

# NATIONAL QUALITY FORUM

## Measure Submission and Evaluation Worksheet 5.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the [submitting standards web page](#).

NQF #: <b>0231</b> NQF Project: <b>Pulmonary Project</b>
(for Endorsement Maintenance Review) Original Endorsement Date: <b>Mar 09, 2007</b> Most Recent Endorsement Date: <b>Mar 09, 2007</b>
<b>BRIEF MEASURE INFORMATION</b>
De.1 Measure Title: <b>Pneumonia Mortality Rate (IQI #20)</b>
Co.1.1 Measure Steward: <b>Agency for Healthcare Research and Quality</b>
De.2 Brief Description of Measure: <b>Percentage of patients, age 18 years and older, with an in-hospital death among discharges with an ICD-9-CM principal diagnosis code of pneumonia</b>
2a1.1 Numerator Statement: <b>Number of in-hospital deaths among cases meeting the inclusion and exclusion rules for the denominator.</b>
2a1.4 Denominator Statement: <b>Number of discharges, age 18 years and older, with an ICD-9-CM principal diagnosis code of pneumonia.</b>
2a1.8 Denominator Exclusions: <b>Exclude cases:</b> <ul style="list-style-type: none"> <li>-Transferring to another short-term hospital</li> <li>-MDC 14 (pregnancy, childbirth, and puerperium)</li> <li>-Missing value for discharge disposition, gender, age, quarter, year or principal diagnosis</li> </ul>
1.1 Measure Type: <b>Outcome</b> 2a1. 25-26 Data Source: <b>Administrative claims</b> 2a1.33 Level of Analysis: <b>Facility</b>
1.2-1.4 Is this measure paired with another measure? <b>No</b>
De.3 If included in a composite, please identify the composite measure ( <i>title and NQF number if endorsed</i> ): <b>0530 Mortality for Selected Conditions (composite)</b>

<b>STAFF NOTES</b> ( <i>issues or questions regarding any criteria</i> )
Comments on Conditions for Consideration:
Is the measure untested? Yes <input type="checkbox"/> No <input type="checkbox"/> If untested, explain how it meets criteria for consideration for time-limited endorsement:
1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure ( <i>check De.5</i> ): 5. Similar/related <b>endorsed</b> or submitted measures ( <i>check 5.1</i> ): Other Criteria:
Staff Reviewer Name(s):

<b>1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT</b>
Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See <a href="#">guidance on evidence</a> .

*Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria. (evaluation criteria)*

1a. High Impact: H  M  L  I

*(The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.)*

De.4 Subject/Topic Areas (Check all the areas that apply): Pulmonary/Critical Care : Pneumonia

De.5 Cross Cutting Areas (Check all the areas that apply): Safety

1a.1 Demonstrated High Impact Aspect of Healthcare: Affects large numbers

1a.2 If "Other," please describe:

1a.3 Summary of Evidence of High Impact (Provide epidemiologic or resource use data):

[1] In the 2008 State Inpatient Data (SID), there were 866,218 hospital discharges with a principal diagnosis of pneumonia and 36,567 in-hospital deaths, for a rate of 42.2 deaths per 1,000 discharges

[2] Pneumonia along with influenza is the eighth leading cause of death in the United States according to the 2007 National Vital Statistics Report.

[3] Even patients that recover clinically from an episode of pneumonia remain at higher risk for all-cause mortality and cardiovascular mortality

1a.4 Citations for Evidence of High Impact cited in 1a.3: [1] HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Includes approximately 30 million adult discharges for 4,000 hospitals

[2] Heron MP. Deaths: Leading causes for 2007. National Vital Statistics Reports, Vol. 59, No. 8, Hyattsville, MD: National Center for Health Statistics. August 26, 2011

[3] Yende S, D'Angelo G, Mayr F, Kellum JA, Weissfeld L, Kaynar AM, Young T, Irani K, Angus DC; GenIMS Investigators. Elevated hemostasis markers after pneumonia increases one-year risk of all-cause and cardiovascular deaths. PLoS One. 2011;6(8):e22847. Epub 2011 Aug 10.

1b. Opportunity for Improvement: H  M  L  I

*(There is a demonstrated performance gap - variability or overall less than optimal performance)*

1b.1 Briefly explain the benefits (improvements in quality) envisioned by use of this measure:

Pneumonia is an important and common reason for hospitalization for which process measures have been established. In addition, inpatient mortality may supplement current 30-day mortality measures to provide a more complete picture of pneumonia related mortality.

1b.2 Summary of Data Demonstrating Performance Gap (Variation or overall less than optimal performance across providers):

**[For Maintenance** – Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.]

Risk adjusted rate per 1,000 discharges:

1st figure: Estimate

2nd figure: Standard error

3rd figure: P-value relative to marked group (marked group = "c")

4th figure: P-value: current year relative to prior year (2008/2007)

DNC: data not collected

DSU: data do not meet criteria for statistical reliability, data quality or confidentiality

Hospital characteristic:

Location of inpatient treatment:

Northeast c 35.935 0.392 0.000  
 Midwest 31.838 0.335 0.000 0.000  
 South 37.966 0.271 0.000 0.000  
 West 34.858 0.391 0.052 0.000

Ownership/control:

Private, not-for-profit c 33.703 0.198 0.000  
 Private, for-profit 36.452 0.438 0.000 0.001  
 Public 44.008 0.462 0.000 0.000

Teaching status:

Teaching 33.590 0.314 0.000 0.000  
 Nonteaching c 36.215 0.199 0.000

Location of hospital (NCHS):

Large central metropolitan 31.594 0.293 0.001 0.000  
 Large fringe metropolitan c 33.229 0.375 0.000  
 Medium metropolitan 33.890 0.373 0.211 0.000  
 Small metropolitan 36.154 0.545 0.000 0.000  
 Micropolitan 41.804 0.480 0.000 0.000  
 Noncore 55.505 0.727 0.000 0.002

Bed size of hospital:

Less than 100 45.267 0.410 0.000 0.000  
 100 - 299 c 34.589 0.269 0.000  
 300 - 499 31.816 0.315 0.000 0.000  
 500 or more 33.325 0.419 0.011 0.000

**1b.3 Citations for Data on Performance Gap:** [*For Maintenance* – Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included]  
 Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2008, and AHRQ Quality Indicators, modified version of 4.1.

**1b.4 Summary of Data on Disparities by Population Group:** [*For Maintenance* –Descriptive statistics for performance results for this measure by population group]

Risk adjusted rate per 1,000 discharges:

1st figure: Estimate  
 2nd figure: Standard error  
 3rd figure: P-value relative to marked group (marked group = "c")  
 4th figure: P-value: current year relative to prior year (2008/2007)  
 DNC: data not collected  
 DSU: data do not meet criteria for statistical reliability, data quality or confidentiality

Patient characteristic:

Age groups for conditions affecting any age  
 18-44c 8.720 0.263 0.793  
 45-64 20.929 0.259 0.000 0.063  
 65 and over 46.265 0.239 0.000 0.000

Age groups for conditions affecting primarily elderly  
 65-69c 26.539 0.481 0.001

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70-74 30.879 0.485 0.000 0.593  
 75-79 40.229 0.521 0.000 0.000  
 80-84 49.828 0.565 0.000 0.000  
 85 and over 63.752 0.497 0.000 0.000

Gender:

Male c 39.264 0.256 0.000  
 Female 33.092 0.225 0.000 0.000

Median income of patient's ZIP code:

First quartile (lowest income) 38.539 0.314 0.000 0.000  
 Second quartile 35.834 0.317 0.000 0.000  
 Third quartile 33.195 0.353 0.970 0.000  
 Fourth quartile (highest income) c 33.214 0.368 0.000

Location of patient residence (NCHS):

Large central metropolitan 32.161 0.314 0.633 0.000  
 Large fringe metropolitan c 31.935 0.353 0.000  
 Medium metropolitan 33.639 0.387 0.001 0.000  
 Small metropolitan 36.996 0.578 0.000 0.000  
 Micropolitan 40.763 0.471 0.000 0.000  
 Noncore 49.302 0.566 0.000 0.509

Expected payment source:

Private insurance c 39.356 0.501 0.039  
 Medicare 34.292 0.186 0.000 0.000  
 Medicaid 41.138 0.799 0.059 0.249  
 Other insurance 49.986 1.367 0.000 0.000  
 Uninsured / self-pay / no charge 38.608 1.460 0.628 0.014

**1b.5 Citations for Data on Disparities Cited in 1b.4:** [*For Maintenance* – Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included]

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2008, and AHRQ Quality Indicators, modified version of 4.1.

**1c. Evidence** (Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.)  
 Is the measure focus a health outcome? Yes  No  **If not a health outcome, rate the body of evidence.**

Quantity: H  M  L  I  Quality: H  M  L  I  Consistency: H  M  L  I

Quantity	Quality	Consistency	Does the measure pass subcriterion1c?
M-H	M-H	M-H	Yes <input type="checkbox"/>
L	M-H	M	Yes <input type="checkbox"/> IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise No <input type="checkbox"/>
M-H	L	M-H	Yes <input type="checkbox"/> IF potential benefits to patients clearly outweigh potential harms: otherwise No <input type="checkbox"/>
L-M-H	L-M-H	L	No <input type="checkbox"/>

Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service	Does the measure pass subcriterion1c? Yes <input type="checkbox"/> IF rationale supports relationship
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**1c.1 Structure-Process-Outcome Relationship** (Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process- health outcome; intermediate clinical outcome-health outcome):

This is an outcome measure, and the process-and-outcome link relates to the site-of-care decisions, diagnostic testing and antibiotic treatment, including the time-to-first dose, intravenous-to-oral therapy, and duration of antibiotic therapy [1]. Non-adherence to guidelines has been found to be associated with a higher risk of mortality in patients with severe community acquired pneumonia [2], and there are significant barriers to the optimal adherence to guidelines [3]. One important process of care is the choice of antibiotics. Some studies report an association between choice of antibiotics and outcomes for patients hospitalized with community acquired pneumonia [4, 5], although other studies find similar outcomes in alternative approaches [5, 7]. Another important process of care is the timely administration of any antibiotic to the patient presenting to the hospital with community-acquired pneumonia. Several studies demonstrate an association between the timely delivery of antibiotics and improved outcomes [8, 9, 10, 11]. The association between timely administration and improved outcomes either suggests directly causality, or a correlation with a related, less than optimal, process of care.

**1c.2-3 Type of Evidence** (*Check all that apply*):

Selected individual studies (rather than entire body of evidence)

**1c.4 Directness of Evidence to the Specified Measure** (*State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population*):

Not applicable

**1c.5 Quantity of Studies in the Body of Evidence** (*Total number of studies, not articles*): Not applicable

**1c.6 Quality of Body of Evidence** (*Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events*): Not applicable

**1c.7 Consistency of Results across Studies** (*Summarize the consistency of the magnitude and direction of the effect*): Not applicable

**1c.8 Net Benefit** (*Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms*):

Not applicable

**1c.9 Grading of Strength/Quality of the Body of Evidence.** Has the body of evidence been graded? No

**1c.10** If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: Not applicable

**1c.11 System Used for Grading the Body of Evidence:** Other

**1c.12** If other, identify and describe the grading scale with definitions: Not applicable

**1c.13 Grade Assigned to the Body of Evidence:** Not applicable

**1c.14 Summary of Controversy/Contradictory Evidence:** Not applicable

**1c.15 Citations for Evidence other than Guidelines** (*Guidelines addressed below*):

[1] Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell GD, Dean NC, Dowell SF, File TM Jr, Musher DM, Niederman MS, Torres A, Whitney CG; Infectious Diseases Society of America; American Thoracic Society. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. Clin Infect Dis. 2007 Mar 1;44 Suppl 2:S27-72.

[2] Menendez R, Ferrando D, Valles JM, Vallterra J. Influence of deviation from guidelines on the outcome of community-acquired pneumonia. Chest. Aug 2002;122(2):612-617.

[3] Schouten JA, Hulscher ME, Natsch S, Kullberg BJ, van der Meer JW, Grol RP. Barriers to optimal antibiotic use for community-

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acquired pneumonia at hospitals: a qualitative study. Qual Saf Health Care. 2007 Apr;16(2):143-9.

[4] Gleason PP, Meehan TP, Fine JM, Galusha DH, Fine MJ. Associations between initial antimicrobial therapy and medical outcomes for hospitalized elderly patients with pneumonia. Arch Intern Med. 1999;159(21):2562-2572.

[5] Mortensen EM, Restrepo MI, Anzueto A, Pugh J. The impact of empiric antimicrobial therapy with a beta-lactam and fluoroquinolone on mortality for patients hospitalized with severe pneumonia] Crit Care. 2005 Dec 6;10(1):R8. [Epub ahead of print]

[6] van der Eerden MM, Vlaspolter F, de Graaff CS, Groot T, Bronsveld W, Jansen HM, Boersma WG. Comparison between pathogen directed antibiotic treatment and empirical broad spectrum antibiotic treatment in patients with community acquired pneumonia: a prospective randomized study. Thorax. 2005 Aug;60(8):672-8.

[7] Mills GD, Oehley MR, Arrol B. Effectiveness of beta lactam antibiotics compared with antibiotics active against atypical pathogens in non-severe community acquired pneumonia: meta-analysis. BMJ. 2005 Feb 26;330(7489):456. Epub 2005 Jan 31.

[8] Barlow G, Nathwani D, Williams F, Ogston S, Winter J, Jones M, Slane P, Myers E, Sullivan F, Stevens N, Duffey R, Lowden K, Davey P. Reducing door-to-antibiotic time in community-acquired pneumonia: Controlled before-and-after evaluation and cost-effectiveness analysis. Thorax. 2007 Jan;62(1):67-74. Epub 2006 Aug 23.

[9] Hsu DJ, Stone RA, Obrosky DS, Yealy DM, Meehan TP, Fine JM, Graff LG, Fine MJ. Predictors of timely antibiotic administration for patients hospitalized with community-acquired pneumonia from the cluster-randomized EDCAP trial. Am J Med Sci. 2010 Apr;339(4):307-13.

[10] Houck PM, Bratzler DW, Nsa W, Ma A, Bartlett JG (2004) Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. Arch Intern Med 164: 637–644.

[11] Huang JO, Hooper PM, Marrie TJ. Factors associated with length of stay in hospital for suspected community-acquired pneumonia. Can Respir J. 2006 Sep;13(6):317-24.

1c.16 Quote verbatim, the specific guideline recommendation (Including guideline # and/or page #):  
Not applicable

1c.17 Clinical Practice Guideline Citation: Not applicable

1c.18 National Guideline Clearinghouse or other URL: Not applicable

1c.19 Grading of Strength of Guideline Recommendation. Has the recommendation been graded? No

1c.20 If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias:

1c.21 System Used for Grading the Strength of Guideline Recommendation: Other

1c.22 If other, identify and describe the grading scale with definitions: Not applicable

1c.23 Grade Assigned to the Recommendation: Not applicable

1c.24 Rationale for Using this Guideline Over Others: Not applicable

Based on the NQF descriptions for rating the evidence, what was the developer's assessment of the quantity, quality, and consistency of the body of evidence?

1c.25 Quantity: Moderate 1c.26 Quality: Moderate 1c.27 Consistency: Moderate

Was the threshold criterion, *Importance to Measure and Report*, met?

(1a & 1b must be rated moderate or high and 1c yes) Yes  No

Provide rationale based on specific subcriteria:

**For a new measure if the Committee votes NO, then STOP.**

**For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement), it may be considered for continued endorsement and all criteria need to be evaluated.**

2. RELIABILITY & 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

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implemented. **(evaluation criteria)**

Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See [guidance on measure testing](#).

S.1 **Measure Web Page** (*In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained*). Do you have a web page where current detailed specifications for this measure can be obtained? **Yes**

S.2 If yes, provide web page URL: [http://qualityindicators.ahrq.gov/modules/iqi\\_resources.aspx](http://qualityindicators.ahrq.gov/modules/iqi_resources.aspx)

2a. **RELIABILITY. Precise Specifications and Reliability Testing:** H  M  L  I

2a1. **Precise Measure Specifications.** (*The measure specifications precise and unambiguous.*)

2a1.1 **Numerator Statement** (*Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome*):

Number of in-hospital deaths among cases meeting the inclusion and exclusion rules for the denominator.

2a1.2 **Numerator Time Window** (*The time period in which the target process, condition, event, or outcome is eligible for inclusion*):

Users may select the time window, but generally one calendar year

2a1.3 **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, codes with descriptors, and/or specific data collection items/responses*):

In-hospital death (DISP=20)

2a1.4 **Denominator Statement** (*Brief, narrative description of the target population being measured*):

Number of discharges, age 18 years and older, with an ICD-9-CM principal diagnosis code of pneumonia.

2a1.5 **Target Population Category** (*Check all the populations for which the measure is specified and tested if any*): **Adult/Elderly Care**

2a1.6 **Denominator Time Window** (*The time period in which cases are eligible for inclusion*):

Users may select the time window, but generally one calendar year

2a1.7 **Denominator Details** (*All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses*):

ICD-9-CM Pneumonia diagnosis codes:

00322

SALMONELLA PNEUMONIA

0212

PULMONARY TULAREMIA

0391

PULMONARY ACTINOMYCOSIS

0521

VARICELLA PNEUMONITIS

0551

POSTMEASLES PNEUMONIA

0730

ORNITHOSIS PNEUMONIA

1124

CANDIDIASIS OF LUNG

1140

PRIMARY COCCIDIOIDOMYCOSIS

1144

CHRONIC PULMONOCOCCIDIOIDOMYCOSIS

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1145  
 UNSPEC PULMON COCCIDIOIDOMYCOSIS  
 11505  
 HISTOPLASM CAPS PNEUMON  
 11515  
 HISTOPLASM DUB PNEUMONIA  
 11595  
 HISTOPLASMOSIS PNEUMONIA  
 1304  
 TOXOPLASMA PNEUMONITIS  
 1363  
 PNEUMOCYSTOSIS  
 4800  
 ADENOVIRAL PNEUMONIA  
 4801  
 RESP SYNCYT VIRAL PNEUM  
 4802  
 PARINFLUENZA VIRAL PNEUM  
 4803  
 PNEUMONIA DUE TO SARS (OCT03)  
 4808  
 VIRAL PNEUMONIA NEC  
 4809  
 VIRAL PNEUMONIA NOS  
 481  
 PNEUMOCOCCAL PNEUMONIA  
 4820  
 K. PNEUMONIAE PNEUMONIA  
 4821  
 PSEUDOMONAL PNEUMONIA  
 4822  
 H.INFLUENZAE PNEUMONIA  
 4824  
 STAPHYLOCOCCAL PNEUMONIA  
 4831  
 CHLAMYDIA PNEUMONIA (OCT96)  
 4838  
 OTH SPEC ORG PNEUMONIA  
 4841  
 PNEUM W CYTOMEG INCL DIS  
 4829  
 BACTERIAL PNEUMONIA NOS  
 4830  
 MYCOPLASMA PNEUMONIA  
 4843  
 PNEUMONIA IN WHOOP COUGH  
 4845  
 PNEUMONIA IN ANTHRAX  
 4846  
 PNEUM IN ASPERGILLOSIS  
 4847  
 PNEUM IN OTH SYS MYCOSES  
 4848  
 PNEUM IN INFECT DIS NEC



485  
BRONCOPNEUMONIA ORG NOS  
486  
PNEUMONIA, ORGANISM NOS  
48230  
STREP PNEUMONIA UNSPEC  
48231  
GRP A STREP PNEUMONIA  
48232  
GRP B STREP PNEUMONIA  
48239  
OTH STREP PNEUMONIA  
48240  
STAPH PNEUMONIA UNSP (OCT98)  
48241  
METHICILLIN SUSCEPTIBLE PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS (OCT08)  
48242  
METHICILLIN RESISTANT PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS (OCT08)  
48249  
STAPH PNEUMON OTH (OCT98)  
48281  
ANAEROBIC PNEUMONIA  
48282  
E COLI PNEUMONIA  
48283  
OTH GRAM NEG PNEUMONIA  
48284  
LEGIONNAIRES DX (OCT97)  
48289  
BACT PNEUMONIA NEC  
4870  
INFLUENZA WITH PNEUMONIA

**2a1.8 Denominator Exclusions** *(Brief narrative description of exclusions from the target population):*

Exclude cases:

- Transferring to another short-term hospital
- MDC 14 (pregnancy, childbirth, and puerperium)
- Missing value for discharge disposition, gender, age, quarter, year or principal diagnosis

**2a1.9 Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses):*

Transferring to another short-term hospital (DISP=2)

Missing value:

Discharge disposition (DISP=missing)

Gender (SEX=missing)

Age (AGE=missing)

Quarter (DQTR=missing)

Year (YEAR=missing)

Principal diagnosis (DX1=missing)

**2a1.10 Stratification Details/Variables** *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses):*

Not applicable

**2a1.11 Risk Adjustment Type** (Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13): **Statistical risk model** 2a1.12 If "Other," please describe:

**2a1.13 Statistical Risk Model and Variables** (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.):

The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), Major Diagnostic Category (MDC), transfer status, All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges and 4,000 hospitals. The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., hospital). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate.

Specific covariates used for this measure:

Sex Female  
 Age 18 to 24  
 Age 25 to 29  
 Age 30 to 34  
 Age 35 to 39  
 Age 40 to 44  
 Age 45 to 49  
 Age 50 to 54  
 Age 55 to 59  
 Age 80 to 84  
 Age 85+

APR-DRG '121-1'  
 APR-DRG '121-2'  
 APR-DRG '121-3'  
 APR-DRG '121-4'  
 APR-DRG '130-1'  
 APR-DRG '130-2'  
 APR-DRG '130-3' to '130-4'  
 APR-DRG '137-1'  
 APR-DRG '137-2'  
 APR-DRG '137-3'  
 APR-DRG '137-4'  
 APR-DRG '139-2'  
 APR-DRG '139-3'  
 APR-DRG '139-4'

MDC 4 (Diseases & Disorders Of The Respiratory System)

MDC 25 (Human Immunodeficiency Virus Infections)

TRNSFER Transfer-in

APR-DRG 121 Other Respiratory & Chest Procedures

APR-DRG 130 Respiratory System Diagnosis w/ Ventilator Support 96+ Hours

APR-DRG 137 Major Respiratory Infections and Inflammations

APR-DRG 139 Other Pneumonia

APR-DRG Risk of Mortality Subclass:

1 - Minor  
 2 - Moderate  
 3 - Major  
 4 - Extreme

2a1.14-16 **Detailed Risk Model Available at Web page URL** (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed:

URL

<http://qualityindicators.ahrq.gov/Downloads/Software/SAS/V43/Risk%20Adjustment%20Tables%20IQI%204.3.pdf>

Not applicable

2a1.17-18. **Type of Score:** [Rate/proportion](#)

2a1.19 **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 = Lower score](#)

2a1.20 **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 measure is expressed as a rate, defined as (outcome of interest / population at risk) or (numerator / denominator). The AHRQ Quality Indicators (AHRQ QI) software performs six steps to produce the rate 1) Discharge-level data is used to identify inpatient records containing the outcome of interest and 2) the population at risk. 3) Calculate observed rates. Using output from steps 1 and 2, observed rates are calculated for user-specified combinations of stratifiers. 4) Calculate expected rates. Use the risk-adjustment model to calculate the rate one would expect at the hospital based on the hospital's case-mix and the average performance for that case-mix in the reference population. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix. For indicators that are not risk-adjusted, the risk-adjusted rate is the same as the observed rate. 6) Calculate smoothed rate. A Univariate shrinkage estimator is applied to the risk-adjusted rates. The shrinkage estimator reflects a reliability adjustment unique to each indicator and provider. The estimator is the signal-to-noise ratio, where signal is the between provider variance and noise is the within provider variance.

2a1.21-23 **Calculation Algorithm/Measure Logic Diagram URL or attachment:**

URL

<http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf>

Not applicable

2a1.24 **Sampling (Survey) Methodology.** If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):

Not applicable

2a1.25 **Data Source** (*Check all the sources for which the measure is specified and tested*). If other, please describe:

[Administrative claims](#)

2a1.26 **Data Source/Data Collection Instrument** (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): [HCUP State Inpatient Databases \(SID\). Healthcare Cost and Utilization Project \(HCUP\). 2008. Agency for Healthcare Research and Quality, Rockville, MD.](#)

2a1.27-29 **Data Source/data Collection Instrument Reference Web Page URL or Attachment:** URL

<http://hcup-us.ahrq.gov/sidoverview.jsp>

Not applicable

2a1.30-32 **Data Dictionary/Code Table Web Page URL or Attachment:**

URL

<http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V43/AHRQ%20QI%20Software%20Instructions,%20WinQI.pdf>

Not applicable

2a1.33 **Level of Analysis** (*Check the levels of analysis for which the measure is specified and tested*): [Facility](#)

2a1.34-35 Care Setting (Check all the settings for which the measure is specified and tested): [Hospital/Acute Care Facility](#)

2a2. Reliability Testing. (Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability.)

2a2.1 Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

[HCUP State Inpatient Databases \(SID\). Healthcare Cost and Utilization Project \(HCUP\). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Includes approximately 30 million adult discharges for 4,000 hospitals.](#)

2a2.2 Analytic Method (Describe method of reliability testing & rationale):

The signal to noise ratio is the ratio of the between hospital variance (signal) to the within hospital variance (noise). The formula is  $\text{signal} / (\text{signal} + \text{noise})$ . The ratio itself is only a diagnostic for the degree of variance in the risk-adjusted rate systematically associated with the provider. Therefore, what matters is the magnitude of the variance in the "smoothed" rate (that is, the variance in the risk-adjusted rate after the application of the univariate shrinkage estimator based on the signal ratio).

2a2.3 Testing Results (Reliability statistics, assessment of adequacy in the context of norms for the test conducted):

What the data demonstrate is systematic variation in the provider level rate of 19.1 to 58.6 per 1,000 from the 5th to 95th percentile respectively after a signal ratio of 0.694 is applied as the shrinkage estimator (that is, after accounting for variation due to random factors).

2b. VALIDITY. Validity, Testing, including all Threats to Validity: H  M  L  I

2b1.1 Describe how the measure specifications (measure focus, target population, and exclusions) are consistent with the evidence cited in support of the measure focus (criterion 1c) and identify any differences from the evidence:

The most significant issues relates to the use of inpatient versus 30-day mortality. As has been discussed in various NQF forums, both measures provide complementary information on quality of care.

2b2. Validity Testing. (Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.)

2b2.1 Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

[1] [HCUP State Inpatient Databases \(SID\). Healthcare Cost and Utilization Project \(HCUP\). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Includes approximately 30 million adult discharges for 4,000 hospitals.](#)

[2] [HCUP State Inpatient Databases \(SID\). Healthcare Cost and Utilization Project \(HCUP\). 2005. California. Agency for Healthcare Research and Quality, Rockville, MD.](#)

[3] [Agency for Healthcare Research and Quality \(AHRQ\), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample and AHRQ Quality Indicators, modified version of 4.1.](#)

2b2.2 Analytic Method (Describe method of validity testing and rationale; if face validity, describe systematic assessment):

Validity testing focused on construct validity in three respects. First, whether performance on the pneumonia mortality measure was correlated with performance on related measures of mortality for selected conditions. Second, whether performance on the inpatient pneumonia measures was related to performance on the 30-day measure. Third, data on mortality trends is also presented.

2b2.3 Testing Results (Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment):

[1] The correlation between the hospital-level pneumonia risk-adjusted mortality rate and the related mortality measures for selected conditions are as follows: 0.3485 (AMI); 0.4546 (CHF); 0.3476 (Stroke); 0.2873 (GI Hemorrhage); 0.2286 (Hip Fracture)

[2] Using hospital discharge data linked to death records, of all deaths among pneumonia patients that occurred within 30-days of discharge, 52.2% were in-hospital before 30-days, 4.4% were in-hospital after 30-days, 40.1% were out-of-hospital, and 3.3% were transfers to other acute care hospitals. The correlation in hospital-level rates was 0.755.

[3] [Risk-Adjusted Rates Deaths per 1,000 hospital admissions By Year](#)

NQF #0231 Pneumonia Mortality Rate (IQI #20)

Column 1: Year  
 Column 2: Estimate  
 Column 3: Standard error  
 Column 4: P-value relative to 1994  
 Column 5: P-value relative to previous year

2008	35.482	0.168	0.000	0.000
2007	39.683	0.182	0.000	0.000
2006	43.865	0.184	0.000	0.000
2005	47.963	0.175	0.000	0.000
2004	53.699	0.179	0.000	0.000
2003	58.177	0.172	0.000	0.000
2002	64.482	0.177	0.000	0.000
2001	69.207	0.183	0.000	0.000
2000	71.610	0.181	0.000	0.000
1997	73.958	0.186	0.000	0.000
1994	90.518	0.195		

**POTENTIAL THREATS TO VALIDITY.** (*All potential threats to validity were appropriately tested with adequate results.*)

**2b3. Measure Exclusions.** (*Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.*)

**2b3.1 Data/Sample for analysis of exclusions** (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

[1] HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2005. California. Agency for Healthcare Research and Quality, Rockville, MD.

[2] HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD.

**2b3.2 Analytic Method** (*Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference*):

[1] Compare the post-discharge mortality rate for those cases excluded due to transferring to another short-term hospital (DISP=2). The rationale for excluding transfers-out is that the endpoint, which is in-hospital death, is unknown.

[2] IQI 20 risk adjustment model includes a covariate for transfer-in status.

**2b3.3 Results** (*Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses*):

[1] the 30-day mortality rate for patients not transferred was 12.76 per 100, compared to 17.38 for patients transferred.

[2] In Version 4.3, the coefficient on that covariate suggests an odds ratio of 2.01.

**2b4. Risk Adjustment Strategy.** (*For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.*)

**2b4.1 Data/Sample** (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Includes approximately 30 million adult discharges for 4,000 hospitals.

**2b4.2 Analytic Method** (*Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables*):

Risk-adjustment models use a standard set of categories based on readily available classification systems for demographics, severity of illness and comorbidities. Within each category, covariates are initially selected based on a minimum of 30 cases in the outcome of interest. Then a stepwise regression process on a development sample is used to select a parsimonious set of

covariates where  $p < .05$ . Model is then tested on a validation sample.

If the user's data lacks present on admission information, then the likelihood that the outcome of interest and the covariates are present on admission is estimated using a Markov Chain Monte Carlo (MCMC) estimation procedure. That likelihood is then used to adjust the observed and expected rates.

**2b4.3 Testing Results** (*Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models. Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata*):  
 c-statistic for the outcome of interest (y|x): 0.849

**2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment:** Not applicable

**2b5. Identification of Meaningful Differences in Performance.** (*The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.*)

**2b5.1 Data/Sample** (*Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). 2008. Agency for Healthcare Research and Quality, Rockville, MD. Includes approximately 30 million adult discharges for 4,000 hospitals.

**2b5.2 Analytic Method** (*Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance*):

Posterior probability distribution parameterized using the Gamma distribution

**2b5.3 Results** (*Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance*):

Raw Rates (numerator / denominator):

5th	25th	Median	75th	95th
0.019136	0.027833	0.035263	0.043915	0.058639

**2b6. Comparability of Multiple Data Sources/Methods.** (*If specified for more than one data source, the various approaches result in comparable scores.*)

**2b6.1 Data/Sample** (*Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

Not applicable

**2b6.2 Analytic Method** (*Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure*):

Not applicable

**2b6.3 Testing Results** (*Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted*):

Not applicable

**2c. Disparities in Care:** H  M  L  I  NA  (*If applicable, the measure specifications allow identification of disparities.*)

**2c.1 If measure is stratified for disparities, provide stratified results** (*Scores by stratified categories/cohorts*): Risk-adjusted rate per 1,000

"c": Reference for p-value test statistics

1st figure: estimate

2nd figure: standard error

3rd figure: p value relative to marked group (marked group = "c")

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4th figure: p value: current year relative to prior year (2008/2007)  
 DNC: data not collected  
 DSU: data do not meet criteria for statistical reliability, data quality or confidentiality

Patient characteristic:

Age groups for conditions affecting any age

18-44 c 8.720 0.263 0.793  
 45-64 20.929 0.259 0.000 0.063  
 65 and over 46.265 0.239 0.000 0.000

Age groups for conditions affecting primarily elderly

65-69 c 26.539 0.481 0.001  
 70-74 30.879 0.485 0.000 0.593  
 75-79 40.229 0.521 0.000 0.000  
 80-84 49.828 0.565 0.000 0.000  
 85 and over 63.752 0.497 0.000 0.000

Gender:

Male c 39.264 0.256 0.000  
 Female 33.092 0.225 0.000 0.000

Median income of patient's ZIP code:

First quartile (lowest income) 38.539 0.314 0.000 0.000  
 Second quartile 35.834 0.317 0.000 0.000  
 Third quartile 33.195 0.353 0.970 0.000  
 Fourth quartile (highest income)c 33.214 0.368 0.000

Location of patient residence (NCHS):

Large central metropolitan 32.161 0.314 0.633 0.000  
 Large fringe metropolitan c 31.935 0.353 0.000  
 Medium metropolitan 33.639 0.387 0.001 0.000  
 Small metropolitan 36.996 0.578 0.000 0.000  
 Micropolitan 40.763 0.471 0.000 0.000  
 Noncore 49.302 0.566 0.000 0.509

2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:

Not applicable

2.1-2.3 Supplemental Testing Methodology Information:

Steering Committee: Overall, was the criterion, *Scientific Acceptability of Measure Properties*, met? (*Reliability and Validity must be rated moderate or high*) Yes  No

Provide rationale based on specific subcriteria:

**If the Committee votes No, STOP**

**3. USABILITY**

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)

**C.1 Intended Purpose/ Use** (Check all the purposes and/or uses for which the measure is intended): [Public Reporting, Quality Improvement \(Internal to the specific organization\)](#)

**3.1 Current Use** (Check all that apply; for any that are checked, provide the specific program information in the following questions): [Public Reporting, Quality Improvement \(Internal to the specific organization\)](#)

**3a. Usefulness for Public Reporting:** H  M  L  I   
 (The measure is meaningful, understandable and useful for public reporting.)

**3a.1. Use in Public Reporting - disclosure of performance results to the public at large** (If used in a public reporting program, provide name of program(s), locations, Web page URL(s)). If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: [**For Maintenance** – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.]

The following entities publicly report this measure:

Arizona

Why Not the Best?

<http://www.whynotthebest.org/>

California (state)

Hospital Inpatient Mortality Indicators for California

[http://www.oshpd.ca.gov/HID/Products/PatDischargeData/AHRO/iqi-imi\\_overview.html](http://www.oshpd.ca.gov/HID/Products/PatDischargeData/AHRO/iqi-imi_overview.html)

Colorado (state hospital association)

Colorado Hospital Report Card

[http://www.cohospitalquality.org/index.php?option=com\\_frontpage&Itemid=1](http://www.cohospitalquality.org/index.php?option=com_frontpage&Itemid=1)

Florida (state)

Florida Health Finder

<http://www.floridahealthfinder.gov/>

Illinois (state)

Illinois Hospital Report Card and Consumer Guide to Health Care

<http://www.healthcarereportcard.illinois.gov/>

Iowa (Iowa Healthcare Collaborative)

Iowa Healthcare Collaborative

<http://www.ihconline.org/asp/publicreporting/iowareport.aspx>

Kentucky (Norton Healthcare, a hospital system)

Norton Healthcare Quality Report

<http://www.nortonhealthcare.com/body.cfm?id=157>

Kentucky (state hospital association)

Kentucky Hospital Association Quality Data

<http://info.kyha.com/QualityData/IQISite/>

Kentucky (state)

Health Care Information Center

<http://chfs.ky.gov/ohp/healthdata>

Maine (state)

Maine Health Data Organization



<http://gateway.maine.gov/mhdo2008Monahrq/home.html>

Maryland (NY QIO)

Why Not the Best?

<http://www.whynotthebest.org/>

Massachusetts (state)

My HealthCare Options

<http://www.mass.gov/healthcareqc>

Nevada (state)

Nevada Compare Care

<http://nevadacomparecare.net/Monahrq/home.html>

New Jersey (state)

Find and Compare Quality Care in NJ Hospitals

<http://www.nj.gov/health/healthcarequality/>

New York (health care coalition)

New York State Hospital Report Card

<http://www.myhealthfinder.com/>

Oregon (state)

Oregon Hospital Quality Indicators

<http://www.oregon.gov/OHPPR/HQ/>

Rhode Island (NY QIO)

Why Not the Best?

<http://www.whynotthebest.org/>

Texas (state)

Reports on Hospital Performance

<http://www.dshs.state.tx.us/thcic/>

Utah (state)

Utah Hospital Comparison Reports

<http://health.utah.gov/myhealthcare/>

Washington (health care coalition)

Washington State Hospital Report Card

<http://www.myhealthfinder.com/wa09/index.php>

Wisconsin (state hospital association)

CheckPoint

<http://www.wicheckpoint.org/index.aspx>

United States:

Hospital Compare

The measure is reported in the mortality for selected conditions composite on Inpatient Prospective Payment Systems hospitals, which total over 3,500 hospitals

In addition, the measure is included in the MONAHRQ tool, which is a desktop software tool that enables organizations - such as state and local data organizations, regional reporting collaboratives, hospitals and hospital systems, and health plans - to quickly and easily generate a health care reporting Website. MONAHRQ analyzes, summarizes, and presents information in a format ready

for use by consumers and other decision makers.

**3a.2. Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting.** If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results: The MONAHRQ reporting format is based on research conducted by team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team.

The Model Reports are based on:

- Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly;
- Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities;
- Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals;
- Four focus groups with members of the public who had recently experienced a hospital admission; and
- Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education

**3.2 Use for other Accountability Functions (payment, certification, accreditation).** If used in a public accountability program, provide name of program(s), locations, Web page URL(s): **Not Applicable**

**3b. Usefulness for Quality Improvement:** H  M  L  I

*(The measure is meaningful, understandable and useful for quality improvement.)*

**3b.1. Use in QI.** If used in quality improvement program, provide name of program(s), locations, Web page URL(s): **[For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement].**

The following entity uses the measure in quality improvement:

1) University Health system Consortium (UHC)

UHC is an alliance of 103 academic medical centers and 219 of their affiliated hospitals. UHC reports this and other AHRQ QIs to their member hospitals for their internal quality improvement purposes.

2) Ministry Health Care - a multi-hospital system in Wisconsin (see <http://ministryhealth.org/display/router.aspx>. Note: measure results reported to hospitals; not reported on site).

3) Premier

Premier - Premier's "Quality Advisor" tool provides performance reports to approximately 650 hospitals for their use in monitoring and improving quality. Hospitals receive facility specific reports on this measure in Quality Advisor.

**3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement.** If usefulness was demonstrated (e.g., QI initiative), describe the data, method and results:

Users can readily use the observed, expected and risk-adjusted rate results to identify opportunities for improvement for specific patient populations based on default stratifiers or risk adjustment model covariates. In addition, comparative data from the AHRQ SID databases provides relative performance information.

The AHRQ QI support line receives approximately 150 user queries per month and almost 50 user per month download the AHRQ QI IQI software. Users have used the IQI since the release in 2002

**Overall, to what extent was the criterion, Usability, met?** H  M  L  I

Provide rationale based on specific subcriteria:

#### 4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)

4a. Data Generated as a Byproduct of Care Processes: H  M  L  I

4a.1-2 How are the data elements needed to compute measure scores generated? (*Check all that apply*).

Data used in the measure are:

Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

4b. Electronic Sources: H  M  L  I

4b.1 Are the data elements needed for the measure as specified available electronically (*Elements that are needed to compute measure scores are in defined, computer-readable fields*): [ALL data elements in electronic claims](#)

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources:

4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences: H  M  L  I

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:

[Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.](#)

4d. Data Collection Strategy/Implementation: H  M  L  I

A.2 Please check if either of the following apply (*regarding proprietary measures*):

4d.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 (*e.g., fees for use of proprietary measures*):

[The AHRQ QI software has been publicly available at no cost since 2001; Users have over ten years of experience using the AHRQ QI software in SAS and Windows.](#)

Overall, to what extent was the criterion, *Feasibility*, met? H  M  L  I

Provide rationale based on specific subcriteria:

#### OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes  No

Rationale:

**If the Committee votes No, STOP.**

**If the Committee votes Yes, the final recommendation is contingent on comparison to related and competing measures.**

#### 5. COMPARISON TO RELATED AND 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 before a final recommendation is made.

5.1 If there are related measures (*either same measure focus or target population*) or competing measures (*both the same measure focus and same target population*), list the NQF # and title of all related and/or competing measures:

0468 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization

5a. Harmonization

5a.1 If this measure has 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 Measure(s)**

5b.1 If this measure has 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*):

**CONTACT INFORMATION**

Co.1 Measure Steward (Intellectual Property Owner): Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.2 Point of Contact: John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-

Co.3 Measure Developer if different from Measure Steward: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.4 Point of Contact: John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-

Co.5 Submitter: John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

Co.6 Additional organizations that sponsored/participated in measure development: Battelle Memorial Institute, Stanford University, University of California-Davis

Co.7 Public Contact: John, Bott, Contractor, AHRQ Quality Indicators Measure Expert Center for Delivery, Organization and Markets, John.Bott@ahrq.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

**ADDITIONAL INFORMATION**

Workgroup/Expert Panel involved in measure development

Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.

None

Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward: None

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.3 Year the measure was first released: 2002

Ad.4 Month and Year of most recent revision: 08, 2011

Ad.5 What is your frequency for review/update of this measure? Annual

Ad.6 When is the next scheduled review/update for this measure? 12, 2011

Ad.7 Copyright statement: Not applicable

Ad.8 Disclaimers: Not applicable

Ad.9 Additional Information/Comments: Not applicable

Date of Submission (MM/DD/YY): 08/25/2011

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