NATIONAL QUALITY FORUM

TO: NQF Members and Public

FR: NQF Staff

RE: Pre-voting review for *Pulmonary and Critical Care Consensus Standards Endorsement Maintenance*

DA: May 7, 2012

NQF has previously endorsed consensus standards to evaluate the quality of care for pulmonary and critical care. This project seeks to identify and endorse performance measures that could be used in accountability and public reporting in the following topic areas for adults and children in all settings of care: asthma; chronic obstructive pulmonary disease (COPD); pneumonia; dyspnea; pneumonia; and intensive/critical care.

A 21-member Steering Committee representing a range of stakeholder perspectives was appointed to evaluate 8 new measures and 28 measures undergoing maintenance review against NQF's standard evaluation criteria.

The draft document, *National Voluntary Consensus Standards: Pulmonary and Critical Care Endorsement Maintenance* is posted on the NQF website along with the measure submission forms. This report recommends continued endorsement of 19 measures and endorsement of 6 newly submitted measures.

Pursuant to section II.A of the Consensus Development Process v. 1.8, this draft document, along with the accompanying material, is being provided to you at this time for purposes of review and comment only and is not intended to be used for voting purposes. You may post your comments and view the comments of others on the NQF website.

Please note that the organization of this report has been modified, similar to the recent Perinatal and Cardiovascular Endorsement Maintenance reports. The intention is to begin with high-level information (e.g., overarching evaluation issues and lists of measures) followed by more detail about the evaluation ratings and rationale in the measure evaluation summary tables. The detailed measure specifications for the recommended measures are in Appendix A and all submitted measure information is posted on the project web page.

All comments must be submitted no later than 6:00 pm ET, June 5, 2012.
Thank you for your interest in NQF's work. We look forward to your review and comments.

PULMONARY AND CRITICAL CARE CONSENSUS STANDARDS ENDORSEMENT MAINTENANCE

DRAFT TECHNICAL REPORT FOR COMMENT
May 7, 2012

TABLE OF CONTENTS

PULMONARY AND CRITICAL CARE CONSENSUS STANDARDS ENDORSEMENT MAINTENANCE
Draft Technical Report

INTRODUCTION

At least 33 million Americans have chronic lung diseases such as asthma, chronic obstructive pulmonary disease (COPD), and pneumonia. Lung disease is the third leading cause of death in the United States.[1] The human and financial burden is enormous:

- In 2008, 23.3 million Americans suffered from asthma. Asthma afflicts people of all ages, races, genders, and socioeconomic status; however, it occurs at disproportionately higher rates among some ethnic and racial populations. Asthma affects an estimated 7 million children and accounts for more than 14 million lost school days every year.[2] The annual direct healthcare cost of asthma is $15.6 million.[3]
- COPD is the third leading cause of death in the United States, costing the nation nearly $49.9 billion in 2010.[4]
- In 2006, an estimated 1.2 million hospital discharges were attributable to pneumonia.[5]

More than 5 million patients are admitted annually to critical care units in the United States, treating patients with respiratory insufficiency/failure, postoperative management, ischemic heart disorder, sepsis, and heart failure. There are approximately 6,000 ICUs in the United States, caring for 55,000 critically ill patients each day.[6]

NQF has endorsed more than 40 consensus standards to evaluate the quality of care for pulmonary conditions and the critical care setting over the past decade. As quality measurement has matured, better data systems have become available, electronic health records adoption is increasing, and the demand for meaningful performance measures has prompted development of more sophisticated measures of healthcare processes and outcomes for pulmonary conditions and critical care. An evaluation of the NQF-endorsed® pulmonary and critical care measures and consideration of new measures will ensure the currency of NQF's portfolio of voluntary consensus standards.

MEASURE EVALUATION

On March 21-22, 2012, the Pulmonary and Critical Care Steering Committee evaluated 8 new measures and 28 measures undergoing maintenance review against NQF's standard evaluation criteria (January 2011). To facilitate the evaluation, the Committee and candidate standards were divided into four workgroups for preliminary review of the measures against the evaluation sub-criteria prior to consideration by the entire Steering Committee. The Committee's discussion and ratings of the criteria are summarized in the evaluation tables beginning on page 9.

PULMONARY AND CRITICAL CARE

	MAINTENANCE	NEW	TOTAL
Measures under consideration	35*	8	43
Withdrawn from consideration	8	0	8
Recommended	19	6	25
Not recommended	8	2	10
Reasons for Not Recommending	Importance – 6 Scientific Acceptability – 2 Overall – 0 Competing measure – 0	Importance – 1 Scientific Acceptability – 1 Overall – 0 Competing measure – 0	

***Includes two measures that are paired.**

Overarching Issues

During the Steering Committee's discussion of the measures, several overarching issues emerged that were factored into the Committee's ratings and recommendations for multiple measures and are not repeated in detail with each individual measure:

Incomplete titles and descriptions

The Committee noted that many measure titles are vague and not informative or the descriptions are incomplete as to the population being measured and the focus of the measure. The Committee urges developers to use thoughtful measure titles that convey the measure's intent to general audiences and descriptions that provide enough detail (e.g., population, setting, measure focus) to inform audiences what information the measure results will provide.

Evidence and guidelines

Many of the measure submissions referenced guidelines as the evidence for a process measure without summarizing the actual body of evidence on which the guideline is based. NQF's 2011 Evidence Task Force report specifies evaluation of the quantity, quality and consistency of the body of evidence. The Committee struggled with evaluating measures against the evidence criteria when this information was not provided.

Data on current performance and disparities

The Committee expected more detailed information on current performance than was typically submitted. A mean was not considered to be not sufficient information to assess current performance of the measure. Data on the number of facilities or practices and the number of patients, the range of results and the percentiles are critical to understanding the opportunity for improvement. Very little data was submitted on the use of the measures to identify disparities.

A greater emphasis should be made to collect data on disparities when the measures are tested and implemented.

Asthma versus Chronic Obstructive Pulmonary Disease (COPD)

The Committee noted that there is a spectrum of airways diseases from asthma to COPD. Identifying patients with asthma or COPD is confounded by the overlapping pathophysiology of airway disease and the reliability of coding for the diagnosis. Measures attempt to address the sensitivity of the diagnosis by using age criteria, such as up to age 64 years for asthma and 40 years and above for COPD. Some Committee members expressed concern with lower age inclusions for measures for COPD asking whether this is a different population with different therapeutic expectations. Similarly, the lack of measures for asthma for the Medicare population is explained by the difficulty in determining who has asthma or COPD or other co-morbidities in that population.

Reserve status

Two endorsed measures, **0143 CAC-1: Relievers for inpatient asthma** and **0144 CAC-2 Systemic corticosteroids for inpatient asthma** were found to have very high compliance at 100% reported on Hospital Compare . The developer noted that only a small number of hospitals are reporting on the measure so additional opportunity may exist if new hospitals are recruited to report on their performance. The Committee determined that these measures meet the criteria for "endorsed with reserve status." Endorsement with reserve status requires that the measure meet all other criteria except for *1b. Opportunity for Improvement*. Reserve status applies only to highly credible, reliable, and valid measures that have high levels of performance due to quality improvement actions (often facilitated or motivated through public reporting and other accountability programs).

Complex, proprietary measures

Two measures, **0334 PICU Severity-adjusted length of stay** and **0343 PICU Standardized Mortality Ratio** were submitted that use a proprietary risk-adjustment model that is only available to participants in a private registry. NQF's Measure Steward Agreement allows for *proprietary, complex measures* to be submitted if the submission is accompanied by a statement of the participation fees which are considered in the evaluation of the feasibility of the measure. Details of the risk model were reviewed by the Steering Committee and are included in submission materials. The Committee rated the measures low on feasibility, but recommended the measures for continued endorsement because the measures use a highly credible and valid risk model for pediatric intensive care.

RECOMMENDATIONS FOR FUTURE MEASURE DEVELOPMENT

During its discussion, the Steering Committee identified important gap areas in the pulmonary and critical care episodes of care framework for further measure development:

- measures focused on in-hospital, severity adjusted, high mortality conditions such as 30-day mortality rates, readmissions, sepsis and acute respiratory distress syndrome (ARDS);
- measures for earlier identification of sepsis at the compensated stage before it becomes decompensated septic shock and appropriate resuscitative measures;
- measures of efficiency and overutilization;
- measures that focus on palliative care for patients with end-stage pulmonary conditions;
- better measures of comprehensive asthma education;
    - i.e., instruction related to the appropriate application of handheld inhalers prior to discharge and demonstration of use;
- measures of unplanned pediatric extubations;
- measures for effectiveness and outcomes of post-acute care for COPD patients;
- measures of functional status;
- measures for quality of spirometries in relation to meeting the American Thoracic Society (ATS) standards for pediatric and adult patients; and
- more outpatient composite measures targeted for consumer use.

ASTHMA MEASURES RECOMMENDED

0036 Use of appropriate medications for people with asthma

Status: Maintenance, Original Endorsement: Aug 10, 2009
Description: The measure assesses the percentage of members 5-64 years of age during the measurement year who were identified as having moderate to severe persistent asthma and who were appropriately prescribed medication during the measurement year.
Numerator Statement: The number of members who were dispensed at least one prescription for a preferred therapy during the measurement year
Denominator Statement: All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma
Exclusions: Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis, or acute respiratory failure (Table ASM-E) any time on or prior to December 31 of the measurement year.
Adjustment/Stratification: No risk adjustment or risk stratification N/A The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year.
1) 5–11 years
2) 12–18 years
3) 19-50 years
4) 51-64 years
5) Total
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Health Plan, Integrated Delivery System, Population : National, Population : Regional, Population : State
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Laboratory, Electronic Clinical Data : Pharmacy, Paper Records
Measure Steward: National Committee for Quality Assurance

IMPLEMENTATION COMMENTS

- None of the American College of Chest Physicians (ACCP) Quality Improvement Committee (QIC) members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
- America's Health Insurance Plans (AHIP): We recognize that classification of asthma using administrative data poses challenges and does not allow for tracking of performance by stage of disease as defined by clinical guidelines. As electronic health record data become available, it will be important to include clinically defined asthma stages and ensuring appropriate care by stage. Additionally, since a single prescription can ensure compliance, this measure does not track how well asthma is managed for a patient.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): PASSED all three subcriteria.
1a. Impact: H-18; M-1; L-0; I-0; 1b. Performance Gap: H-16; M-3; L-0; I-0
Rationale:

- The developer stated that measure focuses on a high impact condition (asthma) affecting an estimated 25 million Americans, associated with a cost of more than $20 billion annually. Ashtma continues to be associated with unacceptable morbidity and mortality.
- Data submitted by the developer reported that Medicaid health plan performace rates are lower and have greater opportunity for improvement compared to commercial plans.. Commercial health plan mean rates were 89-96% with Medicaid mean performace at 83-93% in 2008 .

0036 Use of appropriate medications for people with asthma

1c. Evidence (*based on decision logic*): Y-14; N-5; I-0

Rationale:

- The Committee agreed that high quality evidence exists from multiple random controlled trials, meta-analyses, and guidelines for inhaled corticosteroids (ICSs); however, evidence is less strong for alternative controllers (e.g., anti-leukotrienes, cromones, or theophylline).
- ICSs are the preferred option among adults and children, with long-acting beta2 agonists (LABAs) recommended only if combined with ICSs."

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity.

2a. Reliability: H-8; M-9; L-1; I-1; 2b. Validity: H-1; M-11; L-7; I-0

Rationale:

- The Committee asked how moderate to severe asthma was identified using administrative data. The Committee noted a lack of precision in identifying the denominator population.
    - The developer responded that it has been tested in HEDIS and found to be highly reliable in identifying severe, persistent asthma.
- The Committee noted the list of medications is quite broad. The specifications include not only the preferred therapy ,inhaled corticosteroids (ICS), where there is high-quality evidence supporting improved outcomes, but a number of other medications for asthma for which data have not shown to be as strongly associated with improved outcomes.
    - The developer replied that the broad list of medications was intended to avoid overriding any critical decision by the provider about what is best for the patient and consistent with guidelines.
    - The developer confirmed that there are no data linking the use of this measure directly to other outcomes. The measure has at times been used and stratified by ICS versus other medications; however, the detailed data on those stratified rates was not available.

3. Usability: H-9; M-9; L-0; I-0

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*

Rationale:

- This measure has been retooled for EHRs and is part of the meaningful use program.
- The measure is used in public reporting through Healthcare Effectiveness Data and Information Set (HEDIS) and is reported through venues such as the annual State of Healthcare Quality report, Quality Compass, America's Best Health Plans.
- This measure is included in the CHIPRA core set.

4. Feasibility: H-10; M-9; L-0; I-0

(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- Data generated during care process and all data elements are in a combination of electronic sources.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-1

Rationale:

- High impact condition.
- Established HEDIS measure, though newly submitted measures (1799, 1800) provide more information about medication adherence.

Additional Comments/Questions:

- The Committee also felt it would be helpful to see data showing inhaled corticosteroids versus all the other medications, and perhaps even a sensitivity analyses on the number of prescriptions a year and whether that would make it a better measure.

RELATED AND COMPETING MEASURES

The Committee detereminied that the following two measures are competing (same measure focus and same target population):

0036 Use of Appropriate Medications for People with Asthma (NCQA)
0047 Asthma: Pharmacologic therapy (AMA PCPI)

0036 Use of appropriate medications for people with asthma
• The Committee recommends stratify ICS and combinations including ICS from the second line medications – see measure 0047. • The measure is listed for clinician/group level of analysis. Has the measure been tested at this level? Is this a drill down from plan level data? Is there attribution logic for clinician-level specifications? • The ultimate goal is to have one measure that can be used at the clinician and health plan level. Acknowledging that achieving one measure cannot be expected in the very near future, an acceptable intermediate step would be two fully harmonized measures – one for health plans and one for clinicians. Harmonization should include focus on denominator (including age), medications, and stratification approach. By the time of the Steering Committee conference call after the comment period, the Committee requested a detailed plan and timeline as to how this will be achieved. If a reasonable plan and timeframe cannot be presented, the Committee will determine the measure that is most valid. Developer response: • This measure is not tested at the clinician/group level. Health plans have the opportunity of using data from this measure to identify clinican performance. This measure is not tested to distinguish individual clinican performance. For the clinician-level specifications, we have patient inclusion criteria at the health plan and non-health plan levels. NCQA/AMA-PCPI Joint Response (0036 and 0047): • Measure development staff for NCQA and PCPI acknowledge that the categorization and stratified reporting of asthma controller medications in our respective measures should be fully aligned. Accordingly, we will each revise our numerator specifications as needed to clearly delineate two separate groups of medications for reporting: inhaled corticosteroids (ICS) and the recommended ICS combinations; and all other controller medications approved for treatment of persistent asthma. Each measure will also require that a total of the controller medications be reported separately. Pending the approval of our respective measure development panels, we'll implement these changes as soon as possible. As noted at the SC meeting in March, we also have plans in place to ensure that the age ranges in the two measures will be aligned.
RECOMMEND FOR ENDORSEMENT

0047 Asthma: Pharmacologic therapy for persistent asthma

Status: Maintenance, Original Endorsement: Aug 10, 2009
Description: Percentage of patients aged 5 through 50 years with a diagnosis of persistent asthma who were prescribed long-term control medication. Three rates are reported for this measure:
1. Patients prescribed inhaled corticosteroids (ICS) as their long term control medication
2. Patients prescribed other alternative long term control medications (non-ICS)
3. Total patients prescribed long-term control medication
Numerator Statement: Patients who were prescribed long-term control medication
Numerator Definitions:
Long Term Control Medication Includes:
Patients prescribed inhaled corticosteroids (the preferred long-term control medication at any step of asthma pharmacological therapy)
OR
Patients prescribed alternative long-term control medications (inhaled steroid combinations, anti-asthmatic combinations, antibody inhibitor, leukotriene modifiers, mast cell stabilizers, methylxanthines, long-acting inhaled beta-2 agonists, short-acting inhaled beta-2 agonists)
Prescribed – May include prescription given to the patient for inhaled corticosteroid OR an acceptable alternative long-term control medication at one or more visits in the 12-month period OR patient already taking inhaled corticosteroid OR an acceptable alternative long-term control medication as documented in current medication list.
Denominator Statement: All patients aged 5 through 50 years with a diagnosis of persistent asthma
Exclusions: Documentation of patient reason(s) for not prescribing either an inhaled corticosteroid (ICS) or an alternative long-term control medication
Adjustment/Stratification: No risk adjustment or risk stratification
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement Other organizations: National Committee for Quality Assurance (NCQA)

IMPLEMENTATION COMMENTS

- None of the American College of Chest Physicians (ACCP) Quality Improvement Committee (QIC) members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-20; M-0; L-0; I-0; 1b. Performance Gap: H-15; M-5; L-0; I-0
Rationale:

- The developer described the impact: ." An estimated 300 million people worldwide suffer from asthma, and it is estimated that by 2025, the prevalence will grow by more than 100 million. Asthma-related direct and indirect monetary costs were estimated to be $19.7 billion in the United States in 2007."
- The developer reported that CMS PQRS data for 2008 is 46% compliance for this measure. No further details were provided.

1c. Evidence (*based on decision logic*): Y-19; N-1; I-0
Rationale:

- The measure is based on guideline recommendations and underlying body of evidence pertaining to the effectiveness of long-term control medications for achieving and maintaining control of persistent asthma.
- The Committee noted that quality evidence is less strong for alternative controllers included in the numerator (e.g., anti-leukotrienes, cromones, theophylline, LABA, etc). Seaparating the two rates for ICS and other reflects the difference in evidence.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-5; M-15; L-0; I-0; 2b. Validity: H-0; M-14; L-6; I-0
Rationale:

0047 Asthma: Pharmacologic therapy for persistent asthma

- The Committee was concerned that patients receiving combination medications that include ICS are not counted in rate 1- preferred therapy. Combination medications are frequently used and consistent with evidence for preferred therapy.
- Rate 2 includes patients who are receiving agents which are not as strongly associated with improved outcomes. Credit is given for use of non-preferred therapy
    - The developer clarified that the numerator definition for rate 2 includes inhaled steroid combinations, so the intent is for anything combined with ICS to be in the second group.

