2. Morgenstern LB, Hemphill JC, Anderson C, Becker K, et. al. Guidelines for the Management of Spontaneous Intracerebral Hemorrhage. A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke published online Jul 22, 2010;DOI: 10.1161/STR.0b013e3181ec611b. Stroke. 2010;41:00-00.

3. Easton JD, Saver JL, Albers GW, Alberts MJ, et al. Definition and Evaluation of Transient Ischemic Attack: A Scientific Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Stroke Council, Council on Cardiovascular Surgery and Anesthesia, Council on Cardiovascular Radiology and Intervention, Council on Cardiovascular Nursing, and the Interdisciplinary Council on Peripheral Vascular Disease: The American Academy of Neurology affirms the value of this statement as an educational tool for neurologists. Stroke 2009;40:2276-2293.

4. American College of Radiology. ACR Practice Guideline for Communication of Diagnostic Imaging Findings. 2010. Available at:
http://www.acr.org/secondarymainmenucategories/quality_safety/guidelines/dx/comm_diag_rad.aspx

1c.18 National Guideline Clearinghouse or other URL:

1.<http://stroke.ahajournals.org/cgi/content/full/38/5/1655> 2.<http://stroke.ahajournals.org/content/41/9/2108> 3.
<http://stroke.ahajournals.org/cgi/content/full/40/6/2276> 4.
http://www.acr.org/secondarymainmenucategories/quality_safety/guidelines/dx/comm_diag_rad.aspx

1c.19 Grading of Strength of Guideline Recommendation. Has the recommendation been graded? Yes

1c.20 If guideline recommendation graded, identify the entity that graded the evidence including

balance of representation and any disclosures regarding bias: [Please see section 1c.10](#)

1c.21 System Used for Grading the Strength of Guideline Recommendation: [Other](#)

1c.22 If other, identify and describe the grading scale with definitions: [Classification](#)

[Class I: Conditions for which there is evidence for and/or general agreement that the procedure or treatment is useful and effective](#)

[Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment](#)

[Class IIa: The weight of evidence or opinion is in favor of the procedure or treatment.](#)

[Class IIb: Usefulness/efficacy is less well established by evidence or opinion.](#)

[Class III: Conditions for which there is evidence and/or general agreement that the procedure or treatment is not useful/effective and in some cases may be harmful.](#)

1c.23 Grade Assigned to the Recommendation: [Class I, Class I, Class I](#)

1c.24 Rationale for Using this Guideline Over Others: [It is the PCPI policy to use guidelines, which are evidence-based, applicable to physicians and other health-care providers, and developed by a national specialty organization or government agency. In addition, the PCPI has now expanded what is acceptable as the evidence base for measures to include documented quality improvement \(QI\) initiatives or implementation projects that have demonstrated improvement in quality of care.](#)

Based on the NQF descriptions for rating the evidence, what was the developer's assessment of the quantity, quality, and consistency of the body of evidence?

1c.25 Quantity: [Moderate](#) **1c.26 Quality:** [Moderate](#) **1c.27 Consistency:** [Moderate](#)

1c.28 Attach evidence submission form:

1c.29 Attach appendix for supplemental materials:

Was the threshold criterion, *Importance to Measure and Report*, met?

(1a & 1b must be rated moderate or high and 1c yes) Yes ☒ No ☒

Provide rationale based on specific subcriteria:

For a new measure if the Committee votes NO, then STOP.

For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement), it may be considered for continued endorsement and all criteria need to be evaluated.

2. RELIABILITY & 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. **(evaluation criteria)**

Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See [guidance on measure testing](#).

