

# NATIONAL QUALITY FORUM

## Measure Evaluation 4.1 December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

**TAP/Workgroup** (if utilized): Complete all **yellow highlighted** areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

**Steering Committee:** Complete all **pink** highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met

- C = Completely (unquestionably demonstrated to meet the criterion)
- P = Partially (demonstrated to partially meet the criterion)
- M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
- N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
- NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) NQF Review #: IEP-008-10      NQF Project: Efficiency: Imaging Efficiency
<b>MEASURE DESCRIPTIVE INFORMATION</b>
<b>De.1 Measure Title:</b> <a href="#">Appropriate Cervical Spine Radiography and CT Imaging in Trauma</a>
<b>De.2 Brief description of measure:</b> <a href="#">Percent of adult patients undergoing cervical spine radiography or CT imaging for trauma who have a documented evidence-based indication prior to imaging (Canadian C-Spine Rule or the NEXUS Low-Risk Criteria).</a>
<b>1.1-2 Type of Measure:</b> <a href="#">Efficiency/cost</a>
<b>De.3 If included in a composite or paired with another measure, please identify composite or paired measure</b>
<b>De.4 National Priority Partners Priority Area:</b> <a href="#">Overuse</a>
<b>De.5 IOM Quality Domain:</b> <a href="#">Efficiency, Safety</a>
<b>De.6 Consumer Care Need:</b> <a href="#">Staying healthy</a>

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	<b>NQF Staff</b>
<b>A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. <i>Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.</i></b> <b>A.1 Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?</b> <a href="#">Yes</a> <b>A.2 Indicate if Proprietary Measure (as defined in measure steward agreement):</b> <b>A.3 Measure Steward Agreement:</b> <a href="#">Agreement will be signed and submitted prior to or at the time of measure submission</a> <b>A.4 Measure Steward Agreement attached:</b>	<b>A</b> Y <input type="checkbox"/> N <input type="checkbox"/>
<b>B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and</b>	<b>B</b>

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. <b>Yes, information provided in contact section</b>	Y <input type="checkbox"/> N <input type="checkbox"/>
C. The intended use of the measure includes <b>both</b> public reporting <b>and</b> quality improvement. ► <b>Purpose: Public reporting, Internal quality improvement</b>	C Y <input type="checkbox"/> N <input type="checkbox"/>
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1 Testing: <b>No, testing will be completed within 24 months</b> D.2 Have NOF-endorsed measures been reviewed to identify if there are similar or related measures? <b>Yes</b>	D Y <input type="checkbox"/> N <input type="checkbox"/>
<b>(for NOF staff use)</b> Have all conditions for consideration been met? Staff Notes to Steward (if submission returned):	Met Y <input type="checkbox"/> N <input type="checkbox"/>
Staff Notes to Reviewers (issues or questions regarding any criteria):	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
<b>1. IMPORTANCE TO MEASURE AND REPORT</b>	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. <i>Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.</i> (evaluation criteria) 1a. High Impact _____	Eval Rating
<b>(for NOF staff use)</b> Specific NPP goal:	
1a.1 Demonstrated High Impact Aspect of Healthcare: <b>Affects large numbers, Patient/societal consequences of poor quality, Frequently performed procedure, High resource use</b> 1a.2 1a.3 Summary of Evidence of High Impact: <b>Over 13million trauma patients at risk of cervical spine injury presented to Emergency Departments across the United States in 2006(1). While cervical spine injuries can be devastating and many patients are evaluated for cervical spine fractures, less than 2% of cervical spine radiographs are positive for fracture, and imaging rates vary significantly among institutions (2). Consequently, clinical decision rules have been developed to identify a population of patients at low risk for cervical spine injury, and thus safe to discharge without radiography of the cervical spine. Both the NEXUS criteria and the Canadian C-spine rule are validated and highly sensitive clinical decision rules that have the potential to significantly reduce imaging of the cervical spine in trauma (3, 4). However, these rules remain underutilized, and have not achieved their full potential in reducing unnecessary imaging (5,6).</b>  Since the publication of these two decision rules clinical practice in the United States has been shifting from primary use of plain radiography to computed tomography (CT). Many emergency department patients in whom clinicians have a suspicion of fracture undergo computed tomography of the cervical spine as the first full imaging modality of the C-spine. Although CT scans have been shown to be more sensitive than plain radiography, we know of no published data that shows an outcome benefit to routine	1a C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>

**Comment [KP1]:** 1a. The measure focus addresses:  
 • a specific national health goal/priority identified by NOF's National Priorities Partners; OR  
 • a demonstrated high impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, high resource use (current and/or future), severity of illness, and patient/societal consequences of poor quality).

use of cervical spine CT for patients at low risk of cervical spine fracture. Furthermore, the strength of the evidence behind both clinical decision rules, essentially tens of thousands of patients who have been safely evaluated with these rules, supports the corollary argument: if one is going to use either CT or radiography as the initial imaging modality of choice for patients at low risk of a cervical spine fracture, then a decision rule should still be followed.