3. Usability: H-11; M-7; L-2; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale

- The measure has been used in the CMS PQRS program since 2007.
- This is a retooled eMeasure and in included in the meaningful use program.

4. Feasibility: H-11; M-9; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Data are generated and used by healthcare personnel during the provision of care.
- All data elements are in electronic health records.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-16; N-4
Rationale: Main concern is the inclusion of alternative agents in the numerator, as noted.
Additional Comments/Questions:

- The developer clarified the list of medications should not include short acting beta 2 agonists and will submit an updated list.

RELATING AND COMPETING MEASURES
The Committee determined the following measure to be competing (same measure focus and same measured population):
0036 Use of Appropriate Medications for People with Asthma (NCQA)
0047 Asthma: Pharmacologic therapy (AMA PCPI)

- Age range difference: 5-50 (measure 0047) as opposed to 5-64 (measure 0036). PCPI expects approval of upper age limit to be harmonized with 0036 in the near future.

  The ultimate goal is to have one measure that can be used at the clinician and health plan level. Acknowledging that achieving one measure cannot be expected in the very near future, an acceptable intermediate step would be two fully harmonized measures – one for health plans and one for clinicians. Harmonization should include focus on denominator (including age), medications, and stratification approach. By the time of the Steering Committee conference call after the comment period, the Committee requested a detailed plan and timeline as to how this will be achieved. If a reasonable plan and timeframe cannot be presented the Committee will determine the measure that is most valid

NCQA/AMA-PCPI Joint Response (0036 and 0047):
Measure development staff for NCQA and PCPI acknowledge that the categorization and stratified reporting of asthma controller medications in our respective measures should be fully aligned. Accordingly, we will each revise our numerator specifications as needed to clearly delineate two separate groups of medications for reporting: inhaled corticosteroids (ICS) and the recommended ICS combinations; and all other controller medications approved for treatment of persistent asthma. Each measure will also require that a total of the controller medications be reported separately. Pending the approval of our respective measure development panels, we'll implement these changes as soon as possible. As noted at the SC meeting in March, we also have plans in place to ensure that the age ranges in the two measures will be aligned.

RECOMMEND FOR ENDORSEMENT

1799 Medication management for people with asthma (MMA)

Status: New Submission
Description: The percentage of members 5-64 years of age during the measurement year who were identified as having persistent asthma and were dispensed appropriate medications that they remained on during the treatment period. Two rates are reported.
1. The percentage of members who remained on an asthma controller medication for at least 50% of their treatment period.
2. The percentage of members who remained on an asthma controller medication for at least 75% of their treatment period.
Numerator Statement: Numerator 1: The number of members who achieved a PDC* of at least 50% for their asthma controller medications during the treatment period
Numerator 2: The number of members who achieved a PDC* of at least 75% for their asthma controller medications during the treatment period
*PDC is the proportion of days covered by at least one asthma controller medication prescription in the measurement year.
Denominator Statement: All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma.
Exclusions: 1) Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year.
2) Exclude any members who have no medications dispensed during the measurement year.
Adjustment/Stratification: No risk adjustment or risk stratification N/A The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year.
1) 5–11 years
2) 12–18 years
3) 19-50 years
4) 51-64 years
5) Total
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy
Measure Steward: National Committee for Quality Assurance

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-13; M-6; L-0; I-0; 1b. Performance Gap: H-12; M-7; L-0; I-0
Rationale:

- Impact of asthma as previously noted in 0036.
- Extensive data from field testing was provided. For patients aged 5-64 years the > 50% PDC aggregate results for commercial plans was 56% compared to 37% for Medicaid plans. For >75% PDC, the commercial results are 34% compared to Medicaid at 21%.

1c. Evidence (*based on decision logic*): Y-16; N-2; I-1
Rationale:

- Clinical practice guidelines and field research have both illustrated the significance of adherence to medication regimens in controlling asthma.
- The evidence suggests that asthma patients that are adherent to their prescribed medication regimens experience fewer exacerbations and ED visits or hospitalizations.
- The Committee noted a lack of evidence for the 50% and 75% PDC threshold values in relationship to outcomes.

1799 Medication management for people with asthma (MMA)

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-6; M-12; L-1; I-0; 2b. Validity: H-1; M-14; L-4; I-0
Rationale:

- The Committee questioned if the measure is consistent with evidence as specified. Specifically, calculating the "proprotion of days covered (PDC)" based on a IPSD (earliest dispensing event).
- The Committee identified a challenge for Medicaid patients in meeting the two year persistent asthma definition due to their transient enrollment.
- The Committee asked for clarification whether the measure is designed to count the actual number of dispensed days, so it would pick up a three-month prescription being over 90 days.
    - The developer confirmed that the measure does pick up multiple canisters if there are multiple or it is distributed as a 90-day supply. The measure is able to count each day covered from prescription data.
- The Committee asked about the selection of the 50% or 75% thresholds. What is the evidence for these thresholds?
    - The developer explained that 50 and 75 percent were selected by an expert panel, and the panel felt that they really wanted to have two different levels to try and help describe the population.
    - One of the field test sites did go back and look at the ED visits for the population below and above the 50 percent mark, and it did find higher utilization the lower level.
- The developer noted that a 5% misclassification of results is possible.
- According to the developer, the number of patients getting a new precription in the fourth quarter is low (about 5% in the field test) and so the short follow-up period has minimal effect.

3. Usability: H-4; M-13; L-1; I-1
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- This measure is a first year measure for the Healthcare Effectiveness Data and Information Set (HEDIS) and is reported through venues such as the annual State of Healthcare Quality report, Quality Compass, America's Best Health Plans.

4. Feasibility: H-12; M-7; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Data are electronically collected.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-16; N-3
Rationale:

- Adherence is a better measure of medication management for asthma than a single prescription.

Additional Comments/Questions:

- Similar concerns as with 0036 i.e., numerator inclusion of medications other than the preferred therapy of inhaled corticosteroid which are not as strongly associated with improved outcomes in patients with asthma.

RECOMMEND FOR ENDORSEMENT

1800 Asthma medication ration (AMR)

Status: New Submission

Description: The percentage of members 5–64 years of age who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.

Numerator Statement: The number of members who have a medication ratio of at least 0.50

Denominator Statement: All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma

Exclusions: 1) Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year.

2) Exclude any members who have no medication events present in their record during the measurement year.

Adjustment/Stratification: No risk adjustment or risk stratification N/A The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year.

1) 5–11 years
2) 12–18 years
3) 19-50 years
4) 51-64 years
5) Total

Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional

Type of Measure: Process

Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy

Measure Steward: National Committee for Quality Assurance

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria

1a. Impact: H-19; M-1; L-0; I-0; 1b. Performance Gap: H-14; M-5; L-0; I-0

Rationale:

- Impact of asthma described in measure 0036.
- In field tests, the commerical plan mean rate for ages 5-64 years is 62% and for Medicaid plans it is 52%.

1c. Evidence (*based on decision logic*): Y-11; N-3; I-5

Rationale:

- While the developers presented strong evidence for the need for controller therapy in persistent asthma, the Committee felt they did not present evidence that a ratio of >0.5 is appropriate.
- The Committee would like to see evidence-based literature that supports the use of this controller to total asthma medication ratio of >=0.5, as being ideal or optimal.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria

2a. Reliability: H-11; M-7; L-0; I-1; 2b. Validity: H-1; M-11; L-4; I-3

Rationale:

- Some Committee members noted similar issues with the medication inclusions as for measures 0036 and 1799.
- The developer submitted field testing results indicating that clinical exclusions affect a significant proportion of the eligible population with persistent asthma-particularly in the older age cohort (~24.6% excluded); however, the stability of the coding in the administrative claims was found to be adequately reliable to continue to utilize the exclusions.

1800 Asthma medication ration (AMR)
3. Usability: H-4; M-14; L-1; I-0 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • The Committee continued to question if reporting that a medication ratio of 0.5 or better is, indeed, "meaningful", or how much this ratio is informative for public reporting. • This measure is a first year measure for the Healthcare Effectiveness Data and Information Set (HEDIS) whose results may appear through venues such as the annual State of Healthcare Quality report, Quality Compass, America's Best Health Plans.
4. Feasibility: H-13; M-6; L-0; I-0 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Data are generated during care process and are electronically available. • The Committee discussed the potential of susceptible inaccuracies, errors, or unintended consequences that could include inaccuracies in diagnosing, overly broad controller, imprecise counting of meds, and use of the 0.5 ratio.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-16; N-3 Rationale: • A measure of adherence is stronger than a single prescription measure. • This is a good direction for getting better measures of medication use.
RECOMMEND FOR ENDORSEMENT

0548 Suboptimal asthma control (SAC) and absence of controller therapy (ACT)

Status: Maintenance, Original Endorsement: Aug 05, 2009
Description: Rate 1: The percentage of patients with persistent asthma who were dispensed more than 3 canisters of a short-acting beta2 agonist inhaler during the same 90-day period.
Rate 2: The percentage of patients with persistent asthma during the measurement year who were dispensed more than three canisters of short acting beta2 agonist inhalers over a 90-day period and who did not receive controller therapy during the same 90-day period.
The full detailed measure specifications have also been submitted as a separate attachment.
Numerator Statement: Rate1: From the date of each prescription fill, count all of the canisters of short acting Beta2 Agonist Inhalers dispensed at that fill and dispensed within 90 days of that fill. If the patient receives 3 or more canisters in at least one 90 day period, then the patient is compliant for the numerator.
Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA
Rate 2: Patients who were not dispensed a controller therapy medication during the same 90-day period where they received more than three canisters of short-acting beta-agonist medication.
Denominator Statement: Rate 1: Step 1: Identify patients 5 - 50 years of age as of the last day of the measurement year.
Step 2: Identify patients who were dispensed at least two consecutive fills for any asthma medication during the measurement year.
Step 3: Exclude patients identified in step 1 who meet any of the following criteria:
• Any patient who filled one or more COPD medications during the measurement year.
• Any patient who filled one or more prescriptions for pulmozyme during the measurement year.
• Any patient who filled one or more nasal steroid medications during the measurement year.
Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA
Long-Acting Beta Agonists: salmeterol, formoterol
Inhaled Corticosteroids: beclomethasone, budesonide, flunisolide, fluticasone, fluticasone/salmeterol, mometasone, triamcinolone
Leukotriene Inhibitors: zafirlukast, montelukast, zileuton
Xanthines: long acting theophylline
Mast Cell Stabilizers: nedocromil, cromolyn
COPD Medications: tiotropium, ipratropium/albuterol MDI, ipratropium MDI
Nasal Steroids: beclomethasone, budesonide, flunisolide, fluticasone, mometasone, triamcinolone
Rate 2: Step 1: Identify patients 5 - 50 years of age as of the last day of the measurement year.
Step 2: Identify patients who were dispensed at least two consecutive fills for any asthma medication (Table ACT-A: Asthma Medications) during the measurement year.
Step 3: Exclude patients identified in step 1 who meet any of the following criteria
• Any patient who filled one or more COPD medications during the measurement year.
• Any patient who filled one or more prescriptions for pulmozyme during the measurement year.
• Any patient who filled one or more nasal steroid medications during the measurement year.
Step 4: For the remaining patients, identify those who were dispensed more than five canisters of a short-acting beta-agonist medication during the same 90-day period in the measurement year. It is those patients who, from the date of each prescription fill, had at least 3 canisters of short acting Beta2 Agonist Inhalers dispensed at that fill or dispensed within 90 days of that fill.
Note: This is a count of canisters dispensed, not prescriptions filled. If a patient received 2 canisters at one fill, it counts as 2 canisters.
Exclusions:
Adjustment/Stratification: No risk adjustment or risk stratification
Level of Analysis: Health Plan
Type of Measure: Process
Data Source: Electronic Clinical Data : Pharmacy
Measure Steward: Pharmacy Quality Alliance, Inc.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-11; M-4; L-1; I-0; 1b. Performance Gap: H-6; M-9; L-0; I-1
Rationale:

- The Committee noted there were no performance rates initially submitted to assess the current gap in performance.
    - The developer stated the measure has been tested with several PDMs and some health plans and identified fairly significant number of patients who were using more than one short acting beta agonist inhaler per month who were then

0548 Suboptimal asthma control (SAC) and absence of controller therapy (ACT)

not on inhaled corticosteroids.

- The developer provided additional information to the Committee on performance and testing (see updated submission form).
- The Committee noted that there was a performance gap demonstrated at the pharmacy level based on data from 3 health plans in 2010 that included 804 pharmacies with at least 10 patients:

Table 1. Health Plan Performance- Suboptimal Control

	Denominator	Numerator	Performance Rate
Plan A	28,284	4,166	14.7%
Plan B	2,867	509	17.8%
Plan C	1,713	145	8.5%
Total:	32,864	4,820	14.7%

Table 2 - Use of Controller Medications

	Denominator	Numerator	Performance Rate
Plan A	4,166	1,904	45.7%
Plan B	509	299	58.7%
Plan C	145	73	50.3%

1c. Evidence (*based on decision logic*): Y-14; N-0; I- 2

Rationale:

- The measure is based on NHBLI guidelines, however the Committed noted details of the quanitity, quality and consistency of the specific studies was not provided in the submission.
- The Committee questioned the evidence on the 90-day timeframe, noting that most of the evidence addresses chronic lack of controller therapy for greater than 12 months.
    - Developer response: The measure focuses on identification of patients who receive more than 3 inhalers during ANY 90-day period within a measurement year. Thus, the studies encompassed a measurement year.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed reliability and validity

2a. Reliability: H-3; M-8; L-1; I-4; 2b. Validity: H-1; M-9; L-2; I-4

Rationale:

- Some members voiced concerns about alternative sources of medications diluting positive results for Rate 1 and increasing false positives in Rate 2. Committee members remain concerned that medications dispensed in a hospital or ED to be taken home would not be "counted", and that a patient's existing stock of medication would not be counted.
- Committee members note that the measure presents some challenges related to attribution. Attribution for this measure is dependent not only where the patient fills their asthma medications, but also on how many canisters of short- acting beta2 agonists inhalers were filled and where they filled. Concerns were raised about how best to attribute these patients given that they may be filling the medications that qualify them for the numerator at a different pharmacy than the medications that made them eligible for the measure.
    - Additional testing was performed to investigate how many patients filled the prescription for their canisters at a different pharmacy than their other asthma medications. The overwhelming majority filled the prescriptions at the same pharmacy; however, up to 8 percent filled their short-acting beta2 agonist medication at a different pharmacy than where they filled their other asthma medications meaning that those patients would be misattributed."
- Some Committee members thought that a prescription for one or more intranasal steroids in a year as an exclusion is confusing.
    - Developer response: This measure uses drug claims for asthma-related medications to identify patients with asthma. Since we include leukotriene inhibitors in the list of controller medications, and since some patients who use leukotriene inhibitors may have allergic rhinitis w/o persistent asthma, we needed another method to exclude patients who may have allergic rhinitis without having persistent asthma. Thus, we use the prescriptions for nasal steroids as an exclusion criterion to increase the likelihood that the patients in the denominator have persistent asthma and not just allergic rhinitis.

0548 Suboptimal asthma control (SAC) and absence of controller therapy (ACT)
• Excess use of reliever agents is defined by the guidelines begins at a level of more than twice (4 puffs) per week. This measure is triggered by a prescription for 3 inhalers, reflecting 600 puffs (50 puffs/week) which seems too much. o Developer response: The measure is designed to identify patients who are clearly receiving excessive amounts of short-acting beta-agonists. If we reduce the threshold for identifying overuse, we run the risk of false-positives in the numerator (a false positive would occur if the patient was identified as an over-user when in fact they were not an over-user). When you consider that many young asthma patients may occasionally obtain two SABA inhalers in one month (perhaps because they need to have one inhaler at school and one at home), the risk of false-positives is real. We chose the more conservative approach of improving the specificity of the measure (i.e., reducing false positives) while acknowledging that there may be a few over-users who are missed (i.e., lower sensitivity).
3. Usability: H-5; M-6; L-2; I-3 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • Committee members agreed the measure is fairly easy to understand. • The measure will be reported by URAC in 2013 and it is currently being used by the Indian Health Service for QI.
4. Feasibility: H-5; M-7; L-2; I-2 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • The measure is based on pharmacy claims data. • The Committee did not raise any specific issues with feasibility.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-9; N-7 Rationale: • The measure is generally consistent with guidelines. • The measure is based on pharmacy claims data. • This is a health plan level measure. • Opportunity for further improvement exists.
RECOMMEND ENDORSEMENT

ASTHMA MEASURES RECOMMENDED FOR RESERVE STATUS

0143 CAC-1: Relievers for inpatient asthma

Status: Maintenance, Original Endorsement: Mar 09, 2007
Description: Use of relievers in pediatric patients, age 2 years through 17 years, admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-2: Systemic Corticosteroids for Inpatient Asthma, and CAC-03: Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver) that are used in The Joint Commission's accreditation process.
Numerator Statement: Pediatric asthma inpatients who received relievers during hospitalization
Denominator Statement: Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.
Exclusions: Excluded Populations:

- Patients with age less than 2 years or 18 years or greater
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients with a documented Reason for Not Administering Relievers

Adjustment/Stratification: No risk adjustment or risk stratification Not Applicable This measure is stratified by age as noted in the following table:
CAC-1a Relievers for Inpatient Asthma (age 2 years through 17 years) – Overall Rate
CAC-1b Relievers for Inpatient Asthma (age 2 years through 4 years)
CAC-1c Relievers for Inpatient Asthma (age 5 years through 12 years)
CAC-1d Relievers for Inpatient Asthma (age 13 years through 17 years)
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Records
Measure Steward: The Joint Commission

IMPLEMENTATION COMMENTS

- None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
    - Developer response: This measure is one of a set of three measures focused on Children's Asthma Care. The set is one of 14 available measure sets from which hospitals can select to meet The Joint Commission´s ORYX accreditation program requirement for standardized measure data collection and reporting. This measure has been in use since 2007, and aggregate measure results have improved over time, indicating that they are being used by hospitals to identify and address areas in need of improvement. The Joint Commission utilizes this measure in its accreditation process, and it provides information about the comparative performance of accredited organizations to the public. Measure results are reported on Hospital Compare and on The Joint Commission's public reporting web-site, Quality Check.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Did not pass sub-criterion 1b. Performance Gap, however, the Committee evaluated the measure fore Reserve Status.
1a. Impact: H-13; M-3; L-4; I-0; 1b. Performance Gap: H-1; M-0; L-19 I-0

- The developers submitted the following data for impact: 9.3% of the US population is composed of children suffering from asthma. There are approximately 2 million Emergency Department (ED) visits per year related to children with acute asthma. This large reported emergency population is responsible for an annual reported 200,000 hospital admissions a year for childhood asthma in the US. This consequently represents more than $3 billion in healthcare costs.
- The Committee agreed that asthma is the most important chronic condition for children.
- Hospital Compare lists the national rates for performance at 100%, leaving little to no room for improvement.
    - The developer replied that only a small number of hospitals report on the measures and that opportunity may exist in recruiting more hospitals tot report.