S.1 Measure Web Page *(In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained).* Do you have a web page where current detailed specifications for this measure can be obtained? [No](#)

S.2 If yes, provide web page URL:

2a. RELIABILITY. Precise Specifications and Reliability Testing: [H](#) ☒ [M](#) ☒ [L](#) ☒ [I](#) ☒

2a1. Precise Measure Specifications. *(The measure specifications precise and unambiguous.)*

2a1.1 Numerator Statement *(Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome):*

Final reports of the initial CT or MRI that include documentation of the presence or absence of each of the following: hemorrhage and mass lesion and acute infarction

2a1.2 Numerator Time Window *(The time period in which the target process, condition, event, or outcome is eligible for inclusion):*

Each final report for CT or MRI studies performed within 24 hours of hospital arrival

OR

Each final report for CT or MRI studies performed in an outpatient center

2a1.3 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, codes with descriptors, and/or specific data collection items/responses):*

Numerator Note: Equivalent terms or synonyms for hemorrhage, mass lesion, or infarction, if documented in the CT or MRI report, would meet the measure

EHR Specifications:

eMeasure developed—see attached.

Claims Specifications:

Presence/Absence of Hemorrhage, Mass Lesion, and Acute Infarction Documented

(Two CPT II codes [3110F & 3111F] are required on the claim form to submit this numerator option)

CPT II 3110F: Documentation in the final CT or MRI report of presence or absence of hemorrhage and mass lesion and acute infarction

AND

CPT II 3111F: CT or MRI of the brain performed in the hospital within 24 hours of arrival OR performed in an outpatient imaging center, to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage.

2a1.4 Denominator Statement *(Brief, narrative description of the target population being measured):*

All final reports for CT or MRI studies of the brain performed either:

In the hospital within 24 hours of arrival, OR

In an outpatient imaging center to confirm initial diagnosis of stroke, TIA or intracranial hemorrhage.

For patients aged 18 years and older with either a diagnosis of ischemic stroke or TIA or intracranial

hemorrhage OR at least one documented symptom consistent with ischemic stroke or TIA or intracranial hemorrhage

2a1.5 Target Population Category *(Check all the populations for which the measure is specified and tested if any):* Senior Care

2a1.6 Denominator Time Window *(The time period in which cases are eligible for inclusion):*

Each final report for CT or MRI studies performed within 24 hours of hospital arrival

OR

Each final report for CT or MRI studies performed in an outpatient center

2a1.7 Denominator Details *(All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses):*

EHR Specifications

eMeasure developed—see attached.

Claims Specifications:

DENOMINATOR NOTE: Final reports for outpatient imaging studies of the brain performed to confirm initial diagnosis are eligible for this measure whether or not patient is subsequently referred to the hospital.

Denominator Criteria (Eligible Cases):

Patients aged = 18 years on date of encounter

AND

For purposes of this measure, the listed symptoms will be considered “documented symptoms consistent” with ischemic stroke, TIA or intracranial hemorrhage. Each of the listed symptoms corresponds to a specific ICD-9-CM code in the code table below.

Note: Use of symptom codes is limited to the following:

- Transient visual loss (368.12)
- Diplopia (double vision) (368.2)
- Vertigo of central origin (386.2)
- Transient global amnesia (437.7)
- Transient alteration of awareness (780.02)
- Lack of coordination (781.3)
- Transient paralysis of limb (781.4)
- Facial weakness (781.94)
- Disturbance of skin sensation (782.0)
- Aphasia (784.3)
- Slurred speech (784.51, 784.59)

Diagnosis for Ischemic Stroke, TIA or Intracranial Hemorrhage – including symptom codes (ICD-9-CM): 368.12, 368.2, 386.2, 430, 431, 432.0, 432.1, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9, 437.7, 780.02, 781.3, 781.4, 781.94, 782.0, 784.3, 784.51, 784.59

