



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 subcriterion 1b).

Brief Measure Information

NQF #: 0147

Corresponding Measures:

De.2. Measure Title: Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients

Co.1.1. Measure Steward: Centers for Medicare and Medicaid Services

De.3. Brief Description of Measure: Percentage of Immunocompetent patients with Community-Acquired Pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines

1b.1. Developer Rationale: The mortality rate should be lower in patients who received guideline-recommended antibiotics. There is room for improvement for patients included in this measure. According to the latest data from the CMS Clinical Data Warehouse, the national rate 93.8 is 5% less than the clinically achievable benchmark of 99.7%. The performance rates of 18% of hospitals (nearly 1 out of 5) are still below 90%.

S.4. Numerator Statement: Pneumonia patients who received an initial antibiotic regimen (as specified under the Set Measure Identifier and description in Measure Information Form) consistent with current guidelines during the first 24 hours of their hospitalization.

S.7. Denominator Statement: Pneumonia patients 18 years of age or older

Table 3.1 Pneumonia (PN)

ICD-9 Code Shortened Description

481 PNEUMOCOCCAL PNEUMONIA
 482.0 K. PNEUMONIAE PNEUMONIA
 482.1 PSEUDOMONAL PNEUMONIA
 482.2 H.INFLUENZAE PNEUMONIA
 482.30 STREPTOCOCCAL PNEUMN NOS
 482.31 PNEUMONIA STRPTOCOCCUS A
 482.32 PNEUMONIA STRPTOCOCCUS B
 482.39 PNEUMONIA OTH STREP
 482.40 STAPHYLOCOCCAL PNEU NOS
 482.41 METH SUS PNEUM D/T STAPH
 482.42 METH RES PNEU D/T STAPH
 482.49 STAPH PNEUMONIA NEC
 482.82 PNEUMONIA E COLI
 482.83 PNEUMO OTH GRM-NEG BACT
 482.84 LEGIONNAIRES' DISEASE
 482.89 PNEUMONIA OTH SPCF BACT
 482.9 BACTERIAL PNEUMONIA NOS
 483.0 PNEU MYCPLSM PNEUMONIAE
 483.1 PNEUMONIA D/T CHLAMYDIA
 483.8 PNEUMON OTH SPEC ORGNSM
 485 BRONCHOPNEUMONIA ORG NOS
 486 PNEUMONIA, ORGANISM NOS

Table 3.2 Septicemia

ICD-9 Code	Shortened Description
038.0	STREPTOCOCCAL SEPTICEMIA
038.10	STAPHYLOCOCC SEPTICEM NOS
038.11	METH SUSC STAPH AUR SEPT
038.12	MRSA SEPTICEMIA
038.19	STAPHYLOCOCC SEPTICEM NEC
038.2	PNEUMOCOCCAL SEPTICEMIA
038.3	ANAEROBIC SEPTICEMIA
038.40	GRAM-NEG SEPTICEMIA NOS
038.41	H. INFLUENAE SEPTICEMIA
038.42	E COLI SEPTICEMIA
038.43	PSEUDOMONAS SEPTICEMIA
038.44	SERRATIA SEPTICEMIA
038.49	GRAM-NEG SEPTICEMIA NEC
038.8	SEPTICEMIA NEC
038.9	SEPTICEMIA NOS
995.91	SEPSIS
995.92	SEVERE SEPSIS

Table 3.3 Respiratory Failure

ICD-9 Code	Shortened Description
518.81	ACUTE RESPIRATORY FAILURE
518.84	ACUTE & CHRONIC RESP FAIL

Table 3.1 Pneumonia (PN)

ICD-10 Code	Shortened Description
J 13	Pneumonia due to Streptococcus pneumoniae
J 18.1	Lobar pneumonia, unspecified organism
J 15.0	Pneumonia due to Klebsiella pneumoniae
J 15.1	Pneumonia due to Pseudomonas
J 14	Pneumonia due to Hemophilus influenzae
J 15.4	Pneumonia due to other streptococci
J 15.3	Pneumonia due to streptococcus, group B
J 15.20	Pneumonia due to staphylococcus, unspecified
J 15.21	Pneumonia due to staphylococcus aureus
Z 16	Infection and drug resistant microorganisms
J 15.29	Pneumonia due to other staphylococcus
J 15.5	Pneumonia due to Escherichia coli
J 15.6	Pneumonia due to other aerobic Gram-negative bacteria
A 48.1	Legionnaires' disease
J 15.8	Pneumonia due to other specified bacteria
J 15.9	Unspecified bacterial pneumonia
J 15.7	Pneumonia due to Mycoplasma pneumoniae
J 16.0	Chlamydial pneumonia
J 16.8	Pneumonia due to other specified infectious organisms
J 18.0	Bronchopneumonia, unspecified organism
J 18.8	Other pneumonia, unspecified organism
J 18.9	Pneumonia, unspecified organism
J 17	Pneumonia in diseases classified elsewhere
J 18.2	Hypostatic pneumonia, unspecified organism
J 85.1	Abscess of lung with pneumonia