- 1a.4 Citations for Evidence of High Impact:** (1) McCaig LF, Nawar EW. National hospital ambulatory medical care survey: 2004 Emergency Department Summary; 2004 Emergency Department Summary. *Advance Data* 2006; 372: 1-32.
- (2) Stiell IG, Wells GA, Vandemheem K, et al. Variation in emergency department use of cervical spine radiography for alert, stable trauma patients. *Can Med Assoc J.* 1997; 156: 1537-1544.
- (3) Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. *N Engl J Med.* 2000; 343(2):94-9. Erratum in: *N Engl J Med* 2001; 344(6):464.
- (4) Stiell IG, Wells GA, Vandemheen KL, Clement CM, Lesiuk H, De Maio VJ, Laupacis A, Schull M, McKnight RD, Verbeek R, Brison R, Cass D, Dreyer J, Eisenhauer MA, Greenberg GH, MacPhail I, Morrison L, Reardon M, Worthington J. The Canadian C-spine rule for radiography in alert and stable trauma patients. *JAMA* 2001; 286(15):1841-8.
- (5) Eagles D, Stiell IG, Clement CM. International survey of emergency physicians' awareness and use of the Canadian Cervical Spine Rule and the Canadian Computed Tomography Head Rule. *Acad Emerg Med* 2008; 15:1256-1261.
- (6) Stiell IG, Clement CM, Grimshaw J, Brison RJ, Rowe BH, Schull MJ, Lee JS, Brehaut J, McKnight RD, Eisenhauer MA, Dreyer J, Letovsky E, Rutledge T, MacPhail I, Ross S, Shah A, Perry JJ, Holroyd BR, Ip U, Lesiuk H, Wells GA. Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. *BMJ.* 2009;339: b4146

**1b. Opportunity for Improvement**

**1b.1 Benefits (improvements in quality) envisioned by use of this measure:** This measure aims to improve quality by improving appropriateness of cervical spine imaging for emergency department patients with trauma by increasing adherence to validated clinical decision rules. Studies have shown that a decrease in cervical spine imaging of up to can be safely achieved through the implementation of clinical decision rules for cervical spine trauma (1). Through reductions in unnecessary imagin, several benefits are anticipated including decreasing costs to the health care system, and decreasing radiation exposure (2).

- (1) Stiell IG, Clement CM, Grimshaw J, Brison RJ, Rowe BH, Schull MJ, Lee JS, Brehaut J, McKnight RD, Eisenhauer MA, Dreyer J, Letovsky E, Rutledge T, MacPhail I, Ross S, Shah A, Perry JJ, Holroyd BR, Ip U, Lesiuk H, Wells GA. Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. *BMJ.* 2009;339: b4146
- (2) Brenner DJ, Hall EJ. Computed tomography—an increasing source of radiation exposure. *N Engl J Med.* 2007;357:2277-2284.

**1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**

Studies have shown that the overall yield of cervical spine imaging in trauma is very low, with over 98% of cervical spine radiographs being negative for fracture, and that there is significant variability in imaging rates among providers (1, 2).

**1b.3 Citations for data on performance gap:**

- (1) Stiell IG, Wells GA, Vandemheem K, et al. Variation in emergency department use of cervical spine radiography for alert, stable trauma patients. *Can Med Assoc J.* 1997; 156: 1537-1544.
- (2) Stiell IG, Clement CM, Grimshaw J. Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. *BMJ* 2009;339: b4146.

**1b.4 Summary of Data on disparities by population group:**

We know of no data demonstrating significant disparities in cervical spine imaging among population group.

**1b.5 Citations for data on Disparities:**

1b  
C   
P   
M   
N

**Comment [KP2]:** 1b. Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating considerable variation, or overall poor performance, in the quality of care across providers and/or population groups (disparities in care).

**Comment [k3]:** 1 Examples of data on opportunity for improvement include, but are not limited to: prior studies, epidemiologic data, measure data from pilot testing or implementation. If data are not available, the measure focus is systematically assessed (e.g., expert panel rating) and judged to be a quality problem.