The Committee, noting this long-standing, publicly reported measure voted to consider the measure for reserve status (Yes-18, No-2).

0143 CAC-1: Relievers for inpatient asthma
Rationale: 1c. Evidence (*based on decision logic*): Y-20; N-0; I-0 Rationale: • The Committee agreed there is ample evidence supporting the use of relievers in in-patient settings.
2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria 2a. Reliability: H-19; M-1; L-0; I-0; 2b. Validity: H-17; M-3; L-0; I-0 Rationale: • The Committee agreed the measure has demonstrated reliability and validity.
3. Usability: H-13; M-6; L-1; I-0 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • The developer report that this measure is in the process of retooling for electronic collection and is included in the proposed rule for stage two of meaningful use.
4. Feasibility: H-18; M-2; L-0; I-0 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Data are processed during care process and are electronically available.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-2 RESERVE STATUS Rationale: • The measure met all criteria except for sub-criterion1b. • The Committee recommended this measure for Reserve Status because performance is extremely high.
RECOMMEND FOR RESERVE STATUS

0144 CAC-2 Systemic corticosteroids for inpatient asthma

Status: Maintenance, Original Endorsement: Mar 09, 2007
Description: Use of systemic corticosteroids in pediatric asthma patients (age 2 through 17 years) admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-1: Relievers for Inpatient Asthma, CAC-3: Home Management Plan of Care (HMPC) Document Given to Parent/Caregiver) that are used in The Joint Commission's accreditation process.
Numerator Statement: Pediatric asthma inpatients who received systemic corticosteroids during hospitalization.
Denominator Statement: Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.
Exclusions: Excluded Populations:

- Patients with an age less than 2 years or 18 years or greater
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients with a documented Reason for Not Administering Systemic Corticosteroids

Adjustment/Stratification: No risk adjustment or risk stratification None This measure is stratified by age as noted in the following table:
CAC-2a Systemic Corticosteroids for Inpatient Asthma (age 2 years through 17 years) – Overall Rate
CAC-2b Systemic Corticosteroids for Inpatient Asthma (age 2 years through 4 years)
CAC-2c Systemic Corticosteroids for Inpatient Asthma (age 5 years through 12 years)
CAC-2d Systemic Corticosteroids for Inpatient Asthma (age 13 years through 17 years)
Level of Analysis: Facility, Population : National
Type of Measure: Process
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Records
Measure Steward: The Joint Commission

IMPLEMENTATION COMMENTS

- •None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
  - Developer response: This measure is one of a set of three measures focused on Children's Asthma Care. The set is one of 14 available measure sets from which hospitals can select to meet The Joint Commission´s ORYX accreditation program requirement for standardized measure data collection and reporting. This measure has been in use since 2007, and aggregate measure results have improved over time, indicating that they are being used by hospitals to identify and address areas in need of improvement. The Joint Commission utilizes this measure in its accreditation process, and it provides information about the comparative performance of accredited organizations to the public. Measure results are reported on Hospital Compare and on The Joint Commission's public reporting web-site, Quality Check.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Did not pass sub-criterion 1b. Performance Gap
1a. Impact: H-18; M-2; L-0; I-0; 1b. Performance Gap: H-1; M-3; L-16; I-0
Rationale:

- Impact information same as for measure 0143.
- Hospital Compare listed the performance rate at 100%.

The Committee noted this long-standing, publicly reported measure voted to consider the measure for reserve status (Yes-20, No-0).

1c. Evidence (*based on decision logic*): Y-20; N-0; I-0
Rationale:

- The Committee agreed there is considerable evidence favoring the potential for benefit compared with the potential for harm, burden. A number of studies and the literature are uniform in its results and findings, although difficult to completely account for confounding variables (SABAs, oxygen, epidemiology\causation, etc.).

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-19; M-1; L-0; I-0; 2b. Validity: H-17; M-3; L-0; I-0
Rationale:

0144 CAC-2 Systemic corticosteroids for inpatient asthma
• The Committee agreed the measure has been shown to be reliable and valid.
3. Usability: H-13; M-6; L-1; I-0 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • This measure is in the process of retooling for electronic collection and is included in the proposed rule for stage two of meaningful use. • The measure has been in use since 2007.
4. Feasibility: H-18; M-2; L-0; I-0 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Data are captured during care process and are electronically available. .
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-20; N-0 RESERVE STATUS Rationale: • The measure met all criteria except for sub-criterion1b. • The measure was recommended for placement in Reserve Status due to a very high performance rate of 100%.
RECOMMEND FOR RESERVE STATUS

COPD MEASURES RECOMMENDED

0091 COPD: spirometry evaluation

Status: Maintenance, Original Endorsement: Aug 10, 2009
Description: Percentage of patients aged 18 years and older with a diagnosis of COPD who had spirometry results documented
Numerator Statement: Patients with documented spirometry results in the medical record (FEV1 and FEV1/FVC)
Denominator Statement: All patients aged 18 years and older with a diagnosis of COPD
Exclusions: Documentation of medical reason(s) for not documenting spirometry results; Documentation of patient reason(s) for not documenting spirometry results; Documentation of system reason(s) for not documenting spirometry results
Adjustment/Stratification: No risk adjustment or risk stratification; No risk adjustment or risk stratification. We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement

IMPLEMENTATION COMMENTS
The American College of Chest Physicians (ACCP) the ACCP Quality Improvement Committee (QIC): None of the QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria
1a. Impact: H-16; M-2; L-0; I-0; 1b. Performance Gap: H-12; M-4; L-0; I-2
Rationale:

- The developer notes that this measure focuses on a high impact condition (COPD) affecting 12 million Americans and costing $18 billion per year. Evidence suggests there is significant under utilization of spirometry to confirm the diagnosis.
- The developer reports a performance gap of 45.7% of patients who did not meet this measure in the 2008 PQRS . However, the Committee felt it is unclear, based on the way the measure is specified, if this gap is specific to use of spirometry to confirm a COPD diagnosis or is specific to routine spirometry use.
- Disparities are identified as an issue in the literature but results for this measure's ability to detect them were not provided.
- Basic goal is to identify new cases of COPD but what will be tested is whether already diagnosed COPD patients had spirometry. This is a less poweful measure. The ideal measure [not likely to be available from administrative data] would be the precentage of patients with chronic shortness of breath who had spirometry.

1c. Evidence (*based on decision logic*): Y-16; N-0; I-2
Rationale:

- The Committee agreed with developer's assessment of evidence. The citations referenced in the guideline update that are specific to spirometry use address its application in the detection of COPD. The measure developers cite excerpts from the 2011 guideline update specific to this use (see responses to 1c.16). There are no articles that are specific to the use of spirometry once a patient is diagnosed with COPD (the population for whom the measure is intended). Quote from the ACP Guideline 2011 update: "In our guideline update, there is no new evidence to support the use of routine periodic spirometry after initiation of therapy to monitor disease status or to modify therapy in symptomatic patients. Improvements in clinical symptoms do not necessarily correlate with spirometric responses to therapy or reduction of long-term decline in FEV1. Spirometry is useful to identify symptomatic patients with airflow obstruction who may benefit from pharmacotherapy. Because of the wide intraindividual variation, the spirometric decline of lung function cannot be used to measure individual long-term response to treatment."
- The guidelines are clear about when spirometry is indicated to confirm the diagnosis of COPD, and that it is not indicated to monitor treatment.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity.
2a. Reliability: H-9; M-8; L-1; I-0; 2b. Validity: H-9; M-7; L-1; I-1

0091 COPD: spirometry evaluation

Rationale:

2a: RELIABILITY:

- Numerator specifications are unclear and indicate the spirometry test be performed at least once every 12 months; there could be potential for inappropriate/overuse due to the lack of clarity.
- The time window indicates a one year measurement period but the developer states that a spirometry at any time counts in the numerator. The Committee notes that the specification for "most recent documentation of spirometry" implies that there may be several spirometry tests performed. This is a potential for mis-understanding.

2b: VALIDITY:

- The denominator captures all patients with a diagnosis of COPD – not just newly diagnosed or suspected diagnosis of COPD – it makes the measure open to misinterpretation.
- A specific exclusion for having a prior spirometry would clarify the intent of the measure.
- Value of including the lower end of the age range to 18 years also is unclear given that the incidence and prevelance of COPD starts climbing after age 40.
- Validity testing is limited to one academic medical center.
- The Committee questioned the construct validity if the measure is capturing routine use of spirometry after COPD diagnosis when this is not indicated by the evidence or guidelines.

3. Usability: H-9; M-7; L-1; I-1

(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*

Rationale:

- This measure is in use in the CMS's PQRS program but it is not publicly reported.
- There is no evidence that measure is currently informing quality improvement.
  Measure developers indicate the measure is used in public reporting and QI initiatives but do not provide data with which to evaluate actual usability.

4. Feasibility: H-10; M-8; L-0; I-0

(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- eSpecifications would be useful.
- Measure developers report they have no information on unintended consequences such as overuse of spirometry to monitor patients and therapy.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-1

Rationale:

- High volume, high cost condition.
- Measure is in use in a federal program.
- Measure meets all the endorsement crtieria but concerns remain regarding the possible misinterpretation of the specifications.

Additional Comments/Questions:

- The developer indicated a willingness to clarify the specifications.

RELATED AND COMPETING MEASURES

The Committee identified the following two measures as competing:

0091 COPD: Spirometry evaluation (AMA PCPI)

0577 Use of spirometry testing in the assessment and diagnosis of COPD (NCQA)

The Committee reviewed tables comparing the two measures on the factors identified in NQF's guidance for related and competing measures. The developers agreed to work together and by the time of the Steering Committee conference call after the comment period, they will present a detailed plan and timeline to achieve two fully harmonized measures – one for health plans and one for clinicians. Harmonization should include focus on denominator (including age), timeframe of measurement, and confirming diagnosis. If a reasonable plan and timeframe cannot be presented the Committee will determine the measure that is most valid.NCQA/AMA-PCPI

0091 COPD: spirometry evaluation
Joint Response (0091 and 0577): • Measure development staffs from NCQA and PCPI acknowledge that the criteria in our respective COPD measures should be aligned wherever it is sensible to do so. Recommendations to address misalignment in the current specifications that are due to the different data collection and reporting environments will be taken to our respective measure advisory expert panels to harmonize the criteria if possible. We will inform NQF staff as soon as the review and approval process is complete in order to allow NQF to post the most current specification in the QPS.
RECOMMEND FOR ENDORSEMENT

0102 COPD: inhaled bronchodilator therapy

Status: Maintenance, Original Endorsement: Aug 10, 2009
Description: Percentage of patients aged 18 years and older with a diagnosis of COPD and who have an FEV1/FVC < 70% and have symptoms who were prescribed an inhaled bronchodilator
Numerator Statement: Patients who were prescribed an inhaled bronchodilator
Denominator Statement: All patients aged 18 years and older with a diagnosis of COPD, who have an FEV1/FVC <70% and have symptoms (eg, dyspnea, cough/sputum, wheezing)
Exclusions: Documentation of medical reason(s) for not prescribing an inhaled bronchodilator; documentation of patient reason(s) for not prescribing an inhaled bronchodilator; documentation of system reason(s) for not prescribing an inhaled bronchodilator
Adjustment/Stratification: No risk adjustment or risk stratification; No risk adjustment or risk stratification. We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records Retooled eMeasure
Measure Steward: American Medical Association – Physician Consortium for Performance Improvement

IMPLEMENTATION COMMENTS
The American College of Chest Physicians (ACCP) the ACCP Quality Improvement Committee (QIC): None of the QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria.
1a. Impact: H-18; M-2; L-0; I-0; 1b. Performance Gap: H-13; M-4; L-0; I-0
Rationale:

- 1a: Measure focuses on high impact condition affecting 12M Americans and costing $18B per year.
- 1b: The develoepr reported that this measure was used in the CMS Physician Quality Reporting Initiative/System (PQRS) in the: 2007 through 2011 claims option; 2009 through 2011 registry option; and the 2011 group practice reporting II option. In the 2008 data 53.61% of patients reported on did not meet the measure.

1c. Evidence (*based on decision logic*): Y-17; N-1
Rationale:

- Agree with developer's assessment of evidence. The measure includes the range of 60-70% FEV1/FVC ratio for which the evidence is less than clear.
- This is the GOLD crieria.
- Data showing that long-acting beta agonists (LABAs) reduce FEV1 decline are few. There is limited performance data for the 60-80% range for FEV1/FVC ratio population.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity.
2a. Reliability: H-7; M-11; L-0; I-0 2b. Validity: H-14; M-4; L-0; I-0
Rationale:

- Measure includes eSpecifications. Tested in EHRs only.
  - The Committee agrees with need for stratification for disparities.
  - CPAP is included in mechanical ventilation – captures both invasive and non-invasive ventilation.

3. Usability: H-15; M-3; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- This measure is in current use in CMS´s PQRS program and has been continuously since 2007.
- 3a: History of use in certification and public reporting demonstrate usability.
- 3b: Lack of evidence that measure is currently informing quality improvement.

4. Feasibility: H-15; M-4; L-0; I-0

0102 COPD: inhaled bronchodilator therapy
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented) Rationale: • Currently in use in PQRS using a variety of data sources • EHR specifications exist.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-0 Rationale: • There is good evidence that bronchodilators improve function and there is a good data to suggest that people who meet the individual criteria are not getting bronchodilators. • Measure is in use; retooled eMeasure.
RECOMMEND FOR ENDORSEMENT

0577 Use of spirometry testing in the assessment and diagnosis of COPD

Status: Maintenance, Original Endorsement: Dec 04, 2009
Description: This measure assesses the percentage of members 40 years of age and older with a new diagnosis of COPD or newly active COPD, who received appropriate spirometry testing to confirm the diagnosis.
Numerator Statement: The measure looks at the number of health plan members whose initial diagnosis of COPD is being confirmed using spirometry.
Denominator Statement: Any health plan member 42 years or older as of December 31 of the measurement year, who had a diagnosis of COPD during the Intake Period.
Exclusions: Members are excluded from the denominator if they had a claim/encounter with a COPD diagnosis during the 730 days (2 years) prior to the index episode start date (IESD).
Adjustment/Stratification: No risk adjustment or risk stratification N/A N/A
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy
Measure Steward: National Committee for Quality Assurance

IMPLEMENTATION COMMENTS

- Measure 0577 is not very useful as they are subject to small numbers issues. Additionally, there are issues with data availability. For example, if a spirometry test is performed in the hospital these data may not be captured and the patient could be classified as non-compliant. The measure is also designed to identify new diagnosis of COPD and the timeline is insufficient to have data on new enrollees.
    - Developer Response:
- The American College of Chest Physicians (ACCP) the ACCP Quality Improvement Committee (QIC notes that this measure should be harmonized with Measure 0091: COPD: spirometry evaluation.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria.
1a. Impact: H-12; M-5; L-0; I-1; 1b. Performance Gap: H-14; M-4; L-0; I-0
Rationale:

- 1a: Measure focuses on high impact condition affecting 12M Americans and contributing to significant mortality.
- 1a. . Sufficient data submitted on the impact of COPD and its severity as quantified by spirometry when it is diagnosed.
- 1b: Data demonstrates under utilization of spirometry.
- 1b: The health plan mean results = 41.7 (2010) 38.8 (2009) 37.6 (2008). No data provided at the clinician level.
- 1b. The measure developers note that the measure is not specified to detect disparities. They argue that doing so would create undo burden on measure users.

1c. Evidence (*based on decision logic*): Y-18; N-0
Rationale:

- The Committee felt the developer's assessment of evidence was inconsistent with materials presented.
- The Committee notes that the evidence is appropriate and consistent for the use of spirometry to confirm the diagnosis of COPD.
- Question remains whether confirming the diagnosis improves overall outcomes.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity.
2a. Reliability: H-12; M-6; L-0; I-0; 2b. Validity: H-13; M-5; L-0; I-0
Rationale:

- Reliability and validity testing performed and results provided for commercial, Medicare and Medicaid plans. No testing at the clinician level was done.
- 2b: RELIABILITY -Measure is based on administrative data collected in electronic format (CPT codes) rather than data collected directly during care delivery process.
    - The specification for age 42 with a 2 year look back to arrive at a population age 40 and above was initially confusing. The developer clarified that the denominator population is identifiifed first, then the numerator is calculated from that population.
    - Not clear why population is limited to patients age 40 and greater. Developer notes that the data for patients under age 40

0577 Use of spirometry testing in the assessment and diagnosis of COPD

is too noisy for their comfort. The developer also notes a specificity issue in the younger ages.
- No rationale for age threshold of 40 years was given in the submission.
  - The developer noted that the data is clean and reliable enough for the COPD diagnosis without confusion with asthma for the 40-56 year group.

