



## Complete Summary

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### TITLE

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

### SOURCE(S)

Centers for Medicare and Medicaid Services (CMS). 7th statement of work (SOW). Quality of care measure specifications: Pneumonia (PNE). Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); 2002 Sep 30. Various p.

Community acquired pneumonia core performance measures. In: Specifications manual for national implementation of hospital core measures. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 July. p. CAP-1 to CAP-5-7.

## Brief Abstract

### DESCRIPTION

This measure assesses the percentage of community acquired pneumonia (CAP) patients whose blood cultures are collected prior to the first dose of antibiotic.

This measure represents an alignment of Centers for Medicare and Medicaid Services and Joint Commission on Accreditation of Health Care Organizations measures. As such, some attributes characterized in this NQMC summary may be attributable to either or both organizations.

### 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.

### PRIMARY CLINICAL COMPONENT

Pneumonia; collection of a blood culture prior to antibiotic administration

### DENOMINATOR DESCRIPTION

Hospitalized patients with either a principal diagnosis code of pneumonia or a principal diagnosis code of septicemia or respiratory failure and a secondary

diagnosis code of pneumonia (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

#### NUMERATOR DESCRIPTION

Number of pneumonia patients whose blood cultures are collected before the first dose of antibiotic (intravenous [IV], intramuscular [IM], oral [PO], or nasogastric [NG]) is administered in the hospital

### Evidence Supporting the Measure

#### PRIMARY MEASURE DOMAIN

Process

#### SECONDARY MEASURE DOMAIN

Not applicable

#### EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence  
One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### Evidence Supporting Need for the Measure

#### NEED FOR THE MEASURE

Overall poor quality for the performance measured  
Wide variation in quality for the performance measured

#### EVIDENCE SUPPORTING NEED FOR THE MEASURE

Meehan TP, Fine MJ, Krumholz HM, Scinto JD, Galusha DH, Mockalis JT, Weber GF, Petrillo MK, Houck PM, Fine JM. Quality of care, process, and outcomes in elderly patients with pneumonia. JAMA 1997 Dec 17;278(23):2080-4. [PubMed](#)

### State of Use of the Measure

#### STATE OF USE

Current routine use

#### CURRENT USE

Accreditation  
Collaborative inter-organizational quality improvement  
Internal quality improvement

### Application of Measure in its Current Use

#### CARE SETTING

Hospitals

#### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

#### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

#### TARGET POPULATION AGE

Age greater than or equal to 29 days

#### TARGET POPULATION GENDER

Either male or female

#### STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

### Characteristics of the Primary Clinical Component

#### INCIDENCE/PREVALENCE

Unspecified

#### ASSOCIATION WITH VULNERABLE POPULATIONS

See "Burden of Illness" field.

#### BURDEN OF ILLNESS

In the United States (U.S.), pneumonia is the sixth most common cause of death. From 1979-1994, the overall rates of death due to pneumonia and influenza increased by 59%. Much of this increase is due to a greater population of persons aged 65 years or older, and a changing epidemiology of pneumonia, including a greater proportion of the population with underlying medical conditions at increased risk of respiratory infection.

## EVIDENCE FOR BURDEN OF ILLNESS

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2): 347-82. [218 references] [PubMed](#)

## UTILIZATION

Annually, 2-3 million cases of community acquired pneumonia result in 10 million physician visits; 500,000 hospitalizations; and 45,000 deaths.

## EVIDENCE FOR UTILIZATION

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2): 347-82. [218 references] [PubMed](#)

## COSTS

Unspecified

## Institute of Medicine National Healthcare Quality Report Categories

### IOM CARE NEED

Getting Better

### IOM DOMAIN

Effectiveness  
Timeliness

## Data Collection for the Measure

### CASE FINDING

Users of care only

### DESCRIPTION OF CASE FINDING

Hospitalized patients with a principal diagnosis of pneumonia or secondary diagnosis of pneumonia with principal diagnosis of either respiratory failure or sepsis.

### DENOMINATOR (INDEX) EVENT

Clinical Condition  
Diagnostic Evaluation  
Institutionalization

#### DENOMINATOR INCLUSIONS/EXCLUSIONS

##### Inclusions

Hospitalized patients with:

- International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code of pneumonia

OR

- ICD-9-CM Principal Diagnosis Code of septicemia AND ICD-9-CM Other Diagnosis Code of pneumonia

OR

- ICD-9-CM Principal Diagnosis Code of respiratory failure AND ICD-9-CM Other Diagnosis Code of pneumonia
- All community acquired pneumonia (CAP) patients including patients transferred from long-term care facilities

##### Exclusions

- Patients received in transfer from another acute care hospital
- Patients who have no working diagnosis of pneumonia at the time of admission
- Patients receiving comfort measures only (palliative care)
- Patients less than 29 days of age
- Patients who had insufficient blood culture, antibiotic administration, and arrival timing data in their medical record
- Patients not receiving antibiotics or a blood culture during their stay

Refer to the original measure documentation for details.

