



## Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

### Brief Measure Information

**NQF #:** 1731

**Corresponding Measures:**

**De.2. Measure Title:** PC-04 Health Care-Associated Bloodstream Infections in Newborns

**Co.1.1. Measure Steward:** The Joint Commission

**De.3. Brief Description of Measure:** This measure assesses the number of staphylococcal and gram negative septicemias or bacteremias in high-risk newborns. This measure is a part of a set of five nationally implemented measures that address perinatal care (PC-01: Elective Delivery, PC-02: Cesarean Birth, PC-03: Antenatal Steroids, PC-05: Exclusive Breast Milk Feeding; Beginning 1/1/2019 PC-06 Unexpected Complications in Term Newborns will be added).

**1b.1. Developer Rationale:** A health care-associated bloodstream infection in high-risk newborns remains a major patient safety concern. Effective preventive measures range from simple hand-washing protocols or closed medication delivery systems to more elaborate multidisciplinary quality improvement plans involving hand-washing, nutrition, skin care, respiratory care, vascular access, and diagnostic practices. Guidelines for the prevention of intravascular catheter-related infections are also available from the Centers for Disease Control and Prevention (CDC) to assist hospitals in establishing successful interventions to reduce the number of health care-associated bloodstream infections in newborns.

The measure will assist health care organizations (HCOs) to track evidence of a decrease in health care-associated bloodstream infections in newborns.

**S.4. Numerator Statement:** The outcome being measured is: Newborns with septicemia or bacteremia with ICD-10-CM Other Diagnosis Codes for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a Bloodstream Infection Confirmed OR ICD- 10-CM Other Diagnosis Codes for sepsis as defined in Appendix A, Table 11.10.1 with a Bloodstream Infection Confirmed.

**S.6. Denominator Statement:** The outcome target population being measured is: Liveborn newborns with ICD-10-CM Other Diagnosis Codes for birth weight between 500 and 1499g as defined in Appendix A, Table 11.12, 11.13 or 11.14 OR Birth Weight between 500 and 1499g OR ICD-10-CM Other Diagnosis Codes for birth weight = > 1500g as defined in Appendix A, Table 11.15 or 11.16 OR Birth Weight = > 1500g who experienced one or more of the following:

- o Experienced death
- o ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for major surgery as defined in Appendix A, Table 11.18
- o ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for mechanical ventilation as defined in Appendix A, Table 11.19
- o Transferred in from another acute care hospital or health care setting within 2 days of birth.

**S.8. Denominator Exclusions:** • ICD-10-CM Principal Diagnosis Code for septicemias or bacteremias as defined in Appendix A, Table 11.10.2

- ICD-10-CM Other Diagnosis Codes for septicemias or bacteremias as defined in Appendix A, Table 11.10.2 or ICD-10-CM Principal or Other Diagnosis Codes for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a Bloodstream Infection Present on Admission
- ICD-10-CM Other Diagnosis Codes for birth weight < 500g as defined in Appendix A, Table 11.20 OR Birth Weight < 500g
- Length of Stay < 2 days

**De.1. Measure Type:** Outcome

**S.17. Data Source:** Electronic Health Records, Other, Paper Medical Records

**S.20. Level of Analysis:** Facility, Other

IF Endorsement Maintenance – Original Endorsement Date: [Apr 02, 2012](#) Most Recent Endorsement Date: [Oct 25, 2016](#)

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? [Not Applicable](#)

## 1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

### 1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[1731\\_Evidence\\_MSF5.0\\_Data-635787040738097660.doc](#)

#### 1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

### 1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

**1b.1. Briefly explain the rationale for this measure** (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

*If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.*

A health care-associated bloodstream infection in high-risk newborns remains a major patient safety concern. Effective preventive measures range from simple hand-washing protocols or closed medication delivery systems to more elaborate multidisciplinary quality improvement plans involving hand-washing, nutrition, skin care, respiratory care, vascular access, and diagnostic practices. Guidelines for the prevention of intravascular catheter-related infections are also available from the Centers for Disease Control and Prevention (CDC) to assist hospitals in establishing successful interventions to reduce the number of health care-associated bloodstream infections in newborns.

