



Measure Information

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

Brief Measure Information

NQF #: 0667

Corresponding Measures:

De.2. Measure Title: Inappropriate Pulmonary CT Imaging for Patients at Low Risk for Pulmonary Embolism

Co.1.1. Measure Steward: American College of Emergency Physicians

De.3. Brief Description of Measure: Percent of patients undergoing CT pulmonary angiogram for the evaluation of possible PE who are at low-risk for PE consistent with guidelines(1,2) prior to CT imaging.

(1) Torbicki A, Perrier A, Konstantinides S, et al. Guidelines on the diagnosis and management of acute pulmonary embolism: the Task Force for the Diagnosis and Management of Acute Pulmonary Embolism of the European Society of Cardiology (ESC). Eur Heart J. 2008 Sep;29(18):2276-315

2) Fesmire FM, Brown MD, Espinosa JA, Shih RD, Silvers SM, Wolf SJ, Decker WW; American College of Emergency Physicians. Critical issues in the evaluation and management of adult patients presenting to the emergency department with suspected pulmonary embolism. Ann Emerg Med. 2011 Jun;57(6):628-652.e75. PMID:21621092

1b.1. Developer Rationale: This measure will improve efficiency by reducing the inappropriate ordering of CTPA for pulmonary embolism based on pre-test probability estimation. This measure does not require utilization of a structured clinical prediction rule such as the Wells Score or Geneva Score, however the measure aims to improve efficiency by guiding clinical practice towards use of initial d-dimer testing rather than immediate CTPA in low or intermediate probability patients as indicated.

In addition to imaging efficiency, the overuse of CTPA in ED patients with suspected pulmonary embolism has tangible implications for patient safety. Ionizing radiation from CTPA can increase the lifetime risk of cancer, particularly in young women due to the added vulnerability of breast tissue(1). Also, the use iodinated dye places patients at risk of contrast induced nephropathy, which a study by Mitchell and Kline estimated at approximately 8% of all patients undergoing CTPA in the ED(2),(3).

(1) Brenner DJ, Hall EJ. Computed tomography—an increasing source of radiation exposure. N Engl J Med. 2007;357:2277-2284.

(2) Mitchell AM, Kline JA. Contrast nephropathy following computed tomography angiography of the chest for pulmonary embolism in the emergency department. J Thromb Haemost. 2007;5:50-54.

(3) Kline JA, Mitchell AM, Runyon MS, et al. Electronic medical record review as a surrogate to telephone follow-up to establish outcome for diagnostic research studies in the emergency department. Acad Emerg Med. 2005;12:1127-1232.

S.4. Numerator Statement: The number of denominator patients with either: a low clinical probability and any negative D-dimer, or a low clinical probability and no D-dimer performed, or no pretest probability documented.

S.7. Denominator Statement: Number of patients who have a CT pulmonary angiogram (CTPA) for the evaluation of possible pulmonary embolism

S.10. Denominator Exclusions: Hemodynamically unstable pulmonary embolism suspected by hypotension and/or shock.

De.1. Measure Type: Efficiency

S.23. Data Source: Electronic Health Records, Other, Paper Records

S.26. Level of Analysis: Clinician : Group/Practice, Facility

IF Endorsement Maintenance – Original Endorsement Date: Apr 26, 2011 **Most Recent Endorsement Date:** Apr 26, 2011

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

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

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?

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

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

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form
[0667_Evidence_MSF5.0_Data.doc](#)

1b. Performance Gap

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

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

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

This measure will improve efficiency by reducing the inappropriate ordering of CTPA for pulmonary embolism based on pre-test probability estimation. This measure does not require utilization of a structured clinical prediction rule such as the Wells Score or Geneva Score, however the measure aims to improve efficiency by guiding clinical practice towards use of initial d-dimer testing rather than immediate CTPA in low or intermediate probability patients as indicated.

In addition to imaging efficiency, the overuse of CTPA in ED patients with suspected pulmonary embolism has tangible implications for patient safety. Ionizing radiation from CTPA can increase the lifetime risk of cancer, particularly in young women due to the added vulnerability of breast tissue(1). Also, the use of iodinated dye places patients at risk of contrast induced nephropathy, which a study by Mitchell and Kline estimated at approximately 8% of all patients undergoing CTPA in the ED(2),(3).