OR

Diagnosis for Ischemic Stroke (ICD-10-CM): I63.00, I63.011, I63.012, I63.019, I63.02, I63.031, I63.032, I63.039, I63.09, I63.10, I63.111, I63.112, I63.119, I63.12, I63.131, I63.132, I63.139, I63.19, I63.20, I63.211, I63.212, I63.219, I63.22, I63.231, I63.232, I63.239, I63.29, I63.30, I63.311, I63.312, I63.319, I63.321, I63.322, I63.329, I63.331, I63.332, I63.339, I63.341, I63.342, I63.349, I63.39, I63.40, I63.411, I63.412, I63.419, I63.421, I63.422, I63.429, I63.431, I63.432, I63.439, I63.441, I63.442, I63.449, I63.49, I63.50, I63.511, I63.512, I63.519, I63.521, I63.522, I63.529, I63.531, I63.532, I63.539, I63.541, I63.542, I63.549, I63.59, I63.6, I63.8, I63.9.

Diagnosis for Intracranial Hemorrhage (ICD-10-CM): I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9

Diagnosis for Transient Ischemic Attack (ICD-10-CM): G45.0, G45.1, G45.2, G45.8, G45.9, G46.0, G46.1, G46.2

Diagnosis Codes for Symptom consistent with Ischemic Stroke, TIA, or Intracranial Hemorrhage (ICD-10-CM): G45.4, G45.9, G46.0, G46.1, G45.0, G45.1, G45.2, G45.8, G46.2, H53.121, H53.122, H53.123, H53.129, H53.2, H81.41, H81.42, H81.43, H81.49, R20.0, R20.1, R20.2, R20.3, R20.8, R20.9, R27.0, R27.8, R27.9, R29.5, R29.810, R40.4, R47.01, R47.02, R47.1, R47.81, R47.89, R47.9

AND

Patient encounter during the reporting period (CPT): 0042T, 70450, 70460, 70470, 70551, 70552, 70553

2a1.8 Denominator Exclusions (Brief narrative description of exclusions from the target population):

None

2a1.9 Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses):

None

2a1.10 Stratification Details/Variables (All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses):

We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.

2a1.11 Risk Adjustment Type (Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13): No risk adjustment or risk stratification **2a1.12 If "Other," please describe:**

2a1.13 Statistical Risk Model and Variables (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.):

Not applicable

2a1.14-16 Detailed Risk Model Available at Web page URL (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed:

2a1.17-18. Type of Score: Rate/proportion

2a1.19 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

2a1.20 Calculation Algorithm/Measure Logic(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; aggregating data; risk adjustment; etc.):

To calculate performance rates:

- 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address).
- 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical.
- 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator

If the patient does not meet the numerator, this case represents a quality failure.

To calculate performance rates:

- 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address).
- 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical.
- 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator

If the patient does not meet the numerator, this case represents a quality failure.

Calculation algorithm is included in attachment.

2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:

Attachment

PCPI_Measure_Calculation_V2.0-634717414105028268.pdf

2a1.24 Sampling (Survey) Methodology. If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):

This measure is not based on a sample or survey.

2a1.25 Data Source (Check all the sources for which the measure is specified and tested). If other, please describe:

Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Imaging/Diagnostic Study, Electronic Clinical Data : Registry

2a1.26 Data Source/Data Collection Instrument (Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.): Not applicable

2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment:

2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:

2a1.33 Level of Analysis (Check the levels of analysis for which the measure is specified and tested):

Clinician : Group/Practice, Clinician : Individual, Clinician : Team

2a1.34-35 Care Setting (Check all the settings for which the measure is specified and tested): Ambulatory Care : Clinician Office/Clinic, Ambulatory Care : Urgent Care, Hospital/Acute Care Facility, Imaging Facility, Other:Emergency Department

2a2. Reliability Testing. (Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability.)

2a2.1 Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

AMA-PCPI Testing Project

- The data sample came from 3 sites representing various types, locations and sizes
- The sample consisted of just over 30 charts per site for a total of 95 patients
- Data collected from patients seen between 01/01/2010 and 12/31/2010
- Data abstraction performed in 2011

2a2.2 Analytic Method (Describe method of reliability testing & rationale):

Data abstracted from randomly sampled patient records were used to calculate inter-rater reliability for the measure.

