# 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.

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| **NQF #:** 0481    **NQF Project:** Perinatal and Reproductive Health Project |
| (for Endorsement Maintenance Review) <br> **Original Endorsement Date:** Oct 24, 2008  **Most Recent Endorsement Date:** Oct 24, 2008 |
| <div align="center">**BRIEF MEASURE INFORMATION**</div> |
| **De.1 Measure Title:** First temperature measured within one hour of admission to the NICU. |
| **Co.1.1 Measure Steward:** Vermont Oxford Network |
| **De.2 Brief Description of Measure:** Percent of NICU admissions with a birth weight of 501-1500g with a first temperature taken within 1 hour of NICU admission. |
| **2a1.1 Numerator Statement:** Infants 501 to 1500 grams with first temperature taken within 1 hr of NICU admission |
| **2a1.4 Denominator Statement:** Infants whose birth weight is between 501 and 1500 grams who are admitted to a NICU in the reporting hospital. |
| **2a1.8 Denominator Exclusions:** 1. Infants outside the birth weight range 501 to 1500 grams. <br> 2. Outborn infants admitted more than 28 days after birth. <br> 3. Outborn infants who have been home prior to admission. <br> 4. Infants not admitted to the NICU. |
| **1.1 Measure Type:** Process <br> **2a1. 25-26 Data Source:** Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records <br> **2a1.33 Level of Analysis:** Facility <br><br> **1.2-1.4 Is this measure paired with another measure?** No <br><br> **De.3 If included in a composite, please identify the composite measure** (*title and NQF number if endorsed*): <br> N/A |

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| <div align="center">**STAFF NOTES**  (*issues or questions regarding any criteria*)</div> |
| 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*): <br> 5. Similar/related endorsed or submitted measures (*check 5.1*): <br> Other Criteria: |
| Staff Reviewer Name(s): |

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|---|
| <div align="center">**1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT**</div> |
| 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*):

**1a.1 Demonstrated High Impact Aspect of Healthcare:**  Affects large numbers, Frequently performed procedure, Patient/societal consequences of poor quality

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

**1a.3 Summary of Evidence of High Impact** (*Provide epidemiologic or resource use data*):
Body temperature is a basic vital sign that should be measured on all infants.  We are not aware of evidence from epidemiologic studies.  In our companion measure, admission temperature < 36 degrees C (NQF XXX), we address the evidence for maintaining normal body temperature in very low birth weight infants and the importance of this measure.  To interpret admission temperature it is necessary to know if it is being measured on all infants.

**1a.4 Citations for Evidence of High Impact cited in 1a.3:**  N/A

**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:**
Timely measurement of body temperature is necessary to maintain the temperature in the normal range and to avoid the adverse effects of hypo- or hyperthermia.  If less than 100% of infants have a body temperature measured and recorded within one hour of birth there is a clear opportunity for improvement.

**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.*]
In 2010 at 850 NICUs reporting data on over 55,000 very low birth weight infants the 25th and 75th percentile among hospitals for this measure were 96.7% and 100%.

**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*]
55,000 very low birth weight infants at 85 hospitals

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

**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*]
N/A

**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)*:
Health outcome: Morbidity and mortality
Intermediate clinical outcome: normal body temperature within 1 hour of NICU admission
Process: Admission process to NICU

Links: Standardized admission procedure and checklist leads to reliable measurement of body temperature with appropriate interventions to manage thermal environment based on measured temperature.

**1c.2-3 Type of Evidence** *(Check all that apply)*:
Clinical Practice Guideline

**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)*:
N/A

**1c.5 Quantity of Studies in the Body of Evidence** *(Total number of studies, not articles)*:  N/A

**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*):  N/A

**1c.7 Consistency of Results across Studies** *(Summarize the consistency of the magnitude and direction of the effect)*: N/A

**1c.8 Net Benefit** *(Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms)*:
N/A

**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:**  N/A

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

**1c.12 If other, identify and describe the grading scale with definitions:**  N/A

**1c.13 Grade Assigned to the Body of Evidence:**  N/A

**1c.14 Summary of Controversy/Contradictory Evidence:**  Measurement of vital signs on admission including temperature is an accepted standard of care.  If there is controversy it would be about the length of time after admsiion when the temperature should be obtained.  Although some will argue that it must be immediately upon admission, in infants requiring critical care interventions other priorities may intervene.