(1) Brenner DJ, Hall EJ. Computed tomography—an increasing source of radiation exposure. *N Engl J Med*. 2007;357:2277-2284.

(2) Mitchell AM, Kline JA. Contrast nephropathy following computed tomography angiography of the chest for pulmonary embolism in the emergency department. *J Thromb Haemost*. 2007;5:50-54.

(3) Kline JA, Mitchell AM, Runyon MS, et al. Electronic medical record review as a surrogate to telephone follow-up to establish outcome for diagnostic research studies in the emergency department. *Acad Emerg Med*. 2005;12:1127-1232.

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

Despite significant evidence supporting the use of structured clinical assessment in combination with d-dimer testing to develop an evaluation of patients with suspected PE, there remains poor application of these algorithms in the ED setting(1). There are numerous studies demonstrating poor application of clinical pre-test assessment to PE testing strategies including:

- Single-center study demonstrated suboptimal application of Wells criteria as 25% of patients with a normal or intermediate probability d-dimer assays subsequently had CTPA ordered to evaluate for PE, with only 2.7% (0.7% of cohort) subsequently having PE.(2)
- A large (5,344 patient) single center cohort study demonstrated that of 2,285 patients with negative d-dimer testing, 166 (7%) underwent CTPA, demonstrating inappropriate use of radiography outside established clinical algorithms.(3)
- Use of an ED protocol that combined structured clinical assessment with d-dimer testing doubles the rate of testing for PE, without increased imaging.(4)

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

- (1). Runyon MS, Richman PB, Kline JA. Emergency medicine practitioner knowledge and use of decision rules for the evaluation of patients with suspected pulmonary embolism: variations by practice setting and training level. *Acad Emerg Med.* 2007;14:53-57.
- (2). Costantino MM, Randhall G, Gosselin M, et al. CT Angiography in the Evaluation of Acute Pulmonary Embolus. *AJR* 2008; 191:471-474
- (3). Corwin MT, Donohoo JH, Patridge R, et al. Do Emergency Physicians Use Serum d-Dimer Effectively to Determine the Need for CT When Evaluating Patients for Pulmonary Embolism? Review of 5,344 Consecutive Patients. *AJR* 2009; 192:1319-1323
- (4). Kline JA, Webb WB, Jones AE, et al. Impact of a rapid rule-out protocol for pulmonary embolism on the rate of screening, missed cases, and pulmonary vascular imaging in an urban US emergency department. *Ann Emerg Med.* 2004;44:490-502.

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for endorsement maintenance. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.

There is no data documenting disparities in testing for pulmonary embolism, However it should be noted that in a single center study conducted by Kline et al, which was intended to study repeat CTPA use in a ED demonstrated that 22% of patients who underwent CTPA for PE in a single ED were women below the age of 40 suggesting that this group may be subject to undue exposure to ionizing radiation, which increases the lifetime risk of malignancy (1),(2),(3).

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

- (1). Kline JA, Courtney DM, Beam DM, et al. Incidence and predictors of repeated computed tomographic pulmonary angiography in emergency department patients. *Ann Emerg Med.* 2009;54:41- 48.
- (2). Brenner DJ, Hall EJ. Computed tomography—an increasing source of radiation exposure. *N Engl J Med.* 2007;357:2277-2284.
- (3). Einstein AJ, Henzlova MJ, Rajagopalan S. Estimating risk of cancer associated with radiation exposure from 64-slice computed tomography coronary angiography. *JAMA.* 2007;298: 317-323.

1c. High Priority (previously referred to as High Impact)

The measure addresses:

- a specific national health goal/priority identified by DHHS or the National Priorities Partnership convened by NQF; OR
- a demonstrated high-priority (high-impact) aspect of healthcare (e.g., affects large numbers of patients and/or has a substantial impact for a smaller population; leading cause of morbidity/mortality; high resource use (current and/or future); severity of illness; and severity of patient/societal consequences of poor quality).

