THE NATIONAL QUALITY FORUM

COMPOSITE MEASURE SUBMISSION FORM
Version 4.1 January 2010

This form will be used by stewards to submit **composite** measures and by reviewers to evaluate the measures.

Measure Stewards: Check with NQF staff before using this form. Complete all non-shaded areas of the form. All requested information should be entered directly into this form. The information requested is directly related to NQF's composite measure evaluation criteria and will be used by reviewers to determine if the evaluation criteria have been met. The specific relevant subcriteria language is provided in a Word comment within the form and will appear if your cursor is over the highlighted area (or in balloons).

The measure steward has the opportunity to identify and present the information that demonstrates the measure meets the criteria. Additional materials will only be considered supplemental. Do not rely solely on materials provided at URLs or in attached documents to provide measure specifications or to demonstrate meeting the criteria. If supplemental materials are provided, be sure to indicate specific page numbers/ web page locations for the relevant information (web page links preferred).

For questions about completing this form, contact the project director at 202-783-1300. Please email this form to the appropriate contact listed in the corresponding call for measures.

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 #:** **NQF Project:** Patient Safety Measures
De.1 Title of Measure: Perinatal Adverse Outcome Index
De.2 Brief description of measure (*including type of score, measure focus, target population, time, e.g., Percentage of adult patients aged 18-75 years receiving one or more HbA1c tests per year*): The rate and severity of adverse events in the obstetric population during their hospitalization
De.3 Type of Measure: ☐ Composite with component measures combined at patient-level (e.g., all-or-none) ☒ Composite with component measures combined at aggregate-level
Select the most relevant priority area(s), quality domain(s), and consumer need(s). **De.4 National Priority Partners Priority Area** ☐ patient and family engagement ☐ population health ☒ safety ☐ care coordination ☐ palliative and end of life care ☐ overuse **De.5 IOM Quality Domain** ☐ effectiveness ☐ efficiency ☐ equity ☐ patient-centered ☒ safety ☐ timeliness

De.6 **Consumer Care Need** ☐ Getting Better ☐ Living With Illness ☒ Staying Healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property agreement (measure steward agreement) is signed. *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.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use any aspects of the measure owned by another entity (e.g., component measures, risk model, code set)?** ☒ Yes A.2 **Measure Steward Agreement** ☒ Signed and Submitted **OR** ☐ Government entity-public domain (If measure steward agreement not signed for non-government entities, do not submit) A.3 **Please check if either of the following apply:** ☐ Proprietary Measure ☐ Proprietary Complex Measure w/fees	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. B.1 ☒ Yes (If no, do not submit)	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. C.1 **Purpose:** ☒ Public reporting ☒ Internal quality improvement C.2 ☐ Accountability ☐ Accreditation ☐ Payment incentive ☐ Other, describe: (If not intended for both public reporting and quality improvement, do not submit)	**C** Y☐ N☐
D. The requested measure submission information is complete. Composite 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. D.1 **Testing:** ☒ Fully developed and tested (If composite measure not tested, do not submit) D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** ☒ Yes (If no, do not submit) *If there are similar or related measures, be sure to address items 3b and 3c with specific information.* ►**Is all requested information entered into this form?** ☒ Yes (If no, do not submit)	**D** Y☐ N☐
De.7 If component measures of the composite **are aggregate-level measures, all** must be either NQF-endorsed or submitted for consideration for NQF endorsement (*check one*) ☐ All component measures are NQF-endorsed measures ☒ Some or all component measures are not NQF-endorsed and have been submitted using the online measure submission tool (If not, do not submit)	Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** Staff Notes to Steward (if submission returned):	**Met** Y☐ N☐
Staff Notes to Reviewers (issues or questions regarding any criteria):	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:
Steering Committee Reviewer Name:
1. IMPORTANCE TO MEASURE AND REPORT

Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, e efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where overall poor performance. *Measures must be judged to be important to measure and report in order to be evaluated agai criteria.* (composite measure evaluation criteria)

(for NQF staff use) **Specific NPP goal**:

1d. Purpose/objective of the Composite

1d.1 Describe the purpose/objective of the composite measure: The purpose of this measure is to allow for standardized me events in obstetrics that are related to care provided on labor and delivery so that the impact of quality improvement efforts Currently there are no nationally accepted outcome measures of quality in obstetrics. Cesarean section rates, VBAC rates, per birth trauma have been used. None is adequate by itself. Data using the AOI suggest that about 9% of deliveries are complicate the adverse events. Many of these events are preventable (see references for each of the measures). Our own internal review of major adverse events are preventable..