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

**1c.16** Quote verbatim, <u>the specific guideline recommendation</u> *(Including guideline # and/or page #)*:
Guidelines for Perinatal Care. Sixth Edition. American Academy of Pediatrics. American College of Obstetricians and Gynecologists. Elk Grove, Il. 2007

Pages 207 to 210.

"The premature infant is at particular risk for cold stress. In addition to increasing the temperature of the delivery room, the use of a preheated radiant warmer and warmed towels to dry the infant off, other special measures should be considered, including the use of portable warming pads under towels. For the very premature infant (under 28 weeks of gestation), consider placing her below the neck in a food grade reclosable one-gallon polyethylene bag that has been cut on the end to allow the head to pass through. The infant is placed in this bag before drying and should remain in the bag from the neck down until arrival in the nursery. Temperature must be monitored to avoid the risk of hyperthermia with this technique."

**1c.17** Clinical Practice Guideline Citation: N/A

**1c.18** National Guideline Clearinghouse or other URL: N/A

**1c.19** Grading of Strength of Guideline Recommendation. Has the recommendation been graded? No

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

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

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

**1c.23** Grade Assigned to the Recommendation: N/A

**1c.24** Rationale for Using this Guideline Over Others: Guidelines for Perinatal Care is the authoritative source on this issue.

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

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, <u>as specified</u>, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (<u>evaluation criteria</u>)
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 <u>guidance on measure testing</u>.

**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 <u>this</u> measure can be

obtained?  Yes

**S.2 If yes, provide web page URL:**  http://www.vtoxford.org/about/NQF%20Measure%200481.pdf

**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)*:
Infants 501 to 1500 grams with first temperature taken within 1 hr of NICU
admission

**2a1.2 Numerator Time Window** *(The time period in which the target process, condition, event, or outcome is eligible for inclusion)*:
From birth until one hour after admission to the neonatal intensive care unit (NICU) at the reporting hospital.

**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*:
Infants whose birth weight is between 501 and 1500 grams and whose temperature is measured within one hour after admission to a NICU in the reporting hospital.

**2a1.4 Denominator Statement** *(Brief, narrative description of the  target population being measured)*:
Infants whose birth weight is between 501 and 1500 grams who are admitted to a NICU in the reporting hospital.

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

**2a1.6 Denominator Time Window** *(The time period in which cases are eligible for inclusion)*:
From birth until one hour after admission to the neonatal intensive care unit (NICU) at the reporting hospital.

**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)*:
Infants who are born at and admitted to a NICU at the reporting hospital
and whose birth weight is between 501 and 1500 grams are included.

Outborn infants who are admitted the reporting hospital within 28
days of birth, without first having gone home, and whose birth weight is between 501 and 1500 grams are included if they are admitted to a NICU in the reporting hospital.

**2a1.8 Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*:
1. Infants outside the birth weight range 501 to 1500 grams.
2. Outborn infants admitted more than 28 days after birth.
3. Outborn infants who have been home prior to admission.
4. Infants not admitted to the NICU.

**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)*:
See 2a1.8 above.

**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 measure is separately determined by birth location (inborn, outborn), as well for all eligible infants.  The measure is reported by birth weight category (four levels and 10 levels), by gestational age and gestational age category (five levels) and by birth location (inborn, outborn).