1c.1. Demonstrated high priority aspect of healthcare

Affects large numbers, Patient/societal consequences of poor quality, Frequently performed procedure, High resource use

1c.2. If Other:

1c.3. Provide epidemiologic or resource use data that demonstrates the measure addresses a high priority aspect of healthcare. List citations in 1c.4.

The symptoms suggestive of pulmonary embolism (PE) and deep vein thrombosis (DVT) are very common. Over 10 million persons present each year in the US with chest pain or breathing difficulties, the main symptoms of PE (1). While the exact prevalence of PE in the Emergency Department (ED) setting is unknown given no reliable measurement of missed cases, it has been estimated that 1 in every 500 to 1 in every 1000 ED patients has a PE (2). In addition, A recent multicenter study of 12 US EDs and 1 New Zealand ED found that approximately 1.5% of all ED patients underwent a CTPA to evaluate for suspected pulmonary embolism. (3)

The past decade has also seen the implementation and validation of new technologies including d-dimer serological testing and CTPA for the evaluation and diagnosis of suspected venous thromboembolism. The adoption and application of these technologies has resulted in significant change in US practice with CTPA use becoming increasingly common and considered the definitive test for PE3.

1c.4. Citations for data demonstrating high priority provided in 1a.3

- (1). McCaig LF, Burt CW. National Hospital Ambulatory Medical Care Survey 2002: 2002 Emergency Department Summary. *Adv Data* 2004; 340:1-34.
- (2). White RH: The epidemiology of venous thromboembolism. *Circulation* 2003; 107(23 Suppl 1):I4.
- (3) Kline JA, Courtney DM, Kabrhel C, et al. Prospective multicenter evaluation of the pulmonary embolism rule-out criteria. *J Thromb Haemost.* 2008;6:772-780.

1c.5. If a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)

2. Reliability and Validity—Scientific Acceptability of Measure Properties

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

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

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

Respiratory

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

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

http://www.brighamandwomens.org/emergencymedicine/Quality_Improvement.aspx?sub=0

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

Attachment:

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

Attachment:

S.3. For endorsement maintenance, please briefly describe any changes to the measure specifications since last endorsement date and explain the reasons.

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome)

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

The number of denominator patients with either: a low clinical probability and any negative D-dimer, or a low clinical probability and no D-dimer performed, or no pretest probability documented.

S.5. Time Period for Data (What is the time period in which data will be aggregated for the measure, e.g., 12 mo, 3 years, look back to August for flu vaccination? Note if there are different time periods for the numerator and denominator.)

This measure does not measure across time intervals as all numerator and denominator elements are available at the index visit.

S.6. 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, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

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

Number of hemodynamically stable patients who receive CT pulmonary angiograms for suspected pulmonary embolism who have either†:

1. a low clinical probability* of PE and a negative D-Dimer
- OR
2. a low clinical probability* of PE and no D-Dimer performed
- OR
3. No documentation of a pre-test probability

†Documentation at the time of test ordering, timed prior to test initiation.

*clinical probability can be determined by a structured prediction tool (Wells, Revised Geneva, etc.) or implicit judgment
Specific test cutoffs will be determined by each ED or institution a priori.

DiNisio M, Squizzato A, Rutjes WS, et al. Diagnostic accuracy of d-dimer test for exclusion of venous thromboembolism: a systematic review. J Thromb Haemost. 2007;5:296-304.

S.7. Denominator Statement (Brief, narrative description of the target population being measured)

Number of patients who have a CT pulmonary angiogram (CTPA) for the evaluation of possible pulmonary embolism

S.8. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Elderly

S.9. Denominator Details (All information required to identify and calculate the target population/denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

Denominator Inclusions:

Age =>18

CTPA performed

S.10. Denominator Exclusions (Brief narrative description of exclusions from the target population)

Hemodynamically unstable pulmonary embolism suspected by hypotension and/or shock.

S.11. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

Definition of Systemic Hypotension: systolic blood pressure <90mm Hg or a reduction of at least 40mmHg for at least 15 min (1).

(1): Torbicki A, Perrier A, Konstantinides S, et al. Guidelines on the diagnosis and management of acute pulmonary embolism: the Task Force for the Diagnosis and Management of Acute Pulmonary Embolism of the European Society of Cardiology (ESC). Eur Heart J. 2008 Sep;29(18):2276-315.