The measure will assist health care organizations (HCOs) to track evidence of a decrease in health care-associated bloodstream infections in newborns.

**1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.** *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

Health care-associated bloodstream infections continue to persist despite the fact that standardized guidelines have been developed for intravascular catheter care. The goal of eliminating health care-associated bloodstream infections has not been met for all hospitals reporting the data. The Perinatal Care (PC) core measures were added as a new core measure set in 2010 for hospitals to select in order to meet their ORYX performance measurement requirement for Joint Commission accreditation purposes. Approximately 158 hospitals reported the data with an average measure rate of 0.02% (n=45,248 patients). In January 2014, The Joint Commission required mandatory reporting of the PC measure set for all accredited hospitals with 1100 births or more annually. 1218 hospitals reported the data with an average rate of 3.2% (n=363,400 patients). The 2014 performance gap persists with improvement noted primarily in the median (0%), lower quartile (0%) and 10th percentile (0%) hospitals. It is important to note that a performance gap of 7.1% exists for the 90th percentile and 1.8% for the upper quartile of hospitals. The 2014 mean rate of 2.9% also remains above the target goal of 0%. The threshold for mandatory reporting was recently lowered to 300 births annually effective January 2016. The new reporting requirement will now capture approximately 80% of all accredited birthing hospitals. As a

result, the rates may increase with the addition of approximately 821 more hospitals reporting data. Below is the specified level of analysis for PC-04 beginning with discharges April 1, 2010 through December 31, 2014.

2Q 2010: 45,248 denominator cases; 135 numerator cases; 158 hospitals; 0.02% national aggregate rate; 0.0036 mean of hospital rates; 0.01189 standard deviation; 0.08% 90th percentile rate; 0.02% 75th percentile rate/upper quartile; 0% 50th percentile rate/median rate; 0% 25th percentile rate/lower quartile; and 0% 10th percentile rate.

CY 2011: 6,490 denominator cases; 62 numerator cases; 109 hospitals; 0.09% national aggregate rate; 0.04755 mean of hospital rates; 0.19254 standard deviation; .3.8% 90th percentile rate; 0% 75th percentile rate/upper quartile; 0% 50th percentile rate/median rate; 0% 25th percentile rate/lower quartile; and 0% 10th percentile rate.

CY 2012: 2,570 denominator cases; 22 numerator cases; 89 hospitals; 0.08% national aggregate rate; 0.01566 mean of hospital rates; 0.10635 standard deviation; 2.2% 90th percentile rate; 0% 75th percentile rate/upper quartile; 0% 50th percentile rate/median rate; 0% 25th percentile rate/lower quartile; and 0% 10th percentile rate.

CY 2013: 4,861 denominator cases; 122 numerator cases; 129 hospitals; 2.5% national aggregate rate; 0.02693 mean of hospital rates; 0.10249 standard deviation; 6.2% 90th percentile rate; 2% 75th percentile rate/upper quartile; 0% 50th percentile rate/median rate; 0% 25th percentile rate/lower quartile; and 0% 10th percentile rate.

CY 2014: 71,676 denominator cases; 2,297 numerator cases; 1218 hospitals; 3.2% national aggregate rate; 0.02981 mean of hospital rates; 0.09815 standard deviation; 7.1% 90th percentile rate; 1.8% 75th percentile rate/upper quartile; 0% 50th percentile rate/median rate; 0% 25th percentile rate/lower quartile; and 0% 10th percentile rate.

**1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**

Not Applicable

**1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (*This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.*) For measures that show high levels of performance, i.e., “topped out”, disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.**

There is a great deal of literature supporting the standardization of aseptic care and educational interventions aimed at neonatal nurses to reduce the incidence of health care-associated bloodstream infections in newborns. There is no mention of disparities related to race or socioeconomic status regarding the incidence of health care associated bloodstream infections in newborns. Although the literature supports premature newborns with very low birth weight > 1500 g as the most vulnerable group of newborns susceptible to health care-associated bloodstream infections.