- VALIDITY - Meaningful differences in performance results indicate overall low performance (<50% at the 90th percentile) but with improvement in performance from year to year (2008 - 2010) within percentile levels.
  - No specifications to detect disparities. The devloper reported that they have repeatedly found a great variation in the plans' collection of a standardized race, ethnicity, SES data such that is cannot be used to report stratified results.

3. Usability: H-7; M-10; L-1; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:
- The measure has been reported in HEDIS since 2007.
- 3a: History of use in NCQA certfication demonstrate usability.
- 3b: Lack of evidence that measure is currently informing quality improvement. There has been slow improvement in three years of data. Why not a bigger impact?
  - The developer speculated that the limitation of adminstrative claims coding for COPD influences the results as well as low performance.
- Measure is used in public reporting and QI. Not clear from the submission how meaningful and understandable the measure is to the public.
- Enrollment requirement for > 2 years is too big a hurdle for Medicaid

4. Feasibility: H-12; M-6; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:
- 4a-4b: Uses adminstrative billing data.
- A strategy to migrate to eSpecifications was not provided.
- 4c – A general description of HEDIS methodology used to ensure measure integrity is provided, however, specific information related to potential problems with this measure is not addressed.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-0
Rationale:
- In use as a HEDIS health plan measure.
- Opportunity for improvement exists.
- Claims based measure.
- Not harmonized with competing measure 0091.

RELATED AND COMPETING MEASURES

The Committee identified the following two measures as competing:

0091 COPD: Spirometry evaluation (AMA PCPI)

0577 Use of spirometry testing in the assessment and diagnosis of COPD (NCQA)

- The Committee reviewed tables comparing the two measures on the factors identified in NQF's guidance for related and competing measures. The developers agreed to work together and by the time of the Steering Committee conference call after the comment period, they will present a detailed plan and timeline to achieve two fully harmonized measures – one for health plans and one for clinicians. Harmonization should include focus on denominator (including age), timeframe of measurement, and confirming diagnosis. If a reasonable plan and timeframe cannot be presented the Committee will determine the measure that is most valid.

0577 Use of spirometry testing in the assessment and diagnosis of COPD
NCQA/AMA-PCPI Joint Response (0091 and 0577): • Measure development staff from NCQA and PCPI acknowledge that the criteria in our respective COPD measures should be aligned wherever it is sensible to do so. Recommendations to address misalignment in the current specifications that are due to the different data collection and reporting environments will be taken to our respective measure advisory expert panels to harmonize the criteria if possible. We will inform NQF staff as soon as the review and approval process is complete in order to allow NQF to post the most current specification in the QPS.
RECOMMEND FOR ENDORSEMENT

1825 COPD- management of poorly controlled COPD

Status: New Submission
Description: The percentage of patients age 18 years or older with poorly controlled COPD, who are taking a long acting bronchodilator.
Numerator Statement: Patients age 18 years or older with poorly controlled COPD, who are taking a long acting bronchodilator
Denominator Statement: Patients age 18 years and older with poorly controlled COPD who are taking a short acting bronchodilator
Exclusions: Patients who had lung transplantation in the past 3 years.
Adjustment/Stratification: No risk adjustment or risk stratification This specific measure addresses all COPD patients, regardless of the disease, across the entire measured population. Using our highly specific condition validation rule algorithms, people with a confirmed diagnosis of COPD will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure.This specific measure addresses all COPD patients, regardless of the disease, across the entire measured population. Using our highly specific condition validation rule algorithms, people with a confirmed diagnosis of COPD will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Facility, Health Plan, Integrated Delivery System, Population : County or City, Population : National, Population : Regional, Population : State
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Pharmacy, Healthcare Provider Survey, Patient Reported Data/Survey
Measure Steward: ActiveHealth Management

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria.
1a. Impact: H-17; M-0; L-0; I-0; 1b. Performance Gap: H-16; M-2; L-0; I-0
Rationale:

- 1a. Significant impact of pharmacotherapy for COPD.
- 1b: Additional information on performance gap fro the developer: the performance across 106 client populations (total N =8657 patients. The inter quartile range which showed that at least 10 percent of the test population had a compliance rate of 63% or less:
  10th percentile – 63%
  25th percentile – 72%
  50th percentile – 77%
  75th percentile – 83%
  90th percentile - 100%
  Inter Quartile Range – 12%

1c. Evidence (*based on decision logic*): Y-14; N-4;I-0
Rationale:

- Solid evidence base: 8 meta-analyses, 42 studies
- There is good evidence that adding a LABA to a SABA in COPD, which is not controlled, will improve symptoms.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity.
2a. Reliability: H-3; M-15; L-0; I-0; 2b. Validity: H-5; M-12; L-1; I-0
Rationale:

- Reliability and validity information submitted was relative to the entire plan subscriber base as opposed to testing of the actual measure.
- Age 18 years and above – raises same concerns regarding specificity of the diagnosis in younger patients.

3. Usability: H-7; M-9; L-2; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- 3a-3b: Though data presented suggests that 1 in 4 were not prescribed long-acting bronchodilators, no data presented to demonstrate that measure useful for accountability or quality improvement.

4. Feasibility: H-11; M-7; L-0; I-0

1825 COPD- management of poorly controlled COPD
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented) Rationale: • 4a: Based on claims data.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-0 • High impact condition. • Solid evidence and significant performance gap. • Claims based measure.
RECOMMEND FOR ENDORSEMENT

1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization

Status: New Submission

Description: The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as readmission for any cause within 30 days after the date of discharge of the index admission, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.

Numerator Statement: The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as an inpatient admissions for any cause within 30 days after the date of discharge from the index admission for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD. If a patient has one or more admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.

Denominator Statement: This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups.

The cohort includes admissions for patients discharged from the hospital with either a principal diagnosis of COPD (see codes below) OR a principal diagnosis of respiratory failure (see codes below) WITH a secondary discharge diagnosis of acute exacerbation of COPD (see codes below) and with a complete claims history for the 12 months prior to admission.

Exclusions: An index admission is any eligible admission to an acute care hospital assessed in the measure for the outcome (readmitted within 30 days of the date of discharge from the initial admission).

The measure excludes admissions for patients:

• with an in hospital death (because they are not eligible for readmission).

• transferred to another acute care facility (We assign the outcome for the acute episode of care to the hospital that discharges the patient to the non-acute care setting because the discharging hospital initiates the discharge and the transition to the outpatient setting. Therefore, the last admission in the acute care setting for the episode of care is eligible to be an index admission in the measure. The prior admissions in the same acute episode are excluded from the measure.)

• who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge).

• without at least 30 days post-discharge claims data (because the 30-day readmission outcome cannot be assessed in this group).

Additionally, admissions that occur within 30 days of the discharge date of an earlier index admission are not themselves considered to be index admissions. Any COPD admission can only be an index admission or a readmission, but not both.

Of note, a patient may satisfy multiple exclusion criteria.

Adjustment/Stratification: Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes"1.

The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level, the model adjusts the log-odds of readmission within 30 days of discharge for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercepts represent the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.

The RSRR is calculated as the ratio of the number of "predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio ("predicted") is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality.

The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmission for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected

1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization

number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

References:

1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462.

2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226.

Frequencies and odds ratios for the model development sample (2008 Medicare FFS patients aged 65 and older; n=170,480 admissions) are presented below.

Table 1: Final set of risk-adjustment variables:

Variable//Frequency (%)//Odds Ratio (95% confidence interval)

Demographic

• Age-65 (years above 65, continuous) for 65 and over cohorts/Frequency = -/OR (95% CI)=1.00 (1.00-1.00);
(this variable is Age (years, continuous) for 18 and over cohorts)

Cardiovascular/Respiratory

• Sleep Apnea (ICD-9 CM diagnosis codes: 327.20, 327.21, 327.23, 327.27, 327.29, 780.51, 780.53, 780.57) / Frequency=10.46% / OR (95% CI)=1.00 (0.96-1.03)
• History of mechanical ventilation (ICD-9 procedure codes: 93.90, 96.70, 96.71, 96.72)/ Frequency=7.33/ OR (95% CI)=1.13 (1.08-1.18)
• Respirator dependence/respiratory failure (CC 77-78)/ Frequency=1.38/ OR (95% CI)=1.12 (1.03-1.23)
• Cardio-respiratory failure and shock (CC 79)/ Frequency=29.84/ OR (95% CI)=1.21 (1.18-1.24)
• Congestive heart failure (CC 80)/ Frequency=43.86/ OR (95% CI)=1.21 (1.18-1.24)
• Chronic atherosclerosis (CC 83-84)/ Frequency=51.57/ OR (95% CI)=1.11 (1.08-1.13)
• Arrhythmias (CC 92-93)/ Frequency=37.2/ OR (95% CI)=1.17 (1.12-1.22)
• Vascular or circulatory disease (CC 104-106)/ Frequency=38.2/ OR (95% CI)=1.09 (1.05-1.14)
• Arrhythmias (CC 92-93)/ Frequency=38.48/ OR (95% CI)=1.14 (1.11-1.17)
• Other and Unspecified Heart Disease (CC 94)/ Frequency=19.45/ OR (95% CI)=1.08 (1.05-1.11)
• Vascular or Circulatory Disease (CC 104-106)/ Frequency=39.42/ OR (95% CI)=1.09 (1.06-1.11)
• Fibrosis of lung and other chronic lung disorder (CC 109)/ Frequency=18.12/ OR (95% CI)=1.09 (1.06-1.12)
• Pneumonia (CC 111-113)/ Frequency=51.51/ OR (95% CI)=1.10 (1.07-1.13)

Other Comorbid Conditions

• History of Infection (CC 1, 3-6)/ Frequency=32.16/ OR (95% CI)=1.08 (1.05-1.11)
• Metastatic cancer and acute leukemia (CC 7)/ Frequency=2.64/ OR (95% CI)=1.24 (1.15-1.33)
• Lung, upper digestive tract, and other severe cancers (CC 8)/ Frequency=5.91/ OR (95% CI)=1.19 (1.13-1.25)
• Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors; other respiratory and heart neoplasms (CC 9-11)/ Frequency=13.88/ OR (95% CI)=1.04 (1.01-1.08)
• Other digestive and urinary neoplasms (CC 12)/ Frequency=7.06/ OR (95% CI)=0.96 (0.92-1.01)
• Diabetes and DM complications (CC 15-20, 119-120)/ Frequency=39.15/ OR (95% CI)=1.08 (1.05-1.11)

1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
• Protein-calorie malnutrition (CC 21)/ Frequency=7.57/ OR (95% CI)=1.14 (1.09-1.19) • Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/ Frequency=34.57/ OR (95% CI)=1.17 (1.14-1.20) • Other Endocrine/Metabolic/Nutritional Disorders (CC 24)/ Frequency=68.61/ OR (95% CI)=0.91 (0.89-0.94) • Pancreatic Disease (CC 32)/ Frequency=4.85/ OR (95% CI)=1.12 (1.06-1.17) • Peptic Ulcer, Hemorrhage, Other Specified Gastrointestinal Disorders (CC 34)/ Frequency=12.58/ OR (95% CI)=1.07 (1.03-1.11) • Other Gastrointestinal Disorders (CC 36)/ Frequency=58.29/ OR (95% CI)=1.04 (1.02-1.07) • Severe Hematological Disorders (CC44)/ Frequency=2.07 /OR (95% CI)=1.12 (1.04-1.20) • Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/ Frequency=42.09/ OR (95% CI)=1.13 (1.10-1.16) • Dementia and senility (CC 49-50)/ Frequency=17.07 /OR (95% CI)=1.00 (0.97-1.04) • Drug/Alcohol Induced Dependence/Psychosis (CC 51-52)/ Frequency=3.67/ OR (95% CI)=1.15 (1.09-1.22) • Major Psych Disorders (CC 54-56)/ Frequency=10.79/ OR (95% CI)=1.08 (1.04-1.12) • Depression (CC 58)/ Frequency=19.63/ OR (95% CI)=1.06 (1.03-1.09) • Anxiety Disorders (CC 59)/ Frequency=3.27/ OR (95% CI)=1.15 (1.08-1.22) • Other Psychiatric Disorders (CC 60)/ Frequency=18.37/ OR (95% CI)=1.11 (1.08-1.15) • Quadriplegia, paraplegia, functional disability (CC 67-69, 100-102, 177-178)/ Frequency=5.02/ OR (95% CI)=1.08 (1.02-1.13) • Polyneuropathy (CC 71)/ Frequency=7.91/ OR (95% CI)=1.11 (1.06-1.16) • Acute Coronary Syndrome (CC 81-82)/ Frequency=9.54/ OR (95% CI)=1.08 (1.04-1.12) • Hypertensive Heart and Renal Disease or Encephalopathy (CC 89)/ Frequency=13.20/ OR (95% CI)=1.13 (1.09-1.17) • Stroke (CC 95-96)/ Frequency=6.84/ OR (95% CI)=1.04 (1.00-1.09) • Renal Failure (CC 131)/ Frequency=18.61/ OR (95% CI)=1.10 (1.06-1.14) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/ Frequency=7.43/ OR (95% CI)=1.03 (0.99-1.08) • Cellulitis, Local Skin Infection (CC 152)/ Frequency=12.50/ OR (95% CI)=1.07 (1.03-1.11) • Vertebral Fractures (CC 157)/ Frequency=5.24/ OR (95% CI)=1.14 (1.08 -1.19) ICD-10-CM codes for model variables (for those variables defined by ICD-9 CM codes rather than CCs) Mechanical Ventilation • 5A09357 Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure • 5A09457 Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure • 5A09557 Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure • 5A1935Z Respiratory Ventilation, Less than 24 Consecutive Hours • 5A1945Z Respiratory Ventilation, 24-96 Consecutive Hours •5A1955Z Respiratory Ventilation, Greater than 96 Consecutive Hours Sleep Apnea • G4730 Sleep apnea, unspecified • G4731 Primary central sleep apnea • G4733 Obstructive sleep apnea (adult) (pediatric) • G4737 Central sleep apnea in conditions classified elsewhere • G4739 Other sleep apnea Results of this measure will not be stratified. Level of Analysis: Facility Type of Measure: Outcome Data Source: Administrative claims Measure Steward: Centers for Medicare & Medicaid Services (CMS) Other organizations: MPR: Mathematica Policy Research; RTI: Research Triangle Institute
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria 1a. Impact: H-17; M-1; L-0; I-0; 1b. Performance Gap: H-15; M-3; L-0; I-0 Rationale: • COPD is a leading cause of readmissions to the hospital. • 1a: The developer presented data demonstrating significant poor outcomes (readmissions) and high cost.

1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization

- 1b: The submission describes the 30-day readmission rate among patients hospitalized for COPD is 22.6%, accounting for 4% of all 30-day readmissions. Analysis of Medicare FFS patients, crude readmission rates of a national sample of 176,481 patients across 4,547 hospitals demonstrates that hospital readmission rates for COPD patients are generally high, at a mean of 21.8%, and that there is a large amount of variation in outcomes, with the rates ranging from 10.8-32.6% (5th and 95th percentiles respectively).

1c. Evidence (*based on decision logic*): Y-18; N-1; I-0
Rationale:

- This is an outcome measure.
- Strong evidence base exists for interventions to improve outcomes such as readmission rates.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity
2a. Reliability: H-15; M-4; L-0; I-0; 2b. Validity: H-3; M-10; L-5; I-1
Rationale:

- 2a: Measure specifications are clear and consistent and can be reliably measured.
  - 30 days begins at discharge from acute care regardless of whether patient goes to a LTAC, SNF or rehabilitation facility.
- 2b: Risk adjustment methodology is robust.
  - Individual risk factors should include rate of previous exacerbations and active smoking status if available. Institutional risk "factors" should include regional long term particle pollution levels and if individual active smoking rates are not available, regional smoking rates. All are known to contribute to exacrbations of COPD.
  - Concerns about risk adjustment for patients who had exacerbations and were ventilated but not for patients with previous admissions with exacerbations.
  - The numbers of patients with COPD diagnosis between 18-40 years is very small.
  - Multiple readmissions within the 30-day window only count once.
  - A patient may be counted more than once if they have multiple admissions during the year.

3. Usability: H-7; M-11; L-1; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- 3a-3b: Similar measures have been used for other clinical conditions (e.g., AMI, HF, PN) and have been demonstrated to support both public reporting and quality improvement
- Measure was recently tested and expanded to include those beyond the Medicare population (18 years and above).
- CMS is monitoring observation stays to assess whether use of the readmission measure would incentivize hospitals potentially to increase their use of observation stays in lieu of admitting patients who come back to the hospital within the 30-day time frame.
- The measure publicly reported by CMS rolls up 3 years of data so the results are not timely which hampers quality improvement activities.

4. Feasibility: H-14; M-5; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The measure is based on adminstrative data.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-2
Rationale:

- Outcome measure.
- Variation in outcomes demonstrate opportunity for improvement.
- Unknown impact of local air quality should be explored for possible impact on the measure results.

