NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

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

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

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

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

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

(for NQF staff use) **NQF Review #:** PSM-033-10 **NQF Project:** Patient Safety Measures
MEASURE DESCRIPTIVE INFORMATION
De.1 Measure Title: Five minute APGAR less than 7
De.2 Brief description of measure*:* All live, inborn infants with birthweight greater than 2,499 who have a five-minute APGAR < 7.
1.1-2 Type of Measure: Outcome **De.3 If included in a composite or paired with another measure, please identify composite or paired measure** Adverse Outcome Index, Weighted Adverse Outcome Score and Severity Index
De.4 National Priority Partners Priority Area: Safety **De.5 IOM Quality Domain**: Safety **De.6 Consumer Care Need:** 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 (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 aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes **A.2 Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** **A.3 Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission **A.4 Measure Steward Agreement attached:**	**A** **Y☐** **N☐**
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	C Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	D 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, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. *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**	Eval Rating
(for NQF staff use) Specific NPP goal:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Other 1a.2 Addresses NPP Priority Goal of Safety 1a.3 **Summary of Evidence of High Impact:** Hospitalization for a delivery is one of the most frequent reasons for a hospital admission. Delivery of a full term neonate with a compormised APGAR may indicate a preventable intrapartum complication. 1a.4 **Citations for Evidence of High Impact:**	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Apgar of less than 7 at 5 minutes is a commonly used quality indicator in obstetrics. Improvements in obstetric care have been associated with dramatic improvement in the rate of low apgar scores. Further, many of the risk factors for low apgars (vaginal breech delivery, birth at night, post dates delivery) indicate that obstetric management influence the rate. It has been estimated that 50% of low apgars at 5 minutes are related to intra-partum events. 1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**	**1b** C☐ P☐ M☐ N☐

1b.3 Citations for data on performance gap:

1b.4 Summary of Data on disparities by population group:
Low Socio-economic and education status have been associated with a higher rate of low 5-minute apgar. The impact of race is less clear.

1b.5 Citations for data on Disparities:
1) Odd DE, Doyle P, Gunnell D, et al. Risk of low Apgar score and socioeconomic position: a study of Swedish male births. Acta Paediatr. 2008; 97:1275-80.

2) Rogers JF, Graves WL. Risk factors associated with low Apgar scores in a low-income population. Paediatr Perinat Epidemiol. 1993; 7:205-16.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:**

1c.2-3. Type of Evidence:

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Low 5-minute apgar score occurs occurs at a rate of ~1%. Thus, about 40,000 infants are affected each year in the United States. Further, this outcome is associated with neonatal death and significant morbidity.

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

1c.6 Method for rating evidence:

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 relates to USPSTF)***:**

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

1c
C☐
P☐
M☐
N☐

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

1

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

1
Y☐

	N☐
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 when implemented. (evaluation criteria)	Eval Rating
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** All infants who meet above criteria. **2a.2 Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** Can be determined for any time interval. **2a.3 Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** Exluding those with congenital anomalies (DX codes 740-759.9) or fetal hydrops (DX code 778.0).	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):** All inborns **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** **2a.7 Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):** Can be determined for any time interval. **2a.8 Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):** All infants with a admission source of "newborn born in this hospital".	
2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** Excluding those with congenital anomalies (DX codes 740-759.9) or fetal hydrops (DX code 778.0)and BW <2500 grams **2a.10 Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):** Excluding those with congenital anomalies (DX codes 740-759.9) or fetal hydrops (DX code 778.0)and BW < 2500 grams	
2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):** N/A	
2a.12-13 Risk Adjustment Type: No risk adjustment necessary **2a.14 Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**	**2a-specs** **C☐** **P☐** **M☐** **N☐**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Lower score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
APGAR 5 <7 Inborns only, Birthweight >= 2500 grams

This measure is part of the AOI, WAOS and SI compostie measures. Please see AOI composite submission for algorithm details.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
See AOI composite submission.

2a.23 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)*:
No sampling

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Electronic clinical data, Electronic Health/Medical Record

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Administrative data set, perinatal data set, intrapartum record

2a.26-28 Data source/data collection instrument reference web page URL or attachment:

2a.29-31 Data dictionary/code table web page URL or attachment: URL www.npic.org Sample AOI Report

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Nurses, Clinicians: PA/NP/Advanced Practice Nurse, Clinicians: Physicians (MD/DO), Clinicians: Other L&D non-clinical staff

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** Administrative data for Beth Israel Deaconess Medical Cenrter for the period Q 3, 2005- Q2 2006 was reconciled with abstracted data for the same period.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
Case by case review.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
All inborn cases with APGAR 5 <7 identified through manual abstraction of data were present on a perinatal data set.

