**NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE**

Measure Information Form

Measure Set: Pneumonia (PN)

Set Measure ID #: PN-3b

Performance Measure Name: Blood Cultures Performed Before First Antibiotic Received in Hospital

Description: Pneumonia patients whose initial hospital blood culture specimen was collected prior to first hospital dose of antibiotics.

Rationale: Published pneumonia treatment guidelines recommend performance of blood cultures for all inpatients to optimize therapy. Improved survival has been associated with optimal therapy. In addition, the yield of clinically useful information is greater if the culture is collected before antibiotics are administered.

Type of Measure: Process

Improvement Noted as: An increase in the rate.

Numerator Statement: Number of pneumonia patients whose initial blood culture was performed prior to the administration of the first hospital dose of antibiotics

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:
- Antibiotic Administration Date
- Antibiotic Administration Time
- Antibiotic Name
- Arrival Date
- Arrival Time
- Blood Culture Prior to Arrival
- Initial Blood Culture Collection Date
- Initial Blood Culture Collection Time
**Denominator Statement:** Pneumonia patients 18 years of age and older

**Included Populations:** Patients discharged with:
- *ICD-9-CM Principal Diagnosis Code* of pneumonia as defined in Appendix A, Table 3.1 **OR** *ICD-9-CM Principal Diagnosis Code* of septicemia or respiratory failure (acute or chronic) as defined in Appendix A, Tables 3.2, or 3.3 AND *ICD-9-CM Other Diagnosis Code* of pneumonia (Appendix A, Table 3.1).

**Excluded Populations:**
- Patients received in transfer from another acute care or critical care access hospital, including another emergency department
- Patients who had no working diagnosis of pneumonia at the time of admission
- Patients receiving *Comfort Measures Only*
- Patients less than 18 years of age
- Patients who do not receive antibiotics or a blood culture

**Data Elements:**
- *Admission Date*
- *Admission Source*
- *Antibiotic Received*
- *Arrival Date*
- *Arrival Time*
- *Birthdate*
- *Blood Culture Collected After Arrival*
- *Comfort Measures Only*
- *ICD-9-CM Other Diagnosis Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *Pneumonia Working Diagnosis on Admission*
- *Transfer From Another ED*

**Risk Adjustment:** No

**Data Collection Approach:** Retrospective, data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-9-CM diagnosis and procedure codes, which require retrospective data entry.

**Data Accuracy:**
- Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.
• To be part of the measure population, a patient must have received an antibiotic either during
the hospitalization or within 24 hours prior to hospital arrival plus during the hospitalization.
Measure specifications do not require documentation of the exact date and time of the
antibiotic taken prior to hospitalization.

Measure Analysis Suggestions: None

Sampling: Yes, for additional information see the Sampling section.

Data Reported As: Aggregate rate generated from count data reported as a proportion

Selected References:
• Bartlett JG, Dowell SF, Mandell LA, et al. Practice guidelines for the management of
PN-3b: Blood Cultures Performed Before First Antibiotic Received in Hospital

Numerator: Number of pneumonia patients whose initial blood culture was performed prior to the administration of the first hospital dose of antibiotics

Denominator: Pneumonia patients 18 years of age and older.

Variable Key:
- Patient Age
- Antibiotic Timing
- Blood Culture Timing
- Blood Culture Collection Day
- Initial Antibiotic Date
- Initial Antibiotic Time

Note: The algorithm to calculate age must use the month and day portion of admission date and birthdate to yield the most accurate age.
Specifications Manual for National PN-3b-5
Hospital Quality Measures

PN-3b

Pneumonia Working Diagnosis on Admission
- Y
- N

Comfort Measures Only
- Y
- N

Transfer From Another ED
- Y
- N

(Initial population, common to all measures in the PN set)

PN-3b

Admission Source
- 4 or A
- 1, 2, 3, 5, 6, 7, 8 or 9

Arrival Date
- Valid

Arrival Time
- Valid

Antibiotic Received
- 1 or 4
- 2 or 3

Blood Cultures Prior to Arrival
- Y
- N or Missing/Invalid

Blood Culture Collected After Arrival
- N
- Y

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Missing / Invalid Measure Population

PN-3b

Missing / Invalid Data

PN-3b

Z

PN-3b

I

PN-3b

B

PN-3b

E
Initial Antibiotic Date = The Antibiotic Administration Date closest to Arrival Date. 
Note: If more than one Antibiotic Administration Date is closer to the Arrival Date, use the one that also has a valid Antibiotic Administration Time. If the antibiotic closest to the Arrival Date has only date but no time, it should still be considered as the Initial Antibiotic Date.

Blood Culture Collection Day = Initial Antibiotic Date minus Initial Blood Culture Collection Date (in days)

Note: Proceed only with Antibiotics that have valid Antibiotic Administration Dates

Note: Proceed only with antibiotics that have a valid name on table 2.1
**Initial Antibiotic Time** = The Antibiotic Administration Time that corresponds to the Initial Antibiotic Date. If the Antibiotic Date has no corresponding Time then Initial Antibiotic Time will be null.

**Antibiotic Timing** = Initial Antibiotic Start Date and Initial Antibiotic Start Time minus Arrival Date and Arrival Time (in minutes)

**Blood Culture Timing** = Initial Antibiotic Date and Initial Antibiotic Time minus Initial Blood Culture Collection Date and Time (in minutes)