An updated 2015 literature search yielded no new information on disparities reported for health care-associated bloodstream infections in newborns. It is important to note that recent studies by Flett, et al. (2015) and Zachariah, et al. (2014) show increased compliance with standardized protocols proven to reduce the incidence of health care-associated bloodstream infections when state legal mandates for reporting of infection rates were in place.

**1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**

- Adams-Chapman, I. & Stoll, B.J. (2002). Prevention of nosocomial infections in the neonatal intensive care unit. Current Opinion in Pediatrics. 14 (2):157-64.
- Bloom, B.T., Craddock, A., Delmore, P.M., et al. (2003). Reducing acquired infections in the NICU: observing and implementing meaningful differences in process between high and low acquired infection rate centers. Journal of Perinatology. 23(6):489-92.
- Clark, R., Powers, R., White, R., Bloom, B., Sanchez, P., & Benjamin, D.K., Jr. (2004a). Prevention and treatment of nosocomial sepsis in the NICU. Journal of Perinatology. 4; 24(7):446-53.
- Clark, R., Powers, R., White, R., Bloom, B., Sanchez, P., & Benjamin, D.K., Jr. (2004b). Nosocomial infection in the NICU: a medical complication or unavoidable problem? Journal of Perinatology. 24(6):382-8.
- Gaynes, R.P., Edwards, J.R., Jarvis, W.R., Culver, D.H., Tolson, J.S., & Martone, W.J. (1996). Nosocomial infections among neonates in high-risk nurseries in the United States. National Nosocomial Infections Surveillance System. Pediatrics. 98(3 Pt 1):357-61.

- Payne, N.R., Carpenter, J.H., Badger, G.J., Horbar, J.D., & Rogowski, J. (2004). Marginal increase in cost and excess length of stay associated with nosocomial bloodstream infections in surviving very low birth weight infants. *Pediatrics*. 114(2):348-55.
- Sohn, A.H., Garrett, D.O., Sinkowitz-Cochran, R.L., et al. (2001). Prevalence of nosocomial infections in neonatal intensive care unit patients: Results from the first national point-prevalence survey. *Journal of Pediatrics*. 139(6):821-7.
- Stoll, B.J., Hansen, N., Fanaroff, A.A., et al. (2002). Late-onset sepsis in very low birth weight neonates: the experience of the NICHD Neonatal Research Network. *Pediatrics*. 110(2 Pt 1):285-91.
- Zachariah, P., Reagan, J., Furuya, E., Dick, A., Liu, H., Herzig, C., Pogorzelska-Maziarz, M., Stone, P. & Saiman, L. (2014). The association of state legal mandates for data submission of central line-associated bloodstream infections in neonatal intensive care units with process and outcome measures. *Infect Control Hosp Epidemiol*. 35(9):1133-9.

## 2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

**2a.1. Specifications** The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

**De.5. Subject/Topic Area** (check all the areas that apply):

Perinatal Health

**De.6. Non-Condition Specific**(check all the areas that apply):

Safety : Healthcare Associated Infections

**De.7. Target Population Category** (Check all the populations for which the measure is specified and tested if any):

Populations at Risk

**S.1. Measure-specific Web Page** (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

<https://manual.jointcommission.org/releases/TJC2018B1/PerinatalCare.html>

**S.2a. If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

**S.2b. Data Dictionary, Code Table, or Value Sets** (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: PC-04\_Code\_Tables.xlsx

**S.2c.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

No, this is not an instrument-based measure Attachment:

**S.2d.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Not an instrument-based measure

**S.3.1. For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

Yes

**S.3.2. For maintenance of endorsement**, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

- Correction made to Denominator Data Elements list on the Measure Information Form.

- Appendix A - ICD-10 Code Tables: Revised to reflect the ICD-10 code updates for Fiscal Year (FY) 2019, effective for discharges October 1, 2018

**S.4. Numerator Statement** (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

*IF an OUTCOME MEASURE*, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The outcome being measured is: Newborns with septicemia or bacteremia with ICD-10-CM Other Diagnosis Codes for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a Bloodstream Infection Confirmed OR ICD-10-CM Other Diagnosis Codes for sepsis as defined in Appendix A, Table 11.10.1 with a Bloodstream Infection Confirmed.