#### NUMERATOR INCLUSIONS/EXCLUSIONS

##### Inclusions

Number of pneumonia patients whose blood cultures are collected before the first dose of antibiotic (intravenous [IV], intramuscular [IM], oral [PO], or nasogastric [NG]) is administered in the hospital

##### Exclusions

Unspecified

Refer to the original measure documentation for details.

#### DENOMINATOR TIME WINDOW

Time window is a single point in time

#### NUMERATOR TIME WINDOW

Institutionalization

#### DATA SOURCE

Administrative and medical records data

#### LEVEL OF DETERMINATION OF QUALITY

Individual Case

#### PRE-EXISTING INSTRUMENT USED

Unspecified

### Computation of the Measure

#### SCORING

Rate

#### INTERPRETATION OF SCORE

Better quality is associated with a higher score

#### ALLOWANCE FOR PATIENT FACTORS

Unspecified

#### STANDARD OF COMPARISON

External comparison at a point in time  
External comparison of time trends  
Internal time comparison

### Evaluation of Measure Properties

#### EXTENT OF MEASURE TESTING

The core measure pilot project was a collaboration among the Joint Commission, five state hospitals associations, five measurement systems, and 83 hospitals from across nine states. Participating hospitals collected and reported data for community acquired pneumonia (CAP) measures from March 2001 to December 2001.

Core measure reliability visits were completed the summer of 2001 at a random sample of 16 participating hospitals across 6 states.

Preliminary data from the pilot test show a mean measure rate of 78%.

#### EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A comprehensive review of development and testing for national implementation of hospital core measures. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 [cited 2002 Nov 13]. [8 p].

Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Information on final specifications for national implementation of hospital core measures as of 11/04/02. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 Nov 04 [cited 2002 Nov 13]. [10 p].

Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Overview of the community acquired pneumonia (CAP) core measure set. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 Mar 22 [cited 2002 Nov 13]. [6 p].

### Identifying Information

#### ORIGINAL TITLE

Centers for Medicare and Medicaid Services (CMS)  
Blood culture performed before first antibiotic received in hospital.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)  
Blood cultures.

#### MEASURE COLLECTION

[Centers for Medicare and Medicaid Services/Joint Commission on Accreditation of Healthcare Organizations Aligned Measures](#)

#### MEASURE SET NAME

[Centers for Medicare and Medicaid Services/Joint Commission on Accreditation of Healthcare Organizations Aligned Pneumonia Measures](#)

#### DEVELOPER

Centers for Medicare and Medicaid Services  
Joint Commission on Accreditation of Healthcare Organizations

#### ENDORSER

National Quality Forum

#### INCLUDED IN

National Healthcare Disparities Report (NHDR)  
National Healthcare Quality Report (NHQR)

#### ADAPTATION

Measure was not adapted from another source.

#### RELEASE DATE

2001 Mar

#### REVISION DATE

2002 Sep

#### MEASURE STATUS

This is the current release of the measure.

#### SOURCE(S)

Centers for Medicare and Medicaid Services (CMS). 7th statement of work (SOW). Quality of care measure specifications: Pneumonia (PNE). Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); 2002 Sep 30. Various p.

Community acquired pneumonia core performance measures. In: Specifications manual for national implementation of hospital core measures. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 July. p. CAP-1 to CAP-5-7.

#### MEASURE AVAILABILITY

Centers for Medicare and Medicaid Services (CMS)  
The individual measure, "PNE-3b: Blood Culture Performed Before First Antibiotic Received in Hospital," is published in "Centers for Medicare/Medicaid Services, 7th Statement of Work, Quality of Care Measure Specifications: Pneumonia."

For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)  
The individual measure "Blood Cultures," is published in "Specifications Manual for National Implementation of Hospital Core Measures." Information is available from the [Joint Commission on Accreditation of Healthcare Organizations \(JCAHO\) Web site](http://www.jcaho.org). For further information refer to [www.jcaho.org](http://www.jcaho.org).

#### COMPANION DOCUMENTS

Centers for Medicare and Medicaid Services (CMS)

A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#). Supporting documentation is also available.

For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)  
The following are available:

- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Overview of the community acquired pneumonia (CAP) core measure set. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 Mar 22 [cited 2002 Nov 13]. [6 p]. This document is available from the [Joint Commission on Accreditation of Healthcare Organizations \(JCAHO\) Web site](#).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A comprehensive review of development and testing for national implementation of hospital core measures. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 [cited 2002 Nov 13]. [8 p]. This document is available from the [JCAHO Web site](#).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Attributes of core performance measures and associated evaluation criteria. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 [cited 2002 Nov 13]. [4 p]. This document is available from the [JCAHO Web site](#).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Information on final specifications for national implementation of hospital core measures as of 11/04/02. [internet]. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2002 Nov 04 [cited 2002 Nov 13]. [10 p]. This document is available from the [JCAHO Web site](#).

#### NQMC STATUS

This NQMC summary was completed by ECRI on February 7, 2003. The information was verified by the Centers for Medicare/Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations on February 12, 2003.

#### COPYRIGHT STATEMENT

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No copyright restrictions apply.

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