Not applicable.	
<p><b>1c. Outcome or Evidence to Support Measure Focus</b></p> <p><b>1c.1 Relationship to Outcomes</b> (<i>For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population</i>): The proposed measure is not an outcome measure, and will not report diagnostic outcomes or patient specific outcomes. The desired outcome will be improved adherence to validated clinical decision rules for cervical spine CT scanning for trauma patients, which is anticipated to decreased unnecessary CT scanning, reduce costs and radiation exposure.</p> <p><b>1c.2-3. Type of Evidence:</b> Cohort study, Randomized controlled trial</p> <p><b>1c.4 Summary of Evidence</b> (<i>as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome</i>):          Stiell IG, Wells GA, Vandemheen K et al. Variation in emergency department use of cervical spine radiography for alert, stable trauma patients. CMAJ 1997; 156(11): 1537-1544.</p> <p>The authors perform a retrospective chart review of patients presenting to academic and community emergency departments in Canada and identify a high degree of variability in the rates with which radiographs of the cervical spine were performed on alert, stable trauma patients, ranging from 37% to 72.4% by study site. It is noted that only 0.9% of these patients were diagnosed with an acute cervical spine injury and that a clinical decision rule may help to more judiciously order radiographs in this population.</p> <p>Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. N Engl J Med. 2000; 343(2):94-9. Erratum in: N Engl J Med 2001; 344(6):464.</p> <p>In a prospective observational study involving over 34,000 patients, the authors examine the performance of a clinical decision rule to predict which patients with blunt trauma require radiographs of the cervical spine. The 5 criteria patients were required to meet in order to be identified as having a low probability for injury were: no midline cervical spine tenderness, no focal neurologic deficit, no intoxication, and no painful distracting injury. The rule was 99.0% sensitive and 12.9% specific for detecting acute cervical spine injury.</p> <p>Stiell IG, Wells GA, Vandemheen KL et al. The Canadian C-spine rule for radiography in alert and stable trauma patients. JAMA. 2001;286(15):1841-8.</p> <p>Through a prospective cohort study involving almost 9000 patients, the authors identify a clinical decision rule to decide which patients with blunt trauma do not require cervical spine radiographs. A 3-part rule was created, with any one of 3 high-risk criteria mandating radiography (age &gt; 65years, dangerous mechanism, extremity paresthasias). For patients without high-risk criteria and any one of the following low risk criteria (simple rear end MVC, sitting position in ED, ambulatory at any time, delayed onset of neck pain, absence of midline C-spine tenderness) and ability to actively rotate neck 45degrees left and right, no radiography is required. The rule was 100% sensitive and 42.5% specific for cervical spine injury.</p> <p>Stiell IG, Clement CM, McKnight RD et al. The Canadian C-spine rule versus the NEXUS low-risk criteria in patients with trauma. N Engl J Med. 2003; 349:2510-8.</p> <p>The authors of the Canadian C-spine Rule (CCR) compare the CCR against the NEXUS criteria in this study involving over 8000 patients. The CCR was found to be more sensitive than the NEXUS criteria (99.4% vs 90.7%) and more specific (45.1% vs 36.8%), and would have resulted in lower rates of radiography (55.9% vs 66.6%).</p> <p>Stiell IG, Clement CM, Grimshaw J. Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. BMJ 2009;339: b4146.</p> <p>The authors of the CCR study the effect of a low-cost strategy to implement the CCR in Emergency</p>	<p style="text-align: right;">1c  <input type="checkbox"/> C  <input type="checkbox"/> P  <input type="checkbox"/> M  <input type="checkbox"/> N</p>

**Comment [k4]:** 1c. The measure focus is:

- an outcome (e.g., morbidity, mortality, function, health-related quality of life) that is relevant to, or associated with, a national health goal/priority, the condition, population, and/or care being addressed;
- OR
- if an intermediate outcome, process, structure, etc., there is evidence that supports the specific measure focus as follows:
  - Intermediate outcome** - evidence that the measured intermediate outcome (e.g., blood pressure, Hba1c) leads to improved health/avoidance of harm or cost/benefit.
  - Process** - evidence that the measured clinical or administrative process leads to improved health/avoidance of harm and if the measure focus is on one step in a multi-step care process, it measures the step that has the greatest effect on improving the specified desired outcome(s).
  - Structure** - evidence that the measured structure supports the consistent delivery of effective processes or access that lead to improved health/avoidance of harm or cost/benefit.
  - Patient experience** - evidence that an association exists between the measure of patient experience of health care and the outcomes, values and preferences of individuals/ the public.
  - Access** - evidence that an association exists between access to a health service and the outcomes of, or experience with, care.
  - Efficiency** - demonstration of an association between the measured resource use and level of performance with respect to one or more of the other five IOM aims of quality.

**Comment [k5]:** 4 Clinical care processes typically include multiple steps: assess → identify problem/potential problem → choose/plan intervention (with patient input) → provide intervention → evaluate impact on health status. If the measure focus is one step in such a multi-step process, the step with the greatest effect on the desired outcome should be selected as the focus of measurement. For example, although assessment of immunization status and recommending immunization are necessary steps, they are not sufficient to achieve the desired impact on health status - patients must be vaccinated to achieve immunity. This does not preclude consideration of measures of preventive screening interventions where there is a strong link with desired outcomes (e.g., mammography) or measures for multiple care processes that affect a single outcome.

Departments across Canada. Over 11,000 patients were studied in a matched pair cluster randomized trial in which a combination of strategies including education, policy and real-time reminders were used at intervention sites to improve implementation of the CCR. The intervention sites showed a relative reduction in cervical spine imaging of 12.8% while the control sites observed a relative increase of 12.5% over the study period, and no fractures were missed.

**1c.5 Rating of strength/quality of evidence** (also provide narrative description of the rating and by whom):

While a number of large prospective cohort studies have been published demonstrating the validity of the NEXUS and Canadian C-spine rules, and a randomized trial has demonstrated the effectiveness of the Canadian C-spine rule to reduce radiography we are not aware of any formal rating of the evidence to date.

**1c.6 Method for rating evidence:**

**1c.7 Summary of Controversy/Contradictory Evidence:** Since the publication of these two decision rules clinical practice in the United States has been shifting from primary use of plain radiography to increasing use of computed tomography (CT). Many emergency department patients in whom clinicians have a suspicion of fracture undergo computed tomography of the cervical spine as the first full imaging modality of the C-spine. Although CT scans have been shown to be more sensitive than plain radiography,(1) we know of no published data that shows an outcome benefit to routine use of cervical spine CT for patients at low risk of cervical spine fracture. Furthermore, the strength of the evidence behind both clinical decision rules, essentially tens of thousands of patients who have been safely evaluated with these rules, supports the corollary argument: if one is going to use the CT as the initial imaging modality of choice for patients at low risk of a cervical spine fracture, then a decision rule should still be followed.

**1c.8 Citations for Evidence (other than guidelines):** Stiell IG, Wells GA, Vandemheen K et al. Variation in emergency department use of cervical spine radiography for alert, stable trauma patients. CMAJ 1997; 156(11): 1537-1544.

Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. N Engl J Med. 2000; 343(2):94-9. Erratum in: N Engl J Med 2001; 344(6):464.

Stiell IG, Wells GA, Vandemheen KL et al. The Canadian C-spine rule for radiography in alert and stable trauma patients. JAMA. 2001;286(15):1841-8.

Stiell IG, Clement CM, McKnight RD et al. The Canadian C-spine rule versus the NEXUS low-risk criteria in patients with trauma. N Engl J Med. 2003; 349:2510-8.

Stiell IG, Clement CM, Grimshaw J. Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. BMJ 2009;339: b4146.

(1) Daffner RH. Controversies in cervical spine imaging in trauma patients. Emerg Rad 2004; 11: 2-8.

**1c.9 Quote the Specific guideline recommendation (including guideline number and/or page number):**

**1c.10 Clinical Practice Guideline Citation:**

**1c.11 National Guideline Clearinghouse or other URL:**

**1c.12 Rating of strength of recommendation** (also provide narrative description of the rating and by whom):

**Comment [k6]:** 3 The strength of the body of evidence for the specific measure focus should be systematically assessed and rated (e.g., USPSTF grading system <http://www.ahrq.gov/clinic/uspstf07/methods/benefit.htm>). If the USPSTF grading system was not used, the grading system is explained including how it relates to the USPSTF grades or why it does not. However, evidence is not limited to quantitative studies and the best type of evidence depends upon the question being studied (e.g., randomized controlled trials appropriate for studying drug efficacy are not well suited for complex system changes). When qualitative studies are used, appropriate qualitative research criteria are used to judge the strength of the evidence.

**Comment [k7]:** USPSTF grading system <http://www.ahrq.gov/clinic/uspstf/grades.htm>: A - The USPSTF recommends the service. There is high certainty that the net benefit is substantial. B - The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. C - The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small. Offer or provide this service only if other considerations support the offering or providing the service in an individual patient. D - The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. I - The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

<p><b>1c.13 Method for rating strength of recommendation</b> (If different from USPSTF system, also describe rating and how it relates to USPSTF):</p> <p><b>1c.14 Rationale for using this guideline over others:</b>                  The NEXUS criteria and the Canadian C-spine Rule are both highly sensitive clinical decision rules derived from large prospective cohort studies, have been multiply validated, and demonstrated significant potential to reduce unnecessary imaging of the cervical spine. As both rules are used by many clinicians, we have developed this performance measure to allow the use of either clinical decision rule.</p>	
<p><b>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for Importance to Measure and Report?</b></p>	1
<p><b>Steering Committee: Was the threshold criterion, Importance to Measure and Report, met? Rationale:</b></p>	1 Y <input type="checkbox"/> N <input type="checkbox"/>
<p><b>2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES</b></p>	
<p>Extent to which the measure, <u>as specified</u>, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)</p>	Eval Rating
<p><b>2a. MEASURE SPECIFICATIONS</b></p>	
<p><b>S.1 Do you have a web page where current detailed measure specifications can be obtained?</b>  <b>S.2 If yes, provide web page URL:</b></p>	
<p><b>2a. Precisely Specified</b></p> <p><b>2a.1 Numerator Statement</b> (Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome):                  Number of denominator patients who have a documented evidence-based indication prior to imaging.</p> <p><b>2a.2 Numerator Time Window</b> (The time period in which cases are eligible for inclusion in the numerator):                  Numerator and denominator data will be collected concurrently at the index visit only, and will not be measured over subsequent time intervals.</p> <p><b>2a.3 Numerator Details</b> (All information required to collect/calculate the numerator, including all codes, logic, and definitions):                  Number of patients who receive cervical spine imaging who either:</p> <p>1. Fulfill any of the following NEXUS Low-Risk Criteria* for cervical spine injury:</p> <ul style="list-style-type: none"> <li>- posterior mid-line cervical spine tenderness</li> <li>- painful distracting injury</li> <li>- neurological deficits</li> <li>- reduced level of consciousness or intoxication</li> </ul> <p>OR</p> <p>2. Fulfill the Canadian Cervical Spine Rule Criteria* for cervical spine radiography by having</p> <p>a. Any of the following high risk factors that mandates radiography</p> <ul style="list-style-type: none"> <li>- Dangerous Mechanism**</li> <li>- Paresthesias in the extremities</li> </ul> <p>or (b&amp;c)</p> <p>b. None of the following low-risk factors that allows safe assessment of range of motion. (If there is not a low-risk factor which permits safe assessment of the range of motion then radiography should be performed).</p>	<p style="text-align: center;">2a- specs C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>

**Comment [KP8]:** 2a. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. The required data elements are of high quality as defined by NQF's Health Information Technology Expert Panel (HITEP).