**S.5. 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, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

*IF an OUTCOME MEASURE*, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Two data elements are used for the observed outcome and to calculate the numerator:

1. Bloodstream Infection Confirmed- Documentation in the medical record that the bloodstream infection is confirmed after the first 48 hours after admission. Allowable values: Yes or No/UTD
2. ICD-10-CM Other Diagnosis Codes- The International Classification of Diseases, Tenth Revision, Clinical Modification codes associated with the other or secondary diagnoses for this hospitalization.

Cases are eligible for the numerator population with ICD-10-CM Other Diagnosis Code for newborn septicemia or bacteremia with the presence of a health care-associated bloodstream infection confirmed OR an ICD-10-CM Other Diagnosis Codes for sepsis with the presence of a health care-associated bloodstream infection confirmed.

**S.6. Denominator Statement** (Brief, narrative description of the target population being measured)

The outcome target population being measured is: Liveborn newborns with ICD-10-CM Other Diagnosis Codes for birth weight between 500 and 1499g as defined in Appendix A, Table 11.12, 11.13 or 11.14 OR Birth Weight between 500 and 1499g OR ICD-10-CM Other Diagnosis Codes for birth weight = > 1500g as defined in Appendix A, Table 11.15 or 11.16 OR Birth Weight = > 1500g who experienced one or more of the following:

- o Experienced death
- o ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for major surgery as defined in Appendix A, Table 11.18
- o ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for mechanical ventilation as defined in Appendix A, Table 11.19
- o Transferred in from another acute care hospital or health care setting within 2 days of birth.

**S.7. Denominator Details** (All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

*IF an OUTCOME MEASURE*, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Ten data elements are used to identify the target population and to calculate the denominator:

1. Admission Date – The month, day, and year of admission to acute inpatient care.
2. Birth Weight- The weight (in grams) of a newborn at the time of delivery.
3. Birthdate - The month, day, and year the patient was born.

4. Bloodstream Infection Present on Admission- Documentation in the medical record within the first 48 hours after admission that the patient had a bloodstream infection present on admission. This includes both patients with positive blood cultures or inconclusive blood cultures when the patient is suspected of having a bloodstream infection or septicemia and is being treated for the condition. Allowable values: Yes or No/UTD
5. Discharge Date – The month, day, and year the patient was discharged from acute care, left against medical advice, or expired during the stay.
6. Discharge Disposition - The place or setting to which the patient was discharged on the day of discharge.
7. ICD-10-CM Other Diagnosis Codes - The International Classification of Diseases, Tenth Revision, Clinical Modification codes associated with the other or secondary diagnoses for this hospitalization.
8. ICD-10-PCS Other Procedure Codes - The International Classification of Diseases, Tenth Revision, Procedure Coding System code that identifies significant procedures performed other than the principal procedure during this hospitalization.
9. ICD-10-CM Principal Diagnosis Code - The International Classification of Diseases, Tenth Revision, Clinical Modification diagnosis code that is primarily responsible for the admission of the patient to the hospital for care for this hospitalization.
10. ICD-10-PCS Principal Procedure Code - The International Classification of Diseases, Tenth Revision, Procedure Coding System code that identifies the principal procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication.

**S.8. Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*

- ICD-10-CM Principal Diagnosis Code for septicemias or bacteremias as defined in Appendix A, Table 11.10.2
- ICD-10-CM Other Diagnosis Codes for septicemias or bacteremias as defined in Appendix A, Table 11.10.2 or ICD-10-CM Principal or Other Diagnosis Codes for newborn septicemia or bacteremia as defined in Appendix A, Table 11.10 with a Bloodstream Infection Present on Admission
- ICD-10-CM Other Diagnosis Codes for birth weight < 500g as defined in Appendix A, Table 11.20 OR Birth Weight < 500g
- Length of Stay < 2 days

**S.9. Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

- Patients with ICD-10-CM Principal Diagnosis Code for septicemias or bacteremias are excluded.
- Patients with ICD-10-CM Other Diagnosis Codes for septicemias or bacteremias with a Bloodstream Infection Present on Admission are excluded.
- Patients with ICD-10-CM Principal or Other Diagnosis Codes for newborn septicemia or bacteremia with a Bloodstream Infection Present on Admission are excluded.
- Patients with ICD-10-CM Other Diagnosis Codes for birth weight <500 grams OR a birth weight <500 grams are excluded.
- Length of stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is less than 2 days, the patient is excluded.