1) http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=12735.

2)http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/Pregnancy+and+Related+Conditions

3) Mann S, Pratt SD et al. Assessing Quality in Obstetrical Care: Development of Standardized Measures. Jt Comm J Qual Pt Saf 505.

4) Nielsen PE, Goldman MB, Mann S, Shapiro DE, Marcus RG, Pratt SD, et al. Effects of teamwork training on adverse outcomes labor and delivery: a randomized controlled trial. Obstet Gynecol 2007; 109:48-55.

5) Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based team training on obstetric outcomes and clinicians' patient safety Commission Journal on Quality and Patient Safety 2007; 33:720-5.

1d.2 Describe the quality construct used in developing the composite: clinical quality

1e. Components and conceptual construct for quality

1e.1 Describe how the component measures/items are consistent with and representative of the quality construct: Each represent an adverse outcome of clinical care during the delivery process. Individually, the rates of these adverse events can getting a reasonable picture of a hospital's obstetric quality would require many observations or may need to be measured ove time. Such a requirement does not lend itself to tracking and monitoring quality so that corrective intervations can take place Grouping the ten measures together provides a more complete picture of the continuum of the care to the mother and her inf system adds a robust logic to the fact that some of the ten events are clearly more serious than others.

If the component measures are combined at the patient level, complete 1a, 1b, and 1c.

If the component measures are combined at the aggregate level, skip to criterion 2, *Scientific Acceptability of Measure Prope* measures are either NQF-endorsed or submitted individually).

1a. High Impact

1a.1 Demonstrated high impact aspect of healthcare (*Select the most relevant*)

☒ affects large numbers ☐ frequently performed procedure ☐ leading cause of morbidity/mortality ☐ high resourc illness ☐ patient/societal consequences of poor quality

☐ other, describe: **1a.2**

1a.3 Summary of Evidence of High Impact: Hospitalization for a delivery is one of the highest volume uses of the healthcare system.

1a.4 Citations for Evidence of High Impact:

1b. Opportunity for Improvement

1b.1 Briefly explain benefits (improvements in quality) envisioned by use of this measure: Most deliveries have very good outcomes however adverse events can and do occur with varying degrees of long term impact on the patient/family. The AOI, WAOS and SI provide three composite rates that can measure a hospital's status for this high volume area taking into account the infreqnecy of very serious events while not ignoring the impact of less serious, more frequent events.

1b.2 Summary of data demonstrating performance gap (*variation or overall poor performance across providers*)**:** The AOI its assessment of the rate of complications present on a labor and delivery unit, and the impact that changes in practice have on

component measures can easilty be reported as well to track rates of the specific outcomes. The Severity Index may act as su to adverse events as the ability to decrease harm during an evolving event would lower the SI. The WAOS may measure the ov events on the unit.

The AOI has been used to assess the impact of quality imporvment efforts in three separate publications. It appears to track w of quality. These results demonstrate that the AOI is both easily measurable and does seem to respond to improvements in OB has used this measure with dozens of clients to track outcomes for more than 400,000 deliveries. It has been a valuable tool in impact of quality initiatives. In addition, NPIC has three years of validated AOI data from eight hospitals. These data have bee reconciled with the institutions quarterly to ensure accuracy.

1b.3 Citations for data on performance gap: 1) Nielsen PE, Goldman MB, Mann S, Shapiro DE, Marcus RG, Pratt SD, et al. Effe training on adverse outcomes and process of care in labor and delivery: a randomized controlled trial. Obstet Gynecol 2007; 1

2) Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based team training on obstetric outcomes and clinicians' patient safety Commission Journal on Quality and Patient Safety 2007; 33:720-5.

3) Nicholson JM, Parry S, Caughey AB, et al. The impact of the active management of risk in pregnancy at term on birth outcor clinical trial. Am J Obstet Gynecol. 2008; 198:511.e1-15.