<p>i. Simple rear-end collision (excluding rollover, collision with bus, large truck, vehicle traveling at high speeds or being pushed into oncoming traffic), or</p> <p>ii. Patient found sitting in the Emergency Department, or</p> <p>iii. Ambulatory after the incident, or</p> <p>iv. Delayed onset of neck pain, or</p> <p>v. Absence of any midline cervical spine tenderness.</p> <p>and</p> <p>c. inability to adequately “range of motion” their neck.</p> <p>- Is the patient able to actively rotate the neck 45 degrees to the left and right? (If the patient is unable, radiography should be performed; otherwise radiography should not be performed).</p> <p>*The clinical decision rules were developed for plain radiography, but are appropriate for similarly selected patients in whom CT scanning is the initial imaging modality</p> <p>**Dangerous mechanisms include a fall from an elevation of 3 feet or 5 stairs, an axial load to the head (e.g., diving); a motor vehicle collision at high speed (&gt;100 kph or 60 mph), or with rollover or ejection; a collision involving a motorized recreational vehicle, or a bike collision.</p>
<p><b>2a.4 Denominator Statement</b> (<i>Brief, text description of the denominator - target population being measured</i>):                  Number of adult patients undergoing cervical spine radiography or CT for trauma (as initial imaging of C-spine)</p> <p><b>2a.5 Target population gender:</b> Female, Male</p> <p><b>2a.6 Target population age range:</b> The target population includes all patients age 16-65.</p> <p><b>2a.7 Denominator Time Window</b> (<i>The time period in which cases are eligible for inclusion in the denominator</i>):                  Numerator and denominator data will be collected concurrently at the index visit only, and will not be measured over subsequent time intervals.</p> <p><b>2a.8 Denominator Details</b> (<i>All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions</i>):                  Age 16 - 65 years of age                  Underwent cervical spine imaging as initial full imaging test of the cervical spine                  Traumatic indication for imaging</p>
<p><b>2a.9 Denominator Exclusions</b> (<i>Brief text description of exclusions from the target population</i>): Patients who have not experienced trauma                  &lt;16 years of age or &gt;65 years of age                  Patients with a reduced ability to communicate (verbal or cognitive dysfunction)                  Underwent prior cervical spine radiograph (3 view or more) that is interpreted as inadequate to fully assess fracture                  Underwent prior imaging concerning or diagnostic for injury of the cervical spine requiring further imaging</p> <p><b>2a.10 Denominator Exclusion Details</b> (<i>All information required to collect exclusions to the denominator, including all codes, logic, and definitions</i>):</p>
<p><b>2a.11 Stratification Details/Variables</b> (<i>All information required to stratify the measure including the stratification variables, all codes, logic, and definitions</i>):</p>
<p><b>2a.12-13 Risk Adjustment Type:</b> No risk adjustment necessary</p> <p><b>2a.14 Risk Adjustment Methodology/Variables</b> (<i>List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method</i>):</p>

**Comment [k9]:** 11 Risk factors that influence outcomes should not be specified as exclusions.  
 12 Patient preference is not a clinical exception to eligibility and can be influenced by provider interventions.

2a.15-17 Detailed risk model available Web page URL or attachment:	
2a.18-19 Type of Score: <a href="#">Rate/proportion</a> 2a.20 Interpretation of Score: 2a.21 Calculation Algorithm ( <i>Describe the calculation of the measure as a flowchart or series of steps</i> ): <a href="#">Please see diagram with measure specifications.</a>	
2a.22 Describe the method for discriminating performance ( <i>e.g., significance testing</i> ): <a href="#">This measure does not rely on significance testing. Rather rates of imaging use will be reported with the opportunity for classification by quintiles or other similar mechanisms based on initial reporting.</a>	
2a.23 Sampling (Survey) Methodology <i>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)</i> :	
2a.24 Data Source ( <i>Check the source(s) for which the measure is specified and tested</i> ) <a href="#">Paper medical record/flow-sheet, Electronic administrative data/claims, Electronic clinical data</a>	
2a.25 Data source/data collection instrument ( <i>Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.</i> ): <a href="#">Data will be collected from the medical record. No specific data collection instrument need 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.</a>	
2a.26-28 Data source/data collection instrument reference web page URL or attachment:	
2a.29-31 Data dictionary/code table web page URL or attachment:	
2a.32-35 Level of Measurement/Analysis ( <i>Check the level(s) for which the measure is specified and tested</i> ) <a href="#">Clinicians: Group, Facility/Agency, Population: national, Population: regional/network, Population: states</a>	
2a.36-37 Care Settings ( <i>Check the setting(s) for which the measure is specified and tested</i> ) <a href="#">Ambulatory Care: Emergency Dept, 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</a>	
2a.38-41 Clinical Services ( <i>Healthcare services being measured, check all that apply</i> ) <a href="#">Clinicians: Nurses, Clinicians: Physicians (MD/DO)</a>	
<b>TESTING/ANALYSIS</b>	
2b. Reliability testing	
2b.1 Data/sample ( <i>description of data/sample and size</i> ): <a href="#">The guidelines used as the basis for the measure are drawn from large prospective cohort studies conducted in the United States, Canada and Europe deriving and validating clinical decision rules. The evidence for these rules is strong and non-conflicting. In addition to the evidence base of these guidelines, we are current engaging in internal quality improvement initiatives intended to measure the efficiency of cervical spine imaging for trauma patients in the ED.</a>	
2b.2 Analytic Method ( <i>type of reliability &amp; rationale, method for testing</i> ):	
2b.3 Testing Results ( <i>reliability statistics, assessment of adequacy in the context of norms for the test conducted</i> ):	2b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
2c. Validity testing	
2c.1 Data/sample ( <i>description of data/sample and size</i> ):	2c C <input type="checkbox"/> P <input type="checkbox"/>

**Comment [KP10]:** 2b. Reliability testing demonstrates the measure results are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period.