**S.10. Stratification Information** *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)*

Not applicable, the measure is not stratified.

**S.11. Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)

Statistical risk model

If other:

**S.12. Type of score:**

Rate/proportion

If other:

**S.13. Interpretation of Score** *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*

Better quality = Lower score

**S.14. Calculation Algorithm/Measure Logic** *(Diagram or 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; time period for data, aggregating data; risk adjustment; etc.)*

1. Start processing. Run cases that are included in the PC-Newborn Initial Patient Newborns with BSI and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Calculate Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date.
3. Check Length of Stay
  - a. If Length of Stay is less than 2 days, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - b. If Length of Stay is greater than or equal to 2 days, continue processing and proceed to ICD-10-CM Principal or Other Diagnosis Codes.
4. Check ICD-10-CM Principal or Other Diagnosis Codes
  - a. If none of the ICD-10-CM Principal or Other Diagnosis Codes is on Table 11.10, continue processing and proceed to ICD- 10-CM Other Diagnosis Codes
    1. If all of the ICD-10-CM Other Diagnosis Codes are missing or none of the ICD-10-CM Other Diagnosis Codes is on Table 11.10.2, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 6).
    2. If at least one of the ICD-10-CM Other Diagnosis Codes is on Table 11.10.2, continue processing and proceed to Bloodstream Infection Present on Admission.
  - b. If at least one of the ICD-10-CM Principal or Other Diagnosis Codes is on Table 11.10, continue processing and proceed to Bloodstream Infection Present on Admission.
5. Check Bloodstream Infection Present on Admission
  - a. If Bloodstream Infection Present on Admission is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Bloodstream Infection Present on Admission equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Bloodstream Infection Present on Admission equals No, continue processing and proceed to check ICD-10-CM Other Diagnosis Codes.
6. Check ICD-10-CM Other Diagnosis Codes
  - a. If at least one of the ICD-10-CM Other Diagnosis Codes is on Table 11.12, 11.13, 11.14, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 12).
  - b. If all of the ICD-10-CM Other Diagnosis Codes are missing, continue processing and proceed to Birth Weight (Step 8).
  - c. If none of the ICD-10-CM Other Diagnosis Codes is on Table 11.12, 11.13, 11.14, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes.
7. Recheck ICD-10-CM Other Diagnosis Codes
  - a. If at least one of the ICD-10-CM Other Diagnosis Codes on table 11.15, 11.16, continue processing and proceed to ICD- 10-CM Principal or Other Procedure Codes (Step 9).
  - b. If none of the ICD-10-CM Other Diagnosis Codes on table 11.15, 11.16, continue processing and proceed to Birth Weight.
8. Check Birth Weight
  - a. If Birth Weight is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Birth Weight equals an Unable to Determine Value, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
  - c. If Birth Weight is less than 500, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - d. If Birth Weight is between 500 and 1499, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 12).
  - e. If Birth Weight is greater than or equal to 1500, continue processing and proceed to ICD-10-PCS Principal or Other Procedure Codes.

9. Check ICD-10-PCS Principal or Other Procedure Codes
  - a. If at least one of the ICD-10-PCS Principal or Other Procedure Codes is on table 11.18 or 11.19, continue processing and proceed to recheck ICD-10-PCS Other Diagnosis Codes (Step 12).
  - b. If all of the ICD-10-PCS Principal or Other Procedure Codes are missing or none of the ICD-10-PCS Principal or Other Procedure Codes is on table 11.18 or 11.19, continue processing and proceed to ICD-10-CM Principal Diagnosis Code.
10. Check ICD-10-CM Principal Diagnosis Code
  - a. If ICD-10-CM Principal Diagnosis Code is not on table 11.10.3, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 12).
  - b. If ICD-10-CM Principal Diagnosis Code is on table 11.10.3, continue processing and proceed to Discharge Disposition.
11. Check Discharge Disposition
  - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Discharge Disposition equals 1, 2, 3, 4, 5, 7, 8, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Discharge Disposition equals 6, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 13).
12. Recheck ICD-10-CM Other Diagnosis Codes
  - a. If at least one of the ICD-10-CM Other Diagnosis Codes is on table 11.10, continue processing and proceed to Bloodstream Infection Confirmed (Step 14).
  - b. If all of the ICD-10-CM Other Diagnosis Codes are missing or none of the ICD-10-CM Other Diagnosis Codes is on table 11.10, continue processing and proceed to recheck ICD-10-CM Other Diagnosis Codes (Step 13).
13. Recheck ICD-10-CM Other Diagnosis Codes
  - a. If at least one of the ICD-10-CM Other Diagnosis Codes is on table 11.10.1, continue processing and proceed to Bloodstream Infection Confirmed.
  - b. If all of the ICD-10-CM Other Diagnosis Codes are missing or none of the ICD-10-CM Other Diagnosis Codes is on table 11.10.1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
14. Check Bloodstream Infection Confirmed
  - a. If Bloodstream Infection Confirmed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Bloodstream Infection Confirmed equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
  - c. If Bloodstream Infection Confirmed equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.

Calculation of adjusted outcome:

Step 1 -- Identify the measure population through Measure Category Assignments.

Risk adjusted rate-based measure: Identify the numerator (Measure Category Assignment = E) and the denominator (Measure Category Assignment = D) cases using the information provided in the Measure Information Form (MIF). Risk adjusted continuous variable measure: Identify the number of cases in the measure population (Measure Category Assignment = D). At this time, there are no risk adjusted continuous outcome measures in any of the national hospital quality measure sets.

Note: Do not calculate a Predicted Value for a case if it is rejected by front-end edits or is rejected because one or more measures in the measure set evaluates to a Measure Category Assignment = X.

Step 2 -- Create risk factors for the measure.

Using the Risk Model Information File provided by the Joint Commission, identify all applicable EOC record data elements and the associated risk factor values for each of the EOC records identified in step 1. Risk factors include patient demographic and/or clinical factors, which can influence outcomes of care. Some examples of risk factors include age, sex, and comorbidities – such as diabetes or a history of hypertension. As an example, Figure 1 lists the data elements required for risk adjustment of generic measure 'ABC'. Using the data for measure 'ABC', the performance measurement system must identify the risk factors at the EOC record-level, and create data subsets for each participating hospital.



**S.15. Sampling** (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

Sampling is not allowed for this measure.

**S.16. Survey/Patient-reported data** (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

Not Applicable

**S.17. Data Source** (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Electronic Health Records, Other, Paper Medical Records

**S.18. Data Source or Collection Instrument** (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and tested by Joint Commission staff to confirm the accuracy and conformance of the data collection tool with the measure specifications. The vendor may not offer the measure set to hospitals until verification has been passed.

**S.19. Data Source or Collection Instrument** (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

No data collection instrument provided

**S.20. Level of Analysis** (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility, Other

**S.21. Care Setting** (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital

If other:

**S.22. COMPOSITE Performance Measure** - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

Not Applicable

## 2. Validity – See attached Measure Testing Submission Form

PC-04\_1731\_MeasureTesting\_MSf5.0\_Data-635787040739345660.doc

### 2.1 For maintenance of endorsement

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

### 2.2 For maintenance of endorsement

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

### 2.3 For maintenance of endorsement

Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online

submission form. *NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.*

### 3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

#### 3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

##### 3a.1. Data Elements Generated as Byproduct of Care Processes.

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)

If other:

#### 3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

**3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)** Update this field for **maintenance of endorsement**.

Some data elements are in defined fields in electronic sources

**3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

PC-04 is in the queue to be re-engineered as an eCQM as resources permit in the future.

**3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.**

Attachment:

#### 3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

**3c.1. Required for maintenance of endorsement.** Describe difficulties (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.