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

1b.5 Citations for data on Disparities:

1c. Evidence-based

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcom relevant to the target population.)*

1c.2 Type of Evidence *(Check all that apply)*
☐ Cohort study ☐ Evidence-based guideline ☒ Expert opinion ☐ Meta-analysis
☐ Observational study ☐ Randomized controlled trial ☐ Systematic synthesis of research
☐ Other (*Please describe*): **1c.3**

1c.4 Summary of Evidence *as described above for type of measure; for outcomes, summarize any evidence that healthcare s influence the outcome*)**:** The expert panel (Question 41) determined the 10 adverse events fit the profile of being serious adve measured and most likely to be impacted by efforts to improve quality of care.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)
1c.6 Method for rating evidence: Study/ control hospitals in the original study conducted by the Department of Defense and Medical Center. (See references in Question 32.)

1c.7 Summary of Controversy/Contradictory Evidence:

1c.8 Citations for Evidence (*other than guidelines*)

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*)
1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relat*

1c.14 Rationale for using this guideline over others:

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Rep*

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, **met?**
Rationale:

2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care (composite measure evaluation criteria)

2a. COMPOSITE MEASURE SPECIFICATIONS

In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications c
S.1 Do you have a web page where current detailed measure specifications can be obtained? YES
S.2 If yes, provide web page URL: www.npic.org (Adverse Outcome Sample Report)

2a. Precisely Specified

2a.0.1 Components of the Composite (*List the components, i.e., domains/sub-composites, individual measures. If componen endorsed, include NQF measure number*; if not NQF-endorsed, provide date of submission to NQF)
In-hospital maternal death.
In-hospital neonatal death
Uterine rupture
Unplanned maternal admission to the ICU
Birth Trauma
Maternal return to labor and delivery or the operating room
Unplanned admission to neonatal intensive care unit at term
Five-minute apgar < 7
Maternal blood transfusion
Third or fourth degree laceration of the perineum

If the composite measure cannot be specified with a numerator and denominator, please consult with NQF staff.

If the component measures are combined at the aggregate level, do not include the individual measure specifications b

2a.1 Composite Numerator Statement: Any delivery with one or more of the complications.

2a.2 Numerator Time Window: Varies with the outcome included in the AOI

2a.3 Numerator Details: See specifics for each measure in the AOI

2a.4 Composite Denominator Statement: All deliveries

2a.5 Target Population Gender ☐ Female ☐ Male
2a.6 Target Population Age range

2a.7 Denominator Time Window: Same as numerator

2a.8 Denominator Details: Same as numerator

2a.9 Composite Denominator Exclusions: None

2a.10 Denominator Exclusion Details:

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, definitions***):**

2a.18 Type of Score: Rate/proportion **2a.19** If "Other", please describe:

2a.20 Interpretation of Score (*Classifies interpretation of score according to whether better quality is associated with a high score, a score falling within a defined interval, or a passing score*) (select one)

2a.42 Method of Scoring/Aggregation: opportunity scoring (overall percentage) **2a.43 If "other" scoring method, describe:**
index is the percent of deliveries complicated by one or more of the 10 events described above. In addition, there is a weighti

assess the severity of adverse events.

2a.44 Missing Component Scores (*Indicate how missing component scores are handled*): They are assumed to be not present.

2a.45 Weighting: ☐ **Equal** ☒ **Differential** **2a.46 If differential weighting, describe:** A weighting system has been devised severity of adverse events. Each of the adverse events in the AOI is assigned a specific weighted score (See below). Overall ou be determine by measuring the average weighted score per delivery (Weighted Adverse Outcome Score or WAOS) or the averag delivery that has a complication (Severity Index or SI). The WAOS is calculated by summing all the adverse scores for all delive number of deliveries, The SI is calculated by summing all the adverse event scores for all deliveries and dividing by the numbe complicated by one or more of the adverse events (the numerator for the AOI). This weighting system was determine by conse members of American College of Obstetric and Gynecology QI committee.

In-hospital maternal death.	750
In-hospital neonatal death	400
Uterine rupture	100
Unplanned maternal admission to the ICU	65
Birth Trauma	60
Maternal return to labor and delivery or the operating room	40
Unplanned admission to neonatal intensive care unit at term	35
Five-minute apgar < 7	25
Maternal blood transfusion	20
Third or fourth degree laceration of the perineum	5

2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps*)**:**
The AOI is a simple rate. It is the percent of deliveries complicated by one or more of the 10 events described above. The WA summing all the adverse scores for all deliveries and dividing by the number of deliveries, The SI is calculated by summing all all deliveried and dividing by the number of deliveries complicated by one or more of the adverse events (the numerator for t system was determine by consensus with input from members of American College of Obstetric and Gynecology QI committee.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Individual hospital rates can be assessed over time or before and after a QI activity with a calculation of the significance of tr showing stable, upward or downward trends in the rate.
Individual hospital rates can also be compared to a comparison group of hospitals (those in the QI collaborative). The confiden rate relative to the group average can determine if their rate is comparable or significantly better or worse than the compari

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sam survey) and guidance on minimum sample size (response rate)*:
Sampling not required; the measure is based on 100% of deliveries occuring during the timeframe under review.