Data analysis included:

- Percent agreement at the measure numerator, denominator, overall and exception (for those measures with exception)
- Kappa statistic to ensure that agreement rates are not a phenomenon of chance

2a2.3 Testing Results (Reliability statistics, assessment of adequacy in the context of norms for the test conducted):

This measure demonstrates perfect agreement.

Reliability: N, % Agreement, Kappa (95% CI)

Numerator: 95, 100.00%, Kappa (N/A)*

Denominator: 95, 100.00%, Kappa (N/A)*

Overall: 95, 100.00%, Kappa (N/A)*

* Kappa statistics cannot be calculated because of complete agreement. Confidence intervals cannot be calculated because to do so would involve dividing by zero which cannot be done.

2b. VALIDITY. Validity, Testing, including all Threats to Validity: H● M● L● I●

2b1.1 Describe how the measure specifications (measure focus, target population, and exclusions) **are consistent with the evidence cited in support of the measure focus (criterion 1c) and identify any differences from the evidence:**

The AHA/ASA clinical practice guidelines highlight the importance of imaging in order to correctly diagnose the patient, by distinguishing between stroke, TIA, and ICH, and also to initiate the appropriate therapy. The ACR guideline specifically emphasizes the importance of reporting the specific details of the findings and diagnosis within the imaging report.

The measure focuses on documenting the presence or absence of specific findings from the CT or MRI study, in patients that have a diagnosis or symptom of stroke, TIA, or ICH.

2b2. Validity Testing. (Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.)

2b2.1 Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

Prevedello, et al Study

4045 reports from CT and MRI examinations performed between January 2008 and October 2010 in patients with suspected stroke.

J Am Coll Radiol 2012;9:414-420.

Face Validity

An expert panel was used to assess face validity of the measure. This panel consisted of the following 26 members, with representation from the following specialties: neurology, methodology, neuroradiology, vascular neurology, spinal cord injury, internal medicine, critical care, clinical neurophysiology, neuroscience nursing, emergency medicine, radiology, speech-language pathology, neurological surgery, family medicine, physical medicine and rehabilitation, and a patient representative.

List of Work Group Members:

Joseph Drozda, Jr., MD (Co-Chair) (methodology)
Robert G. Holloway, MD, MPH (Co-Chair) (neurology)
David Seidenwurm, MD (Co-chair) (neuroradiology)
David N. Alexander, MD (neurology, vascular neurology, spinal cord injury)
M. Carolyn Baum, PhD, OTR/L (occupational therapy)
Christopher Bever, Jr., MD, MBA (neurology)
Thomas P. Bleck, MD, FCCM (internal medicine, critical care, neurology, vascular neurology, clinical neurophysiology)
John Y. Choi, MD, MPH (neurology)
Janet Y. Forbes, MD (internal medicine)
Millie Hepburn-Smith, MSN, RN, ACNS-BC (neuroscience nursing)
Judith Hinchey, MD, MS (neurology)
Peggy Jones (patient representative)
Irene Katzan, MD (neurology)
Adam Kelly, MD (neurology)
Rahul K. Khare, MD, MS, FACEP (emergency medicine)
Michael Lev, MD (radiology)
David Likosky, MD, SFHM (neurology, internal medicine, vascular neurology)
Constantine Moschonas, MD (neurology)
Suresh Mukherji, MD, FACR (neuroradiology)
Robert C. Mullen, MPH (speech-language pathology)
Charles Prestigiacomo, MD (neurological surgery)
Eric Russell, MD, FACR (radiology/neuroradiology)
Pina C. Sanelli, MD, MPH (radiology/neuroradiology)
Daniel Triezenberg, MD (family medicine)
Patrick Turski, MD, FACR (neuroradiology)
Richard Zorowitz, MD (physical medicine and rehabilitation)

2b2.2 Analytic Method *(Describe method of validity testing and rationale; if face validity, describe systematic assessment):*

Prevedello, et al Study

To determine measure adherence, a computerized algorithm was built, validated, and executed on 4045 reports from CT and MRI examinations performed between January 2008 and October 2010 in patients with suspected stroke. Radiologist adherence was measured, accounting for differences in imaging modality, the presence of abnormalities, and trainee participation in report creation.