**IF instrument-based,** consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

At the present time, hospitals using this performance measure generally collect measure data via manual review of the paper medical record, the EMR or a combination of both. Collected data are submitted to The Joint Commission on a quarterly basis, by way of contracted performance measurement system vendors, as described previously. Specifications for this measure are freely available to anyone who wishes to use the measure. Feedback from hospitals using this measure indicates that required data elements are generally available in the medical record, and measure specifications are robust and easy to understand. As described above, as feedback from measure users has indicated the need for clarification or revision of measure specifications, this has taken place. The Joint Commission added Vital Records as an additional data source in the current measure specifications.

**3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).**

There are no fees or licensing requirements to use the Joint Commission performance measures, all of which are in the public domain.

## 4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

### 4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

#### 4.1. Current and Planned Use

*NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.*

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting	<p>Regulatory and Accreditation Programs Hospital Accreditation Program <a href="http://jointcommission.org">http://jointcommission.org</a></p> <p>Quality Improvement (Internal to the specific organization) Perinatal Care Certification <a href="http://www.jointcommission.org/certification/perinatal_care_certification.aspx">http://www.jointcommission.org/certification/perinatal_care_certification.aspx</a></p>

#### 4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting
- Name of program and sponsor Hospital Accreditation Program; The Joint Commission
- Purpose: An accreditation program that recognizes hospitals that meet standard requirements to provide safe and effective patient care.
- Geographic area and number and percentage of accountable entities and patients included Nationwide; 3300 Joint Commission-accredited hospitals (2014)
- Name of program and sponsor America's Hospitals: Improving Quality and Safety – The Joint Commission's Annual Report ; The Joint Commission
- Purpose: The annual report summarizes the performance of Joint Commission-accredited hospitals on 46 accountability measures of evidence-based care processes closely linked to positive patient outcomes, and provides benchmarks from Top Performer on Key Quality Measures® hospitals.
- Geographic area and number and percentage of accountable entities and patients included Nationwide; 3300 Joint Commission-accredited hospitals (2014)
- Name of program and sponsor Perinatal Care Certification; The Joint Commission
- Purpose: A certification program that recognizes hospitals that have achieved integrated, coordinated, patient-centered care for clinically uncomplicated pregnancies and births.
- Geographic area and number and percentage of accountable entities and patients included Nationwide; Ten Joint Commission-accredited hospitals (2015)

**4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)**

Not Applicable

**4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)**

Not Applicable

**4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation. How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.**

Not applicable. Not seeking endorsement + designation at this time.

**4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**

Not applicable. Not seeking endorsement + designation at this time.

**4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**

Describe how feedback was obtained.

Not applicable. Not seeking endorsement + designation at this time.

**4a2.2.2. Summarize the feedback obtained from those being measured.**

Not applicable. Not seeking endorsement + designation at this time.

**4a2.2.3. Summarize the feedback obtained from other users**

Not applicable. Not seeking endorsement + designation at this time.

**4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**

Not applicable. Not seeking endorsement + designation at this time.

#### **Improvement**

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

**4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)**

**If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.**

Not Applicable

#### **4b2. Unintended Consequences**

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

**4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**

**Unintended Consequence:**

Some hospitals reported an increase in the burden of data abstraction for the data element Birth Weight when cases were not routinely coded with diagnosis codes for birth weight.

**Mitigating Action:**

Vital Records reports, delivery logs and clinical information systems were added as acceptable data sources to help hospitals identify birth weights via reports to help reduce the burden of data abstraction.

**Unintended Consequence:**

Cases with a length of stay greater than 120 days with health care-associated bloodstream infections were being excluded due to the denominator exclusion.

**Mitigating Action:**

The length of stay > 120 days was removed from the denominator excluded population.

**Unintended Consequence:**

Some hospitals reported cases with infection codes were failing when bloodstream infections were present on admission.

**Mitigating Action:**

A new data element Bloodstream Infection Present on Admission was added to trigger a review to determine if the infection was present on admission in order to remove the case from the measure.

**Unintended Consequence:**

Some hospitals reported that cases coded with infections were failing when newborns experienced bloodstream infections that were not health care-associated later during the hospitalization, i.e., necrotizing enterocolitis, pneumonia, urosepsis, etc.

**Mitigating Action:**

A new data element Bloodstream Infection Confirmed was added as a final check at the numerator level for cases with infection codes in order to confirm if the infection was health care-associated in order to exclude cases due to other causes there were not health care-associated.