2a.24 Data Source *Check all the source(s) used in the component measures.*

- ☐ Documentation of original self-assessment *(e.g., SF-36)*
- ☒ Electronic administrative data/ claims
- ☒ Electronic Clinical Data *(e.g., MDS)*
- ☒ Electronic Health/Medical Record
- ☐ External audit
- ☐ Lab data
- ☐ Management data
- ☐ Organizational policies and procedures
- ☐ Paper Medical Record/flowsheet
- ☐ Pharmacy data
- ☐ Public health data/vital statistics
- ☐ Registry data
- ☐ Survey-patient *(e.g., CAHPS)*
- ☐ Survey-provider
- ☐ Special or unique data, specify:

2a.25 Data source or collection instrument (*Identify the specific data source or data collection instrument, e.g. name of da registry, collection instrument, etc.*):

2a.26 Data source/data collection instrument attached ☐ **OR 2a.27 at web page URL:**

2a.29 Data dictionary/code table attached ☐ **OR 2a.30 at web page URL:** www.npic.org (AOI Sample report with Glossary)

2a.32 Level of Measurement/Analysis (*Check the level for which the measure is specified and tested*)

Clinicians: ☐ Individual ☐ Group ☐ Other
☐ Facility/Agency (e.g., hospital, nursing home)
☐ Prescription drug plan

☐ Health plan ☐ Integrated delivery system ☐ **M**ulti-site/corporate chain **Population:** ☐ National ☐ Regional/network ☐ State ☐ Counties/Cities	**Program:** ☐ Disease management ☐ QIO ☐ Other ☒ Measured at all levels ☐ Other (*Please describe*):

2a.26 Care Settings (*Check the settings for which the measure is specified and tested; check all that apply*)
Ambulatory Care: ☐ Amb Surgery Center ☐ Office ☐ Clinic ☐ Emergency Dept ☒ Hospital Outpatient

☐ Assisted Living ☐ Behavioral health/psychiatric unit ☐ Dialysis Facility ☐ Emergency medical services/ambulance ☐ Group Home ☐ Home ☐ Hospice	☒ Hospital ☐ Long term acute care hospital ☐ Nursing home/ Skilled Nursing Facility (SNF) ☐ Rehabilitation Facility ☐ All settings ☐ Unspecified or "not applicable" ☐ Other (*Please describe*):

2a.38 Clinical Services (*Healthcare services being measured; all that apply.*)

Behavioral Health: ☐ Mental health ☐ Substance use treatment ☐ Other **Clinicians:** ☐ Audiologist ☐ Chiropractor ☐ Dentist/Oral surgeon ☐ Dietician/Nutritional professional ☒ Nurses ☐ Optometrist ☒ PA/NP/Advanced Practice Nurse ☐ Pharmacist	☒ Physicians (MD/DO) ☐ Podiatrist ☐ Psychologist/LCSW ☐ PT/OT/Speech ☐ Respiratory Therapy ☐ Other ☐ Dialysis ☐ Home health ☐ Hospice/Palliative care ☐ Imaging services ☐ Laboratory ☒ Other Non-clinical L& D staff

If the component measures are combined at the patient level and include outcomes, complete the following

2a.12 Risk Adjustment Type: ☐ No risk adjustment necessary ☐ analysis by subgroup ☐ case-mix adjustment ☐ pair
☐ risk-adjustment devised specifically for this measure/condition ☐ risk adjustment method widely or commercially available
☒ Other (specify) **2a.13** Not currently risk adjusted

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical mo of model or method***):**

2a.15 Detailed risk model attached ☐ **OR 2a.16 at web page URL:**

TESTING/ANALYSIS

2i. Component item/measure analysis to justify inclusion in composite

2i.1 Data/sample: Study/ control hospitals in the original study conducted by the Department of Defense and Beth Israel Deac See references in Question 32.)