J Am Coll Radiol 2012;9:414-420.

Face Validity

All PCPI performance measures are assessed for content validity by a panel of expert work group members during the development process. Additional input on the content validity of draft measures is obtained through a 30-day public comment period and by also soliciting comments from a panel of consumer, purchaser, and patient representatives convened by the PCPI specifically for this purpose. All comments received are reviewed by the expert work group and the measures adjusted as needed. Other external

review groups (eg, focus groups) may be convened if there are any remaining concerns related to the content validity of the measures.

The expert panel was used to assess face validity of the measure. This panel consisted of 26 members, with representation from the following specialties: neurology, methodology, neuroradiology, vascular neurology, spinal cord injury, internal medicine, critical care, clinical neurophysiology, neuroscience nursing, emergency medicine, radiology, speech-language pathology, neurological surgery, family medicine, physical medicine and rehabilitation, and a patient representative.

The aforementioned panel was asked to rate their agreement with the following statement:

The scores obtained from the measure as specified will accurately differentiate quality across providers.

Scale 1-5, where 1=Strongly Disagree; 3=Neither Disagree nor Agree; 5=Strongly Agree

2b2.3 Testing Results (*Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment*):

Prevedello, et al Study

Performance of the automated algorithm compared to the manual standard

Detection of PQRS Components	Agreement %
Hemorrhage Documented	100%
Infarct Documented	97.7%
Mass Documented	99.3%
Identification of abnormalities (not required for PQRS)	
Hemorrhage Present	97.0%
Infarct Present	92.3%
Mass Present	96.3%

This measure demonstrates high agreement percentages at the data element level.
J Am Coll Radiol 2012;9:414-420.

Face Validity

The results of the expert panel rating of the validity statement were as follows: N = 18; Mean rating = 4.44 and 88.89% of respondents either agree or strongly agree that this measure can accurately distinguish good and poor quality

Frequency Distribution of Ratings

1 - 0 (Strongly Disagree)

2 - 0

3 - 2 (Neither Agree nor Disagree)

4 - 6

5 - 10 (Strongly Agree)

POTENTIAL THREATS TO VALIDITY. (*All potential threats to validity were appropriately tested with*

adequate results.)

2b3. Measure Exclusions. (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.*)

2b3.1 Data/Sample for analysis of exclusions (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):
This measure does not have exceptions.

2b3.2 Analytic Method (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference*):
This measure does not have exceptions.

2b3.3 Results (*Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses*):
This measure does not have exceptions.

2b4. Risk Adjustment Strategy. (*For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.*)

2b4.1 Data/Sample (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):
This measure is not risk adjusted.

2b4.2 Analytic Method (*Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables*):
This measure is not risk adjusted.

2b4.3 Testing Results (*Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models. Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata*):
Not applicable

2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment: As a process measure, no risk adjustment is necessary.

2b5. Identification of Meaningful Differences in Performance. (*The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.*)

2b5.1 Data/Sample (*Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

CMS Physician Quality Reporting Initiative:

376,210 cases were reported on for the 2008 program, the most recent year for which data is available.

The following information is for the 2009 program, the only year for which such data is available.

Imaging-Stroke Measure #10 CT or MRI Reports

Eligible Professionals: 34,179

Professionals Reporting: 7,327

% Professionals Reporting: 21.44%

Professionals Reporting >=80% of eligible instances: 2,239

% Professionals Reporting >=80% of eligible instances: 30.56%

CMS PQRI 2008 NPI Summary Submission Report by Measure. Jan 2008-Feb 2009 TAP file

2b5.2 Analytic Method (Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance):

CMS Physician Quality Reporting Initiative:

The inter-quartile range (IQR) was calculated to determine the variability of performance on the measure.