**4b2.2. Please explain any unexpected benefits from implementation of this measure.**

## 5. Comparison to Related or 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.

### 5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.  
**Yes**

#### 5.1a. List of related or competing measures (selected from NQF-endorsed measures)

0304 : Late sepsis or meningitis in Very Low Birth Weight (VLBW) neonates (risk-adjusted)  
0478 : Neonatal Blood Stream Infection Rate (NQI 03)

#### 5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

### 5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

**OR**

The differences in specifications are justified

#### 5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed

measure(s):

Are the measure specifications harmonized to the extent possible?

No

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

Measure 0304 addresses infections in the newborn. Measure 0304 evaluates very low birth weight newborns for both late sepsis and meningitis with birth weights between 401 and 1500 Gms and a gestational age between 22 weeks 0 days and 28 weeks six days. Measure 0304 also evaluates all newborns who are in the hospital after 3 days of birth. Numerator inclusions for measure 0304 are a bacterial pathogen recovered from a blood culture and/or cerebrospinal fluid culture obtained after Day 3 of life OR all 3 of the following: 1.) Coagulase Negative Staphylococcus recovered from a blood culture from either a central line or peripheral blood sample and/or is recovered from cerebrospinal fluid by lumbar puncture, ventricular tap or ventricular drain 2.) One or more signs of generalized infection (i.e., apnea, temperature instability, feeding intolerance, worsening respiratory distress or hemodynamic instability) and 3.) Treatment with 5 or more days of intravenous antibiotics. The major differences between measure 0304 and measure 1731 are: • Measure 1731 does not include cases with meningitis based on results from cerebrospinal fluid cultures • Measure 1731 includes birth weights which are 500 Gms or more rather than 400 Gms or more, and measure 1731 also includes newborns 1500 gms or more with one or more specific medical indication: major surgery, mechanical ventilation, expired or transferred-in. • Measure 1731 excludes newborns born with infections within the first 48 hours of admission and newborns with bloodstream infections occurring after the first 48 hours after birth that are due to causes that are not health care-associated, i.e., necrotizing enterocolitis, urosepsis, etc.

#### 5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

**5b.1. If this measure conceptually addresses 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.)**

Measure 0478 is similar to this measure. The fundamental differences are that measure 0478 has been developed to collect all data elements using administrative data. Such an approach has led in some cases to loss of specificity available through review of the medical record. The two measures have been harmonized to the extent possible; however, there are intrinsic differences which are addressed in a comparison table in the attachment found in Section A.1 Supplemental Materials.

## Appendix

**A.1 Supplemental materials may be provided in an appendix.** All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

**Attachment** Attachment: [NQI\\_3\\_\\_TJC\\_comparison\\_2015\\_harmonization.docx](#)

## Contact Information

**Co.1 Measure Steward (Intellectual Property Owner):** The Joint Commission

**Co.2 Point of Contact:** JohnMarc, Alban, [jalban@jointcommission.org](mailto:jalban@jointcommission.org), 630-792-5304-

**Co.3 Measure Developer if different from Measure Steward:** The Joint Commission

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## Additional Information

**Ad.1 Workgroup/Expert Panel involved in measure development**

**Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**

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The technical advisory panel (TAP) members determined priority areas that could be evaluated to improve care related to perinatal care during the development timeframe. After implementation, minor revisions, acknowledged by TAP representatives, were made to improve clarity. Hospital feedback will be reviewed during the reliability testing phase of the project to assist the TAP in making the final measure recommendations.

#### Measure Developer/Steward Updates and Ongoing Maintenance

**Ad.2 Year the measure was first released:** 2010

**Ad.3 Month and Year of most recent revision:** 10, 2015

**Ad.4 What is your frequency for review/update of this measure?** Biannual

**Ad.5 When is the next scheduled review/update for this measure?** 02, 2016

**Ad.6 Copyright statement:** No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in Joint Commission accreditation, including ORYX® vendors, are required to update their software and associated documentation based on the published manual production timelines.

**Ad.7 Disclaimers:**

**Ad.8 Additional Information/Comments:**