2i.2 Analytic Method: Chart abstraction of outcome and process data on all delivery cases in the study.

2i.3 Results: The expert panel (Question 41) determined the 10 adverse events fit the profile of being serious adverse events, and most likely to be impacted by efforts to improve quality of care.

2j. Component item/measure analysis of contribution to variability in composite score

2j.1 Data/sample: Study/ control hospitals in the original study conducted by the Department of Defense and Beth Israel Deac See references in Question 32.)

2j.2 Analytic Method: Chart abstraction of outcome and process data on all delivery cases in the study.

2j.3 **Results:** The development of three composite indices to make up the AOI allows the reviewer to assess the variability of t from three different perspecitves. The AOI is the rate of adverse events for the hospital's delivery population for a determined (quarter, year etc.) Variations in rates over time and across hospitals can be examined to see trends and improvements follow improve quality. However, a high rate in one hospital compared to a lower rate in another does not tell the nature of the unde WAOS and SI provide a measure of the seriousness of the underlying adverse events, the WAOS across the entire delivery popul patient population that experiences an adverse event. Variation across these rates helps measure differences in the severity o and assists providers in focusing their improvement efforts.

2k. Analysis to support differential weighting of component scores

2k.1 **Data/sample:** Study/ control hospitals in the original study conducted by the Department of Defense and Beth Israel Deac See references in Question 32.)

2k.2 **Analytic Method:** Chart abstraction of outcome and process data on all delivery cases in the study.

2k.3 **Results:** Expert panel (Question 41) determined the 10 adverse events clearly have a different impact on the overall morb outcome for the patient and looked to members of the ACOG QI Committee to assist with assigning weights to each measure.

2k.4 **Describe how the method of scoring/aggregation achieves the stated purpose and represents the quality construct:** T rapid assessment of the rate of complications present on a labor and delivery unit, and the impact that changes in practice ha the component measures can easilty be reported as well to track rates of the specific outcomes. The Severity Index may act a response to adverse events as the ability to decrease harm during an evolving event would lower the SI. The WAOS may measu of adverse events on the unit.

2k.5 **Indicate if any alternative scoring/aggregation methods were tested and why not chosen:**

2l. Analysis of missing component scores

2l.1 **Data/sample:**

2l.2 **Analytic Method:**

2l.3 **Results:**

2b. Reliability testing of composite score

2b.1 **Data/sample** *(description of data/sample and size)***:** Beth Israel Deconess Medical Center has been tracking their Adverse administrative data since early 2001 and numersous hospitals have been using the AOI in quality improvement initiatives since

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)***:** Case by case review and calculation of the AOI, WA period analyzed.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:** Count of calculation of AOI, WAOS and SI across most of particpating hospitals have shown consistency both over time and improvement improvement activity.

2c. Validity testing of composite score

2c.1 **Data/sample** *(description of data/sample and size)***:** Beth Israel Deconess Medical Center has been tracking their Adverse administrative data since early 2001 and numersous hospitals have been using the AOI in quality improvement initiatives since

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)***:** Case by case review and calculation of the AOI, WAO period analyzed.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)***:** Improvemer SI within a hospital has been attributable to interventions/efforts to improve clinical quality on the labor and delivery unit. Co variation in rates across hospitals has been raised around whether differences in case mix have been adequately handled.

2f. Identification of Meaningful Differences in Performance Across Entities

2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)***:** The AOI has been used to assess the imp

imporvment efforts in three separate publications. It appears to track well with other measures of quality. These results demo
both easily measurable and does seem to respond to improvements in OB care. In addition, NPIC has used this measure with do
outcomes for more than 400,000 deliveries. It has been a valuable tool in determining the impact of quality initiatives. In add
years of validated AOI data from eight hospitals. These data have been reviewed and reconciled with the institutions quarterly

1) Nielsen PE, Goldman MB, Mann S, Shapiro DE, Marcus RG, Pratt SD, et al. Effects of teamwork training on adverse outcomes
labor and delivery: a randomized controlled trial. Obstet Gynecol 2007; 109:48-55.

2) Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based team training on obstetric outcomes and clinicians' patient safety
Commission Journal on Quality and Patient Safety 2007; 33:720-5.

3) Nicholson JM, Parry S, Caughey AB, et al. The impact of the active management of risk in pregnancy at term on birth outcor
clinical trial. Am J Obstet Gynecol. 2008; 198:511.e1-15.