2b5.3 Results (Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance):

Scores on this measure: N = 196,227 , Mean = 33.96%

10th percentile: 0.00%

25th percentile: 4.76%

50th percentile: 26.67%

75th percentile: 53.85%

90th percentile: 78.48%

The inter-quartile range (IQR) provides a measure of the dispersion of performance. The IQR is 49.09, and indicates that 50% of physicians have performance on this measure ranging from 4.76% and 53.85%. The top quarter of reporting physicians have performance of 53.85% or higher. While the bottom 25th percentile is performing at 4.76% or lower.

Confidential CMS PQRI 2008 Performance Information by Measure. Jan-Sept TAP file.

2b6. Comparability of Multiple Data Sources/Methods. (If specified for more than one data source, the various approaches result in comparable scores.)

2b6.1 Data/Sample (Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

This measure was not compared across multiple data sources.

2b6.2 Analytic Method (Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure):

This measure was not compared across multiple data sources.

2b6.3 Testing Results (Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted):

This measure was not compared across multiple data sources.

2c. Disparities in Care: H M L I NA (If applicable, the measure specifications allow identification of disparities.)

2c.1 If measure is stratified for disparities, provide stratified results (Scores by stratified categories/cohorts): We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.

2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:

The PCPI advocates that performance measure data should, where possible, be stratified by race, ethnicity, and primary language to assess disparities and initiate subsequent quality improvement activities addressing identified disparities, consistent with recent national efforts to standardize the collection of race and ethnicity data. A 2008 NQF report endorsed 45 practices including stratification by the aforementioned variables.(1) A 2009 IOM report "recommends collection of the existing Office of Management and Budget

(OMB) race and Hispanic ethnicity categories as well as more fine-grained categories of ethnicity (referred to as granular ethnicity and based on one's ancestry) and language need (a rating of spoken English language proficiency of less than very well and one's preferred language for health-related encounters).”(2)

References:

(1) National Quality Forum Issue Brief (No.10). Closing the Disparities Gap in Healthcare Quality with Performance Measurement and Public Reporting. Washington, DC: NQF, August 2008.

(2) Race, Ethnicity, and Language Data: Standardization for Health Care Quality Improvement. March 2010. AHRQ Publication No. 10-0058-EF. Agency for Healthcare Research and Quality, Rockville, MD. Available at: <http://www.ahrq.gov/research/iomracereport>. Accessed May 25, 2010.

2.1-2.3 Supplemental Testing Methodology Information:

Steering Committee: Overall, was the criterion, *Scientific Acceptability of Measure Properties*, met? (Reliability and Validity must be rated moderate or high) Yes ☒ No ☐
Provide rationale based on specific subcriteria:

If the Committee votes No, STOP

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (**evaluation criteria**)

C.1 Intended Actual/Planned Use (Check all the planned uses for which the measure is intended): **Public Reporting, Quality Improvement (Internal to the specific organization)**

3.1 Current Use (Check all that apply; for any that are checked, provide the specific program information in the following questions): **Public Reporting, Quality Improvement with Benchmarking (external benchmarking to multiple organizations), Quality Improvement (Internal to the specific organization)**

3a. Usefulness for Public Reporting: H ☒ M ☐ L ☐ I ☐

(The measure is meaningful, understandable and useful for public reporting.)

3a.1. Use in Public Reporting - disclosure of performance results to the public at large (If used in a public reporting program, provide name of program(s), locations, Web page URL(s)). If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: **[For Maintenance – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.]**

This measure has been used in the CMS Physician Quality Reporting Initiative/System 2007-2012.

The PCPI believes that the reporting of participation information is a beneficial first step on a trajectory toward the public reporting of performance results, which is appropriate since the measure has been tested and the reliability of the performance data has been validated. Continued NQF endorsement will facilitate our ongoing progress toward this public reporting objective.