**Comment [k11]:** 8 Examples of reliability testing include, but are not limited to: inter-rater/abstractor or intra-rater/abstractor studies; internal consistency for multi-item scales; test-retest for survey items. Reliability testing may address the data items or final measure score.

**Comment [KP12]:** 2c. Validity testing demonstrates that the measure reflects the quality of care provided, adequately distinguishing good and poor quality. If face validity is the only validity addressed, it is systematically assessed.

<p><b>2c.2 Analytic Method</b> (<i>type of validity &amp; rationale, method for testing</i>):</p> <p><b>2c.3 Testing Results</b> (<i>statistical results, assessment of adequacy in the context of norms for the test conducted</i>):</p>	<p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>
<p><b>2d. Exclusions Justified</b></p> <p><b>2d.1 Summary of Evidence supporting exclusion(s):</b>                  These exclusions are based largely on the exclusions cited in the original research on which the NEXUS criteria and Canadian C-spine rule were based. Given that the measure is designed to assess compliance with validated decision rules in patients with trauma, atraumatic patients are excluded. While the original NEXUS study did include children under 16-years of age, the numbers were small and may not have been sufficient to fully assess the function of the rule (1), and the Canadian C-spine rule excluded children under 16-years of age (2). This is reasonable because of immature anatomy in children and a higher likelihood of spinal cord injury without radiologic abnormality (SCIWORA). As the Canadian C-spine rule identified age greater than 65 as a high-risk feature mandating radiography, age greater than 65 is an exclusion criterion. Patients with a reduced ability to communicate are excluded because both clinical decision rules depend on interaction with the patient to allow a complete clinical evaluation, and inability of the patient to communicate limits the clinical assessment. Finally, because these rules are designed for the initial evaluation of the cervical spine of trauma patients, they are not applicable to patients with prior imaging that was either concerning for fracture or non-diagnostic.</p> <p><b>2d.2 Citations for Evidence:</b>                  (1) Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI. Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. N Engl J Med. 2000; 343(2):94-9. Erratum in: N Engl J Med 2001; 344(6):464.                  (2) Stiell IG, Wells GA, Vandemheen KL et al. The Canadian C-spine rule for radiography in alert and stable trauma patients. JAMA. 2001;286(15):1841-8.</p> <p><b>2d.3 Data/sample</b> (<i>description of data/sample and size</i>):</p> <p><b>2d.4 Analytic Method</b> (<i>type analysis &amp; rationale</i>):</p> <p><b>2d.5 Testing Results</b> (<i>e.g., frequency, variability, sensitivity analyses</i>):</p>	<p>2d</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p><b>2e. Risk Adjustment for Outcomes/ Resource Use Measures</b></p> <p><b>2e.1 Data/sample</b> (<i>description of data/sample and size</i>):</p> <p><b>2e.2 Analytic Method</b> (<i>type of risk adjustment, analysis, &amp; rationale</i>):</p> <p><b>2e.3 Testing Results</b> (<i>risk model performance metrics</i>):</p> <p><b>2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:</b></p>	<p>2e</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p><b>2f. Identification of Meaningful Differences in Performance</b></p> <p><b>2f.1 Data/sample from Testing or Current Use</b> (<i>description of data/sample and size</i>):</p> <p><b>2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance</b> (<i>type of analysis &amp; rationale</i>):</p>	<p>2f</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable

**Comment [k13]:** 9 Examples of validity testing include, but are not limited to: determining if measure scores adequately distinguish between providers known to have good or poor quality assessed by another valid method; correlation of measure scores with another valid indicator of quality for the specific topic; ability of measure scores to predict scores on some other related valid measure; content validity for multi-item scales/tests. Face validity is a subjective assessment by experts of whether the measure reflects the quality of care (e.g., whether the proportion of patients with BP < 140/90 is a marker of quality). If face validity is the only validity addressed, it is systematically assessed (e.g., ratings by relevant stakeholders) and the measure is judged to represent quality care for the specific topic and that the measure focus is the most important aspect of quality for the specific topic.

**Comment [KP14]:** 2d. Clinically necessary measure exclusions are identified and must be:  
 •supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;  
 AND  
 •a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;  
 AND

**Comment [k15]:** 10 Examples of evidence that an exclusion distorts measure results include, but are not limited to: frequency of occurrence, sensitivity analyses with and without the exclusion, and variability of exclusions across providers.

**Comment [KP16]:** 2e. For outcome measures and other measures (e.g., resource use) when indicated:  
 •an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified and is based on patient clinical factors that influence the measured outcome (but not disparities in care) and are present at start of care;  
 OR

**Comment [k17]:** 13 Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care such as race, socioeconomic status, gender (e.g., poorer treatment outcomes of African American men with prostate cancer, inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race...

**Comment [KP18]:** 2f. Data analysis demonstrates that methods for scoring and analysis of the specified measure allow for identification of statistically significant and practically/clinically meaningful differences in performance.