**2a1.11 Risk Adjustment Type** *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in*

*2a1.13)*: No risk adjustment or risk stratification     **2a1.12** If "Other," please describe:

**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.)*:
N/A

**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:

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**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 = Higher 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. Identify the population of eligible infants: all infants born in the hospital or admitted within 28 days of birth without having been discharged home whose birth weight is between 501 and 1500 grams and who are admitted to a NICU in the hospital.
2. Count the number of inborn infants who are admitted to the NICU for whom it is known whether the body temperature was measured within one hour of admission to the NICU. This number is the denominator for eligible inborn infants: DENOM INBORN.
3. Count the number of outborn infants who are admitted to the NICU for whom it is known whether the body temperature was measured within one hour of admission to the NICU. This number is the denominator for eligible outborn infants: DENOM OUTBORN.
4. Count the total number of eligible infants who are admitted to the NICU for whom it is known whether the body temperature was measured within one hour of admission to the NICU. This number is the denominator for all eligible infants: DENOM ALL.
5. Count the number of inborn infants whose body temperature was measured within one hour of NICU admission. This number is the numerator for eligible inborn infants: NUM INBORN.
6. Count the number of outborn infants whose body temperature was measured within one hour of NICU admission. This number is the numerator for eligible outborn infants: NUM OUTBORN.
7. Count the total number of eligible infants whose body temperature was measured within one hour of NICU. This number is the numerator for all eligible infants: NUM ALL
8. Calculate the measure for eligible inborn infants:
   NUM INBORN/ DENOM INBORN
   This measure represents the proportion of eligible inborn infants whose birth weight is between 501 and 1500 grams and whose body temperature was measured within one hour of NICU admission.
9. Calculate the measure for eligible outborn infants:

NUM OUTBORN/ DENOM OUTBORN
This measure represents the proportion of eligible outborn infants whose
birth weight is between 501 and 1500 grams and whose body temperature was
measured within one hour of NICU admission.
10. Calculate the measure for all eligible infants:
NUM ALL/ DENOM ALL
This measure represents the proportion of all eligible infants whose birth
weight is between 501 and 1500 grams and whose body temperature was
measured within one hour of NICU admission.

**2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:**
URL
http://www.vtoxford.org/about/NQF%20Measure%200481.pdf

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**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):
Data for all eligible infants born during the reporting period are collected.

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**2a1.25 Data Source** (*Check all the sources for which the measure is specified and tested*). If other, please describe:
Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, 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.*): Vermont Oxford Network Database

**2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment:** URL
http://www.vtoxford.org/about/network_db.aspx

**2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:**
URL
http://www.vtoxford.org/tools/ManualofOperationsPart2.pdf

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

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

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

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**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*):
Data for infants born between 2006 and 2010 by birth weight category are shown below:
----------Birth Weight Category (grams)--------
Admission
Temperature      ----------Birth Weight Category ---------
Measured      501-750   751-1000   1001-1250   1251-1500
Yes          41,821    56,784    64,205     78,826
No            2,377     2,580     2,651      3,314

**2a2.2 Analytic Method** (*Describe method of reliability testing & rationale*):
The number and percent of infants whose temperature was measured within one hour of NICU admission are reported, along with Network mean values and the 25th and 75th percentile values for all hospitals in the Network.

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

N/A

## 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:**
Very low birth weight infants with hypothermia are at higher risk of mortality (e.g., Knobel R and Holditch-Davis D, "Thermoregulation and Heat Loss Prevention after Birth and During Neonatal Intensive-Care Unit Stabilization of Extremely Low Birthweight Infants", Advances in Neonatal Care (2010), 10, S7-S14), yet the prevalence of hyypothermia is quite common. There is a continuing need to monitor the temperature of these infants (e.g., Knobel RB, Wimmer JE and Holbert D, "Heat Loss Prevention for Preterm Infants in the Delivery Room", J of Perinatology (2005), 25, 304-308).