S.12. Stratification Details/Variables (All information required to stratify the measure results including the stratification variables, definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b)

S.13. Risk Adjustment Type (Select type. Provide specifications for risk stratification in S.12 and for statistical model in S.14-15)

No risk adjustment or risk stratification

If other:

S.14. Identify the statistical risk model method and variables (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development and testing should be addressed with measure testing under Scientific Acceptability)

S.15. Detailed risk model specifications (must be in attached data dictionary/code list Excel or csv file. Also indicate if available at measure-specific URL identified in S.1.)

Note: Risk model details (including coefficients, equations, codes with descriptors, definitions), should be provided on a separate worksheet in the suggested format in the Excel or csv file with data dictionary/code lists at S.2b.

S.15a. Detailed risk model specifications (if not provided in excel or csv file at S.2b)

S.16. Type of score:

Rate/proportion

If other:

S.17. 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)

S.18. 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.)

See attached data sheet

1. identify all e.g. patients undergoing CT PA using appropriate procedure codes
2. review available data for evidence of pretest probability. This can include the medical record, and/or computerized or paper-based physician orders,
3. divide number of patients with CT PA and low risk or no pretest probability BY the total number of patients with CT PA.

S.19. Calculation Algorithm/Measure Logic Diagram URL or Attachment (You also may provide a diagram of the Calculation Algorithm/Measure Logic described above at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

S.20. Sampling (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF a PRO-PM, identify whether (and how) proxy responses are allowed.

Sampling is acceptable and will follow a standard sample size methodologies for process measures.

S.21. Survey/Patient-reported data (If measure is based on a survey, provide instructions for conducting the survey and guidance on minimum response rate.)

IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.

S.22. Missing data (specify how missing data are handled, e.g., imputation, delete case.)
Required for Composites and PRO-PMs.

S.23. Data Source (Check *ONLY* the sources for which the measure is SPECIFIED AND TESTED).
 If other, please describe in S.24.

Electronic Health Records, Other, Paper Records

S.24. Data Source or Collection Instrument (Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc.)

IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.

Data will be collected from the medical record, specifically from the provider's order for a CTPA. No specific data collection instrument needs to be used since the determination of guideline adherence will be made solely on the criteria mentioned in the guideline. These can be easily recorded either electronically or on paper using institution-specific instruments.

S.25. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

URL

S.26. Level of Analysis (Check *ONLY* the levels of analysis for which the measure is SPECIFIED AND TESTED)

Clinician : Group/Practice, Facility

S.27. Care Setting (Check *ONLY* the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital, Other

If other: This measure was developed for use in the ED, but the guideline upon which it is based is not specific for the ED. It would be reasonable to consider the measure for the following additional care settings: Office, Clinic, and Hospital Outpatient

S.28. COMPOSITE Performance Measure - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

2a. Reliability – See attached Measure Testing Submission Form

2b. Validity – See attached Measure Testing Submission Form

0667_MeasureTesting_MS5.0_Data.doc

3. Feasibility

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

3a. Byproduct of Care Processes

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

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

generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition
 If other:

3b. Electronic Sources

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

3b.1. To what extent are the specified data elements available electronically in defined fields? (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)

No

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.

All data elements are not likely to be available electronically to most providers currently. Although many electronic health records include computerized physician order entry (CPOE) for radiologic tests, most are not currently programmed to have guideline-based decision support. At Brigham and Women's Hospital, the Center for Evidence Based Imaging has developed a CPOE interface that can collect specific clinical information at the time of ordering and offer interactive decision support. This measure is one of several for which there is ongoing quality improvement work utilizing this interface. Although most electronic health records do not currently have the exact specifications for this measure in their CPOE, it is technically feasible for them to be reprogrammed to include such data. The measure specifications provided include all information needed for any EHR to be reprogrammed to collect the needed data elements.

Providers who do not have CPOE could implement a templated paper order entry form that included all data fields. Alternatively they could conduct chart review to identify if the data fields were present at the time of test ordering, but this would likely have a low yield as most clinical charts do not have time to data entry and many are completed at the end of the patient visit. If approved by the NQF, we would produce a model templated paper order entry form for this measure. Ultimately, this and other measures will be significantly aided by the transition to electronic health records.