Additional Comments/Questions:

1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
• The Committee requested a commitment from CMS to explore the possible effect of differences in air quality at hospital locations on the results of the measures for 30-day Mortality and 30-day Readmissions for COPD. • The Committee requested additional information about the 18-40 year population. Measure Developer Response: CMS appreciates the Committee members' suggestion that we consider adjusting the COPD measures for ambient particulate levels using monitoring data available from the US Environmental Protection Agency (EPA). We asked the measure developer, YNHHSC/CORE, to conduct a brief literature review and consult with 2-3 experts to explore this suggestion. YNHHSC/CORE found that, as noted by the Committee, the literature suggests that ambient levels of particulate matter affect short-term mortality and admission rates for COPD (and for other cardiovascular and respiratory conditions). EPA considered these effects in its most recent revision to its health-based national ambient air quality standard for particulates. Although important from a public health standpoint, these increases are relatively small. YNHHSC/CORE did not find any studies of the effect of ambient particulates on mortality and readmission rates among hospitalized patients for COPD. The purpose of risk adjustment is to account for differences across hospitals in factors unrelated to quality, such as patient comorbidities, that may affect the outcome of mortality and readmission. It is important to risk adjust for factors that could bias the measure results (e.g. could favor hospitals in low pollution areas). Adjusting for particulates would make sense if it were technically feasible and if it would improve the model by reducing or eliminating a potential bias. Based on its review, YNHHSC/CORE does not recommend adding a PM variable as it is unlikely to affect hospital-level risk-standardized rates. The studies to date focus on the general non-hospitalized population, and it is not clear how they apply to the patients in our models – that is, patients hospitalized with an acute exacerbation of COPD. YNHHSC/CORE reported that the experts felt the effect of adjusting for PM would likely be small or negligible given that the model applies to patients already hospitalized for COPD. Second, there are feasibility issues. Modeling the effect appropriately would be complex. YNHHSC/CORE's preliminary review of the issues suggests it would be inappropriate to use ambient air quality levels as a risk adjuster without also adjusting for other factors that affect the strength and direction of the potential association between particulate levels and the outcomes, including temperature, humidity, seasonal variation, and city-level factors such as smoking and air conditioning use rates. Given these challenges, and our expectation that building particulate levels into the model is not likely to significantly improve the models' performance even with the best methods, CMS does not plan to pursue adding air pollution variables to the models at this time.
RECOMMEND FOR ENDORSEMENT

1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization

Status: New Submission

Description: The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.

Numerator Statement: The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days from the date of admission for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.

Denominator Statement: This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups.

The cohort includes admissions for patients discharged from the hospital with either a principal diagnosis of COPD (see codes below) OR a principal diagnosis of respiratory failure (see codes below) WITH a secondary diagnosis of acute exacerbation of COPD (see codes below) and with a complete claims history for the 12 months prior to admission.

If a patient has more than one COPD admission in a year, one hospitalization is randomly selected for inclusion in the measure.

Exclusions: An index admission is any eligible admission to an acute care hospital assessed in the measure for the outcome (died within 30 days after the index admission date).

For all cohorts, the measure excludes admissions for patients:

• transferred into the hospital from another acute care hospital (We assign the outcome for the acute episode of care to the first admitting hospital because the first hospital initiates patient management and is responsible for any decision to transfer the patient. Therefore, the first admission in an acute episode of care is eligible to be an index admission in the measure. The second or subsequent admissions in the same acute episode are excluded from the measure).

• with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date).

• who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);

For Medicare FFS patients, the measure additionally excludes admissions for patients:

• enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all-payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.

Of note, a patient may satisfy multiple exclusion criteria.

Adjustment/Stratification: Statistical risk model Our approach to risk adjustment was tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, “Standards for Statistical Models Used for Public Reporting of Health Outcomes”.1

The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients’ comorbidities, and sample size at a given hospital when estimating hospital mortality rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level the model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercept represents the hospital contribution to the risk of mortality, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals.

The RSMR is calculated as the ratio of the number of “predicted” to the number of “expected” deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio (“predicted”) is the number of deaths within 30 days predicted on the basis of the hospital’s performance with its observed case mix, and the denominator (“expected”) is the number of deaths expected on the basis of the nation’s performance with that hospital’s case mix. This approach is analogous to a ratio of “observed” to “expected” used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital’s performance given its case-mix to an average hospital’s performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected mortality or better quality and a higher ratio indicates higher-than-expected mortality or worse quality.

The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The

1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization

predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

References:

1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462.

2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226.

Frequencies and odds ratios for the model development sample (2008 Medicare FFS patients aged 65 and older; n=150,035 admissions) are presented below.

Table 1: Final set of risk-adjustment variables:

Variable//Frequency (%)//Odds Ratio (95% confidence interval)

Demographic

• Age-65 (years above 65, continuous) for 65 and over cohorts/Frequency = -/OR (95% CI)=1.03 (1.03-1.04); (this variable is Age (years, continuous) for 18 and over cohorts)

Cardiovascular/Respiratory

• Sleep Apnea (ICD-9 CM diagnosis codes: 327.20, 327.21, 327.23, 327.27, 327.29, 780.51, 780.53, 780.57)/Frequency=9.6/OR (95% CI)=0.87 (0.81-0.94)
• History of mechanical ventilation (ICD-9 procedure codes: 93.90, 96.70, 96.71, 96.72)/ Frequency= 6.0/OR (95% CI)=1.19 (1.11-1.28)
• Respirator dependence/respiratory failure (CC 77-78)/ Frequency=1.2/OR (95% CI)=0.88 (0.76-1.02)
• Cardio-respiratory failure and shock (CC 79)/ Frequency=26.4/OR (95% CI)=1.60 (1.53-1.68)
• Congestive heart failure (CC 80)/ Frequency=41.5/OR (95% CI)=1.33 (1.28-1.40)
• Chronic atherosclerosis (CC 83-84)/Frequency=50.4/OR (95% CI)=0.87 (0.83-0.90)
• Arrhythmias (CC 92-93)/ Frequency=37.2/OR (95% CI)=1.17 (1.12-1.22)
• Vascular or circulatory disease (CC 104-106)/ Frequency=38.2/OR (95% CI)=1.09 (1.05-1.14)
• Fibrosis of lung and other chronic lung disorder (CC 109)/Frequency=17.0/OR (95% CI)=1.08 (1.03-1.13)
• Asthma (CC 110)/ Frequency=17.1/OR (95% CI)=0.67 (0.63-0.71)
• Pneumonia (CC 111-113)/ Frequency=49.5/OR (95 CI)=1.29 (1.24-1.35)
• Pleural effusion/Pneumothorax (CC 114)/ Frequency=11.8/OR (95% CI)=1.17 (1.11-1.23)
• Other lung disorders (CC 115)/ Frequency=53.1/OR (95% CI)=0.80 (0.77-0.83)

Other Comorbid Conditions

• Metastatic cancer and acute leukemia (CC 7)/ Frequency=2.8/OR (95% CI)=2.34 (2.13-2.56)
• Lung, upper digestive tract, and other severe cancers (CC 8)/ Frequency=6.0/OR (95% CI)=1.80 (1.67-1.92)
• Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors; other respiratory and heart neoplasms (CC 9-11)/ Frequency=14.1/OR (95% CI)=1.03 (0.97-1.08)
• Other digestive and urinary neoplasms (CC 12)/ Frequency=6.9/OR (95% CI)=0.91 (0.84-0.98)
• Diabetes and DM complications (CC 15-20, 119-120)/ Frequency=38.3/OR (95% CI)=0.91 (0.87-0.94)

1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
• Protein-calorie malnutrition (CC 21)/ Frequency=7.4/OR (95% CI)=2.17 (2.05-2.29) • Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/ Frequency=32.1/OR (95% CI)=1.13 (1.08-1.18) • Other Endocrine/Metabolic/Nutritional Disorders (CC 24)/ Frequency=68.0/OR (95% CI)=0.75 (0.72-0.78) • Other Gastrointestinal Disorders (CC 36)/Frequency=56.2/OR (95% CI)=0.81 (0.78-0.84) • Osteoarthritis of Hip or Knee (CC 40)/ Frequency=9.3/OR (95% CI)=0.74 (0.69-0.80) • Other Musculoskeletal and Connective Tissue Disorders (CC 43)/ Frequency=64.1/OR (95% CI)=0.83 (0.79-0.86) • Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/ Frequency=40.8/OR (95% CI)=1.08 (1.04-1.12) • Dementia and senility (CC 49-50)/ Frequency=17.1/OR (95% CI)=1.09 (1.04-1.14) • Drug/Alcohol Abuse, Without Dependence (CC 53)/ Frequency=23.5/OR (95% CI)=0.79 (0.75-0.83) • Other Psychiatric Disorders (CC 60)/ Frequency=16.5/OR (95% CI)=1.12 (1.07-1.18) • Quadriplegia, paraplegia, functional disability (CC 67-69, 100-102, 177-178)/ Frequency=4.9/OR (95% CI)=1.03 (0.95-1.12) • Mononeuropathy, Other Neurological Conditions/Injuries (CC 76)/ Frequency=11.4/OR 95% CI)=0.85 (0.80-0.91) • Hypertension and Hypertensive Disease (CC 90-91)/ Frequency=80.4/OR (95% CI)=0.78 (0.75-0.82) • Stroke (CC 95-96)/ Frequency=6.8/OR (95% CI)=1.00 (0.93-1.08) • Retinal Disorders, Except Detachment and vascular Retinopathies (CC 121)/ Frequency=10.8/OR (95% CI)=0.87 (0.82-0.93) • Other Eye Disorders (CC 124)/ Frequency=19.1/OR (95% CI)=0.90 (0.86-0.95) • Other Ear, Nose, Throat, and Mouth Disorders (CC 127)/Frequency=35.2/OR (95% CI)=0.83 (0.80-0.87) • Renal Failure (CC 131)/ Frequency=17.9/OR (95% CI)=1.12 (1.07-1.18) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/ Frequency=7.4/OR (95% CI)1.27 (1.19-1.35) • Other Dermatological Disorders (CC 153)/ Frequency=28.5/OR (95% CI)0.91 (0.87-0.95) • Trauma (CC 154-156, 158-161)/ Frequency=9.0/OR (95% CI)1.10 (1.03-1.16) • Vertebral Fractures (CC 157)/ Frequency=5.0/OR (95% CI)=1.33 (1.24-1.44) • Major Complications of Medical Care and Trauma (CC 164)/ Frequency=5.5/OR (95% CI)=0.81 (0.75-0.88) ICD-10-CM codes for model variables (for those variables defined by ICD-9 CM codes rather than CCs) Mechanical Ventilation • 5A09357 Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure • 5A09457 Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure • 5A09557 Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure • 5A1935Z Respiratory Ventilation, Less than 24 Consecutive Hours • 5A1945Z Respiratory Ventilation, 24-96 Consecutive Hours•5A1955Z Respiratory Ventilation, Greater than 96 Consecutive Hours Sleep Apnea • G4730 Sleep apnea, unspecified • G4731 Primary central sleep apnea • G4733 Obstructive sleep apnea (adult) (pediatric) • G4737 Central sleep apnea in conditions classified elsewhere • G4739 Other sleep apnea Results of this measure will not be stratified. Level of Analysis: Facility Type of Measure: Outcome Data Source: Administrative claims, Other Measure Steward: Centers for Medicare & Medicaid Services (CMS) Other organizations: MPR: Mathematica Policy Research; RTI: Research Triangle Institute
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria 1a. Impact: H-18; M-2; L-0; I-0; 1b. Performance Gap: H-3; M-13; L-4; I-0 Rationale: • 1a: Strong data presented demonstrating significant mortality for COPD. • 1b: The developer presented analyses of Medicare Part A inpatient claims data (2008): the mean and median risk standardized 30-day mortality rate for patients admitted with an acute exacerbation of COPD are 8.6% and 8.5% respectively. There is a substantial

1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization

variation across hospitals, with risk standardized rates ranging from 7.6% in the 10th percentile to 9.9% in the 90th percentile.

1c. Evidence (*based on decision logic*): Y-18; N-1; I-1
Rationale:

- This is an outcome measure.
- There is much evidence for lack of adherence to guidelines for COPD exacerbation management in hospitals. There is much less evidence that lack of adherence to guidelines leads to increased mortality.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity
2a. Reliability: H-17; M-3; L-0; I-0; 2b. Validity: H-2; M-10; L-5; I-3
Rationale:

- 2a: Measure specifications are clear and consistent and can be reliably measured.
- 2b: Risk adjustment methodology robust.
  - An important recently elucidated risk factor, history of exacerbations, is not included. Only the longer known history of mechanical ventilation is included.
  - Committee members asked what is the impact of local air quality.

3. Usability: H-8; M-9; L-3; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- 3a-3b: Similar measures have been used for other clinical conditions (e.g., AMI, HF, PN) and have been demonstrated to support both public reporting and quality improvement

4. Feasibility: H-12; M-7; L-1; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The measure is based on adminstrative data.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-3
Rationale:

- New outcome measure for an important condition.
- Significant opportunity for improvement.
- Anticipate public reporting on Hospital Compare.

Additional Comments/Questions

- The Committee requested a commitment from CMS to explore the possible effect of differences in air quality at hospital locations on the results of the measures for 30-day Mortality and 30-day Readmissions for COPD.

Measure Developer Response:
CMS appreciates the Committee members' suggestion that we consider adjusting the COPD measures for ambient particulate levels using monitoring data available from the US Environmental Protection Agency (EPA). We asked the measure developer, YNHHSC/CORE, to conduct a brief literature review and consult with 2-3 experts to explore this suggestion. YNHHSC/CORE found that, as noted by the Committee, the literature suggests that ambient levels of particulate matter affect short-term mortality and admission rates for COPD (and for other cardiovascular and respiratory conditions). EPA considered these effects in its most recent revision to its health-based national ambient air quality standard for particulates. Although important from a public health standpoint, these increases are relatively small. YNHHSC/CORE did not find any studies of the effect of ambient particulates on mortality and readmission rates among hospitalized patients for COPD.

The purpose of risk adjustment is to account for differences across hospitals in factors unrelated to quality, such as patient comorbidities, that may affect the outcome of mortality and readmission. It is important to risk adjust for factors that could bias the measure results (e.g. could favor hospitals in low pollution areas). Adjusting for particulates would make sense if it were technically feasible and if it would improve the

1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
model by reducing or eliminating a potential bias. Based on its review, YNHHSC/CORE does not recommend adding a PM variable as it is unlikely to affect hospital-level risk-standardized rates. The studies to date focus on the general non-hospitalized population, and it is not clear how they apply to the patients in our models – that is, patients hospitalized with an acute exacerbation of COPD. YNHHSC/CORE reported that the experts felt the effect of adjusting for PM would likely be small or negligible given that the model applies to patients already hospitalized for COPD. Second, there are feasibility issues. Modeling the effect appropriately would be complex. YNHHSC/CORE's preliminary review of the issues suggests it would be inappropriate to use ambient air quality levels as a risk adjuster without also adjusting for other factors that affect the strength and direction of the potential association between particulate levels and the outcomes, including temperature, humidity, seasonal variation, and city-level factors such as smoking and air conditioning use rates. Given these challenges, and our expectation that building particulate levels into the model is not likely to significantly improve the models' performance even with the best methods, CMS does not plan to pursue adding air pollution variables to the models at this time.
RECOMMEND FOR ENDORSEMENT

PNEUMONIA MEASURES RECOMMENDED

0232 Vital signs for community-acquired bacterial pneumonia

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with vital signs documented and reviewed
Numerator Statement: Patients with vital signs documented and reviewed
Denominator Statement: All patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia
Exclusions: None
Adjustment/Stratification: No risk adjustment or risk stratification None We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement Other organizations: This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.

IMPLEMENTATION COMMENTS
The American College of Chest Physicians (ACCP) the ACCP Quality Improvement Committee (QIC): None of the QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three subcriteria
1a. Impact: H-10; M-7; L-2; I-1; 1b. Performance Gap: H-7; M-11; L-0; I-2
Rationale:

- 1a. Pneumonia is the number one cause of death due to infection and high cost.
- 1b.Committee members expect 100% in ED patients and note that the gap is likely in office-based care.
- The developers presented PQRS 2008 data; 22.32%of patients reported on did not meet the measure:
  - 10th percentile: 36.36 %
  - 25th percentile: 66.67 %
  - 50th percentile: 92.59 %
  - 75th percentile: 100.00%
  - 90th percentile: 100.00%

1c. Evidence (*based on decision logic*): Y-16; N-1; I-3
Rationale:

- Vital signs are a key component to the validated severity score such Pneumonia Severity Index (PSI) or Port score, which impacts the ability to determine the appropriate level of care for CAP patients.
- Important for decision-making, though the measure does not capture the decision-making part.
- All prognostic tools use vital signs and the use of the tools drive care and outcomes.
- The measure specifies "bacterial" pneumonia – About 30% of patients have a laboratory confirmation of bacterial infection.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED both reliability and validity
2a. Reliability: H-10; M-8; L-2; I-0; 2b. Validity: H-7; M-9; L-3; I-1
Rationale:

- Tested in EHRs and paper records at the data element level
  - The Committee questioned how "and reviewed" measured aside from self-attestation or chart review?
- Face validity assessment by expert panel
  - There is a chasm between documentation of the vital sign and, or the measuring of the vital sign and someone actually

0232 Vital signs for community-acquired bacterial pneumonia
using the information appropriately to treat the patient.
3. Usability: H-13; M-5; L-2; I-0 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • Basic concept; easy to understand.
4. Feasibility: H-9; M-7; L-3; I-1 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Collecting vital signs is not a challenge. • Committee memebers noted that errors in vitals signs exist but are not systematic.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-3 Rationale: • Vital signs are a key component to severity assessment anf further treatment decisions. • This is a documentation measure – it is a leap of faith that the information will be acknowledged and used appropriately. Additional Comments/Questions: • Clarify intent of "bacterial" pneumonia since a minority of patients have confirmed bacterial infection Developer response: • We would like to thank the Pulmonary and Critical Care Steering Committee members for their comments and recommendations on the PCPI Community-acquired Bacterial Pneumonia measures. We can readily agree to clarify the care setting (ambulatory, including the ED) in either the measure titles or descriptions. However, we cannot confirm the harmonization and language changes suggested for individual measures until we have assured approval from our measure development panel, for which additional time will be needed. We hope that the lack of a final determination on these measure-specific recommendations will not preclude the continued endorsement of the pneumonia measures.
COMPETING AND RELATED MEASURES The Committee determined that these three outpatient measures are related and are harmonized: • 0232 Vital signs for community-acquired bacterial pneumonia (AMA PCPI) • 1895 Assessment of mental status for community-acquired bacterial pneumonia (AMA PCPI) • 0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients (AMA PCPI)
RECOMMEND FOR ENDORSEMENT

1895 Assessment of mental status for community-acquired bacterial pneumonia

Status: New Submission
Description: Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with mental status assessed
Numerator Statement: Patients for whom mental status was assessed
Denominator Statement: All patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia
Exclusions: None
Adjustment/Stratification: No risk adjustment or risk stratification None We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement Other organizations: This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three subcriteria
1a. Impact: H-8; M-8; L-1; I-1; 1b. Performance Gap: H-6; M-13; L-0; I-0
Rationale:

- Similar to vital signs it is a key prognostic tool.
- 1b. Developer submitted PQRS 2008 data; 19.42% of patients reported on did not meet the measure.
  - 10th percentile: 50.00 %
  - 25th percentile: 75.00 %
  - 50th percentile: 95.00 %
  - 75th percentile: 100.00%
  - 90th percentile: 100.00%

1c. Evidence (*based on decision logic*): Y-14; N-5
Rationale:

- Confusion is the single biggest factor in any severity assessment score.
- Variation in measuring mental status exist.
- Developer clarified that it is really "confusion" or "disorientation" rather than a formal assessment of mental status.
- Evidence for the ambulatory setting is extrapolated from the ED/inpatient arena.
- Documentation only – no assessment of how the information is used.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED both reliability and validity
2a. Reliability: H-5; M-11; L-2; I-1; 2b. Validity: H-6; M-12; L-0; I-0
Rationale:

- Tested in EHRs and paper records at the data element level only
  - Variation in exact tool used to assess – documentation of confusion is sufficient
  - Timing and tools used for the assessment may vary, which could potentially lead to some variability.
  - No specification as to timing of assessment
- Face validity assessment by the measure developer work group
  - What about patients with dementia?
    - The developer notes that the measure looks at change in mental status.
  - It is implied that if the clinician evaluated the patient for altered mental status, that in fact that would be part of his decision-making process. However, the measure does not assess the decision-making.