### 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)*:
Data for this measure have been collected since 2006. The number of hospitals submitting data for the measure, with minimum and maximum number of submitted records for eligible infants born between 2006 and 2010 is shown below.

| Birth Year | Hospitals | Minimum Infants | Maximum Infants |
| --- | --- | --- | --- |
| 2006 | 631 | 1 | 307 |
| 2007 | 679 | 1 | 318 |
| 2008 | 748 | 1 | 381 |
| 2009 | 814 | 1 | 291 |
| 2010 | 849 | 1 | 270 |

**2b2.2 Analytic Method** *(Describe method of validity testing and rationale; if face validity, describe systematic assessment)*:
Comprehensive business rules have been implemented in software applications so that each record submitted is tested for consistency, completness and accuracy. Submitted records with errors must be corrected before data are finalized and reports of the measure are provided to hospitals.

**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)*:
There is an annual assessment of item definitions by the Network Database Advisory Committee. The annual assessment results in modifications to the definitions for measures. Expert advisors to the registry directors provide recommendations for measure improvement and clarification of item criteria.

### 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)*:
Infants who die prior to admission to the NICU or are not admitted to the NICU for other reasons are excluded.

**2b3.2 Analytic Method** (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference*):
Exclusions are enforced by business rules that assure database integrity.

**2b3.3 Results** *(Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*
The following table shows the number of infants, number of records excluded and percent excluded for birth years 2006-2010.

| Birth Year | Number of Infants | Number Excluded | Percent Excluded |
| --- | --- | --- | --- |
| 2006 | 47,160 | 1,875 | 4.0% |
| 2007 | 50,867 | 1,628 | 3.2% |

| 2008 | 53,735 | 1,645 | 3.1% |
| 2009 | 55,193 | 1,563 | 2.8% |
| 2010 | 53,869 | 1,555 | 2.9% |

**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*):
Reported data are stratified by birth weight category (either 10 levels or 4 levels), gestational age or gestational age category (5 levels) and birth location (inborn, outborn). Data are not risk adjusted.

**2b4.2 Analytic Method (***Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables*):
Infants at lower birth weight, lower gestational age and outborn infants are at higher risk of hypothermia, as well as at higher risk for poor outcomes when hypothermia is present. Temperature measurement is of particular importance in infants at higher risk.

**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*):
The number of infants and percent where temperature was measured within one hour of NICU admission are shown below by birth weight category for infants 501-1500 grams born between 2006 and 2010.

| Birth Weight | Number of Infants | Percent Measured |
| --- | --- | --- |
| 501-750 g | 44,198 | 94.6% |
| 751-1000 g | 59,364 | 95.7% |
| 1001-1250 g | 66,856 | 96.0% |
| 1251-1500 g | 82,140 | 96.0% |

**2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment:** Measurement of temperature within one hour of admission is an important quality measure and is matter of hospital protocol and clinical leadership.

**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*):
In 2010 reports for this measure were sent to 849 hospitals, and the measure was applicable for 52,314 infants.

**2b5.2 Analytic Method** (*Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance*):
Results for hospitals are stratified by birth weight category, gestational age and birth location. The distribution of 2010 results among hospitals for key percentiles was analyzed univariately.

**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*):
The hospital distribution of 2010 results among 849 hospitals for specific percentiles is shown below.

| Percentile | Percent Measured within 1 Hour |
| --- | --- |
| 10th | 92.3 |
| 25th | 98.2 |
| 50th | 100.0 |

| | |
|---|---|
| 75th | 100.0 |
| 90th | 100.0 |

**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*):
N/A

**2b6.2 Analytic Method** (*Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure*):
N/A

**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*):
N/A

**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*): N/A

**2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:**
N/A

**2.1-2.3 Supplemental Testing Methodology Information:**
URL
http://www.vtoxford.org/about/NQF%20Measure%200481.pdf

**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)

**3.1 Current Use** (*Check all that apply; for any that are checked, provide the specific program information in the following questions*):  Public Reporting, 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))*. <u>If not publicly reported in a national or community program</u>, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement:  [*For <u>Maintenance</u> – 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.*]
Performance results are made available to the members of the Vermont Oxford Network at: https://nightingale.vtoxford.org
Participants in the Vermont Oxford Network may access a fully featured Internet reporting system (Nightingale), as well as printed reports, which document patient characteristics, treatment practices, morbidity, mortality, and length of stay for the institution. The reports also track performance over time, comparing the institution's performance to that of the Network as a whole and with subgroups of similar institutions.