**Comment [k19]:** 14 With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74% v. 75%) is clinically...

2f.3 Provide Measure Scores from Testing or Current Use ( <i>description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningful differences in performance</i> ):	
2g. Comparability of Multiple Data Sources/Methods	
2g.1 Data/sample ( <i>description of data/sample and size</i> ):	
2g.2 Analytic Method ( <i>type of analysis &amp; rationale</i> ):	2g C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
2g.3 Testing Results ( <i>e.g., correlation statistics, comparison of rankings</i> ):	
2h. Disparities in Care	
2h.1 If measure is stratified, provide stratified results ( <i>scores by stratified categories/cohorts</i> ):	2h C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for <i>Scientific Acceptability of Measure Properties</i> ?	2
Steering Committee: Overall, to what extent was the criterion, <i>Scientific Acceptability of Measure Properties</i> , met? Rationale:	2 C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
<b>3. USABILITY</b>	
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)	Eval Rating
3a. Meaningful, Understandable, and Useful Information	
3a.1 Current Use: <b>Testing not yet completed</b>	
3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) ( <i>If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years</i> ): We intend this measure to be suitable for public reporting in the future. We plan to continue our internal Quality Improvement study to demonstrate the efficiencies in imaging, which can be result from use of the measure.  Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition) Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	
3a.3 If used in other programs/initiatives ( <i>If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years</i> ):	3a C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
Testing of Interpretability ( <i>Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement</i> )	

**Comment [KP20]:** 2g. If multiple data sources/methods are allowed, there is demonstration they produce comparable results.

**Comment [KP21]:** 2h. If disparities in care have been identified, measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender); OR rationale/data justifies why stratification is not necessary or not feasible.

**Comment [KP22]:** 3a. Demonstration that information produced by the measure is meaningful, understandable, and useful to the intended audience(s) for both public reporting (e.g., focus group, cognitive testing) and informing quality improvement (e.g., quality improvement initiatives). An important outcome that may not have an identified improvement strategy still can be useful for informing quality improvement by identifying the need for and stimulating new approaches to improvement.

3a.4 Data/sample (description of data/sample and size):	
3a.5 Methods (e.g., focus group, survey, QI project):	
3a.6 Results (qualitative and/or quantitative results and conclusions):	
3b/3c. Relation to other NQF-endorsed measures	
3b.1 NQF # and Title of similar or related measures: NQF# 0512: Percentage of patients undergoing cervical spine radiographs in trauma who do not have neck pain, distracting pain, neurological deficits, reduced level of consciousness or intoxication.	
(for NQF staff use) Notes on similar/related endorsed or submitted measures:	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 Are the measure specifications harmonized? If not, why? Yes, these measures are harmonized and are a joint proposal from both Partners HealthCare and The University of Washington, the measure stewards for NQF# 0512. Both measures address the appropriateness of cervical spine imaging in patients with trauma, with the new harmonized measure adding CT imaging to the radiography already measured.	3b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
3c. Distinctive or Additive Value 3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures: The harmonized measure adds the measurement of the appropriateness of CT imaging to the existing measure. The newly proposed measure addresses the use of cervical spine CT in patients with trauma, where as the previously endorsed rule only addresses the use of plain radiography. As use of CT of the cervical spine becomes more prevalent, it is essential to have quality measures that specifically address its use. Furthermore, the newly proposed measure includes not only the NEXUS criteria, but also the Canadian Cervical Spine Rule as appropriate criteria for ordering cervical spine imaging in trauma. There is evidence to suggest that the Canadian Cervical Spine Rule is equally sensitive and more specific, and therefore more efficient at reducing unnecessary imaging within the and NEXUS criteria. Given that they are both well-validated, highly sensitive rules and individual physicians may have preferences for either of the rules, they should both be appropriate criteria for CT in a quality measure.	3c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality: The newly proposed measure is meant to expand upon the existing measure by including both CT and plain radiography.	3c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for Usability?	3
Steering Committee: Overall, to what extent was the criterion, Usability, met? Rationale:	3 C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
<b>4. FEASIBILITY</b>	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes	4a C <input type="checkbox"/> P <input type="checkbox"/>
4a.1-2 How are the data elements that are needed to compute measure scores generated?	

**Comment [KP23]:** 3b. The measure specifications are harmonized with other measures, and are applicable to multiple levels and settings.

**Comment [k24]:** 16 Measure harmonization refers to the standardization of specifications for similar measures on the same topic (e.g., influenza immunization of patients in hospitals or nursing homes), or related measures for the same target population (e.g., eye exam and HbA1c for patients with diabetes), or definitions applicable to many measures (e.g., age designation for children) so that they are uniform or compatible, unless differences are dictated by the evidence. The dimensions of harmonization can include numerator, denominator, exclusions, and data source and collection instructions. The extent of harmonization depends on the relationship of the measures, the evidence for the specific measure focus, and differences in data sources.

**Comment [KP25]:** 3c. Review of existing endorsed measures and measure sets demonstrates that the measure provides a distinctive or additive value to existing NQF-endorsed measures (e.g., provides a more complete picture of quality for a particular condition or aspect of healthcare, is a more valid or efficient way to measure).

**Comment [KP26]:** 4a. For clinical measures, required data elements are routinely generated concurrent with and as a byproduct of care processes during care delivery. (e.g., BP recorded in the electronic record, not abstracted from the record later by other personnel; patient self-assessment tools, e.g., depression scale; lab values, meds, etc.)