Table 3.2 Septicemia

ICD-10 Code	Shortened Description
A 40.0	Sepsis due to streptococcus, group A
A 40.1	Sepsis due to streptococcus, group B
A 40.3	Sepsis due to Streptococcus pneumoniae
A 40.8	Other streptococcal sepsis
A 40.9	Streptococcal sepsis, unspecified
A 41.9	Sepsis unspecified
A 41.2	Sepsis due to other unspecified specified staphylococcus
A 41.0	Sepsis due to Staphylococcus aureus
A 41.0 AND U80.1	Sepsis due to Staphylococcus aureus AND Methicillin-resistant staph aureus infection
A 41.1	Sepsis due to other specified staphylococcus
A 41.89	Other specified sepsis
A 41.4	Sepsis due to anaerobes
A 41.50	Gram-negative sepsis, unspecified
A 41.3	Sepsis due to Hemophilus influenzae
A 41.51	Sepsis due to Escherichia coli (E coli)
A 41.52	Sepsis due to pseudomonas
A 41.53	Sepsis due to Serratia
A 41.59	Other Gram-negative sepsis
A 41.81	Sepsis due to Enterococcus
A 42.7	Actinomycotic sepsis
A 41.9	Sepsis, unspecified
R65.20	Severe sepsis without septic shock
R65.21	Severe sepsis with septic shock

Table 3.3 Respiratory Failure

ICD-10 Code	Shortened Description
J 96.0	Acute respiratory failure
J 96.9	Respiratory failure, unspecified
J 96.2	Acute and chronic respiratory failure
J 96.1	Chronic respiratory failure
J 80	Acute respiratory syndrome
J 22	Unspecified acute lower respiratory infection
J 98.8	Other specified respiratory disorders

S.10. Denominator Exclusions: Patients less than 18 years of age

Patients who have a length of stay greater than 120 days

Patients with Cystic Fibrosis

Patients who had no chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during the hospitalization

Receiving comfort measures only documented the day of or the day after arrival

Patients enrolled in a clinical trial

Patients received as a transfer from the emergency/observation department of another hospital

Patients received as a transfer from an ambulatory surgery center

Patients received as a transfer from an inpatient or outpatient department of another hospital

Patients who have no diagnosis of pneumonia either as the ED final diagnosis/impression or direct admission diagnosis/impression Patients who are Compromised as defined in data dictionary (i.e., documentation that the patient had (1) any of the following compromising conditions: HIV positive, AIDS, cystic fibrosis, systemic chemotherapy within last three months, systemic immunosuppressive therapy within the past three months, leukemia documented in the past three months, lymphoma documented in the past three months, radiation therapy in the past three months; With healthcare associated pneumonia as defined in data dictionary (i.e., presence of at least one of the following: (1) hospitalization within the last 90 calendar days; (2) residence in a nursing home or extended care facility for any amount of time within the last 90 days; (3) chronic dialysis within the last 30 days prior to this hospitalization; (4) wound care, tracheostomy care or ventilator care provided by a health care professional within the last 30 days) and abstraction guidelines Patients transferred/admitted to the ICU within 24 hours after arrival to this hospital with a beta-lactam allergy Patients who have a duration of stay less than or equal to one day Patients with another source of infection who did not receive an antibiotic regimen recommended for pneumonia but did receive antibiotics within the first 24 hours of hospitalization
De.1. Measure Type: Process S.23. Data Source: Paper Medical Records S.26. Level of Analysis: Facility
IF Endorsement Maintenance – Original Endorsement Date: Mar 09, 2007 Most Recent Endorsement Date: Jul 31, 2012
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? N/A

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 subcriteria to pass this criterion and be evaluated against the remaining criteria.
1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form 0147_Evidence_MSF5.0_Data.doc
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., the benefits or improvements in quality envisioned by use of this measure) The mortality rate should be lower in patients who received guideline-recommended antibiotics. There is room for improvement for patients included in this measure. According to the latest data from the CMS Clinical Data Warehouse, the national rate 93.8 is 5% less than the clinically achievable benchmark of 99.7%. The performance rates of 18% of hospitals (nearly 1 out of 5) are still below 90%. 1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (This is required for endorsement maintenance. 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 included). This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.

