



Complete Summary

TITLE

Pneumonia: median time from hospital arrival to administration of first antibiotic dose.

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 timeliness of antibiotic administration for pneumonia inpatients.

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

There is growing clinical evidence of an association between timely inpatient administration of antibiotics and improved outcome among pneumonia patients. A number of studies have shown improved survival when first dose of antibiotics was administered within the first 4 hours of admission, and clinical guidelines suggest 8 hours as the maximum time to first antibiotic administration.

PRIMARY CLINICAL COMPONENT

Pneumonia; 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

Continuous variable statement: The time, in minutes, from hospital arrival to administration of first antibiotic for inpatients with pneumonia

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
Use of this measure to improve performance
Wide variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

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.

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
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 Codes of pneumonia

Exclusions

- Patients received in transfer from another 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 did not receive antibiotics during the hospitalization or within 36 hours of arrival to the hospital
- Patients who had insufficient arrival or antibiotic timing data (i.e., missing date and/or time) in their medical record

Refer to the original measure documentation for details.

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Continuous variable statement: The time, in minutes, from hospital arrival to administration of the first antibiotic for inpatients with pneumonia

Exclusions

Unspecified

Refer to the original measure documentation for details.

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative and medical records data

LEVEL OF DETERMINATION OF QUALITY

Not Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Continuous Variable

INTERPRETATION OF SCORE

Better quality is associated with a lower 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 an average median rate of 190.85 minutes (3.2 hours).

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)
Median time to first antibiotic dose.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
Antibiotic timing.

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

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, "JCAHO CAP-5: Median Time to First Antibiotic Dose," 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.

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
The individual measure "Antibiotic Timing," 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.

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](http://www.cms.gov). Supporting documentation is also available.

For more information, e-mail CMS PROINQUIRIES at 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.

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