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis a*
hospital rates can be assessed over time or before and after a QI activity with a calculation of the significance of trend line ov
upward or downward trends in the rate.
Individual hospital rates can also be compared to a comparison group of hospitals (those in the QI collaborative). The confiden
rate relative to the group average can determine if their rate is comparable, significantly better or worse than the compariso

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by quartile, mean, media*
identification of statistically significant and meaningfully differences in performance) **:** Published data demonstrate that imp
care have been associated with improvements in the AOI. In addition, the experience of the eight hospitals cited above demor
training is associated with improvements in the average AOI, WAOS and SI (unpublished data).

1) Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based team training on obstetric outcomes and clinicians' patient safety
Commission Journal on Quality and Patient Safety 2007; 33:720-5.

2) Nicholson JM, Parry S, Caughey AB, et al. The impact of the active management of risk in pregnancy at term on birth outcor
clinical trial. Am J Obstet Gynecol. 2008; 198:511.e1-15.

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)***:**
NA

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up pla

If the component measures are combined at the patient level, complete 2d.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s): NA

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)***:**

2d.4 Analytic Method *(type analysis & rationale)***:**

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)***:**

If the component measures are combined at the patient level and include outcomes, complete 2e.

2e. Risk Adjustment

2e.1 Data/sample *(description of data/sample and size)***:** NA

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)***:**

2e.3 **Testing Results** *(risk model performance metrics)*:

2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:**

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Mea*

Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, **met?**
Rationale:

3. USABILITY

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

3a. Meaningful, Understandable, and Useful Information

3a.1 **Current Use:** ☒ In use ☐ Not in use

3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public report name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within*

3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
All of the Team Performance Plus (TPP) contracted hospitals are using the AOI to track improvement. It is also being used by n hospitals, the Maryland Perinatal Patient Saftey Initiative, The Permier Perinatal Patient Safety Initiative, the Department of M Facilities and other collaboratives and individual hospitals tracking their rates independent of any direct relationship with NPI

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporti improvement*)

3a.4 **Data/sample** *(description of data/sample and size)*: 100% of all delivery discharges for the time period under review.

3a.5 **Methods** *(methods, e.g., focus group, survey, QI project)*: QI project

3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Hospitals participating in an individual or collaborative reports detailing the counts of cases for each adverse event, calculation of their AOI, WAOS and SI over time or relative to the comparison group. The reports include tables, graphs and commentary on interpretation of the reports. Hospitals are given the details on their numerator cases so they can drill down and audit the quality of the documentation and coding of the cases ide event.

3b/3c. Relation to other NQF-endorsed measures
Identify similar or related NQF-endorsed measures to components and/or composite

3b.1 **NQF # and Title of similar or related measures:** With 10 measures making up the AOI, there is definitely some similarity NQF measures. We are not clear on the details of all the measures to be able to specifiy the extent of the similarity.

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization
3b.2 **Are the component measure specifications harmonized, or if not, why?**

3c. Distinctive or Additive Value
3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**
This is a composite measure with weighted subcomponents versus unweighted individual measures.

5.1 Competing Measures If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and th population), describe why it is a more valid or efficient way to measure quality:
Grouping adverse events together but weighting them differently removes the problem of large variations in rates for individual adverse events that occur infrequently.

3d. Decomposition of Composite
3d.1 Describe the information that is available from decomposing the composite into its components:
See previously responses identifying each component of the AOI, its assisgned weight and calculation of the AOI, WAOS and SI.

3e. Achieved stated purpose
3e.1 Describe how the scores from testing or use reported in 2f demonstrate that the composite achieves the stated purp
used to assess the impact of quality imporvment efforts in three separate publications. It appears to track well with other mea results demonstrate that the AOI is both easily measurable and does seem to respond to improvements in OB care. In addition, measure with dozens of clients to track outcomes for more than 400,000 deliveries. It has been a valuable tool in determining initiatives.

1) Nielsen PE, Goldman MB, Mann S, Shapiro DE, Marcus RG, Pratt SD, et al. Effects of teamwork training on adverse outcomes labor and delivery: a randomized controlled trial. Obstet Gynecol 2007; 109:48-55.

2) Pratt SD, Mann S, Salisbury M, et al. Impact of CRM-based team training on obstetric outcomes and clinicians' patient safety Commission Journal on Quality and Patient Safety 2007; 33:720-5.