3a.2. Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting. If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results: [The PCPI believes that the reporting of participation information is a beneficial first step on a trajectory toward the public reporting of performance results, which is appropriate since the measure has been tested and the reliability of the performance data has been validated.](#) Continued NQF endorsement will facilitate our ongoing progress toward this public reporting objective.

3.2 Use for other Accountability Functions (payment, certification, accreditation). If used in a public accountability program, provide name of program(s), locations, Web page URL(s): [This measure may be used in a Maintenance of Certification program.](#)

3b. Usefulness for Quality Improvement: H● M● L● I●

(The measure is meaningful, understandable and useful for quality improvement.)

3b.1. Use in QI. If used in quality improvement program, provide name of program(s), locations, Web page URL(s):

[For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement].

This measure is in use in the following Quality Improvement programs:

The Joint Commission primary stroke center certification program

The AHA/ASA Get With The Guidelines Program

CDC Paul Coverdell Registry

All PCPI measures are suitable for use in quality improvement initiatives and are made freely available on the PCPI website and through the implementation efforts of medical specialty societies and other PCPI members. The PCPI strongly encourages the use of its measures in QI initiatives and seeks to provide information on such initiatives to PCPI members.

3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement. If usefulness was demonstrated (e.g., QI initiative), describe the data, method and results:

The PCPI believes that the use of PCPI measures in quality improvement initiatives is a beneficial way to gather scientific data with which to improve physician performance. This is appropriate since the measure has been tested and the reliability of the performance data has been validated. NQF endorsement will facilitate our ongoing progress toward this quality improvement objective.

Overall, to what extent was the criterion, Usability, met? H● M● L● I●

Provide rationale based on specific subcriteria:

4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. **(evaluation criteria)**

4a. Data Generated as a Byproduct of Care Processes: H● M● L● I●

4a.1-2 How are the data elements needed to compute measure scores generated? (Check all that apply).

Data used in the measure are:

[generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition](#)

4b. Electronic Sources: H● M● L● I●

4b.1 Are the data elements needed for the measure as specified available electronically (*Elements that are needed to compute measure scores are in defined, computer-readable fields*): [ALL data elements in electronic health records \(EHRs\)](#)

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources:

4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences: H ☒ M ☒ L ☒ I ☒

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:

[We are not aware of any unintended consequences related to this measurement.](#)

4d. Data Collection Strategy/Implementation: H ☒ M ☒ L ☒ I ☒

A.2 Please check if either of the following apply (*regarding proprietary measures*):

4d.1 Describe what you have learned/modified 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 (*e.g., fees for use of proprietary measures*):

[This measure was found to be reliable and feasible for implementation.](#)

Overall, to what extent was the criterion, *Feasibility*, met? H ☒ M ☒ L ☒ I ☒
Provide rationale based on specific subcriteria:

OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes ☒ No ☒

Rationale:

If the Committee votes No, STOP.

If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures.

5. COMPARISON TO RELATED AND 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 before a final recommendation is made.

5.1 If there are related measures (*either same measure focus or target population*) **or competing measures** (*both the same measure focus and same target population*), list the NQF # and title of all related and/or competing measures:

5a. Harmonization

5a.1 If this measure has EITHER the same measure focus OR the same target population as [NQF-endorsed measure\(s\)](#): Are the measure specifications completely harmonized?