As shown on data posted on CMS Hospital Compare website, there is still a number of providers who do not treat their pneumonia patients per IDSA/ATS Guideline recommendations. The most recent national CMS rate of patients who received IDSA/ATS Guideline recommended antibiotic is 93.8% (4Q2010). The numerator consisted of 82,556 patients, the denominator consisted of 88,121 patients from 4,131 hospitals across the nation.

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.

CMS Clinical Data Warehouse and the CMS Hospital Compare website.

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 endorsement maintenance. 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 subcriterion on improvement (4b.1) under Usability and Use.*

We observed variations in disparities across demographic groups such as age group, gender, location (regions and urban vs rural) and race/ethnicity.

Regarding race/ethnicity, compared to Caucasian (91.0%), the rate of pneumonia patients who received IDSA/ATS Guideline recommended antibiotics is slightly higher among African-Americans (91.7%) and Asian/Pacific Islanders (91.1%) and lower among Hispanics (89.4%) and Native Americans (88.0%).

Regarding gender, females (90.8%) have a slightly higher rate for PN-6 compared to men (91.0%). This difference was not statistically significant.

Regarding age, compared to the under 65 years (91.3%) the rates were lower among all other age ranges, 65-74 years (89.8%), 75-84 years (90.8%) and 85 or older (91.2%).

Regarding region, most regions are similar with the exception of the US Territories (71.8%), US Virgin Islands and Puerto Rico. Puerto Rico has consistently had low rates and make up 90% of the patients contained in the rate for the US Territories. There is no statistical significance between South (90.7%) and Midwest (90.6%) but Northeast (92.5%) and West (91.2%) were higher.

Lastly, urban versus rural show a large difference in rates by approximately 2.6%, with urban (91.6%) and rural (89.0%).

Most of these differences were statistically significant (p-value <0.05) but they should still be confirmed in multi-variate analysis which would take into account competing effects of other factors that may affect PN-6.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

2009 CMS Clinical Data Warehouse

1c. High Priority (previously referred to as High Impact)

The measure addresses:

- a specific national health goal/priority identified by DHHS or the National Priorities Partnership convened by NQF; OR
- a demonstrated high-priority (high-impact) aspect of healthcare (e.g., affects large numbers of patients and/or has a substantial impact for a smaller population; leading cause of morbidity/mortality; high resource use (current and/or future); severity of illness; and severity of patient/societal consequences of poor quality).

1c.1. Demonstrated high priority aspect of healthcare

Affects large numbers

1c.2. If Other:

1c.3. Provide epidemiologic or resource use data that demonstrates the measure addresses a high priority aspect of healthcare. List citations in 1c.4.

Streptococcus pneumoniae (SP) remains a major cause of serious invasive illness such as pneumonia, meningitis, and bacteremia, with an estimated 44,000 cases and 5,000 deaths in 2009 among people of all ages in the US (ref #5). The same bacteria is also among the leading causes of relatively less serious and non-invasive illness such as acute otitis media and sinusitis (ref #5). Using various data sources in 2004-2005 and experts' opinion, and based on an analytic model, Huang et al. estimated that approximately 3.9 million cases of SP disease (invasive or non-invasive) occur annually, resulting in 4.9 million outpatient visits, 760,000 emergency department visits, and 2.4 million hospital days, for a total cost of \$4.9 billion a year (ref #11). Severe forms of SP disease usually

occur in the elderly (>65 years), who also account for a disproportionately higher share of the cost. People with chronic pulmonary disease such as COPD and emphysema, asthma, sickle cell disease, diabetes mellitus, functional or anatomic asplenia, HIV infection or immunocompromising disease, chronic heart disease, and cigarette smokers, are at a higher risk of invasive SP infections.

Huang, S A, Johnson K M, Ray G T, Wroe P, Lieu T, Moore M, Zell E, Linder J, Grijalva C, Metlay J, Finkelstein J A. Burden and cost of US pneumococcal disease 2004 [abstract]. In: IDSA 47th Annual Meeting; 2009 Oct 29- Nov 1; Philadelphia, PA: Session 105-Community Acquired Bacterial Infections including STD's and Mycobacteria on October 31, 2009.

1c.4. Citations for data demonstrating high priority provided in 1a.3

Huang, S A, Johnson K M, Ray G T, Wroe P, Lieu T, Moore M, Zell E, Linder J, Grijalva C, Metlay J, Finkelstein J A. Burden and cost of US pneumococcal disease 2004 [abstract]. In: IDSA 47th Annual Meeting; 2009 Oct 29- Nov 1; Philadelphia, PA: Session 105-Community Acquired Bacterial Infections including STD's and Mycobacteria on October 31, 2009.