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL.

Attachment:

3c. Data Collection Strategy

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

3c.1. 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.

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

Successful data collection using an electronic order entry system is dependent on designing an explicit order form with a method of categorizing indications for CT imaging. If these indications are categorized correctly, the inclusion and exclusion criteria can effectively sort the CT images obtained into those to which the guideline should apply and those to which it should not.

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

4. Usability and Use

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

4a. Accountability and Transparency

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

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported

within 6 years of initial endorsement in addition to performance improvement.

Planned	Current Use (for current use provide URL)
Public Reporting	
Quality Improvement (Internal to the specific organization)	

4a.1. For each CURRENT use, checked above, provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included

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

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

4b. Improvement

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

4b.1. Progress on Improvement. (Not required for initial endorsement unless available.)

Performance results on this measure (current and over time) should be provided in 1b.2 and 1b.4. Discuss:

- Progress (trends in performance results, number and percentage of people receiving high-quality healthcare)
- Geographic area and number and percentage of accountable entities and patients included

4b.2. If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4c. Unintended Consequences

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

4c.1. Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.

As with most measures based on guideline recommendations, the major source of inaccuracy or error will be incomplete medical records. This measure is based on a set of specific clinical criteria outlined by the guideline and will require physicians to document the presence or absence of these criteria in patients undergoing CT imaging. As all CTPAs require an order from a clinician, it is completely feasible for the required information to be integrated into the ordering process, either on a paper or electronic ordering

template.

The main unintended consequence of this measure is that CT images ordered by emergency physicians at the request of consultants may be attributed to the emergency physicians themselves. However, by analyzing this measure at the Group or Facility level, organizations can develop measure-specific policies that will apply to all physicians, including emergency physicians and consultants.

5. Comparison to Related or Competing Measures

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

5. Relation to Other NQF-endorsed Measures

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

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

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

5a. Harmonization

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

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

Are the measure specifications 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 Measures

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

OR

Multiple measures are justified.

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

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

Related Measures: There are currently no directly related measures, however there are some associated NQF measures with which this measure is complimentary. These include: 1. Institute for Clinical Systems Improvement (ICSI). Venous thromboembolism diagnosis and treatment. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2009 Feb. 79 p. [220 references] This measure is not specific to ED patients and is written with respect to treatment, evaluation and diagnosis, as such there is no discrepancy between these two complimentary measures. 2. Venous thromboembolism (VTE) diagnosis and treatment: percentage of adult patients suspected of deep vein thrombosis (DVT) who have leg duplex ultrasound with compression performed despite a low clinical pretest probability and a negative D-dimer test. Institute for Clinical Systems Improvement (ICSI). Venous thromboembolism diagnosis and treatment. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2009 Feb. 79 p.

[220 references] This measure is similar to our measure with the goal of improving the appropriateness of duplex ultrasound use rather than CTPA use. Since this measure addresses a different technology in the same patient population, our measure would be complimentary to this measure.

Appendix

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

Attachment:

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): American College of Emergency Physicians
Co.2 Point of Contact: Stacie, Jones, sjones@acep.org, 202-728-0610-3040
Co.3 Measure Developer if different from Measure Steward: American College of Emergency Physicians
Co.4 Point of Contact: Diana, Crowley, dcrowley@acep.org, 202-728-0610-325

Additional Information

Ad.1 Workgroup/Expert Panel involved in measure development

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

Measure Development Workgroup: Ron Walls, MD, Brigham & Women's Hospital; Richard Zane, MD, Brigham & Women's Hospital; Ali Raja, MD, MBA, Brigham & Women's Hospital; James Andruchow, MD, Brigham & Women's Hospital; Arjun Venkatesh, MD, MBA, Brigham & Women's Hospital.

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released: 2009

Ad.3 Month and Year of most recent revision: 05, 2010

Ad.4 What is your frequency for review/update of this measure? Every 2 years.

Ad.5 When is the next scheduled review/update for this measure? 2011

Ad.6 Copyright statement:

Ad.7 Disclaimers:

Ad.8 Additional Information/Comments: