NATIONAL QUALITY FORUM

Measure Submission and Evaluation Worksheet 5.0

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

NQF #: 0471 NQF Project: Perinatal and Reproductive Health Project

(for Endorsement Maintenance Review)
Original Endorsement Date: Oct 24, 2008 Most Recent Endorsement Date: Oct 24, 2008

BRIEF MEASURE INFORMATION

De.1 Measure Title: PC-02 Cesarean Section

Co.1.1 Measure Steward: The Joint Commision

De.2 Brief Description of Measure: This measure assesses the number of nulliparous women with a term, singleton baby in a vertex position delivered by cesarean section. This measure is part of a set of five nationally implemented measures that address perinatal care (PC-01: Elective Delivery, PC-03: Antenatal Steroids, PC-04: Health Care-Associated Bloodstream Infections in Newborns, PC-05: Exclusive Breast Milk Feeding).

2a1.1 Numerator Statement: Patients with cesarean sections with ICD-9-CM Principal Procedure Code or ICD-9-CM Other Procedure Codes for cesarean section as defined in Appendix A, Table 11.06 available at: http://manual.jointcommission.org

2a1.4 Denominator Statement: Nulliparous patients delivered of a live term singleton newborn in vertex presentation

2a1.8 Denominator Exclusions: • ICD-9-CM Principal Diagnosis Code or ICD-9-CM Other Diagnosis Codes for contraindications to vaginal delivery as defined in Appendix A, Table 11.09

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of Stay >120 days
- Enrolled in clinical trials

1.1 Measure Type: Outcome
2a1. 25-26 Data Source: Administrative claims, Paper Records
2a1.33 Level of Analysis: Facility, Population : National

1.2-1.4 Is this measure paired with another measure? No

De.3 If included in a composite, please identify the composite measure (*title and NQF number if endorsed*):
Not Applicable

STAFF NOTES (*issues or questions regarding any criteria*)

Comments on Conditions for Consideration:

Is the measure untested? Yes☐ No☐ If untested, explain how it meets criteria for consideration for time-limited endorsement:

1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (*check De.5*):
5. Similar/related endorsed or submitted measures (*check 5.1*):
Other Criteria:

Staff Reviewer Name(s):

1. IMPACT, OPPORTUITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT

Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See guidance on evidence.
Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria. (evaluation criteria)

1a. High Impact: H☐ M☐ L☐ I ☐
(*The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.*)

De.4 Subject/Topic Areas *(Check all the areas that apply)*: Perinatal
De.5 Cross Cutting Areas (*Check all the areas that apply)*: Disparities, Overuse, Safety : Complications

1a.1 Demonstrated High Impact Aspect of Healthcare: Affects large numbers, A leading cause of morbidity/mortality, Frequently performed procedure, High resource use

1a.2 If "Other," please describe:

1a.3 Summary of Evidence of High Impact *(Provide epidemiologic or resource use data)*:
The growing support for the claim that provider-dependent indications are contributing to the overall increase among cesareans can be seen from the results of two recent studies examining the drivers for the increase in cesarean deliveries. Barber et al. (2011) at Yale analyzed primary and repeat cesareans from 2003 to 2009. Among primary cesarean deliveries, more subjective indications (non-reassuring fetal status and arrest of dilation) contributed larger proportions than more objective indications (malpresentation, maternal-fetal, and obstetric conditions). Similarly, Getahun et al. (2009) examined the causes for the rise in cesarean deliveries among different racial and ethnic groups in Kaiser Permanente Southern California over the last 17 years. Their findings were similar to those from Yale. In a retrospective cohort study conducted by Ehrenthal et al. (2010), labor induction was associated with a twofold increase in the odds of a cesarean delivery after adjustment for confounders. This was more pronounced among a low-risk group of women without major complications.
Beyond the medical burden to mothers and babies, the financial burden on payers is large: facility charges for cesarean are nearly twice that for vaginal delivery ($24,700 vs. $14,500). In California alone, the additional heath care costs to the system are conservatively estimated to be over $300 million annually (Main et al., 2011)

The most frequent causes of severe maternal morbidity are obstetric hemorrhage (bleeding) and uterine infection. These are significantly more common with cesarean surgery and also represent the two leading causes of hospital readmission in the first 30 days post delivery. A recent CDC analysis showed that the rate of severe obstetric hemorrhage has significantly increased (by 50%) over the last 15 years in the U.S. There has also been a 270% increase in blood transfusions, with both hemorrhage and transfusions correlated to the rise in cesarean deliveries. Infection is the most common serious complication of cesarean delivery with typical rates of 3 to 9% (Kuklina et al., 2009).

The American College of Obstetrics and Gynecology (ACOG) report, "Evaluation of Cesarean Delivery," recognizes the importance of the Nulliparous, Term Singleton Vertex (NTSV) population as the optimal focus for measurement and quality improvement action. Furthermore, the report identified a target of 15.5% for NTSV births, one recommended by the National Center for Health Statistics. Although the ACOG target rate was directed at the NTSV cesarean delivery rate, the recommendation has been widely misread as recommending a 15.5% total cesarean delivery rate (ACOG, 2000).
In its 2000 report, ACOG formally recommended that NTSV Cesarean Delivery Rate be used to benchmark all U.S. hospitals and practitioners. This measure and target was then endorsed by the United States Healthy People 2010 objectives: 16-9 (DHHS, 2000). This same measure has been reaffirmed in Healthy People 2020 (MICH-7.1) but with a more modest target of a 23.9% NTSV rate (DHHS, 2010).

1a.4 Citations for Evidence of High Impact cited in 1a.3:

- American College of Obstetricians and Gynecologists (ACOG). (2000). Task Force on cesarean Delivery Rates. Evaluation of Cesarean Delivery.
- Barber EL, Lundsberg LS, Belanger K, Pettker CM, Funai EF, Illuzzi JL. (2011). Indications contributing to the increasing cesarean delivery rate. Am J Obstet Gynecol. 118(1):29-38.
- Ehrenthal, DB, Jiang, X, & Strobino, DM. (2010). Labor induction and the risk of a cesarean delivery among nulliparous women at term. Am J Obstet Gynecol. 116(1):35-42.

- Getahun D, Strickland D, Lawrence JM, Fassett MJ, Koebnick C, Jacobsen SJ. (2009). Racial and ethnic disparities in the trends in primary cesarean delivery based on indications. Am J Obstet Gynecol. 201(4):422 e421-427.
- Kuklina EV, Meikle SF, Jamieson DJ, et al. (2009).Severe Obstetric Morbidity in the United States: 1998-2005. Obstetrics and Gynecology.113(2):293-299.
- Main EK, Morton CH, Hopkins D, Giuliani G, Melsop K and Gould JB. (2011). Cesarean Deliveries, Maternal Outcomes, and Opportunities for Change in California. Palo Alto, CA: CMQCC. Available at: www.cmqcc.org
- US Department of Health and Human Services (DHHS). (2000). Healthy People 2010. Washington, DC. Retrieved on Setember 26, 2011 at: http://www.healthypeople.gov/2010
- US Department of Health and Human Services (DHHS). (2010). Healthy People 2020. Washington, DC. Retrieved on September 26, 2011 at: http://www.healthypeople.gov/2020

1b. Opportunity for Improvement: H☐ M☐ L☐ I ☐
(*There is a demonstrated performance gap - variability or overall less than optimal performance*)

1b.1 Briefly explain the benefits (improvements in quality) envisioned by use of this measure:
A reduction in the number of nulliparous patients with live term singleton newborns in vertex position delivering by cesarean section will result in increased patient safety, a substantial decrease in maternal and neonatal morbidity and substantial savings in health care costs. Successful quality improvement efforts incorporate audit and feedback strategies combined with provider and nurse education, guidelines and peer review

The measure will assist health care organizations (HCOs) to track nulliparous patients with live term singleton newborns in vertex position delivering by cesarean section to reduce the occurrence.

In addition, a reduction in primary cesarean sections will reduce the number of women having repeat cesarean sections (currently >90% of mothers who have a primary cesarean section will have a Cesarean for all her subsequent births). Thus, improvement in the rates of cesarean section for the first birth will reduce the morbidity of all future births and avoid all the controversies with trial of labor after cesarean/elective repeat cesareans.

1b.2 Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers)*:
[*For Maintenance – Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.*]
Brennan et al. (2009) examined several different ways of measuring cesarean birth. They found significant variation among hospitals, with greatest variation in spontaneously laboring women, both nulliparous (NTSV) (3.7-fold variation with the highest impact on the total cesarean rate) and multiparous (6.7-fold variation but lower impact because of the lower overall rate). The hospital total cesarean delivery rates were highly correlated with the NTSV cesarean rates. Indeed, they found that nearly 98% of inter-hospital variation in overall cesarean delivery rates can be attributed to NTSV rates. This confirms earlier studies showing wide variation in NTSV cesarean births among hospitals in Arizona, Northern California and among obstetricians in one large hospital (Coonrod et al., 2008; Main et al., 2006; Main, 1999).

In California, rates of cesarean delivery show considerable variation across geographic regions, hospitals and providers. After adjusting for differences in health, variation in a health care procedure can be an indicator of a quality improvement opportunity–signaling overuse of the procedure that is not medically indicated or harmful to patients (Wennberg, 2002). Studies have shown that regional variation diminishes as quality improves. Thus, studies examining regional variations in cesarean delivery rates across populations have provided initial and compelling assessments as to whether the surgical procedure is being used appropriately. Low-risk, primary cesarean delivery rates at some hospitals in California are more than 45%, 3-fold higher than the Healthy People 2010 benchmark of 15%.

Based on 4 quarters of data reported to The Joint Commission, PC-02 has an aggregate actual performance rate of 27.7 %, indicating a potential performance gap of 12.2% or 3.8%, depending on which of the targets noted above is used.

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

- Brennan, DJ, Robson, MS, Murphy, M, O´Herlihy, C. (2009). Comparative analysis of international cesarean delivery rates using 10-group classification identifies significant variation in spontaneous labor. American Journal of Obstetrics and Gynecology. 201(3):308 e301-308.

- Coonrod, DV, Drachman, D, Hobson, P, Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. American Journal of Obstetrics and Gynecology. 198(6):694 e691-611; discussion 694 e611.
- Main, EK, Moore, D, Farrell, B., et al. (2006). Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. American Journal of Obstetrics and Gynecology. 194(6):1644-1651; discussion 1651-1642.
- Main, EK. (1999). Reducing cesarean birth rates with data-driven quality improvement activities. Pediatrics.103(1 Suppl E):374-383.
- The Joint Commission, unpublished data, 2011.
- Wennberg, J. (2002). Unwarranted variations in healthcare delivery: implications for academic medical centres. British Medical Journal. 325:961-964.

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

Within California, Braveman et al. (1995) examined whether there was an independent association with cesarean delivery and women's socioeconomic characteristics and type of hospital. There was large variation between the types of hospital ownership. County hospitals had 47% fewer primary cesarean deliveries than noted in private for-profit hospitals. After controlling for insurance, personal, community, medical and hospital characteristics, African American women were 24% more likely to undergo cesarean delivery than whites. 2007 data from the California Office of Statewide Hospital Planning and Development (OSHPD) continued to report that African American populations tend to have higher NTSV cesarean rates even after adjustment for clinical factors, again leading to suspicion that provider attributes may play a role (OSHPD, 2007).

A large retrospective cohort study of cesarean deliveries at a large regional US hospital was conducted from 2003-2006. Factors associated with greater odds of cesarean delivery included African American race, marital status, patient type, insurance type, and age older than 35 years (Ehrenthal et al., 2010).

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

- Braveman, P, Egerter, S, Edmonston, F, Verdon, M. (1995). Racial/ethnic differences in the likelihood of cesarean delivery, California. Am J Public Health. 85(5):625-630.
- California Office of Statewide Hospital Planning and Development (OSHPD). (2007). Utilization Rates for Selected Medical Procedures in California Hospitals, Retrieved from the Internet on September 26, 2011 at: http://www.oshpd.ca.gov/HID/Products/PatDischargeData/ResearchReports/HospIPQualInd/Vol-Util_IndicatorsRpt/2007Util.pdf
- Ehrenthal, DB, Jiang, X, & Strobino, DM. (2010). Labor induction and the risk of a cesarean delivery among nulliparous women at term. Am J Obstet Gynecol . 116(1):35-42.

1c. Evidence (*Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.*)
Is the measure focus a health outcome? Yes☐ No☐ If not a health outcome, rate the body of evidence.

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

Quantity	Quality	Consistency	Does the measure pass subcriterion1c?
M-H	M-H	M-H	Yes☐
L	M-H	M	Yes☐ IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise No☐
M-H	L	M-H	Yes☐ IF potential benefits to patients clearly outweigh potential harms: otherwise No☐
L-M-H	L-M-H	L	No ☐

Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service	Does the measure pass subcriterion1c? Yes☐ IF rationale supports relationship

1c.1 Structure-Process-Outcome Relationship *(Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome)*:

The focus of the measure is to decrease the number of cesarean sections >> population determined >> population assessed >> patient delivers vaginally >> improved maternal and fetal outcomes >> decreased length of stay and fetal morbidity and mortality.

1c.2-3 Type of Evidence *(Check all that apply)*:
Clinical Practice Guideline, Systematic review of body of evidence (other than within guideline development)

1c.4 Directness of Evidence to the Specified Measure *(State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population)*:
The central topic for the measure is the reduction in the number of nulliparous patients with live term singleton newborns in vertex position delivering by cesarean section. The target population for the performance measure is consistent with the body of evidence supporting quality improvement strategies to reduce the number of NTSV cesarean sections.

1c.5 Quantity of Studies in the Body of Evidence *(Total number of studies, not articles)*: The body of literature looking at cesarean section rates is very large with over 5,000 articles published since 1980. Over 1,000 articles have focused on the quality issues around nulliparous (sometimes called primiparous) cesarean section rates. Specifically, the low-risk first-birth cesarean rate has been examined by over 250 retrospective cohort and prospective observational studies. Synonyms in the literature include: NTSV (nulliparous, term, singleton, vertex) cesarean rate, Standard primip cesarean rate, and the Robson 10-category cesarean classification system (of which NTSV is the key driver). Throughout these studies, NTSV cesarean has emerged as the group with highest variation and greatest contribution to the rise in cesarean rates both in the US and internationally.

1c.6 Quality of Body of Evidence (*Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events*): The quality of evidence supporting the reduction in the number of NTSV cesarean sections is quite high. The rate of severe obstetric hemorrhage has significantly increased (by 50%) over the last 15 years in the U.S. There has also been a 270% increase in blood transfusions, with both hemorrhage and transfusions correlated to the rise in cesarean deliveries. Infection is the most common serious complication of cesarean delivery with typical rates of 3 to 9%. As noted, ACOG has evaluated cesarean sections and made a recommendation to adopt the NTSV cesarean section rate as a national metric to address through quality improvement interventions. Studies of quality improvement initiatives aimed at reducing NTSV cesarean sections have also noted a decrease in the number of such deliveries as well as a subsequent decrease in the number of maternal and neonatal morbidities.

1c.7 Consistency of Results across Studies *(Summarize the consistency of the magnitude and direction of the effect):* The body of evidence consistently supports the reduction of NTSV cesarean deliveries. Studies looking at multi faceted quality improvement interventions also show a decrease in the number of NTSV cesarean sections. NTSV cesarean delivery rates show much more consistency than total or primary cesarean delivery rates as it is much more tightly focused on labor management issues.

1c.8 Net Benefit *(Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms)*:
As described before, nulliparous patients with live term singleton newborns in vertex position delivering vaginally result in improved maternal and neonatal outcomes and will result in substantial savings in health care costs. Furthermore, the benefit is extended to all future pregnancies—if the first birth is a cesarean, then 90% of the remainder will be cesareans with health risks markedly increasing for each additional cesarean.

1c.9 Grading of Strength/Quality of the Body of Evidence. Has the body of evidence been graded? No

1c.10 If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: Not Applicable

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

1c.12 If other, identify and describe the grading scale with definitions: Although grading of the evidence was not determined during our systematic review, it was determined that the guideline developers accounted for a balanced representation of

information, and provided information that was accessible and met the requirements set out in this measure maintenance form.

1c.13 Grade Assigned to the Body of Evidence: Not Applicable

1c.14 Summary of Controversy/Contradictory Evidence: There is no documented evidence regarding controversy related to the reduction of NTSV cesarean sections. A review of recent studies also supports the use of quality improvement interventions to further reduce the number of such deliveries.

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

- Barber EL, Lundsberg LS, Belanger K, Pettker CM, Funai EF, Illuzzi JL. (2011). Indications contributing to the increasing cesarean delivery rate. Am J Obstet Gynecol. 118(1):29-38.
- Brennan, DJ, Robson, MS, Murphy, M, O´Herlihy, C. (2009). Comparative analysis of international cesarean delivery rates using 10-group classification identifies significant variation in spontaneous labor. American Journal of Obstetrics and Gynecology. 201(3):308 e301-308.
- Coonrod, DV, Drachman, D, Hobson, P, Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. American Journal of Obstetrics and Gynecology. 198(6):694 e691-611; discussion 694 e611.
- Ehrenthal, DB, Jiang, X, & Strobino, DM. (2010). Labor induction and the risk of a cesarean delivery among nulliparous women at term. Am J Obstet Gynecol . 116(1):35-42.
- Getahun D, Strickland D, Lawrence JM, Fassett MJ, Koebnick C, Jacobsen SJ. (2009). Racial and ethnic disparities in the trends in primary cesarean delivery based on indications. Am J Obstet Gynecol. 201(4):422 e421-427.
- Main, EK, Moore, D, Farrell, B, et al. (2006). Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. American Journal of Obstetrics and Gynecology. 194(6):1644-1651; discussion 1651-1642.
- Main, EK. (1999). Reducing cesarean birth rates with data-driven quality improvement activities. Pediatrics.103(1 Suppl E):374-383.
- US Department of Health and Human Services (DHHS). (2000). Healthy People 2010. Washington, DC. Retrieved on Setember 26, 2011 at: http://www.healthypeople.gov/2010
- US Department of Health and Human Services (DHHS). (2010). Healthy People 2020. Washington, DC. Retrieved on Setember 26, 2011 at: http://www.healthypeople.gov/2020

1c.16 Quote verbatim, the specific guideline recommendation *(Including guideline # and/or page #)*:
The American College of Obstetricians and Gynecologists (ACOG) in their monograph on evaluating Cesarean delivery rates, recommended this measure for benchmarking cesarean section rates on page 35:
"Institutions and practitioners should consider reviewing their cesarean delivery rates with these benchmarks for 1) nulliparous women with term singleton fetuses with vertex presentations and, 2) multiparous women with one previous low-transverse cesarean delivery and term singleton fetuses with vertex presentations." II-3

1c.17 Clinical Practice Guideline Citation:

- American Collge of Obstetricians and Gynecologists (ACOG) Task Force on Cesarean Delivery Rates. Evaluation of Cesarean Delivery. 2000. Washington, DC.

1c.18 National Guideline Clearinghouse or other URL:

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

1c.20 If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: The American College of Obstetrics and Gynecology

1c.21 System Used for Grading the Strength of Guideline Recommendation: USPSTF

1c.22 If other, identify and describe the grading scale with definitions:

1c.23 Grade Assigned to the Recommendation: Level II

1c.24 Rationale for Using this Guideline Over Others: The American College of Obstetricians and Gynecologists (ACOG) is the nation´s leading group of professionals providing health care for women. The monograph developed by the ACOG Task Force on Cesarean Delivery provides obstetricians and gynecologists with current information on established techniques and clinical management guidelines. The American College of Obstetricians and Gynecologists (the College) continuously surveys the field for advances to be incorporated in these series and monitors existing bulletins to ensure they are current. Individual bulletins are withdrawn from and added to the series on a continuing basis and reaffirmed periodically.

Specifically, NTSV cesarean section rate is preferred over total or primary cesarean rates as it more narrowly focuses on the population at greatest risk (nulliparous women in labor) with the greatest long-term consequences and

Based on the NQF descriptions for rating the evidence, what was the developer's assessment of the quantity, quality, and consistency of the body of evidence?
1c.25 Quantity: High 1c.26 Quality: High1c.27 Consistency: High

Was the threshold criterion, *Importance to Measure and Report*, met?
(*1a & 1b must be rated moderate or high and 1c yes*) Yes☐ No☐
Provide rationale based on specific subcriteria:

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

2. RELIABILITY & VALIDITY - SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)
Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See guidance on measure testing.

S.1 Measure Web Page *(In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained*). Do you have a web page where current detailed specifications for this measure can be obtained? Yes

S.2 If yes, provide web page URL: http://manual.jointcommission.org

2a. RELIABILITY. Precise Specifications and Reliability Testing: H☐ M☐ L☐ I☐

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

2a1.1 Numerator Statement *(Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome)*:
Patients with cesarean sections with ICD-9-CM Principal Procedure Code or ICD-9-CM Other Procedure Codes for cesarean section as defined in Appendix A, Table 11.06 available at:
http://manual.jointcommission.org

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

2a1.3 Numerator Details *(All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, codes with descriptors, and/or specific data collection items/responses*:
Two data elements are used to calculate the numerator:

1. ICD-9-CM Other Procedure Codes - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies significant procedures performed other than the principal procedure during this hospitalization.
2. ICD-9-CM Principal Procedure Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies the principal procedure performed during this hospitalization. The principal procedure is the

procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication.
Patients are eligible for the numerator population with ICD-9-CM Other Procedure Codes or ICD-9-CM Principal Procedure Code for cesarean section. If none of these codes is present, patients are in the denominator population only.

2a1.4 Denominator Statement *(Brief, narrative description of the target population being measured)*:
Nulliparous patients delivered of a live term singleton newborn in vertex presentation

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

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

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

1. Admission Date – The month, day and year of admission to acute inpatient care.
2. Birthdate - The month, day and year the patient was born.
3. Clinical Trial - Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with pregnancy were being studied. Allowable values: Yes or No/UTD
4. Discharge Date – The month day and year the patient was discharged from acute care, left against medical advice or expired during the stay.
5. Gestational Age – Documentation of the weeks of gestation completed at the time of delivery. Allowable Values: 1-50 or UTD.
6. ICD-9-CM Other Diagnosis Codes - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes associated with the secondary diagnoses for this hospitalization.
7. ICD-9-CM Other Procedure Codes - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies significant procedures performed other than the principal procedure during this hospitalization.
8. ICD-9-CM Principal Diagnosis Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization.
9. ICD-9-CM Principal Procedure Code - The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies the principal procedure performed during this hospitalization. The principal procedure is the procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication.
10. Parity - The number of deliveries, whether resulting in live or stillborn infants, the patient experienced prior to current hospitalization. Allowable Values: 0-50 or UTD.

2a1.8 Denominator Exclusions *(Brief narrative description of exclusions from the target population)*:
- ICD-9-CM Principal Diagnosis Code or ICD-9-CM Other Diagnosis Codes for contraindications to vaginal delivery as defined in Appendix A, Table 11.09
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of Stay >120 days
- Enrolled in clinical trials

2a1.9 Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses)*:
- Patients with ICD-9-CM Principal Diagnosis Code or Other Diagnosis Codes for contraindications to vaginal delivery are excluded.
- The patient age in years is equal to the Admission Date minus the Birthdate. Patients less than 8 years of age or greater or equal to 65 years of age are excluded.
- Length of stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded.

- Patients are excluded if "Yes" is selected for Clinical Trial.

2a1.10 Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses)*:
The Stratification Table used for direct standardization includes the Set Number, Stratified By, and the Age Stratum (Allowable Value). The Age Stratum refers to Patient Age which is calculated by the data element Admission Date minus the data element Birthdate. Each case will be stratified according to the patient age, after the Category Assignments (e.g., numerator, denominator, not in measure population) are completed and the overall rate is calculated.