Centers for Disease Control [Internet]. Active Bacterial Core Surveillance (ABCs) Report emerging infectious program network Streptococcus pneumonia, 2009; [updated October 2010; cited 2010 Feb 8]. Available from <http://www.cdc.gov/abcs/repots-findings/survreports/spneu09.pdf>

Pilishvili T, Lexau C, Farley M, et al. Sustained Reductions in Invasive Pneumococcal Disease in the Era of Conjugate Vaccine. Clin Infect Dis 2010;201:32-41.

1c.5. If a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)

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 subcriteria 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):

Respiratory, Respiratory : Pneumonia

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

Population Health

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.)

<http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228773564870>

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)

No data dictionary Attachment:

S.3. For endorsement maintenance, please briefly describe any changes to the measure specifications since last endorsement date and explain the reasons.

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)

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

Pneumonia patients who received an initial antibiotic regimen (as specified under the Set Measure Identifier and description in Measure Information Form) consistent with current guidelines during the first 24 hours of their hospitalization.

S.5. Time Period for Data (What is the time period in which data will be aggregated for the measure, e.g., 12 mo, 3 years, look back to August for flu vaccination? Note if there are different time periods for the numerator and denominator.)

From arrival to the hospital through 24 hours after hospital arrival.

S.6. 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, 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.

Hospitalized pneumonia patients who receive antibiotic consistent with current guidelines. The following data elements are used to calculate the numerator;

Antibiotic Administration Date

Antibiotic Administration Time

Antibiotic Administration Route

Antibiotic Name

Antibiotic Allergy

Arrival Date

Arrival Time

Pseudomonas Risk

S.7. Denominator Statement (Brief, narrative description of the target population being measured)

Pneumonia patients 18 years of age or older

Table 3.1 Pneumonia (PN)

ICD-9 Code Shortened Description

481 PNEUMOCOCCAL PNEUMONIA

482.0 K. PNEUMONIAE PNEUMONIA

482.1 PSEUDOMONAL PNEUMONIA

482.2 H.INFLUENZAE PNEUMONIA

482.30 STREPTOCOCCAL PNEUMN NOS

482.31 PNEUMONIA STRPTOCOCCUS A

482.32 PNEUMONIA STRPTOCOCCUS B

482.39 PNEUMONIA OTH STREP

482.40 STAPHYLOCOCCAL PNEU NOS

482.41 METH SUS PNEUM D/T STAPH

482.42 METH RES PNEU D/T STAPH

482.49 STAPH PNEUMONIA NEC

482.82 PNEUMONIA E COLI

482.83 PNEUMO OTH GRM-NEG BACT

482.84 LEGIONNAIRES' DISEASE

482.89 PNEUMONIA OTH SPCF BACT

482.9 BACTERIAL PNEUMONIA NOS

483.0 PNEU MYCPLSM PNEUMONIAE

483.1 PNEUMONIA D/T CHLAMYDIA
483.8 PNEUMON OTH SPEC ORGNM
485 BRONCHOPNEUMONIA ORG NOS
486 PNEUMONIA, ORGANISM NOS

Table 3.2 Septicemia

ICD-9 Code	Shortened Description
038.0	STREPTOCOCCAL SEPTICEMIA
038.10	STAPHYLOCOCC SEPTICEM NOS
038.11	METH SUSC STAPH AUR SEPT
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038.19	STAPHYLOCOCC SEPTICEM NEC
038.2	PNEUMOCOCCAL SEPTICEMIA
038.3	ANAEROBIC SEPTICEMIA
038.40	GRAM-NEG SEPTICEMIA NOS
038.41	H. INFLUENAE SEPTICEMIA
038.42	E COLI SEPTICEMIA
038.43	PSEUDOMONAS SEPTICEMIA
038.44	SERRATIA SEPTICEMIA
038.49	GRAM-NEG SEPTICEMIA NEC
038.8	SEPTICEMIA NEC
038.9	SEPTICEMIA NOS
995.91	SEPSIS
995.92	SEVERE SEPSIS

Table 3.3 Respiratory Failure

ICD-9 Code	Shortened Description
518.81	ACUTE RESPIRATORY FAILURE
518.84	ACUTE & CHRONIC RESP FAIL

Table 3.1 Pneumonia (PN)