3. Usability: H-7; M-12; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

1895 Assessment of mental status for community-acquired bacterial pneumonia

- Basic measure of patient care.

4. Feasibility: H-6; M-12; L-1; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- eSpecifications available.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-19; N-0
Rationale:

- Important for patient assessment.
- Basic assessment measure that seems to indicated underperformance in the community.
- Documentation measure.

Additional Comments/Questions:

- If it is really "disorientation" or "confusion" and not "mental status", consider changing the wording.

Developer response:

We would like to thank the Pulmonary and Critical Care Steering Committee members for their comments and recommendations on the PCPI Community-acquired Bacterial Pneumonia measures. We can readily agree to clarify the care setting (ambulatory, including the ED) in either the measure titles or descriptions. However, we cannot confirm the harmonization and language changes suggested for individual measures until we have assured approval from our measure development panel, for which additional time will be needed. We hope that the lack of a final determination on these measure-specific recommendations will not preclude the continued endorsement of the pneumonia measures.

COMPETING AND RELATED MEASURES
The Committee determined that these three outpatient measures are related and are harmonized:

- 0232 Vital signs for community-acquired bacterial pneumonia (AMA PCPI)
- 1895 Assessment of mental status for community-acquired bacterial pneumonia (AMA PCPI)
- 0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients (AMA PCPI)

RECOMMEND FOR ENDORSEMENT

0096 Empiric antibiotic for community-acquired bacterial pneumonia

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with an appropriate empiric antibiotic prescribed
Numerator Statement: Patients with appropriate empiric antibiotic prescribed
Denominator Statement: All patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia
Exclusions: Documentation of medical reason(s) for not prescribing appropriate empiric antibiotic
Documentation of patient reason(s) for not prescribing appropriate empiric antibiotic
Documentation of system reason(s) for not prescribing appropriate empiric antibiotic
Adjustment/Stratification: No risk adjustment or risk stratification; None We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association – Physician Consortium for Performance Improvement Other organizations: This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.

IMPLEMENTATION COMMENTS

- The Association for Professionals in Infection Control and Epidemiology (APIC) approves this measure. NQF should consider additional language or at least cite Consensus Guidelines from Infectious Diseases Society of America / American Thoracic Society (IDSA/ATS) – either current or most recent version published and available. Second, is there benefit to specifying that this measure applies to outpatients or inpatients or both? We believe the most current Guidelines are: Mandell LA, Wunderink RG, Anzueto A, et al. IDSA/ATS Consensus Guidelines on the Management of Community-Acquired Pneumonia. Clin Infect Dis 2007;44:S27-72.
- APIC wonders if there is potential for confusion between this measure 0147 and 0096 involving the language empiric vs. initial? Therapeutic choices based on level of function of the patient's immune system are assessed by clinicians at the point of care and we're not sure this additional measure is necessary. We encourage NQF to investigate deletion of this or at least harmonization between this and measure 0096.
- The American College of Chest Physicians (ACCP) Quality Improvement Committee (QIC) appreciates the opportunity to comment on this measure. None of the QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
- ACCP Quality Improvement Committee (QIC) appreciates the opportunity to comment on this measure. The QIC felt that this measure should be harmonized with Measure 0096: Empiric antibiotic for community-acquired bacterial pneumonia.

Developer response: It will be impossible to completely harmonize the PQRS measure with the hospital inpatient measure because of differences in data source. The PQRS (0096) measure is claims based and the CMS measure (0147) is chart abstracted. It is well established that direct chart-abstraction is the gold standard of collecting patient medical information.

The epidemiology of community-acquired pneumonia is well described and empiric antibiotic recommendations are explicitly defined in guidelines from IDSA/ATS. The CMS performance measure is based on that guideline with ongoing technical expert panel input from members of the guideline-writing committee of IDSA/ATS, as well as other experts. The inpatient measure relies on collection of the actual antibiotic administered (consistent with guidelines) based on the clinical presentation of the patient. The PQRS measure does not provide specificity with regards to antibiotic selection.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-11; M-8; L-1; I-0; 1b. Performance Gap: H-2; M-12; L-4; I-2
Rationale:

- Pneumonia is the number one cause of death due to infection and high cost.

0096 Empiric antibiotic for community-acquired bacterial pneumonia

- The submission indicates that this measure was used in the CMS Physician Quality Reporting Initiative/System (PQRI/S) in the 2007 through 2010 claims option as well as the registry and measure group options for 2009 and 2010. There is a gap in care as shown by this 2008 data; 22.52% of patients reported on did not meet the measure:

  10th percentile: 33.33 %
  25th percentile: 66.67 %
  50th percentile: 90.91 %
  75th percentile: 100.00%
  90th percentile: 100.00%
  The Committee discussed whether this data represents much further room for improvement.
- Current performance mean is 92%.in the most recent data provided from PQRS 2009, however variations were not included.
- No data on disparities was provided.

1c. Evidence (*based on decision logic*): Y-15; N-1; I-4
Rationale

- Many large studies demonstrate association of appropriate antibiotics with improved outcomes though the studies are primarily in sicker, hospitalized patients. The evidence is less strong for the outpatient setting which relies more on extrapolations and expert opinion.
- The measure is based on evidence-based guidelines from ADSA/ATS.
- The Committee noted conflicting study results with respect to which empiric antibiotic regimens lead to the best clinical outcomes. Meta-analyses and RCTs show that coverage for atypical pathogens for hospitalized patients with CAP (which is the primary thrust for IDSA/ATS/CTS guidelines) does not result in lower mortality.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both sub-criteria
2a. Reliability: H-7; M-11; L-1; I-1; 2b. Validity: H-4; M-13; L-1; I-1
Rationale:

- RELIABILITY: tested only at the data element level (inter-rater reliability)
- The measure should specify that appropriate antibiotics are those that adhere to the ISDA/ATS guidelines.
- VALIDITY: tested validity of EHR generated results compared to results constructed manually; face validity of developer workgroup
- Adherence to empiric antibiotics for CAP patients are currently well captured in the EHR
- That which appears to be pneumonia in the ED may in fact not be pneumonia when evaluated by other clinicians – measure is based on discharge diagnosis.
- In the outpatient setting, there is a big difference between patients being evaluated in the ED compared to patients being seen in the clinician's office.
- The accuracy of the clinician's diagnosis of pneumonia many introduce variability in results. The office diagnosis of pneumonia may not include chest X-ray and other tests to confirm he diagnosis typically done in EDs and hospitals.
- The lack of explicit indication in the specifications that the measure applies to outpatients only is confusing.

3. Usability: H-8; M-8; L-2; I-2
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- The measure is in use in the CMS's PQRS program.
- If the clarifications on appropriate medications and outpatient setting are explicitly mentioned in the specifications, the measure seems to be usable.

4. Feasibility: H-15; M-4; L-0; I-1
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Adherence to empiric antibiotics for CAP patients are currently well captured in the EHR

0096 Empiric antibiotic for community-acquired bacterial pneumonia

- Measure is in use.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-2

Rationale:

- The developer clarified that this measure is applicable to the outpatient setting only and does not include inpatients.
- The measure is consistent with the evidence. The specifications should reference the IDSA/ATS guidelines.
- Small opportuity for improvement.

Additional Comments/Questions:

- The Committee recommends that "appropriate use" reference the IDSA/ATS guidelines explicitly in the specifications.
- The specifications should clearly indicate that this is an outpatient only measure.

Developer response:

We would like to thank the Pulmonary and Critical Care Steering Committee members for their comments and recommendations on the PCPI Community-acquired Bacterial Pneumonia measures. We can readily agree to clarify the care setting (ambulatory, including the ED) in either the measure titles or descriptions. However, we cannot confirm the harmonization and language changes suggested for individual measures until we have assured approval from our measure development panel, for which additional time will be needed. We hope that the lack of a final determination on these measure-specific recommendations will not preclude the continued endorsement of the pneumonia measures.

COMPETING AND RELATED MEASURES

The Committee determined that these two measures are related, not competing:

- 0096 Empiric antibiotic for community-acquired bacterial pneumonia
- 0147 0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients

Measure 0096 applies to the outpatient setting and 0147 applies to inpatients. They are related by the same measure focus/ process of care. Both are based on clinician or discharge diagnosis of pneumonia and use the IDSA/ATS guidelines for determining appropriateness of antibiotic selection. The developer has responded to the question of harmonization in the response to the implementation comments above.

RECOMMEND FOR ENDORSEMENT

0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients

Status: Maintenance, Original Endorsement: Mar 09, 2007
Description: Percentage of pneumonia patients 18 years of age or older selected for initial receipts of antibiotics for community-acquired pneumonia (CAP)
Numerator Statement: Pneumonia patients who received an initial antibiotic regimen consistent with current guidelines during the first 24 hours of hospitalization
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 STAPHYLCOCC SEPTICEM NOS
038.11 METH SUSC STAPH AUR SEPT
038.12 MRSA SEPTICEMIA
038.19 STAPHYLCOCC 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

0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
ICD-9 Code Shortened Description
518.81 ACUTE RESPIRATRY FAILURE
518.84 ACUTE & CHRONC RESP FAIL
Table 3.1 Pneumonia (PN)
ICD-10 Code Shortened Description
J 13 Pneumonia due to Streptococcus pneumonia
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

0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
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 Exclusions: Patients less than 18 years of age Patients who hae 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 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; (2) a prior hospitalization within 14 days [the patient was discharged from an acute care facility for inpatient care to a non-acute setting—home, SNF, ICF, or rehabilitation hospital—before the second admission to the same or different acute care facility]) and abstraction guidelines With healthcare associated pneumonia as defined in data dictionary (i.e., presence of at least one of the following: (1) hospitalization for 2 days 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; (4) wound care provided by a health care professional within the last 30 days) and abstraction guidelines Patients transferred/admitted to the ICU wihtin 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 recommened for pneumonia but did receive antibiotics within the first 24 hours of hospitalization Adjustment/Stratification: N/A Can be stratified by ICU and non-ICU patients. However, CMS does not stratify. Level of Analysis: Facility Type of Measure: Process Data Source: Electronic Clinical Data : Electronic Health Record, Paper Records Measure Steward: Centers for Medicare & Medicaid Services Other organizations: The Joint Commission, Centers for Disease Control and Prevention, Infectious Diseases Society of America, American Thoracic Society, Johns Hopkins University, Northeastern Ohio Univ. College of Medicine, Pneumonia Patient Outcomes Team, New Jersey Medical
IMPLEMENTATION COMMENTS • APIC wonders if there is potential for confusion between this measure 0147 and 0096 involving the language empiric vs. initial? Therapeutic choices based on level of function of the patient's immune system are assessed by clinicians at the point of care and we're not sure this additional measure is necessary. We encourage NQF to investigate deletion of this or at least harmonization

0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients

between this and measure 0096.

- ACCP Quality Improvement Committee (QIC) appreciates the opportunity to comment on this measure. The QIC felt that this measure should be harmonized with Measure 0096: Empiric antibiotic for community-acquired bacterial pneumonia.

Developer response: It will be impossible to completely harmonize the PQRS measure with the hospital inpatient measure because of differences in data source. The PQRS (0096) measure is claims based and the CMS measure (0147) is chart abstracted. It is well established that direct chart-abstraction is the gold standard of collecting patient medical information.

The epidemiology of community-acquired pneumonia is well described and empiric antibiotic recommendations are explicitly defined in guidelines from IDSA/ATS. The CMS performance measure is based on that guideline with ongoing technical expert panel input from members of the guideline-writing committee of IDSA/ATS, as well as other experts. The inpatient measure relies on collection of the actual antibiotic administered (consistent with guidelines) based on the clinical presentation of the patient. The PQRS measure does not provide specificity with regards to antibiotic selection.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three subcriteria
1a. Impact: H-13; M-6; L-0; I-0; 1b. Performance Gap: H-8; M-8; L-2; I-1
Rationale:

- 1a. Reducing 30-day mortality for patients with CAP is a National Priority and Goal as defined by the National Priorities Partnership (Nov 2008).
- 1b. Data from Hospital Compare (data collected through 3/31/2011) show that the national average for appropriate empiric antibiotic for CAP is 94%.

Measure developer response: A report was prepared and submitted showing the trend over time of PN-6 rates from 2005 to 2010 and also the frequency distribution and percentiles of hospital rates. The data show there are still hundreds of hospitals whose rates show variation in care, especially for ICU patients

1c. Evidence (*based on decision logic*): Y-17; N-2; I-0
Rationale:

- Based on IDSA/ATS guidelines.
- Evidence stronger for the inpatient population.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-17; M-2; L-0; I-0; 2b. Validity: H-10; M-8; L-1; I-0
Rationale:

- RELIABILITY – testing at the data element level only
  - Includes two populations of patients - in ICU and non-ICU patients. The Committee questioned the need for two measures.
  - Pneumonia that is diagnosed during the hospital stay, i.e., not in the ED, is not included in the measure.
- VALIDITY: The 2009 analysis showed that patients who passed this measure have better clinical outcomes, such as in-hospital mortality, 30-day mortality and 30-readission. After linking the 2009 calendar year data in the clinical data warehouse, the CMS inpatient claims database and the CMS enrollment database, the in-hospital death rate was 3.0% for those who passed the measure and 7.2% for those who failed the measure, (p-value 0.001). The 30-day mortality was 6.5% for those who passed the measure and 12.4% (1,398/11,283) for those who failed the measure, (p-value 0.001). The readmission rate was 15.3% for those who passed the measure and 19.2% for those who failed the measure, (p-value 0.001).
  - Measure is continuously updated to be aligned with guidelines.

3. Usability: H-15; M-4; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- Empiric antibiotics for CAP is currently one of the metrics reported in Hospital Compare.

0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
4. Feasibility: H-19; M-0; L-0; I-0 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Measure is already in operational use • The data source is chart abstraction. • Adherence to empiric antibiotics for CAP patients are currently well captured in the EHR
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-19; N-0 Rationale: • Publicly reported measure. • Some opportunity for improvement remains. • This process measure is related to improved outcomes.
COMPETING AND RELATED MEASURES • 0096 Empiric antibiotic for community-acquired bacterial pneumonia • 0147 0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients These two measures are related, not competing. Measure 0096 applies to the outpatient setting and 0147 applies to inpatients. They are related by the same measure focus/ process of care. Both are based on clinician or discharge diagnosis of pneumonia and use the IDSA/ATS guidelines for determining appropriateness of antibiotic selection. The developer has responded to the question of harmonization in the response to the implementation comments above.
RECOMMEND FOR ENDORSEMENT

0231 Pneumonia Mortality Rate (IQI #20)

Status: Maintenance, Original Endorsement: Mar 09, 2007

Description: 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

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

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

Exclusions: 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

Adjustment/Stratification: Statistical risk model 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

0231 Pneumonia Mortality Rate (IQI #20)

APR-DRG Risk of Mortality Subclass:
1 - Minor
2 - Moderate
3 - Major
4 - Extreme Not applicable
Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims
Measure Steward: Agency for Healthcare Research and Quality Other organizations: Battelle Memorial Institute, Stanford University, University of California-Davis

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-17; M-1; L-0; I-0; 1b. Performance Gap: H-17; M-2; L-0; I-0
Rationale:

- 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. (2005 HCUP data).
- Performance trends included in the submission:
  2000 national risk-adjusted rate: 71.6 per 1000 hospital admissions
  2008 national risk-adjusted rate: 35.5 per 1000 hospital admissions
  - The developer provided 2008 Disparities data: Medicare: 34.3 per 1000; Medicaid 41.1 per 1000; Private 39.4 per 1000; male 39.3 per 1000; female 33.1 per 1000; lowest income quartile 38.5 per 1000; highest income quartile 33.2 per 1000

1c. Evidence (*based on decision logic*): Y-19; N-0; I-0
Rationale:

- This is an outcome measure.
- There are established processes of care to improve outcomes.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-15; M-4; L-0; I-0; 2b. Validity: H-17; M-2; L-0; I-0
Rationale:

- RELIABILITY: assessed signal to noise of measure score: According to the submission the data demonstrate there 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).
- VALIDITY: Only challenge is identifying community acquired pneumonia - where most data on outcome exist - versus all pneumonia.