2b
C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)***:** Beth Israel Deconess Medical Center has been tracking this adverse event as part of their Adverse Outcome Index since early 2001.

2c
C☐ P☐ M☐ N☐

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Chart review and analysis of the perinatal data set for all deliveries during the period.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
Tracking and monitoring APGAR 5 < 7 has focused improvement efforts in intrapartum care.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
Low birth weight and congential anamolies are leading causes of neonatal death. A higher percent of these babies would be expected to have a low apgar score irrespective of obstetric management.

2d.2 Citations for Evidence:
Up to Date. Accessed January 29, 2009.
http://utdol.com/online/content/topic.do?topicKey=neonatol/14943&selectedTitle=1~134&source=search_result

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)*:

2d
C ☐
P ☐
M ☐
N ☐
NA ☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

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

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:

2e
C ☐
P ☐
M ☐
N ☐
NA ☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: This measure has been individually tracked as part of a composite measure. It has been used in three published reports (see references), totalling more than 50,000 deliveries. In addition, the National Perinatal Information center has tracked this across a wide range of clinical settings, totally nearly 500,000 deliveries.

1) Nielsen PE, Goldman MB, Mann S, Shapiro DE, Marcus RG, Pratt SD, et al. Effects of teamwork training on adverse outcomes and process of care in 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 attitude. Joint 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 outcomes: a randomized 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 & rationale)*:
See AOI Composite submission

2f.3 Provide Measure Scores from Testing or Current Use *(description of scores, e.g., distribution by*

2f
C ☐
P ☐
M ☐
N ☐

quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance): See AOI composite submission	
2g. Comparability of Multiple Data Sources/Methods 2g.1 **Data/sample** *(description of data/sample and size)*: 2g.2 **Analytic Method** *(type of analysis & rationale)*: 2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care 2h.**1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, **met?** **Rationale:**	*2* C☐ P☐ M☐ N☐
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)	Eval Rating
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** As part of the AOI composite measure, this measure is being tracked by a subset of NPIC member hospitals, clients of Team Performance Plus (TPP), The Maryland Perinatal Patient Safety Initiative, the Premier Perinatal Patient Safety Initiative and the Navy Military Treatment Facilities. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)*: See AOI Composite submission. 3a.5 **Methods** *(e.g., focus group, survey, QI project)*: See AOI Composite submission. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: See AOI Composite submission.	**3a** C☐ P☐ M☐ N☐

3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related** endorsed **or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability*?	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, **met?** **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** Most L&D records are electronic and include APGAR 5; for hospitals still using paper records we assume the transition to electronic records will occur in the next 5-10 years.	**4b** C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No	**4c** C☐ P☐ M☐ N☐ NA☐

4c.2 **If yes, provide justification.**	
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 potential problems could be audited. If audited, provide results.** Inaccurate recording of APGAR 5 is rare. Providing specific case counts for this measures allows the hospital the opportunity to validate the accuracy or correct inaccuracies.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.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/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** See AOI Composite submission. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** See AOI Composite submission. 4e.3 **Evidence for costs:** See AOI Composite submission. 4e.4 **Business case documentation:** See AOI Composite submission.	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility*?	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, **met?** **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** Department of OB/Gyn. Beth Israel Deaconess Medical Center, 330 Brookline Ave, Boston, Massachusetts, 02215 Co.2 **Point of Contact** Janet, Muri, MBA, jmuri@npic.org, 401-274-0650-105	
Measure Developer If different from Measure Steward Co.3 **Organization** Department of OB/Gyn. Beth Israel Deaconess Medical Center, 330 Brookline Ave, Boston, Massachusetts, 02215 Co.4 **Point of Contact** Janet, Muri, MBA, jmuri@npic.org, 401-274-0650-105	
Co.5 **Submitter If different from Measure Steward POC** Stephen, Pratt, MD, spratt@bidmc.harvard.edu, 617-667-3353-, Dept of Anesthesia, Beth Israel Deaconess Medical	

Center
Co.6 Additional organizations that sponsored/participated in measure development
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.** Consensus panels were developed for the indentification of measure to be included in the composite measure (AOI). This included vetting each of the 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 Safety. 2006; 32 (9):497-505.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2007 **Ad.7 Month and Year of most recent revision:** 04, 2008 **Ad.8 What is your frequency for review/update of this measure?** Ongoing **Ad.9 When is the next scheduled review/update for this measure?** 08, 2010
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment:
Date of Submission (*MM/DD/YY*)**:** 08/02/2010