Set Number	Stratified By	Age Stratum
PC-02a	Overall Rate	No allowable value exists for the overall rate. It includes all patients greater than or equal to 8 years and less than 65 years.
PC-02b	Age 8 years through 14 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 8 years and less than 15 years.
PC-02c	Age 15 years through 19 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 15 years and less than 20 years.
PC-02d	Age 20 years through 24 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 20 years and less than 25 years.
PC-02e	Age 25 years through 29 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 25 years and less than 30 years.
PC-02f	Age 30 years through 34 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 30 years and less than 35 years.
PC-02g	Age 35 years through 40 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 35 years and less than 40 years.
PC-02h	Age 40 years through 44 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 40 years and less than 45 years.
PC-02i	Age 45 years through 64 years	A Patient Age (Admission Date minus Birthdate) greater than or equal to 45 years and less than 65 years.

2a1.11 Risk Adjustment Type *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13)*: Other 2a1.12 If "Other," please describe: Direct rate standardization to the distribution of the 2006 US population of nulliparous births. See attached spreadsheet for age bands used in the direct standardization.

2a1.13 Statistical Risk Model and Variables *(Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.)*:
Not Applicable

2a1.14-16 Detailed Risk Model Available at Web page URL (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed:
Attachment
PC-02 CS Direct Standardization Template - Nulliparous Births.xls

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

2a1.19 Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*: Better quality = Lower score

2a1.20 Calculation Algorithm/Measure Logic*(Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)*:
1. Start processing. Run cases that are included in the PC-Mother Initial Patient Population and pass the edits defined in the

Transmission Data Processing Flow: Clinical through this measure.

2. Check ICD-9-CM Principal or Other Diagnosis Code

a. If at least one of the ICD-9-CM Principal or Other Diagnosis Code is on Table 11.09, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If none of the ICD-9-CM Principal or Other Diagnosis Code is on Table 11.09, continue processing and proceed to recheck ICD-9-CM Principal or Other Diagnosis Code.

3. Recheck ICD-9-CM Principal or Other Diagnosis Code

a. If none of the ICD-9-CM Principal or Other Diagnosis Code is on Table 11.08, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If at least one of the ICD-9-CM Principal or Other Diagnosis Code is on Table 11.08, continue processing and proceed to Clinical Trial.

4. Check Clinical Trial

a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

c. If Clinical Trial equals No, continue processing and proceed to Gestational Age.

5. Check Gestational Age

a. If Gestational Age is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If Gestational Age equals a Non Unable to Determine Value, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

c. If Gestational Age is less than 37, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

d. If Gestational Age is greater than or equal to 37, continue processing and proceed to Parity.

6. Check Parity

a. If Parity is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If Parity is greater than 0, the case will proceed to a Measure Category Assignment of B for and will not be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

c. If Parity equals a Non Unable to Determine Value, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

d. If Parity equals 0, continue processing and proceed to check ICD-9-CM Principal or Other Procedure Code.

7. Check ICD-9-CM Principal or Other Procedure Code

a. If all of the ICD-9-CM Principal or Other Procedure Codes are missing or none of the ICD-9-CM Principal or Other Procedure Code is on Table 11.06, the case will proceed to a Measure Category Assignment of D and will be in the measure population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

b. If at least one of the ICD-9-CM Principal or Other Procedure Code is on Table 11.06, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 8 and check the Stratified Measures for Overall Rate (PC-02a).

8. Continue processing for the Stratified Measures. Initialize the Measure Category Assignment for all Strata Measure to equal 'B'. Do not change the Measure Category Assignment that was already calculated for the overall rate (PC-02a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (PC-02a) Measure Category Assignment.

9. Check Overall Rate Category Assignment

a. If Overall Rate Category Assignment equals B or X, retain the Measure Category Assignment for the strata measures (PC-02b through PC-02i) equals ´B´, not in the Measure Population. Stop processing.
b. If Overall Rate Category Assignment equals D or E, continue processing and proceed to Patient Age.
10. Check Patient Age
a. If Patient Age is greater than or equal to 8 and less than 15, set the Measure Category Assignment PC-02b to equal the Measure Category Assignment for measure PC-02a. Stop processing.
b. If Patient Age is greater than or equal to 15 and less than 20, set the Measure Category Assignment PC-02c to equal the Measure Category Assignment for measure PC-02a. Stop processing.
c. If Patient Age is greater than or equal to 20 and less than 25, set the Measure Category Assignment PC-02d to equal the Measure Category Assignment for measure PC-02a. Stop processing.
d. If Patient Age is greater than or equal to 25 and less than 30, set the Measure Category Assignment PC-02e to equal the Measure Category Assignment for measure PC-02a. Stop processing.
e. If Patient Age is greater than or equal to 30 and less than 35, set the Measure Category Assignment PC-02f to equal the Measure Category Assignment for measure PC-02a. Stop processing.
f. If Patient Age is greater than or equal to 35 and less than 40, set the Measure Category Assignment PC-02g to equal the Measure Category Assignment for measure PC-02a. Stop processing.
g. If Patient Age is greater than or equal to 40 and less than 45, set the Measure Category Assignment PC-02h to equal the Measure Category Assignment for measure PC-02a. Stop processing.
h. If Patient Age is greater than or equal to 45 and less than 65, set the Measure Category Assignment PC-02i to equal the Measure Category Assignment for measure PC-02a. Stop processing.

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

2a1.24 Sampling (Survey) Methodology. If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):
The initial patient population includes patients admitted to the hospital for inpatient acute care for deliveries. Patients are included in the PC Mother Initial sampling group if they have: ICD-9-CM Principal or Other Diagnosis Code as defined in Appendix A, Tables 11.01, 11.02, 11.03, or 11.04, a Patient Age (Admission Date – Birthdate) >= 8 years and < 65 and a Length of Stay (Discharge Date - Admission Date) = 120 days. The sample is taken randomly as follows for a monthly sample:
- Average monthly Initial Patient Population >= 501 results in a minimum random sample size of 101.
- Average monthly Initial Patient Population 126 – 500 results in a minimum random sample size of 20% of the population size.
- Average monthly Initial Patient Population 25 – 125 results in a minimum random sample size of 25.
- Average monthly Initial Patient Population < 25 results in no sampling; 100% Initial Patient Population required

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

2a1.26 Data Source/Data Collection Instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification as been passed.

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

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

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

2a1.34-35 Care Setting *(Check all the settings for which the measure is specified and tested)*: Hospital/Acute Care Facility

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

2a2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
The PC measure set has been in national use since the 2nd quarter of 2010. It is a requirement of participation in the ORYX initiative that data on all measures in the set are collected. (ORYX is the term used by The Joint Commission to describe the component of the hospital accreditation program which requires data collection and reporting on standardized national performance measures.) Demographics of organizations collecting and reporting data on these measures are as follows:
163 health care organizations representing various types, locations and sizes:
10 For Profit, 91 Not for Profit, 46 Military Facilities, 9 County, 2 State, 5 Other
15 >=500 beds; 29 250-499 beds; 50 100-249 beds; 69 <100 beds
Located in: AE, AK, AL, AP, AR, AZ, CA, DO, DC, FL, GA, HI, ID, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, NE, NV, NY, OH,OK, PA, PR, RI, SC, TN, TX, VA, WA, WI, WV
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2a2.2 Analytic Method *(Describe method of reliability testing & rationale)*:
This measure was adapted from NQF-endorsed measure 0471 Cesarean Rate for Low-Risk First Birth Women (NTSV CS Rate). As such, initial data reliability would have been addressed during the original endorsement. The Joint Commission will be conducting additional reliability studies on this measure as well as the entire PC measure set beginning in October 2011.
.
Currently, hospitals are supported in their data collection and reporting efforts by 26 contracted performance measurement system (PMS) vendors. It is a contractual requirement of Joint Commission listed vendors that the quality and reliability of data submitted to them by contracted health care organizations must be monitored on a quarterly basis. In addition, The Joint Commission analyzes these data by running 17 quality tests on the data submitted into ORYX. (ORYX is the term used by The Joint Commission to describe the component of the hospital accreditation program which requires data collection and reporting on standardized national performance measures). The following is a list of the major tests done on the submitted ORYX data, taken from the 2011 ORYX Performance Measurement System Requirements manual.

- Transmission of complete data
- Usage of individual core measure data received: To understand if the HCO provides the relevant service to treat the relevant population
- Investigation of aberrant data points
- Verification of patient population and sample size
- Identification of missing data elements
- Validation of the accuracy of target outliers
- Data integrity
- Data corrections

Data Element Agreement Rate:
Inter-rater reliability testing methodology utilized by contracted performance measure system vendors as outlined in the contract is as follows:
- All clinical data elements and all editable demographic elements are scored.
- All measure data are reabstracted with originally abstracted data having been blinded so that the reabstraction is not biased.
- Reabstracted data are compared with originally abstracted data on a data element by data element basis. A data element agreement rate is calculated. Clinical and demographic data are scored separately, and an overall agreement rate is computed.

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

Data element agreement rates were reported to The Joint Commission for 1Q11. This reflects the findings of 108 hospitals, comprising 13,279 records (100% sample). The following table delineates calculated agreement rates for individual data elements that are used to compute measure rates for PC-02.

Data Elements with a Mismatch - Mother	total n	total d	rate
Gestational Age	639	712	89.75%
Parity	492	505	97.43%

These agreement rates are considered to be well within acceptable levels.

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

2b1.1 Describe how the measure specifications *(measure focus, target population, and exclusions)* are consistent with the evidence cited in support of the measure focus (*criterion 1c)* and identify any differences from the evidence:
This measure focuses on reducing the number of cesarean sections performed on nulliparous patients delivering a live term singleton newborn in vertex presentation. The literature supports the focus on nulliparous patients with live term singleton newborns in vertex position delivering vaginally. Accordingly, this measure focuses on patients without common conditions that have accepted high rates of cesarean birth, i.e., breech presentation, multiple gestations. Also excluded from the measure are patients with a length of stay greater than 120 days, and those enrolled in a clinical trial. These exclusions are not addressed in the literature, but are included for this measure in order to harmonize with other CMS/Joint Commission aligned measures.

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

2b2.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
As previously mentioned the PC measure set has been in national use since the 2nd quarter of 2010. Demographics of organizations collecting and reporting data on these measures are as follows:
163 health care organizations representing various types, locations and sizes:
10 For Profit, 91 Not for Profit, 46 Military Facilities, 9 County, 2 State, 5 Other
15 >=500 beds; 29 250-499 beds; 50 100-249 beds; 69 <100 beds
Located in: AE, AK, AL, AP, AR, AZ, CA, DO, DC, FL, GA, HI, ID, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, NE, NV, NY, OH,OK, PA, PR, RI, SC, TN, TX, VA, WA, WI, WV
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2b2.2 Analytic Method *(Describe method of validity testing and rationale; if face validity, describe systematic assessment)*:
Since the measure has been in national use, continued face validity of the measure has been determined through analysis of feedback from measure users. The Joint Commission provides a web-based application with which measure users can provide feedback regarding appropriateness of measure specifications, request clarification of specifications, and/or provide other comments pertinent to the measure. This feedback is systematically continually reviewed in order to identify trends and to identify areas of the measure specifications that require clarification or revision. Additionally, Joint Commission staff continually monitors the national literature and environment in order to assess continued validity of this measure.

As noted previously, The Joint Commission is currently performing reliability site visits this year. A component of these visits will include focus group interviews with hospital staff working with the PC measures to obtain feedback regarding the validity of the measures and suggestions for further refinement of the specifications.

2b2.3 Testing Results *(Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment)*:
Analysis of feedback obtained via our automated feedback system reveals slightly more than 80 submissions regarding specifications for this measure since its implementation in 2010. Predominant themes of these submissions involved questions regarding clarification of the data elements Parity and Gestational Age with respect to both definitions and the calculation of gestational age, the order of priority sources to retrieve the data and incorporation of GTPAL terminology for Parity. Additional notes for abstractors were added to the data elements for clarification. An additional ICD-9-CM diagnosis code identifying footling breech was also added to Table 11.09 to update exclusions based on consultation with the original measure developer.

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

2b3. Measure Exclusions. (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results*

demonstrating the need to specify them.)