3. Usability: H-16; M-4; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- Mortality is an easily understood outcome.
- The challenge is operationalizing the community- acquired versus all pneumonia

4. Feasibility: H-18; M-2; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Based on administrative data

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-20; N-0
Rationale:

- No major issues or concerns with meeting the criteria.

0231 Pneumonia Mortality Rate (IQI #20)
• Outcome measure • It is important to have both inpatient and 30-day mortality – they complement each other. It is important to have both pieces of information.
RELATED AND COMPETING MEASURES • 0231 Pneumonia morality rate (IQI#20) (AHRQ) • 0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization (CMS) The Committee determined these are related, not competing, measures. Committee members felt strongly that both inpatient and 30-day mortality measures provider complimentary information and both are needed. However, the Committee asked whether further harmonization was possible and perhaps better alignment as they are both based on administrative data.
RECOMMEND FOR ENDORSEMENT

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

Status: Maintenance, Original Endorsement: Mar 09, 2007

Description: The measure estimates a hospital-level risk-standardized mortality rate (RSMR) defined as death for any cause within 30 days of the admission date for the index hospitalization for patients discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities. Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.

Numerator Statement: The outcome for this measure is 30-day all-cause mortality. We define all-cause mortality as death from any cause within 30 days of the index admission date for patients discharged from the hospital with a principal diagnosis of pneumonia.

The numerator of the risk-adjusted ratio is the predicted number of deaths within 30 days given the hospital's performance with its observed case mix. The term "predicted" describes the numerator result, which is calculated using the hospital-specific intercept term. (See details below in the 2a1.13 Statistical risk model and variables.)

Denominator Statement: The cohort includes admissions for patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS or admitted to non-federal or admitted to VA hospitals.

The measure includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia and with a complete claims history for the 12 months prior to admission. If a patient has more than one pneumonia admission in a year, one hospitalization is randomly selected for inclusion in the measure.

Exclusions: The measure excludes admissions for patients:

For all cohorts, the measure excludes admissions for patients:

- discharged alive on the day of admission or the following day and did not get transferred (because it is unlikely they had a significant pneumonia diagnosis);
- transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted);
- with inconsistent or unknown vital status or other unreliable data (e.g. date of death precedes admission date);
- discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);

For Medicare FFS patients, the measure additionally excludes admissions for patients:

- enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only);

Adjustment/Stratification: Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et. al., 2006).

The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail.

Candidate and Final Risk-adjustment Variables: Candidate variables were patient-level risk-adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979. In addition, only comorbidities that convey information about the patient at that time or in the 12-months prior, and not complications that arise during the course of the hospitalization are included in the risk-adjustment. Hence, we do not risk-adjust for CCs that may represent adverse events of care and that are only recorded in the index admission.

The final set of risk-adjustment variables is:

Demographic Age-65 (years above 65, continuous)

0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
Male Cardiovascular History of PTCA History of CABG Congestive heart failure (CC 80) Acute Myocardial Infarction (CC 81) Unstable angina (CC 82) Chronic atherosclerosis (CC 83, 84) Cardio-respiratory failure and shock (CC 79) Comorbidity Hypertension (CC 89, 91) Stroke (CC 95, 96) Cerebrovascular disease (CC 97-99, 103) Renal failure (CC 131) Chronic Obstructive Pulmonary Disease (CC 108) Pneumonia (CC 111-113) Protein-calorie malnutrition (CC 21) Dementia and senility (CC 49, 50) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177, 178) Peripheral vascular disease (CC104, 105) Metastatic cancer and acute leukemia and other severe cancers (CC 7, 8) Trauma in the last year (CC154-156, 158-162) Major psychiatric disorders (CC54-56) Chronic liver disease (CC25-27) Severe hematological disorders (CC44) Iron deficiency/anemias/blood diseases (CC47) Depression (CC 58) Parkinson's/Huntington's diseases (CC73) Seizure disorders and convulsions (CC 74) Fibrosis of lung and other chronic lung disorders (CC109) Asthma (CC 110) Vertebral fractures (CC 157) References: Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. N/A Level of Analysis: Facility Type of Measure: Outcome Data Source: Administrative claims, Other Measure Steward: Centers for Medicare & Medicaid Services Other organizations: MPR: Mathematica Policy Research; RTI-Research Triangle Institute
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria 1a. Impact: H-18; M-1; L-0; I-0; 1b. Performance Gap: H-13; M-6; L-0; I-0 Rationale: • Important outcome measure • The measure has been used for several years, and the mean for the 2007 to 2009 period was 11.7%, with a range of 6.9% to 20.4%. No change yet seen in the 3-4 years of data but since CMS combines three years of data for public reporting, it is too soon to expect to see much change. • Performance variation seems the same across different potential disparities groups. The outcome measure seems agnostic to

0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
those differences. • Striking variation in measure results within and across regions 1c. Evidence (*based on decision logic*): Y-15; N-0; I-4 Rationale: • This is an outcome measure. • Large data sets and observations indicate opportunity for improvement.
2. Scientific Acceptability of Measure Properties (*based on decision logic*): PASSED reliability and validity. 2a. Reliability: H-5; M-13; L-1; I-0; 2b. Validity: H-7; M-9; L-2; I-1 Rationale: • RELIABILITY: data element – According to the developer "the measure uses only those data elements from the claims that have both face validity and reliability. The use of fields that are thought to be coded inconsistently across hospitals or providers is avoided. The selected data fields are consequential for payment which are audited." • VALIDITY: The administrative risk model was validated with a medical-record based model when the measure was created. The model has been validated in an18 years and older dataset as well as the Medicare dataset. • The risk model has been published. • Only potential confounder is increasing alternatives to admission (observation care).
3. Usability: H-13; M-3; L-2; I-1 (*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)* Rationale: • Mortality is a readily understood outcome.
4. Feasibility: H-15; M-1; L-2; I-1 *(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • Uses adminstrative data
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-17; N-2 Rationale: • Publicly reported outcome measure. • There is further opportunity for improvement. • Good reliability and validity has been demonstrated.
RELATED AND COMPETING MEASURES • 0231 Pneumonia morality rate (IQI#20) (AHRQ) • 0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization (CMS) The Committee determined these are related, not competing, measures. Committee members felt strongly that both inpatient and 30-day mortality measures provider complimentary information and both are needed to describe the entire episode of care. However, the Committee asked whether further harmonization was possible and perhaps better alignment as they are both based on administrative data.
RECOMMEND FOR ENDORSEMENT

0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization

Status: Maintenance, Original Endorsement: Oct 28, 2008

Description: The measure estimates a hospital-level risk-standardized readmission rate (RSRR) defined as readmission for any cause within 30 days of the discharge date for the index hospitalization for patients discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities.

Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.

Numerator Statement: The outcome for this measure is 30 day all-cause readmission. We define all-cause readmission as an inpatient admission for any cause within 30 days from the date of discharge from the index pneumonia admission. If a patient has one or more admissions (for any reason) within 30 days of the date of discharge of the index admission, only one was counted as a readmission.

The numerator of the risk-adjusted ratio is the predicted number of readmissions within 30 days given the hospital's performance with its observed case mix. The term "predicted" describes the numerator result, which is calculated using the hospital-specific intercept term. (See details below in the 2a1.13 Statistical risk model and variables.)

Denominator Statement: The cohort includes admissions for patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS and admitted to non-federal hospitals, or admitted to VA hospitals.

The measure includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia and with a complete claims history for the 12 months prior to admission.

Exclusions: The measure excludes admissions for patients:

For all cohorts, the measure excludes admissions for patients:

- with an in-hospital death (because they are not eligible for readmission);
- transferred to another acute care hospital (because the readmission is attributed to the hospital that discharges the patient to a non-acute setting);
- discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);
- admitted with pneumonia within 30 days of discharge from a qualifying index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)

For Medicare FFS patients, the measure additionally excludes admissions for patients:

- without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day readmission outcome cannot be assessed in this group).

Adjustment/Stratification: Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et. al., 2006).

The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSRR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail.

Candidate and Final Risk-adjustment Variables: Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979. In addition, only comorbidities that convey information about the patient at admission or in the 12-months prior, and not complications that arise during the course of the hospitalization, are included in the risk-adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of

0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization
care and that are only recorded in the index admission. The final set of risk-adjustment variables is: Demographics Age-65 (years above 65, continuous) Male Comorbidities History of coronary artery bypass graft (CABG) surgery History of infection (CC 1, 3-6) Septicemia/shock (CC 2) Metastatic cancer and acute leukemia (CC7) Lung, upper digestive tract, and other severe cancers (CC8) Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors (CC 9-10) Diabetes mellitus (DM) and DM complications (CC 15-20, 119-120) Protein-calorie malnutrition (CC 21) Disorders of fluid/electrolyte/acid-base (CC 22-23) Other gastrointestinal disorders (CC 36) Severe hematological disorders (CC 44) Iron deficiency and other/unspecified anemias and blood disease (CC 47) Dementia and senility (CC 49-50) Drug/alcohol abuse/dependence/psychosis (CC 51-53) Major psychiatric disorders (CC 54-56) Other psychiatric disorders (CC 60) Hemiplegia, paraplegia, paralysis, functional disability (CC67-69, 100-102, 177-178) Cardio-respiratory failure and shock (CC 79) Congestive heart failure (CC 80) Acute coronary syndrome (CC 81-82) Chronic atherosclerosis (CC 83-84) Valvular and rheumatic heart disease (CC 86) Arrhythmias (CC 92-93) Stroke (CC 95-96) Vascular or circulatory disease (CC 104-106) Chronic obstructive pulmonary disease (CC 108) Fibrosis N/A Level of Analysis: Facility Type of Measure: Outcome Data Source: Administrative claims Measure Steward: Centers for Medicare & Medicaid Services Other organizations: MPR: Mathematica Policy Research; RTI-Research Triangle Institute
IMPLEMENTATION COMMENTS • None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria 1a. Impact: H-19; M-0; L-0; I-0; 1b. Performance Gap: H-13; M-5; L-0; I-1 Rationale: • Clear measure of quaity and companion to measure 0458 30-day mortality rate - both are needed. • Current readmission rate is 18.2% for Medicare patients. 1c. Evidence (*based on decision logic*): Y-19; N-0; I-0

0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization

Rationale:

- Need with 0458 for optimal quality assessment.
- This is an outcome measure.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed reliability and validity.
2a. Reliability: H-14; M-5; L-0; I-0; 2b. Validity: H-11; M-7; L-0; I-1
Rationale:

- Extensive risk-adjustment with 12 month look-back for risk factors.
- Newly tested risk model to include all payer data is appropriate, reliable, and valid for use for all patients admitted with pneumonia.
- Standardization of the age to 18 years and older aligns with most other adult measures.
- For younger patients a readmission is less likely to be related to the pneumonia admission, except for cystic fibrosis patients, but the numbers will be rare and random.
    - The developer noted that the measure performs better in the younger age group perhaps due to fewer comorbidities.
- CMS is now tracking patients who go in to observation and are not formally admitted to see if this impacts the measure. Data will be provided when made publicly available.

3. Usability: H-9; M-6; L-3; I-2
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- This measure is publicly reported on Hospital Compare.

4. Feasibility: H-17; M-2; L-1; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Uses administrative data.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-18; N-2
Rationale:

- Publicly reported outcome measure that has been in use for several years.
- The measure has been expanded beyond the Medicare population.

RECOMMEND FOR ENDORSEMENT

CRITICAL CARE MEASURES RECOMMENDED

0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
Status: Maintenance, Original Endorsement: May 15, 2008 Description: Percent of pneumonia patients, age 18 years or older, transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital. Numerator Statement: Number of pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital Denominator Statement: Patients, age 18 years or older, discharged with: ICD-9-CM principal diagnosis code of pneumonia OR ICD-9-CM principal diagnosis code of septicemia or respiratory failure (acute or chronic) AND an ICD-9-CM Other diagnosis code of pneumonia 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 STAPHYLCOCC SEPTICEM NOS 038.11 METH SUSC STAPH AUR SEPT 038.12 MRSA SEPTICEMIA 038.19 STAPHYLCOCC 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

0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
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 RESPIRATRY FAILURE 518.84 ACUTE & CHRONC 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

0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
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 Exclusions: Patients less than 18 years of age, Patients with a length of stay greater than 120 days, Patients with Cystic Fibrosis, Patients who had not chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during this hospitalization, Patients with Comfort Measures Only, Patients enrolled in clinical trial, Patients received as a transfer from emergency/observation department of another hospital, Patients received as a transfer from an inpatient or outpatient department of another hospital, Patients received as a transfer from an ambulatory surgery center, Patients who had no diagnosis of pneumonia either as an ED final diagnosis/impression or direct admission diagnosis/impression and Patients who have a duration of stay less than or equal to one day Adjustment/Stratification: No risk adjustment or risk stratification N/A This measure is not stratified. Level of Analysis: Facility, Population : National, Population : Regional, Population : State Type of Measure: Process Data Source: Administrative claims, Paper Records Measure Steward: Centers for Medicare & Medicaid Services Other organizations: The Joint Commission, Centers for Disease Control and Prevention, Infectious Diseases Society of America, American Thoracic Society, Johns Hopkins University, Northeastern Ohio Univ. College of Medicine, Pneumonia Patient Outcomes Team, New Jersey Medical
IMPLEMENTATION COMMENTS • APIC does not approve measure 0356. As outlined with our comment on measure 0148, we recommend NQF engage IDSA/ATS and other societies that represent intensivists on the value of use of this measure to assess and compare provider performance in relationship to timing. We agree that samples of blood and sputum for culture and urinary antigen testing are clear-cut for those with severe CAP who need critical care. We're not as sure of use of the timing of such testing for performance measurement. o Developer response: The performance measure simply asks whether a blood culture was obtained within 24 hours of hospital arrival for those patients who are admitted to the ICU within 24 hours of hospital arrival. This is consistent with recommendations from the IDSA/ATS 2007 guidelines for management of community-acquired pneumonia (see Table 5) that recommend routine blood cultures in ICU-admitted pneumonia patients. There are representatives of both the IDSA and ATS that participate on the technical expert panel that developed this performance measure.

0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival

- None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
  - Developer response: First Quarter of 2011, 3,152 hospitals reported this measure. The quarterly national rates and benchmarks for PN-3a are publicly available as a downloadable Excel of PDF files at the bottom of this CMS webpage: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228768205297

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-16; M-3; L-0; I-0; 1b. Performance Gap: H-8; M-10; L-1; I-0
Rationale:

- The impact and need for improvement in compliance is well documented in the Hospital Inpatient Quality Reporting Program.
- The performance indicates that a blood culture is performed 96.9% of the time on ICU patients.
- Data on disparities indicate variation across all demographic groups that could be reduced. The Steering Committee discussed the potential of the measure being topped out, but noted that if CMS determines a measure is topped out they do not include it in the Value Based Purchsing Program.

1c. Evidence (*based on decision logic*): Y-18; N-1; I-0
Rationale:

- The joint guidelines by the Infectious Disease Society of America (IDSA) and American Thoracic Society (ATS) state "Pretreatment blood samples for culture and an expectorated sputum sample for stain and culture should be obtained from hospitalized patients with clinical indications listed on Table 5 (ICU is listed) but are optimal for patients without these conditions." Additionally, the quantity and quality of evidence is recent and reported in large datasets, consistent across reported outcomes. Taken together, the metric reflects scientific evidence and the opinion within the field.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-15; M-4; L-0; I-0; 2b. Validity: H-17; M-1; L-0; I-1
Rationale:

- The measure is precisely specified and targeted to a high risk population of patients transfered into the ICU for pneumonia.
- Challenges will always exist with administrative data but routine use for many years has likely decreased the variation in collection of the data.

3. Usability: H-16; M-3; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- The measure has been nationally reported as part of the CMS performance measure set for the Hospital Inpatient Quality Reporting Program since 2002; however, it is not publicly reported.
- The national rate of this measure has been reported on a quarterly basis.
- It is also used by The Joint Commission for acceditation.

4. Feasibility: H-16; M-3; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The specificatins are modified every 6 months according to feedback from hosptial staff and clinicians.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-19; N-0
Rationale:

- This measure has been widely reported and is in use by several sources.
- It has been proven to have a direct impact on patient care and is consistent with IDSA/ATS guidelines

Additional Comments/Questions:

- The Steering Committee requested that the title be further specified to state that it focuses on "pneumonia patients".

0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
RECOMMENDED FOR ENDORSEMENT

0334 PICU Severity-adjusted length of stay

Status: Maintenance, Original Endorsement: May 15, 2008
Description: The number of days between PICU admission and PICU discharge.
Numerator Statement: Number of PICU days, PICU days = Number of days between PICU admission and PICU discharge
Denominator Statement: Discharges from the PICU (including tranfers to other units) during the time period being reported
Exclusions: Patients => 18 years of age
Adjustment/Stratification: Statistical risk model Selection criteria for risk adjustment tool for pediatric ICU's:
- Tool must allow quality assessment and comparison between intensive care units, and must be widely used
- Tool must be valid and reliable for severity adjustment and measurement of quality Risk-adjustment using approved severity of illness tool.
Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims, Electronic Clinical Data : Registry, Paper Records
Measure Steward: Virtual PICU Systems, LLC Other organizations: National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-9; M-7; L-1; I-1; 1b. Performance Gap: H-8; M-9; L-0; I-1
Rationale:

- The measure is high impact and demonstrates significant resource utilization.
- VPS includes approximately 1/3 of PICUs in the US and it allows hospitals to compare length of stay against similar institutions.
- The Steering Committee agreed that measure had a significant performance gap, which varied from 1.71 - 4.02 days.
- An analysis of eight PICUs also noted that 5.1 - 17.2% of ICU days of care could be saved through early discharge.
- Additionally, disparities were demonstrated between insured and uninsured children.