3) Nicholson JM, Parry S, Caughey AB, et al. The impact of the active management of risk in pregnancy at term on birth outcor clinical trial. Am J Obstet Gynecol. 2008; 198:511.e1-15.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability*?

Steering Committee: Overall, to what extent was the criterion, *Usability*, met?
Rationale:

4. FEASIBILITY

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

4a. Data Generated as a Byproduct of Care Processes
4a.1 How are all the data elements that are needed to compute measure scores generated? (*Check all that apply)*
☒ Data are generated as a byproduct of care processes during care delivery (*Data are generated and used by healthcare pers 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 clai for quality measure, registry)*
☐ Survey
☐ Other *(e.g., patient experience of care surveys, provider surveys, observation)*, *Please describe*:

4b. Electronic Sources
4b.1 Are all the data elements available electronically? (*elements that are needed to compute measure scores are in define fields, e.g., electronic health record, electronic claims*)
☒ Yes ☐ No
4b.2 If no, specify the near-term path to achieve electronic capture by most providers.

Note: Measure stewards will be asked to specify the data elements for electronic health records at a later date

4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences
4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these p could be audited. If audited, provide results.
There is some susceptibility to incomplete documentation or miscoding of adverse events. Reports and cases lists can be used

to verify the accuracy of the cases identified as having an adverse events and studies are now underway to measure sensitivity positive predictive value of the AOI. (See below)

Walker S, Strandjord TP, Benedetti TJ. In search of perinatal quality outcome measures: 1 hospital's in-depth analysis of the A Outcomes Index. Am J Obstet Gynecol 2010;203:●●●●.

4e. Data Collection Strategy/Implementation

4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the composite/component r data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost o feasibility/ implementation issues:

Using administrative data to calculate the AOI is far more efficient and cost effective than manual chart abstraction allowing hospitals/collaborative groups using the AOI to have longer baseline (prior to a QI initiative) periods and to continue follow-up monitoring as part of their overall on-going QI activities. REviewing the accuracy of the cases identified using administrative data is critical to gaining support and acceptance of the measure. Variation in documentation and coding can undermine comp across facilities so early analysis and correction of the underly data is important. There are two specific examples of where co underlying administrative data will improve the accuracy and acceptance of the measure. 1) A small number of hosptials do no identify blood transfusions. As a result transfusion data had to obtained using separately submitted information from either bil information. Once identified, hosptials were very interested in correcting their coding practices since the frequency of blood t impact on the overall acuity profile of their population. 2) Uniform billing codes allow for the identification of routine newbor intermediate nursery charges and intensive level nursery charges. The adverse event of "admission to the NICU of an inborn >= congenital anomolies" only looks at cases with the highest (intensive) level of billing. Hosptials that do not discriminate their b the intensive level of billing code would often see an inappropriately higher than expected rate of adverse events in this categ discrepancy often required a separate identification of those cases that were truly in the "intermediate" level of care and not of care as well as follow-up with the billing department.

Timing of reports between the baseline period and following a QI initiative has proven important and an issue raised in the in reporting on the original DoD/Beth Israel study. The recommendation is to have a reporting hiatus during the time of QI /team beginning follow-up reporting when perinatal leadership feels the team is fully "trained up". Generally this is 2-3 quarters follo initiative.

Using the reports for on-going monitoring of positive performance has proven helpful . When there is unexpected change in ra hospitals can explore the cause and "refresh/adjust" their QI activities.

4.2 Costs to implement the measure (*costs of data collection, fees associated with proprietary measures*)**:**

The administrative data is a secondary data set so generally the costs to obtain and analyze the data are very reasonable. There may be the need to supplement the files with data not available in the administrative data set (APGAR 5) but if availabl an electronic format it can usually be generated fairly easily and merged into the original file.

4e.3 Evidence for costs: NPIC has been running the AOI for up to 70 hosptials for the last 6 years.

4e.4 Business case documentation: QI and measurng QI is an on-going, evolving activity. The AOI provides an opportunity to measure a hosptial's improvement overtime, following a QI initiative, in comparison to group of affiliated hospitals or all of the above for what is likely a significant volume of its patient population. The use of secondary data with minimal need to s with other electronic data makes it attractive from a cost perspective. Knowing a hosptial's rate can help direct limited resour need attention and on-going monitoring of the rate can determine when "refresher" activities are necessary. In addition, corre and/or coding issues prior to any required public reporting is always a very smart business practice.