2b3.1 Data/Sample for analysis of exclusions *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
As previously mentioned the PC measure set has been in national use since the 2nd quarter of 2010. Demographics of organizations collecting and reporting data on these measures are as follows:
163 health care organizations representing various types, locations and sizes:
10 For Profit, 91 Not for Profit, 46 Military Facilities, 9 County, 2 State, 5 Other
15 >=500 beds; 29 250-499 beds; 50 100-249 beds; 69 <100 beds

Located in: AE, AK, AL, AP, AR, AZ, CA, DO, DC, FL, GA, HI, ID, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, NE, NV, NY, OH,OK, PA, PR, RI, SC, TN, TX, VA, WA, WI, WV
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2b3.2 Analytic Method (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference)*:
Measure exclusions that were not derived directly from the evidence are presented below. Please note that these are population exclusions that are necessary to ensure consistency in all measures in this 5 measure set.
These exclusions were analyzed for frequency of occurrence. An issue that is of great concern to users of this measure is that due to the presence of exceptions to the measure, attainment of a 0% measure rate is not possible. Because of the role of this measure in the current Joint Commission accreditation process, this is especially troubling to measure users. This concern is the basis for the non-evidence-based exclusions to these measures. Additional reasons for these population exclusions are enumerated in our response to section 2b1.1 above. The measure exclusions that were not derived directly from the evidence are as follows:

1. Patients with LOS <120 days
2. Patients less than 8 years of age or greater than or equal to 65 years of age
3. Patients enrolled in clinical trials

2b3.3 Results *(Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*
N=353,671
1. Patients who have a length of stay (LOS) greater than 120 days =0%
2. Patients less than 8 years of age or greater than or equal to 65 years of age=0%
3. Patients enrolled in clinical trials =0.04%

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

2b4.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
Not Applicable

2b4.2 Analytic Method (*Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables)*:
Not Applicable

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

2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment: Not Applicable

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

2b5.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
As previously mentioned the PC measure set has been in national use since the 2nd quarter of 2010. Demographics of organizations collecting and reporting data on these measures are as follows:
163 health care organizations representing various types, locations and sizes:
10 For Profit, 91 Not for Profit, 46 Military Facilities, 9 County, 2 State, 5 Other
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2b5.2 Analytic Method *(Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance)*:
The method used to analyze meaningful differences in performance at The Joint Commission is Target Analysis. The object of target analysis is to compare a health care organization's (HCO) data against a comparative norm for the purpose of evaluating performance improvement opportunities. When an organization's performance level is statistically significantly different from a comparative norm, it is considered a statistical deviation. A statistical deviation may be desirable or undesirable depending on the "direction of improvement" of the measure.
There are two components to the target analysis methodology used at The Joint Commission. Given the national average for a performance measure, a target range is constructed. Using generalized linear mixed models methodology (also known as hierarchical models), a predicted estimate of an HCO's performance, with a corresponding 95% confidence interval, is generated. This confidence interval is compared to the target range, to determine the HCOs' rating. The estimate of the organization's true performance is based on both the data from that organization and on data from the entire set of reporting organizations.

2b5.3 Results *(Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:
PC-02 Distribution of Outliers

2011 1st Quarter Data:
Scores on this measure: N=160, Mean 26.7%, SD 0.12953
10th Percentile= 14%
25th Percentile= 19.4%
50th Percentile=26%
75th Percentile= 32.5%
90th Percentile= 40%

159 (100%) Neutral – results not significantly different from target range

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

2b6.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)*:
Multiple data sources are not used for this measure.

2b6.2 Analytic Method *(Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure)*:
Not Appliocable

2b6.3 Testing Results *(Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted)*:
Not Appliocable

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

2c.1 If measure is stratified for disparities, provide stratified results *(Scores by stratified categories/cohorts)*: The measure is

not stratified for disparities.

2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:
Although a rise in cesarean sections is present for all racial groups with the highest increase in African Americans, there are no plans to stratify this measure.. The Joint Commission does not currently capture date elements for race or ethnicity because these data elements have not been shown to be reliably collectable due to the fact that no national standardized definitions exist for these data elements. Also, not all hospitals collect race and ethnicity. In the future, it may be feasible for The Joint Commission to explore how race and ethnicity and other relevant disparity data, might be collected reliably in the future. The measure is currently stratified by age groups capturing advanced maternal age. The data from the different age groups are used in the direct standardization model applied to each hospital's rate.

2.1-2.3 Supplemental Testing Methodology Information:

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

If the Committee votes No, STOP

3. USABILITY

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

C.1 Intended Purpose/ Use *(Check all the purposes and/or uses for which the measure is intended)*: Public Reporting, Quality Improvement (Internal to the specific organization), Quality Improvement with Benchmarking (external benchmarking to multiple organizations), Regulatory and Accreditation Programs

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

3a. Usefulness for Public Reporting: H☐ M☐ L☐ I ☐
(*The measure is meaningful, understandable and useful for public reporting.*)

3a.1. Use in Public Reporting - disclosure of performance results to the public at large *(If used in a public reporting program, provide name of program(s), locations, Web page URL(s)).* If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: [*For Maintenance – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.*]
The Joint Commission has a longstanding commitment to providing meaningful information about the comparative performance of accredited organizations to the public. The Quality Check® Web site, www.qualitycheck.org, launched in 1996, fulfills this commitment. Among other things, Quality Check allows consumers to view or download free hospital performance measure results. Measure rates for PC-01 (and all the PC measures) will be included in the hospital performance measure results beginning in 2012.

3a.2.Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting. If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results: All measure specifications (e.g., numerator, denominator, exclusions, data elements and measure calculation algorithms) are standardized in order to produce consistent measure results. Specifications are updated biannually based on feedback from vendors, and hospitals, as well as technical advisory member recommendations and updated clinical practice guidelines. Data are

collected using data collection tools that have been verified by The Joint Commission to accurately collect measure data elements and compute measure assignment categories according to the measure specifications. Quarterly data reported to The Joint Commission are subject to a number of data quality tests to ensure the accuracy of the data. The measure rate is computed using a standardized measure calculation algorithm.

The Joint Commission provides an opportunity for measure users to submit questions and feedback about the measure specifications via an on-line website. As discussed previously, this information is used to evaluate the need for revisions and provide users with a database of frequently asked questions. Measure updates and issues about the measures are presented and discussed at an annual performance measurement system vendor conference. These activities support the Joint Commission's effort to provide results that are useable, understandable and useful for public reporting.

3.2 Use for other Accountability Functions (payment, certification, accreditation). If used in a public accountability program, provide name of program(s), locations, Web page URL(s): The Joint Commission is a national (and international) accreditor of hospitals and other healthcare organizations. This measure set is one of 10 available measure sets from which hospitals can select to meet The Joint Commission´s ORYX accreditation program requirement for data collection and reporting. Additional information is located at: pdf http://www.jointcommission.org/facts_about_oryx_for_hospitals/

3b. Usefulness for Quality Improvement: H☐ M☐ L☐ I ☐
(*The measure is meaningful, understandable and useful for quality improvement.*)

3b.1. Use in QI. If used in quality improvement program, provide name of program(s), locations, Web page URL(s):
[*For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement*].
While The Joint Commission developed this measure for and uses results from this measure in its accreditation activities, the measure is also intended for use in internal quality improvement by accredited organizations.

3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement. If usefulness was demonstrated *(e.g., QI initiative),* describe the data, method and results:
From an accreditation perspective, measure results have proven useful in that they are used in the Priority Focus Process, which helps to focus accreditation survey activities toward areas of greatest need. From the hospital quality improvement perspective, measure rates are included in the Joint Commission's Strategic Surveillance System (S3) product, which is made available, at no additional cost to accredited organizations and is used by them to identify gaps in the care they provide relative to other measure users. Aggregate measure results have improved over time, indicating that they are being used by hospitals to identify and address areas in need of improvement. Since this measure was introduced nationally in 2010, aggregate performance has improved. PC-02 began with 2010 Quarter 2 reporting data at 27.4 % or a performance gap of 27.4 %, There has been consistent improvement in aggregate performance rates for the following consecutive four quarters, with the most recent 2011 Quarter 1 reportable performance at 26.8 %.

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

4. FEASIBILITY

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

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

4a.1-2 How are the data elements needed to compute measure scores generated? *(Check all that apply).*
Data used in the measure are:
generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition, Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims), Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)

4b. Electronic Sources: H☐ M☐ L☐ I ☐

4b.1 Are the data elements needed for the measure as specified available electronically *(Elements that are needed to compute measure scores are in defined, computer-readable fields)*: Some data elements are in electronic sources

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources: The Joint Commission is in the process of preparing for conversion to eMeasure specifications beginning in the 4th quarter 2011 for the PC measure set.

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

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:
There have been no modifications to the measure population or the numerator or denominator. Since implementation, the Notes for Abstraction section of the data element definitions have been updated to clarify issues that have been identified after review of the feedback received from measure users.

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

A.2 Please check if either of the following apply (*regarding proprietary measures*):
4d.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues *(e.g., fees for use of proprietary measures)*:
At the present time, hospitals using this performance measure generally collect measure data via manual review of the paper medical record, the EMR or a combination of both. Collected data are submitted to The Joint Commission on a quarterly basis, by way of contracted performance measurement system vendors, as described previously. Specifications for this measure are freely available to anyone who wishes to use the measure. Feedback from hospitals using this measure indicates that required data elements are generally available in the medical record, and measure specifications are robust and easy to understand. As described above, as feedback from measure users has indicated the need for clarification or revision of measure specifications, this has taken place. The Joint Commission is exploring the inclusion of Vital Records as an additional data source in future measure specifications.

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

OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes☐ No☐
Rationale:

If the Committee votes No, STOP.
If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures.

5. COMPARISON TO RELATED AND COMPETING MEASURES

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

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

5a. Harmonization

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

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

5b. Competing Measure(s)

5b.1 If this measure has both the same measure focus and the same target population as NQF-endorsed measure(s): Describe why this measure is superior to competing measures *(e.g., a more valid or efficient way to measure quality);* OR provide a rationale for the additive value of endorsing an additional measure. *(Provide analyses when possible)*:

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner): The Joint Commision, One Renaissance Blvd., Oakbrook Terrace, Illinois, 60181

Co.2 Point of Contact: Jerod M., Loeb, PhD, jloeb@jointcommission.org, 630-792-5920-

Co.3 Measure Developer if different from Measure Steward: California Maternal Quality Care Collaborative, 750 Welch Rd., Suite 224, Palo Alto, California, 94304

Co.4 Point of Contact: Elliott, Main, MD, MainE@sutterhealth.org, 415-750-6003-

Co.5 Submitter: Ann, Watt, MBA, RHIA, awatt@jointcommission.org, 630-792-5944-, The Joint Commission

Co.6 Additional organizations that sponsored/participated in measure development:
The California Maternal Quality Care Collaborative

Co.7 Public Contact: Celeste, Milton, MPH, BSN, RN, cmilton@jointcommission.org, 630-792-5925-, The Joint Commission

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
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The technical advisory panel (TAP) members determined priority areas that could be evaluated to improve care related to perinatal care during the development timeframe. After implementation, minor revisions, acknowledged by TAP representatives, were made to improve clarity. Hospital feedback will be reviewed during the reliability testing phase of the project to assist the TAP in making the final measure recommendations.

Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward: 0471 Cesarean Rate for Low-Risk First Birth Women (NTSV CS Rate)
The California Maternal Quality Care Collaborative was the original measure developer and measure steward. The measure was recommended for inclusion by the PC TAP as one of five measures in the Joint Commission's Perinatal Care (PC) core measure set. The Joint Commission held a series of conference calls to discuss the measure specifications and proposed revisions and worked with the original measure developer for agreement on specifications revisions prior to national implementation. As work began to re-endorse the measure, The Joint Commission assumed stewardship of the measure.

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.3 Year the measure was first released: 2010
Ad.4 Month and Year of most recent revision: 08, 2011
Ad.5 What is your frequency for review/update of this measure? Biannual
Ad.6 When is the next scheduled review/update for this measure? 02, 2012

Ad.7 Copyright statement: No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including ORYX® vendors, are required to update their software and associated documentation based on the published manual production timelines.

Ad.8 Disclaimers:

Ad.9 Additional Information/Comments:

Date of Submission (*MM/DD/YY*): 10/17/2011