



Complete Summary

TITLE

Pneumonia: percent of patients who received their initial dose of antibiotics within 4 hours of hospital arrival.

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.

Brief Abstract

DESCRIPTION

Pneumonia patients who receive their first dose of antibiotics within 4 hours after arrival at the hospital

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

All pneumonia patients (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

NUMERATOR DESCRIPTION

Number of pneumonia patients who received their first dose of antibiotics within 4 hours after arrival at 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

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.

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

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

Unspecified

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. More than 1.1 million hospitalizations due to pneumonia each year in the U.S.

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](#)

Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, Dean N, File T, Fine MJ, Gross PA, Martinez F, Marrie TJ, Plouffe JF, Ramirez J, Sarosi GA, Torres A, Wilson R, Yu VL. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med 2001 Jun; 163(7): 1730-54. [PubMed](#)

UTILIZATION

See "Burden of Illness" field.

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

Medicare discharges, age 29 days and older, with a principal diagnosis of pneumonia or a principal diagnosis of respiratory failure or sepsis with a secondary diagnosis of pneumonia

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR (INDEX) EVENT

Clinical Condition
Institutionalization

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

Medicare discharges with:

- A principal diagnosis of pneumonia (International Classification of Disease, Ninth Edition, Clinical Modification [ICD-9-CM] codes of 480.0 through 483.8, 485 through 486, or 487.0) OR
- A principal diagnosis of septicemia, or respiratory failure (acute or chronic) failure (ICD-9-CM codes 038.XX or 518.81), AND a secondary diagnosis of pneumonia.

Exclusions

- Patients who were transferred from another acute care or critical access hospital
- Patients who had no working diagnosis of pneumonia at the time of admission
- Patients who received comfort measures only
- 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

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Number of pneumonia patients who received their first dose of antibiotics within 4 hours after arrival at the hospital

Exclusions

Unspecified

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

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

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

In order to test the reliability of the Centers for Medicare and Medicaid Services (CMS) data abstraction in the 7th Statement of Work (SoW), 80 medical records were randomly selected each month from 2000 to 2001. Using 12 months of data, we calculated the kappa statistic and total agreement rate (AR) for antibiotics with 4 hours (Kappa = 0.80, AR = 90.6%).

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Bratzler DW. (Principal Clinical Coordinator, Oklahoma Foundation for Medical Quality, Oklahoma City). Personal communication. 2003 Mar 5. 1p.

Identifying Information

ORIGINAL TITLE

Initial antibiotic received within 4 hours of hospital arrival.

MEASURE COLLECTION

[7th Statement of Work Quality of Care Measure Specifications](#)

MEASURE SET NAME

[Pneumonia \(PNE\)](#)

DEVELOPER

Centers for Medicare and Medicaid Services

ENDORSER

National Quality Forum

ADAPTATION

Measure was not adapted from another source.

RELEASE 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.

MEASURE AVAILABILITY

The individual measure, "PNE-1: Initial Antibiotic Received Within 4 Hours of Hospital Arrival," 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.

COMPANION DOCUMENTS

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.

NQMC STATUS

This NQMC summary was completed by ECRI on January 6, 2003. The information was verified by the Centers for Medicare/Medicaid Services on March 14, 2003.

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Date Modified: 10/25/2004

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