Vermont Oxford Network members may make their performance available to the public at their discretion.

**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: Very low birth weight infants with hypothermia are at higher risk of mortality, and the prevalence of hypothermia is common. Timely measurement of body temperature is critical to identify and address temperature that is out of normal range and to avoid the adverse effects of hypo- or hyper-thermia.
Measuring and reporting performance allows care providers to identify areas of concern and opportunities for improvement by evaluating their performance over time and relative to others.

**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): N/A

**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* <u>*Maintenance*</u> *– If not used for QI, indicate the reasons and describe progress toward using performance results for improvement*].
Performance results are used for quality improvement by the members of the Vermont Oxford Network: http://www.vtoxford.org/about/membership.aspx

Performance results are also used by participants in the Vermont Oxford Network's Quality Improvement Collaboratives: http://www.vtoxford.org/quality/nicq/nicq.aspx

**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:
Timely measurement of body temperature is critical to identify and address temperature that is out of normal range and to avoid the adverse effects of hypo- or hyper-thermia. Performance of less than 100% on this measure is a clear opportunity for improvement.

Participants in the Vermont Oxford Network may access a fully featured Internet reporting system (Nightingale), as well as printed reports, which document patient characteristics, treatment practices, morbidity, mortality, and length of stay for the institution. The reports also track performance over time, comparing the institution's performance to that of the Network as a whole and with subgroups of similar institutions.

**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)*:  ALL data elements are in a combination of 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:

**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:
A manual of operations for the registry is published annually, with definitions and criterial clearly operationalized for the measure. Comprehensive business rules are implemented in software to verify records for consistency, completeness and accuracy. A definitive process is in effect to assure that the measure is not reported until data are complete and correct. Hospital contacts must verify that data for all eligible infants are submitted prior to finalization.

**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)*:
Patient identifiers are not collected in the registry. Confidentiality for each hospital member is strictly maintained. Procedures in place assure reasonable confidence that data are complete and accurate.  There are no specific fees for this measure, although members of the Vermont Oxford Network pay an annual membership fee.

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

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## 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.

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## 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):** Vermont Oxford Network, 33 Kilburn St, Burlington, Vermont, 05401

**Co.2 Point of Contact:** Beth, Anderson, banderson@vtoxford.org, 802-865-4814-237

**Co.3 Measure Developer if different from Measure Steward:** Vermont Oxford Network, 33 Kilburn St, Burlington, Vermont, 05401

**Co.4 Point of Contact:** Beth, Anderson, banderson@vtoxford.org, 802-865-4814-237

**Co.5 Submitter:** Beth, Anderson, banderson@vtoxford.org, 802-865-4814-237, Vermont Oxford Network

**Co.6 Additional organizations that sponsored/participated in measure development:** N/A

**Co.7 Public Contact:** Beth, Anderson, banderson@vtoxford.org, 802-865-4814-237, Vermont Oxford Network

## 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.

**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:

**Measure Developer/Steward Updates and Ongoing Maintenance**
**Ad.3** Year the measure was first released: 2008
**Ad.4** Month and Year of most recent revision: 10, 2011
**Ad.5** What is your frequency for review/update of this measure? Annual
**Ad.6** When is the next scheduled review/update for this measure? 09, 2012

**Ad.7 Copyright statement:** Copyright © 2011 Vermont Oxford Network, Inc.

**Ad.8 Disclaimers:**

**Ad.9 Additional Information/Comments:**

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