ICD-10 Code	Shortened Description
J 13	Pneumonia due to Streptococcus pneumoniae
J 18.1	Lobar pneumonia, unspecified organism
J 15.0	Pneumonia due to Klebsiella pneumoniae
J 15.1	Pneumonia due to Pseudomonas
J 14	Pneumonia due to Hemophilus influenzae
J 15.4	Pneumonia due to other streptococci
J 15.3	Pneumonia due to streptococcus, group B
J 15.20	Pneumonia due to staphylococcus, unspecified
J 15.21	Pneumonia due to staphylococcus aureus
Z 16	Infection and drug resistant microorganisms
J 15.29	Pneumonia due to other staphylococcus
J 15.5	Pneumonia due to Escherichia coli
J 15.6	Pneumonia due to other aerobic Gram-negative bacteria
A 48.1	Legionnaires' disease
J 15.8	Pneumonia due to other specified bacteria
J 15.9	Unspecified bacterial pneumonia
J 15.7	Pneumonia due to Mycoplasma pneumoniae
J 16.0	Chlamydial pneumonia
J 16.8	Pneumonia due to other specified infectious organisms
J 18.0	Bronchopneumonia, unspecified organism
J 18.8	Other pneumonia, unspecified organism
J 18.9	Pneumonia, unspecified organism

J 17 Pneumonia in diseases classified elsewhere
J 18.2 Hypostatic pneumonia, unspecified organism
J 85.1 Abscess of lung with pneumonia

Table 3.2 Septicemia

ICD-10 Code	Shortened Description
A 40.0	Sepsis due to streptococcus, group A
A 40.1	Sepsis due to streptococcus, group B
A 40.3	Sepsis due to Streptococcus pneumoniae
A 40.8	Other streptococcal sepsis
A 40.9	Streptococcal sepsis, unspecified
A 41.9	Sepsis unspecified
A 41.2	Sepsis due to other unspecified specified staphylococcus
A 41.0	Sepsis due to Staphylococcus aureus
A 41.0 AND U80.1	Sepsis due to Staphylococcus aureus AND Methicillin-resistant staph aureus infection
A 41.1	Sepsis due to other specified staphylococcus
A 41.89	Other specified sepsis
A 41.4	Sepsis due to anaerobes
A 41.50	Gram-negative sepsis, unspecified
A 41.3	Sepsis due to Hemophilus influenzae
A 41.51	Sepsis due to Escherichia coli (E coli)
A 41.52	Sepsis due to pseudomonas
A 41.53	Sepsis due to Serratia
A 41.59	Other Gram-negative sepsis
A 41.81	Sepsis due to Enterococcus
A 42.7	Actinomycotic sepsis
A 41.9	Sepsis, unspecified
R65.20	Severe sepsis without septic shock
R65.21	Severe sepsis with septic shock

Table 3.3 Respiratory Failure

ICD-10 Code	Shortened Description
J 96.0	Acute respiratory failure
J 96.9	Respiratory failure, unspecified
J 96.2	Acute and chronic respiratory failure
J 96.1	Chronic respiratory failure
J 80	Acute respiratory syndrome
J 22	Unspecified acute lower respiratory infection
J 98.8	Other specified respiratory disorders

S.8. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Elderly, Populations at Risk

S.9. Denominator Details (All information required to identify and calculate the target population/denominator such as definitions, 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)

The following data elements are used to determine the denominator;

Admission Date
Another Source of Infection
Antibiotic Administration Date
Antibiotic Administration Time
Antibiotic Name
Antibiotic Received
Birthdate

Chest X-Ray
Clinical Trial
Comfort Measures Only
Discharge Date
ICD-9-CM Other Diagnosis Codes
ICD-9-CM Principal Diagnosis Code
ICU Admission or Transfer
Pneumonia Diagnosis: ED/Direct Admit
Pseudomonas Risk
Reason for Alternative Empiric Antibiotic Therapy
Transfer from Another Hospital or ASC

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482.84	LEGIONNAIRES' DISEASE
482.89	PNEUMONIA OTH SPCF BACT
482.9	BACTERIAL PNEUMONIA NOS
483.0	PNEU MYCPLSM PNEUMONIAE
483.1	PNEUMONIA D/T CHLAMYDIA
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485	BRONCHOPNEUMONIA ORG NOS
486	PNEUMONIA, ORGANISM NOS

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J 16.8 Pneumonia due to other specified infectious organisms
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J 18.8 Other pneumonia, unspecified organism
J 18.9 Pneumonia, unspecified organism
J 17 Pneumonia in diseases classified elsewhere
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J 85.1 Abscess of lung with pneumonia

Table 3.2 Septicemia

ICD-10 Code Shortened Description
A 40.0 Sepsis due to streptococcus, group A
A 40.1 Sepsis due to streptococcus, group B
A 40.3 Sepsis due to Streptococcus pneumoniae
A 40.8 Other streptococcal sepsis
A 40.9 Streptococcal sepsis, unspecified
A 41.9 Sepsis unspecified
A 41.2 Sepsis due to other unspecified specified staphylococcus
A 41.0 Sepsis due to Staphylococcus aureus
A 41.0 AND U80.1 Sepsis due to Staphylococcus aureus AND Methicillin-resistant staph aureus infection
A 41.1 Sepsis due to other specified staphylococcus
A 41.89 Other specified sepsis
A 41.4 Sepsis due to anaerobes
A 41.50 Gram-negative sepsis, unspecified
A 41.3 Sepsis due to Hemophilus influenzae
A 41.51 Sepsis due to Escherichia coli (E coli)
A 41.52 Sepsis due to pseudomonas

A 41.53 Sepsis due to Serratia
A 41.59 Other Gram-negative sepsis
A 41.81 Sepsis due to Enterococcus
A 42.7 Actinomycotic sepsis
A 41.9 Sepsis, unspecified
R65.20 Severe sepsis without septic shock
R65.21 Severe sepsis with septic shock

Table 3.3 Respiratory Failure

ICD-10 Code	Shortened Description
J 96.0	Acute respiratory failure
J 96.9	Respiratory failure, unspecified
J 96.2	Acute and chronic respiratory failure
J 96.1	Chronic respiratory failure
J 80	Acute respiratory syndrome
J 22	Unspecified acute lower respiratory infection
J 98.8	Other specified respiratory disorders

S.10. Denominator Exclusions *(Brief narrative description of exclusions from the target population)*

Patients less than 18 years of age

Patients who have a length of stay greater than 120 days

Patients with Cystic Fibrosis

Patients who had no chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during the hospitalization

Receiving comfort measures only documented the day of or the day after arrival

Patients enrolled in a clinical trial

Patients received as a transfer from the emergency/observation department of another hospital

Patients received as a transfer from an ambulatory surgery center

Patients received as a transfer from an inpatient or outpatient department of another hospital

Patients who have no diagnosis of pneumonia either as the ED final diagnosis/impression or direct admission diagnosis/impression

Patients who are Compromised as defined in data dictionary (i.e., documentation that the patient had (1) any of the following compromising conditions: HIV positive, AIDS, cystic fibrosis, systemic chemotherapy within last three months, systemic immunosuppressive therapy within the past three months, leukemia documented in the past three months, lymphoma documented in the past three months, radiation therapy in the past three months; With healthcare associated pneumonia as defined in data dictionary (i.e., presence of at least one of the following: (1) hospitalization within the last 90 calendar days; (2) residence in a nursing home or extended care facility for any amount of time within the last 90 days; (3) chronic dialysis within the last 30 days prior to this hospitalization; (4) wound care, tracheostomy care or ventilator care provided by a health care professional within the last 30 days) and abstraction guidelines

Patients transferred/admitted to the ICU within 24 hours after arrival to this hospital with a beta-lactam allergy

Patients who have a duration of stay less than or equal to one day

Patients with another source of infection who did not receive an antibiotic regimen recommended for pneumonia but did receive antibiotics within the first 24 hours of hospitalization

S.11. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, 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)

All exclusions listed above.

Table 3.4 Cystic Fibrosis

ICD-9 Code Shortened Description

277.00 CYSTIC FIBROSIS W/O ILEUS

277.01 CYSTIC FIBROSIS W ILEUS

277.02 CYSTIC FIBROSIS W PUL MAN

277.03 CYSTIC FIBROSIS W GI MAN

277.09 CYSTIC FIBROSIS NEC

Table 3.4 Cystic Fibrosis

ICD-10 Code Shortened Description

E 84.9 Cystic fibrosis, unspecified

E 84.11 Meconium ileus in Cystic Fibrosis

E 84.0 Cystic fibrosis with pulmonary manifestations

E 84.19 Cystic fibrosis with other intestinal manifestations

E 84.8 Cystic fibrosis with other manifestations

S.12. Stratification Details/Variables (All information required to stratify the measure results including the stratification variables, definitions, 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 with at S.2b)

Can be stratified by ICU and non-ICU patients. However, CMS does not stratify.

S.13. Risk Adjustment Type (Select type. Provide specifications for risk stratification in S.12 and for statistical model in S.14-15)

No risk adjustment or risk stratification

If other:

S.14. Identify the statistical risk model method and variables (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development and testing should be addressed with measure testing under Scientific Acceptability)

N/A

S.15. Detailed risk model specifications (must be in attached data dictionary/code list Excel or csv file. Also indicate if available at measure-specific URL identified in S.1.)

Note: Risk model details (including coefficients, equations, codes with descriptors, definitions), should be provided on a separate worksheet in the suggested format in the Excel or csv file with data dictionary/code lists at S.2b.

S.15a. Detailed risk model specifications (if not provided in excel or csv file at S.2b)

S.16. Type of score:

Rate/proportion

If other:

S.17. 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 = Higher score

S.18. Calculation Algorithm/Measure Logic *(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; aggregating data; risk adjustment; etc.)*

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 can be found at the URL in S.1.. It was way too long to include it in this box.

S.19. Calculation Algorithm/Measure Logic Diagram URL or Attachment *(You also may provide a diagram of the Calculation Algorithm/Measure Logic described above at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)*
URL

S.20. Sampling *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*

IF a PRO-PM, identify whether (and how) proxy responses are allowed.

The population of the PN measure set is identified using 5 data elements:

ICD-9-CM Principal Diagnosis Code

ICD-9-CM Other Diagnosis Codes

Admission Date

Birthdate

Discharge Date

Patients admitted to the hospital for inpatient acute care are included in the PN Initial Patient Population and are eligible to be sampled if they have:

An ICD-9-CM Principal Diagnosis Code for PN as defined in Appendix A, Table 3.1, NO ICD-9-CM Other Diagnosis Code of Cystic Fibrosis as defined in Appendix A, Table 3.4, a Patient Age (Admission Date minus Birthdate) greater than or equal to 18 years, and a Length of Stay (Discharge Date minus Admission Date) less than or equal to 120 days

OR

An ICD-9-CM Principal Diagnosis Code of Septicemia or Respiratory Failure as defined in Appendix A, Table 3.2 and Table 3.3 accompanied by an ICD-9-CM Other Diagnosis Code of PN as defined in Appendix A, Table 3.1, NO ICD-9-CM Other Diagnosis Code of Cystic Fibrosis as defined in Appendix A, Table 3.4, a Patient Age (Admission Date minus Birthdate) greater than or equal to 18 years, and a Length of Stay (Discharge Date minus Admission Date) less than or equal to 120 days

First, identify the Initial Patient Population for the measure set. An Initial Patient Population is defined for each measure set, stratum, and sub-population and the count is collected in the Initial Patient Population Size data elements. This data pull utilizes administrative data such as ICD-9-CM diagnosis and procedure codes, admission date, and birthdate.

All ICD-9-CM diagnosis and procedure codes included in the appropriate Initial Patient Population definition must be applied. This identification process must be completed prior to the application of data integrity filter, measure exclusions, and the application of sampling methodology.

For specific measure set, strata, and sub-population definitions, refer to the appropriate Initial Patient Population discussion in the Measure Information section of this manual.

Second, if the hospital is sampling, use the Initial Patient Population identified above and pull the sample of medical records for each measure set, stratum, or sub-population using the Sample Size Requirements defined in the appropriate Measure Information section of this manual.

Third, collect or abstract from the identified medical records the general and measure specific data elements that are needed for the measure set. The count of the number of cases used in this step is collected in the Sample Size data elements.

oIf the hospital is not sampling, use the medical records identified in the first data pull.

oIf the hospital is sampling, use the medical records from the cases in the identified sample.

Hospitals are NOT required to sample their data. If sampling offers minimal benefit (i.e., a hospital has 80 cases for the quarter and must select a sample of 76 cases) the hospital may choose to use all cases.

S.21. Survey/Patient-reported data *(If measure is based on a survey, provide instructions for conducting the survey and guidance on minimum response rate.)*

IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.

S.22. Missing data (specify how missing data are handled, e.g., imputation, delete case.)
Required for Composites and PRO-PMs.

S.23. Data Source (Check *ONLY* the sources for which the measure is SPECIFIED AND TESTED).
 If other, please describe in S.24.
[Paper Medical Records](#)

S.24. Data Source or Collection Instrument (Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc.)
 IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.
[Patient medical record can be collected using the CMS Abstraction and Reporting Tool \(CART\).](#)

S.25. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)
[URL](#)

S.26. Level of Analysis (Check *ONLY* the levels of analysis for which the measure is SPECIFIED AND TESTED)
[Facility](#)

S.27. Care Setting (Check *ONLY* the settings for which the measure is SPECIFIED AND TESTED)
[Inpatient/Hospital](#)
 If other:

S.28. 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.)

2a. Reliability – See attached Measure Testing Submission Form
2b. Validity – See attached Measure Testing Submission Form
[0147_MeasureTesting_MS5.0_Data.doc](#)

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.

[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)

[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.

N/A

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.

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. Describe what you have learned/modified 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 a PRO-PM, consider implications for both individuals providing PROM data (patients, service recipients, respondents) and those whose performance is being measured.

Specifications (including codes and data elements) are modified every 6 months according to feedback received from clinicians and hospital staff collecting data for PN-6. Data is available in the medical record and there are no feasibility or implementation issues identified.