If the component measures are combined at the patient level, complete 4c.

4c. Exclusions

4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denomina

No ☒ Yes ►**If yes, provide justification**

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility*?

Steering Committee: Overall, to what extent was the criterion, *Feasibility***, met?**
Rationale:

RECOMMENDATION

Steering Committee: Do you recommend for endorsement?
Comments:

CONTACT INFORMATION

Co.1 **Measure Steward (Intellectual Property Owner)**
Organization: National Perinatal Information Center
Street Address: 225 Chapman St. Suite 200 **City:** Providence **State:** RI **ZIP:** 02905

Co.2 **Point of Contact: First Name:** Janet **Last Name:** Muri **Credentials (MD, MPH, etc.):** MBA
Email: jmuri@npic.org **Telephone:** 401 274-0650 ext: 105

Co.3 **Measure Developer If different from Measure Steward**
Organization: Beth Israel Deaconess Medical Center
Street Address: 300 Brookline Ave **City:** Boston **State:** MA **ZIP:** 02215

Co.4 **Point of Contact: First Name:** Stephen **Last Name:** Pratt **Credentials (MD, MPH, etc.):** MD
Email: spratt@bidmc.harvard.edu **Telephone:** 617 667-3353 ext:

Co.5 **Submitter**
Organization: ☒ Measure Steward ☐ Measure Developer
First Name: **Last Name:** **Credentials (MD, MPH, etc.):**
Email: **Telephone:** ext:

Co.6 **List any additional organizations that sponsored/participated in measure development:**

ADDITIONAL INFORMATION

Ad.1 **Workgroup/Expert Panel involved in measure development**
Provide a list of workgroup/panel member names and organizations. Describe the group's role in measure development.
Peter E. Nielsen, MD; Marlene B. Goldman, ScD; Susan Mann, MD; David E. Shapiro, PhD; Ronald G. Marcus, MB, BCh; Stephen Greenberg, RN; Patricia McNamee, RN, MS; Mary Salisbury, RN, MSN; David J. Birnbach, MD; Paul A. Gluck, MD; Mark D. Pearln N. Tornberg, MD MPH; Benjamin P. Sachs, MB, BS; Lauren Bales, MD, Naval Medical Center Camp Pendleton; Ronald Burkman, Cynthia Brumfield, MD, University of Alabama at Birmingham Hospital; Peter Cherouny, MD, University of Vermont-Fletcher A MD, National Naval Medical Center; Harold Fox, MD, Johns Hopkins Medical Center; Elizabeth Golladay, MD, Tripler Army Medi MD, Naval Medical Center of San Diego; Robert Lorenz, MD, William Beaumont Hospital; William Lucky, MD, Baptist Hospital o South Shore Hospital; Spike Lipschitz, MD, South Shore Hospital; Chris Stolle, MD, Naval Medical Center of Portsmouth; Cosma Michigan Medical Center; Frank Witter, MD, Johns Hopkins Medical Center.

In addition, representatives from the American College of Obstetrics and Gyncology, the American Society of Anesthesiogists, Health Obstetric and Neonatal Nurses; the Society for Obstetric Anesthesia and Perinatology; the Armed Forces Institute of Pa of Medicine and Surgery; the Office of the Surgeon General, U.S. Army; and TRICARE Management Activity were present.

Consensus panels were developed for the indentification of measure to be included in the composite measure (AOI). This inclu individual measures. See reference for full description of panel process

1) Mann S, Pratt SD et al. Assessing Quality in Obstetrical Care: Development of Standardized Measures. Jt Comm J Qual Pt Sa

Ad.2 **If adapted, name of original measure:**
Ad.3 **If adapted, original specifications** ☐ **attachment or** Ad.4 **web page URL:**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2007
Ad.7 Month and Year of most recent revision: April, 2008
Ad.8 What is the frequency for review/update of this measure? On-going
Ad.9 When is the next scheduled review/update for this measure? August, 2010 and as appropriate, driven by code changes ar

Ad.10 **Copyright statement/disclaimers:**

Ad.11 Additional Information ☐ attachment or web page URL:
I have checked that the submission is complete and all the information needed to evaluate the measure is provided in th indicate that no information is provided.☒
Date of Submission (*MM/DD/YY*)**:** 08/03/10