<p>Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition)</p>	<p>M <input type="checkbox"/> N <input type="checkbox"/></p>
<p><b>4b. Electronic Sources</b></p> <p><b>4b.1</b> Are all the data elements available electronically? (<i>elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims</i>) No</p> <p><b>4b.2</b> If not, specify the near-term path to achieve electronic capture by most providers. 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.</p> <p>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.</p>	<p>4b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p><b>4c. Exclusions</b></p> <p><b>4c.1</b> Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?</p> <p><b>4c.2</b> If yes, provide justification.</p>	<p>4c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/></p>
<p><b>4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences</b></p> <p><b>4d.1</b> Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results. As with any NQF measure 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.</p> <p>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.</p>	<p>4d C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p><b>4e. Data Collection Strategy/Implementation</b></p> <p><b>4e.1</b> 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/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues: 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</p>	<p>4e C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>

**Comment [KP27]:** 4b. The required data elements are available in electronic sources. If the required data are not in existing electronic sources, a credible, near-term path to electronic collection by most providers is specified and clinical data elements are specified for transition to the electronic health record.

**Comment [KP28]:** 4c. Exclusions should not require additional data sources beyond what is required for scoring the measure (e.g., numerator and denominator) unless justified as supporting measure validity.

**Comment [KP29]:** 4d. Susceptibility to inaccuracies, errors, or unintended consequences and the ability to audit the data items to detect such problems are identified.

**Comment [KP30]:** 4e. Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, etc.) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use).

<p>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.</p> <p><b>4e.2 Costs to implement the measure</b> (<i>costs of data collection, fees associated with proprietary measures</i>):                  The cost to implement this measure will depend on the method used to collect data. An electronic order entry system, after it is programmed, will be able to determine guideline-appropriateness for little or no cost other than that associated with the programming. Personnel time will be needed if paper medical records are to be reviewed in order to determine the appropriateness of individual CTs.</p> <p><b>4e.3 Evidence for costs:</b></p> <p><b>4e.4 Business case documentation:</b></p>	
<b>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for <i>Feasibility</i>?</b>	4
<p><b>Steering Committee: Overall, to what extent was the criterion, <i>Feasibility</i>, met?</b>                  Rationale:</p>	4 C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
<b>RECOMMENDATION</b>	
<b>(for NQF staff use)</b> Check if measure is untested and only eligible for time-limited endorsement.	Time-limited <input type="checkbox"/>
<p><b>Steering Committee: Do you recommend for endorsement?</b>                  Comments:</p>	Y <input type="checkbox"/> N <input type="checkbox"/> A <input type="checkbox"/>
<b>CONTACT INFORMATION</b>	
<p><b>Co.1 Measure Steward (Intellectual Property Owner)</b>  <b>Co.1 Organization</b>                  Partners HealthCare System, Inc., Prudential Tower, 800 Boylston Street, Suite 1150, Boston, Massachusetts, 02199-8001</p> <p><b>Co.2 Point of Contact</b>                  Sheridan, Kassirer, Vice President, Quality Management and Clinical Programs, eesheppare@partners.org, 617-278-1036-</p>	
<p><b>Measure Developer If different from Measure Steward</b>  <b>Co.3 Organization</b>                  Partners HealthCare System, Inc., Prudential Tower, 800 Boylston Street, Suite 1150, Boston, Massachusetts, 02199-8001</p> <p><b>Co.4 Point of Contact</b>                  Jeremiah, Schuur, MD, MHS, jschuur@partners.org, 617-525-8872-</p>	
<p><b>Co.5 Submitter If different from Measure Steward POC</b>                  Jeremiah, Schuur, MD, MHS, jschuur@partners.org, 617-525-8872-, Partners HealthCare System, Inc.</p>	
<b>Co.6 Additional organizations that sponsored/participated in measure development</b>	
<b>ADDITIONAL INFORMATION</b>	
<p>Workgroup/Expert Panel involved in measure development  <b>Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.</b></p>	

Ad.2 If adapted, provide name of original measure: Ad.3-5 If adapted, provide original specifications URL or attachment
Measure Developer/Steward Updates and Ongoing Maintenance Ad.6 Year the measure was first released: 2009 Ad.7 Month and Year of most recent revision: 2009 Ad.8 What is your frequency for review/update of this measure? Every 2 years. Ad.9 When is the next scheduled review/update for this measure? 2011
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment:
Date of Submission (MM/DD/YY): 07/09/2010

**Page 9: [1] Comment [KP14]** **Karen Pace** **10/5/2009 8:59:00 AM**

2d. Clinically necessary measure exclusions are identified and must be:

- supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;
- AND
- a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;
- AND
- precisely defined and specified:
    - if there is substantial variability in exclusions across providers, the measure is specified so that exclusions are computable and the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion);

if patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that it strongly impacts performance on the measure and the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).

**Page 9: [2] Comment [KP16]** **Karen Pace** **10/5/2009 8:59:00 AM**

2e. For outcome measures and other measures (e.g., resource use) when indicated:

- an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified and is based on patient clinical factors that influence the measured outcome (but not disparities in care) and are present at start of care;<sup>Error! Bookmark not defined.</sup> OR

rationale/data support no risk adjustment.

**Page 9: [3] Comment [k17]** **Karen Pace** **10/5/2009 8:59:00 AM**

13 Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care such as race, socioeconomic status, gender (e.g., poorer treatment outcomes of African American men with prostate cancer, inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than adjusting out differences.

**Page 9: [4] Comment [k19]** **Karen Pace** **10/5/2009 8:59:00 AM**

14 With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74% v. 75%) is clinically meaningful; or whether a statistically significant difference of \$25 in cost for an episode of care (e.g., \$5,000 v. \$5,025) is practically meaningful. Measures with overall poor performance may not demonstrate much variability across providers.