In the past we learned that missing data was an issue regarding the integrity of our data results. The algorithms were altered to address this issue. If a case is submitted to the CMS Clinical Data Warehouse that has any data elements missing, they are rejected, i.e., sent back to the submitter to give them the opportunity to complete the missing element.

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).

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.

Planned	Current Use (for current use provide URL)
Public Reporting	
Payment Program	
Regulatory and Accreditation Programs	
Quality Improvement (Internal to the specific organization)	

4a.1. For each CURRENT use, checked above, provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included

4a.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?)

4a.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.)

4b. 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.

4b.1. Progress on Improvement. (Not required for initial endorsement unless available.)

Performance results on this measure (current and over time) should be provided in 1b.2 and 1b.4. Discuss:

- Progress (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

4b.2. 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.

4c. 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).

4c.1. Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.

Since the instructions for obtaining the data are written by the measure developers, interpretation of data elements will always be a factor, as they are interpreted by over 4,000 hospitals across the nation. However, since basically the same data elements have been used by PN-6 since 1998, we feel the data elements at this point in time are in very good shape.

No unintended consequences have been identified for PN-6.

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)

0096 : Community-Acquired Bacterial Pneumonia (CAP): Empiric Antibiotic

0279 : Community Acquired Pneumonia Admission Rate (PQI 11)

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

5a. Harmonization

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 completely harmonized?

Yes

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

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.)

The AHRQ measure is definitely different from the CMS measure. It does not measure the appropriateness of antibiotic selection. Its rather a population based estimate of the frequency of admissions for bacterial pneumonia in a community (city and/or county). It is difficult to compare the PCPI and CMS measures, as we are unable to obtain details. We believe they are different for the following reasons: (1) the PCPI measure includes only those patients with an ED discharge of bacterial pneumonia while the CMS measure includes all patients (ED or direct admit) with a diagnosis of pneumonia. (2) the PCPI does not provide the specific ICD-9 codes for inclusion, so we have no way of knowing if they are aligned. (3) the CMS measure has more detailed set of exclusions. The PCPI exclusions are not listed. (4) PCPI are claims based and the CMS measure is chart abstracted. (5) The PCPI measure is not very specific regarding antibiotic selection. They only look at the drug classes recommended by IDSA/ATS. The CMS measure looks at the specifically recommended drugs within each drug class recommended by the IDSA/ATS. (6) the CMS measure only contains patients who are formally admitted to the floor or ICU. It is difficult to tell if the PCPI population includes patients who were only in the ED and were not admitted to the floor or ICU.

It is well established that direct chart-abstraction is the gold standard of collecting patient medical information. The only drawbacks are abstraction burden and resources-intensive.

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:
Contact Information
Co.1 Measure Steward (Intellectual Property Owner): Centers for Medicare and Medicaid Services Co.2 Point of Contact: Kristie, Baus, Kristie.baus@cms.hhs.gov, 410-786-8161- Co.3 Measure Developer if different from Measure Steward: Centers for Medicare & Medicaid Services Co.4 Point of Contact: Kristie, Baus, Kristie.Baus@cms.hhs.gov, 410-786-6738-
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. Peter Houck, MD Centers for Disease Control and Prevention Seattle, WA John G. Bartlett, MD Chief, Division of Infectious Diseases, Johns Hopkins University Representative of the Infectious Diseases Society of America Baltimore, MD Thomas M. File, Jr., MD Professor of Internal Medicine, Northeastern Ohio Univ. College of Medicine Representative of the Infectious Diseases Society of America Akron, Ohio Michael J. Fine, MD, M.Sc Director, Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System Member of the Pneumonia Patient Outcomes Team Pittsburgh, PA Peter Gross, MD Prof & Vice-Chair of Internal Medicine, UMDNJ-New Jersey Medical School Representative of the Infectious Diseases Society of America Newark, NJ Lionel Mandell, MD, FRCPC Professor of Medicine, Chief, Division of Infectious Disease, McMaster University Representative of the Infectious Diseases Society of America Hamilton, Ontario, Canada Michael S. Niederman, MD Professor of Medicine, Chairman, Department of Medicine, Winthrop-University Hospital Professor of Medicine

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Nancy Lawler, RN, MS
Associate Director,
Department of Research,
The Joint Commission
Oakbrook Terrace, IL

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released: 1998

Ad.3 Month and Year of most recent revision: 07, 2011

Ad.4 What is your frequency for review/update of this measure? 6 months

Ad.5 When is the next scheduled review/update for this measure? 01, 2013

Ad.6 Copyright statement:

Ad.7 Disclaimers:

Ad.8 Additional Information/Comments: The most recent revision is for 7/2012 not 7/2011 but 2012 was not an option.