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

5b. Competing Measure(s)

5b.1 If this measure has 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):

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner): [AMA-convened Physician Consortium for Performance Improvement, 330 N. Wabash Ave., Suite 39300, Chicago, Illinois, 60611](#)

Co.2 Point of Contact: [Samantha, Tierney, Samantha.Tierney@ama-assn.org, 312-464-5524-](#)

Co.3 Measure Developer if different from Measure Steward: [American Medical Association - Physician Consortium for Performance Improvement, 515 N. State St., Chicago, Illinois, 60654](#)

Co.4 Point of Contact: [Diedra, Joseph, MPH, diedra.joseph@ama-assn.org, 312-464-4904-](#)

Co.5 Submitter: [Mark S., Antman, DDS, MBA, mark.antman@ama-assn.org, 312-464-5056-, American Medical Association - Physician Consortium for Performance Improvement](#)

Co.6 Additional organizations that sponsored/participated in measure development:

[American Academy of Neurology](#)
[American College of Radiology](#)
[National Committee for Quality Assurance](#)

Co.7 Public Contact: [Mark S., Antman, DDS, MBA, mark.antman@ama-assn.org, 312-464-5056-, American Medical Association - Physician Consortium for Performance Improvement](#)

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development

Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.

[List of Work Group Members:](#)

[Joseph Drozda, Jr., MD \(Co-Chair\) \(methodology\)](#)
[Robert G. Holloway, MD, MPH \(Co-Chair\) \(neurology\)](#)
[David Seidenwurm, MD \(Co-chair\) \(neuroradiology\)](#)
[David N. Alexander, MD \(neurology, vascular neurology, spinal cord injury\)](#)
[M. Carolyn Baum, PhD, OTR/L \(occupational therapy\)](#)
[Christopher Bever, Jr., MD, MBA \(neurology\)](#)
[Thomas P. Bleck, MD, FCCM \(internal medicine, critical care, neurology, vascular neurology, clinical neurophysiology\)](#)
[John Y. Choi, MD, MPH \(neurology\)](#)
[Janet Y. Forbes, MD \(internal medicine\)](#)
[Millie Hepburn-Smith, MSN, RN, ACNS-BC \(neuroscience nursing\)](#)
[Judith Hinchey, MD, MS \(neurology\)](#)
[Peggy Jones \(patient representative\)](#)
[Irene Katzan, MD \(neurology\)](#)
[Adam Kelly, MD \(neurology\)](#)

Rahul K. Khare, MD, MS, FACEP (emergency medicine)

Michael Lev, MD (radiology)

David Likosky, MD, SFHM (neurology, internal medicine, vascular neurology)

Constantine Moschonas, MD (neurology)

Suresh Mukherji, MD, FACR (neuroradiology)

Robert C. Mullen, MPH (speech-language pathology)

Charles Prestigiacomo, MD (neurological surgery)

Eric Russell, MD, FACR (radiology/neuroradiology)

Pina C. Sanelli, MD, MPH (radiology/neuroradiology)

Daniel Triezenberg, MD (family medicine)

Patrick Turski, MD, FACR (neuroradiology)

Richard Zorowitz, MD (physical medicine and rehabilitation)

PCPI measures are developed through cross-specialty, multi-disciplinary work groups. All medical specialties and other health care professional disciplines participating in patient care for the clinical condition or topic under study must be equal contributors to the measure development process. In addition, the PCPI strives to include on its work groups individuals representing the perspectives of patients, consumers, private health plans, and employers. This broad-based approach to measure development ensures buy-in on the measures from all stakeholders and minimizes bias toward any individual specialty or stakeholder group. All work groups have at least two co-chairs who have relevant clinical and/or measure development expertise and who are responsible for ensuring that consensus is achieved and that all perspectives are voiced.

Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward:

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.3 Year the measure was first released: 2006

Ad.4 Month and Year of most recent revision: 05, 2012

Ad.5 What is your frequency for review/update of this measure? Please see section Ad.9

Ad.6 When is the next scheduled review/update for this measure? 05, 2012

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Ad.9 Additional Information/Comments: Coding/Specifications updates occur annually. The PCPI has a formal measurement review process that stipulates regular (usually on a three-year cycle, when feasible) review of the measures. The process can also be activated if there is a major change in scientific evidence, results from testing or other issues are noted that materially affect the integrity of the measure.

Date of Submission (MM/DD/YY): 05/04/2012