1c. Evidence (*based on decision logic*): Y-15; N-0; I-3
Rationale:

- The evidence demonstrates the importance of a risk adjustment model and supports the use of a length of stay outcome metric.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-12; M-6; L-0; I-0; 2b. Validity: H-8; M-9; L-0; I-1
Rationale:

- The measure uses the PRISM III algorithm, a proprietary risk adjustment scheme, which is currently the only validated severity of illness tool for pediatric use in the United States.

3. Usability: H-8; M-8; L-1; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- The measure data is not aggregated and publicly reported; however, some hospitals participating in the VPS system may individually publicly report their data.
- It was noted that the funding body for California pediatric healthcare, California Children's Services, has mandated public reporting through VPS.

4. Feasibility: H-0; M-7; L-8; I-3
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The fee schedule for participation in VPS is detailed in the submission form . For hospitals with total annual unit admissions of <500 the participation fee is $15,625 and for >2000 admissions it is $31,250.
- The Steering Committee was concerned about the measure's feasibility since it uses a prioprietary risk adjustment methodology that requires participation in the VPS sytem and involves a schedule of fees based on total annual unit admisions.
- However, they noted that collecting the measure data would improve understanding of care delivery.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-11; N-7
Rationale:

- The measure has been clearly demonstrated as reliable and valid and can be used to improve resource utilization.

0334 PICU Severity-adjusted length of stay
• The measure rates low on feasibility due to the proprietary nature of the risk model and availability of the model only through participation with VPS. Additional Comments/Questions: This measure will be paired with measure *0335 PICU Unplanned readmission rate,* since they provide related data on hospital discharges, and taken together, reduce the potential for prematurely discharging patients.
RECOMMENDED FOR ENDORSEMENT

0335 PICU Unplanned readmission rate

Status: Maintenance, Original Endorsement: May 15, 2008
Description: The total number of patients requiring unscheduled readmission to the ICU within 24 hours of discharge or transfer.
Numerator Statement: Total number of unplanned readmissions within 24 hours after discharge/transfer from the PICU
Denominator Statement: 100 PICU Discharges, <18 yrs of age
Exclusions: Patients =>18 years of age,
Adjustment/Stratification: No risk adjustment or risk stratification NONE
Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Electronic Clinical Data : Electronic Health Record, Paper Records
Measure Steward: Virtual PICU Systems, LLC Other organizations: National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS

IMPLEMENTATION COMMENTS

- None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-6; M-9; L-4; I-0; 1b. Performance Gap: H-1; M-11; L-7; I-0
Rationale:

- In VPS data from 80 PICUs, unplanned readmission rates vary from 0 to 3.14% of discharged patients.
  - The Steering Committee noted only small opportunity for improvement.

1c. Evidence (*based on decision logic*): Y-15; N-1; I-3
Rationale:

- The Steering Committee described the evidence as moderate due to the small number of studies cited but the high quality of evidence.
- It was noted that some of the studies cited focused on adult critical care patients and rapid response teams rather than pediatric readmissions.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-15; M-1; L-3; I-0; 2b. Validity: H-0; M-12; L-6; I-1
Rationale:

- The Steering Committee agreed that the numerator and denominators were well defined, which adds consistency to the measure.
- Unplanned PICU readmissions were characterized as patients under 18, with an unplanned readmission within 24 hours following discharge or transfer.

3. Usability: H-4; M-12; L-3; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- The measure is not currently publicly reported; however, it is meaningful, understandable and useful for quality improvement for hospitals participating in the VPS system..

4. Feasibility: H-1; M-15; L-2; I-1
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- This measure does not use the proprietary risk model, but it paired with measure 0334 that does.
- The fee schedule for participation in VPS is detailed in the submission form . For hospitals with total annual unit admissions of <500 the participation fee is $15,625 and for >2000 admissions it is $31,250.
- It was noted that in the future additional information on the susceptibility to inaccuracies and unintended consequences would be useful.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-16; N-3
Rationale:

0335 PICU Unplanned readmission rate
• Important outcome measure that mirrors the outcome measures for adults. • Important to balance the length of stay measure. Additional Comments/Questions • This measure will be paired with measure *0334 PICU Severity-adjusted length of stay,* since they provide related data on hospital discharges, and taken together, reduce the potential for prematurely discharging patients.
RECOMMENDED FOR ENDORSEMENT

0343 PICU Standardized Mortality Ratio

Status: Maintenance, Original Endorsement: May 15, 2008
Description: The ratio of actual deaths over predicted deaths for PICU patients.
Numerator Statement: Actual number of deaths occurring in PICU.
Denominator Statement: Predicted mortality, "Predicted mortality" = Number of deaths expected based on assessed physiologic risk of mortality
Include all PICU patients < 18 year of age admitted to the PICU for greater than 2 hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment
Exclusions: Preterm infants and/or adults who are admitted to the PICU in addition to patients admitted solely for palliative care
Adjustment/Stratification: Statistical risk model Selection criteria for risk adjustment tool for pediatric ICU's:
- Tool must allow quality assessment and comparison between intensive care units, and must be widely used
- Tool must be valid and reliable for severity adjustment and measurement of quality No additional stratification occurs beyond the risk adjustment inherent to this measure. That is, the expected mortality that serves as the denominator in this measure specifically accounts for the severity of illness of patients included in the measure. No further stratification is appropriate based on current literature.
Level of Analysis: Facility
Type of Measure: Outcome
Data Source: Administrative claims, Electronic Clinical Data : Registry, Paper Records
Measure Steward: Virtual PICU Systems, LLC Other organizations: National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-13; M-5; L-0; I-0; 1b. Performance Gap: H-10; M-6; L-1; I-0
Rationale:

- The measure asseses the overall quality of PICUl care and can be used to compare outcomes between facilities.
- The performance gap varies from 0.00 to 1.76.
- Disparities were observed in mortailty rates between uninsured children at 8.1% and insured children 3.6-3.7%.

1c. Evidence (*based on decision logic*): Y-17; N-1; I-0
Rationale:

- The literature indicates that a standardized mortality ratio is an appropriate measure for ICU settings.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-13; M-5; L-0; I-0; 2b. Validity: H-12; M-6; L-0; I-0
Rationale:

- The measure is well defined and has been demonstrated to be scientifically reliable and valid.
- PRISM III is a well-established risk model for PICU.

3. Usability: H-15; M-3; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- This measure provides a vehicle for the public reporting of SMR and represents an important aspect of outcomes measurements. Consumers find the information particularly meaningful. Additionally, data is reported to various agencies.
- While the measure is not required to be publicly reported, several hospitals report the metric voluntarily.

4. Feasibility: H-4; M-6; L-5; I-3
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- The Steering Committee was concerned about the measure's feasibility since it uses a prioprietary risk adjustment methodology that requires participation in the VPS sytem and involves a schedule of fees based on total annual unit admisions.
- The fee schedule for participation in VPS is detailed in the submission form . For hospitals with total annual unit admissions of <500 the participation fee is $15,625 and for >2000 admissions it is $31,250.
- The Steering Committee was concerned about the measure's feasibility since it uses a prioprietary risk adjustment methodology that requires participation in the VPS sytem and involves a schedule of fees based on total annual unit admisions.

0343 PICU Standardized Mortality Ratio
• However, they noted that collecting the measure data would improve understanding of care delivery. • Concern was expressed that electronic records may not be available in all facilities and no definite method of electronic data collection was indicated.
Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-16; N-2 Rationale: • This is an important outcome measure that uses well-established risk methodology for mortality assessment.
RECOMMENDED FOR ENDORSEMENT

IMAGING MEASURE RECOMMENDED

0513 Thorax CT: Use of contrast material

Status: Maintenance, Original Endorsement: Oct 28, 2008
Description: This measure calculates the percentage of thorax studies that are performed with and without contrast out of all thorax studies performed (those with contrast, those without contrast, and those with both). The measure is calculated based on a one year window of Medicare claims data. The measure has been publicly reported annually by the measure steward, the Centers for Medicare & Medicaid Services since summer 2010 as a component of its Hospital Outpatient Quality Reporting (OQR) Program.
OQR is a quality data reporting program implemented by the Centers of Medicare & Medicaid Services (CMS) for outpatient hospital services. Under this program, hospitals report data using standardized measures of care to receive the full annual update to their Outpatient Prospective Payment System (OPPS) payment rate, effective for payments beginning in calendar year (CY) 2009. The Hospital OQR Program is modeled on the current quality data reporting program for inpatient services, the Hospital Inpatient Quality Reporting Program.
To meet Hospital OQR requirements and receive the full Annual Payment Update (APU) under the OPPS, hospitals must meet administrative, data collection and submission, and data validation requirements. Participating hospitals agree that they will allow CMS to publicly report data for the quality measures (as stated in the current OPPS Final Rule.) In the context of this measures reporting program, NQF #0513 is referred to as "OP-11."
Regarding interpreting this measure, a high value indicates a higher facility-level use of both a contrast and non-contrast CT Thorax studies at the same time. As indicated below in the Scientific Acceptability section, we could find no clinical guidelines or peer reviewed literature that supports so-called CT Thorax "combined studies" (i.e., CT Thorax with and without contrast).
Numerator Statement: The number of thorax CT studies with and without contrast (combined studies).
Sum of global and technical units associated with CPT codes:
CPT 71270 – Thorax CT With and Without Contrast
A technical unit can be identified by a modifier code of TC. A global unit can be identified by the absence of a TC or 26 modifier code.
Thorax CT studies can be billed separately for the technical and professional components, or billed globally to include both the professional and technical components.
Professional component claims will out number Technical component claims due to over-reads.
To capture all outpatient volume facility claims typically paid under the OPPS/APC methodology global and TC claims should be should be considered, and to avoid double counting of professional component claims (i.e., 26 modifier).
Denominator Statement: The number of thorax CT studies performed (with contrast, without contrast or both with and without contrast) on Medicare beneficiaries within a 12 month time window.
Sum of global and technical units for CPT codes:
71250 - Thorax Without Contrast
71260 – Thorax CT With Contrast
71270 – Thorax CT With and Without Contrast
Exclusions: This measure has no exclusions.
Adjustment/Stratification: No risk adjustment or risk stratification N/A N/A
Level of Analysis: Facility
Type of Measure: Efficiency
Data Source: Administrative claims
Measure Steward: Centers for Medicare & Medicaid Services Other organizations: The following consultants have participated in measure maintenance since the measure was initially endorsed:
(1) Michael J. pentecost, M.D
Associate Chief Medical Officer
Thomas Dehn, M.D., F.A.C.P
Chief Medical Officer
Staci Barnett, M

IMPLEMENATION COMMENTS

- None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

0513 Thorax CT: Use of contrast material

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria
1a. Impact: H-3; M-10; L-7; I-0; 1b. Performance Gap: H-3; M-10; L-7; I-0
Rationale:

- The reporting of this measure on a publicly available website has already had impact in reducing the frequency with which these combined contrast and non-contrast studies are performed.
- Rapid changes in practice since providers' performance metrics were reported relative to peers on Hospital Compare.
- This measure is reported on Hospital Compare for hospital outpatient imaging facilities and the national average reported is 0.052 on a scale of 0 to 1.

1c. Evidence (*based on decision logic*): Y-15; N-1; I-4
Rationale:

- This measure relates to both overuse and patient safety due to unnecessary cost as well as radiation exposure and potential reactions to contrast dye.
- There is almost no circumstance under which the American College of Radiology recommends thoracic CT with and without contrast. The rare exception might be CT tumor perfusion studies which are performed in very high level academic medical centers who perform radiofrequency and cryoablations for lung cancer and do not represent, mainstream practice.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Passed both subcriteria
2a. Reliability: H-16; M-4; L-0; I-0; 2b. Validity: H-13; M-6; L-0; I-1
Rationale:

- The Committee agreed that there is a high degree of reliability and validity because it's a straightforward metric and is based on billing data.

3. Usability: H-9; M-11; L-0; I-0
(*Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting and 3b. Quality Improvement)*
Rationale:

- The Committee voiced some concern on the understandability of a metric in which the goal is a low number. Is this easily understandable or confusing to end users?
- The title of the measure could be more descriptive of the intent of the measure.

4. Feasibility: H-17; M-3; L-0; I-0
(4a. Clinical data generated during care process; 4b. Electronic data; 4c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)
Rationale:

- Uses administrative billing data.

Steering Committee Assessment of Criteria Met/Suitable for Endorsement: Y-20; N-0
Rationale:

- Publicly reported measure of overuse and patient safety.
- Needs good context in presentation of the results that lower is better.

RECOMMENDED FOR ENDORSEMENT

ASTHMA MEASURES NOT RECOMMENDED

0338 CAC-3 Home management plan of care (HMPC) document given to patient /caregiver
Status: Maintenance, Original Endorsement: May 15, 2008 Description: This measure assesses the proportion of pediatric asthma patients discharged from an inpatient hospital stay with a Home Management Plan of Care (HMPC) document in place. This measure is one of a set of three nationally implemented measures that address children's asthma care (CAC-1: Relievers for Inpatient Asthma, and CAC-2: Systemic Corticosteroids for Inpatient Asthma) that are used in The Joint Commission's accreditation process. Numerator Statement: Pediatric asthma inpatients with documentation that they or their caregivers were given a written Home Management Plan of Care (HMPC) document that addresses all of the following: 1. Arrangements for follow-up care 2. Environmental control and control of other triggers 3. Method and timing of rescue actions 4. Use of controllers 5. Use of relievers Denominator Statement: Pediatric asthma inpatients (age 2 years through 17 years) discharged with a principal diagnosis of asthma. Exclusions: Excluded Populations: • Patients with an age less than 2 years or 18 years or greater • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials Adjustment/Stratification: No risk adjustment or risk stratification None None Level of Analysis: Facility, Population : National Type of Measure: Process Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Records Measure Steward: The Joint Commission
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria 1a. Impact: H-6; M-9; L-2; I-3; 1b. Performance Gap: H-7; M-12; L-1; I-0 Rationale: • Current national performance rate reported on Hospital Compare is 79%. 1c. Evidence (*based on decision logic*): Y-4; N-6: I-10 Rationale: • The Committee agreed that patient education is clearly an essential component in successful asthma management. • The evidence is not as strong for care plan as for use of ICS. The Committee noted the recent publication in JAMA by Morse in October 5, 2011 that found "Among children admitted to pediatric hospitals for asthma, there was high hospital-level compliance with CAC-1 and CAC-2 quality measures and moderate compliance with the CAC-3 measure but no association between CAC-3 compliance and subsequent ED visits and asthma-related readmissions". http://jama.ama-assn.org/content/306/13/1454.abstract • There were also concerns over the lack of standardization of a quality care plan, how language is constructed and health literacy issues.
DO NOT RECOMMEND ENDORSEMENT

0620 Asthma - Short-acting beta agonist inhaler for rescue therapy

Status: Maintenance, Original Endorsement: Dec 04, 2009
Description: The percentage of patients 2 years or older with asthma who have a refill for a short-acting beta agonist in the past 12 months.
Numerator Statement: Patients who have at least one refill for a short acting beta agonist for rescue therapy in the past 12 months.
Denominator Statement: Patients 2 years and older with a diagnosis of asthma who had at least one office visit in the past 12 months.
Exclusions: 1.General exclusion for Terminal Illness
2.General exclusion for cancer
3.Provider or patient feedback stating patient does not have a diagnosis of asthma
Adjustment/Stratification: No risk adjustment or risk stratification This specific measure addresses all asthmatics, regardless of severity of the disease, across the entire measured population. Using our highly specific rule algorithms, people with a confirmed diagnosis of asthma will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure. This specific measure addresses all asthmatics, regardless of severity of the disease, across the entire measured population. Using our highly specific rule algorithms, people with a confirmed diagnosis of asthma will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure.
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Facility, Health Plan, Integrated Delivery System, Population : County or City, Population : National, Population : State
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy, Healthcare Provider Survey, Patient Reported Data/Survey
Measure Steward: ActiveHealth Management

IMPLEMENTATION COMMENTS

- The ACCP QIC notes that this measure should be harmonized with Measure 0548: Suboptimal asthma control (SAC) and absence of controller therapy (ACT).

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria
1a. Impact: H-9; M-9; L-1; I-1; 1b. Performance Gap: H-3; M-8; L-2; I-7
Rationale:

- The mean performance rate was reported to be 42%. The Committee was concerned that with such a low performance rate perhaps there are other explanations for the results, such as the accuracy of the medication data or what patients are included.

1c. Evidence (*based on decision logic*): Y-5; N-1; I-13
Rationale:

- The Committee felt the definition of asthma in this measure was very broad. The Committee questions whether all the patients who would be captured would be expected to have a current prescription, especially mild asthmatics.
- The Committee noted that people may have medicines with a 2 year shelf life, or samples that were provided to the patient. Committee members noted that this measure has nothing to do with asthma control since it does not assess use of inhaled corticosteroids.
- The Committee had concerns about the reliability of identifying asthma for 2-5 year olds.
- The Committee asked for the evidence that having a rescue inhaler available at all times improved patient outcomes, even for mild or intermittent asthmatics.

The developers responded:

- This measure is really directed at ensuring that anyone with asthma regardless of severity have access to at least one inhaler.
- The measure is trying to address that everyone should have a rescue inhaler handy even if they have mild or asthma that flares up maybe once every year. It would certainly lead to dire consequences should they not have a rescue inhaler at their home or on them at the time.
- We're looking to decrease the number of not only emergency room visits but urgent care visits as well when if the patient should just need a quick burst of relief before getting into see their primary care doctor that they have that available to them.
- The measure is not looking to alleviate or not to respond to the overuse of short acting inhalers but really address the fact that everyone should have at least one available to them.

0620 Asthma - Short-acting beta agonist inhaler for rescue therapy
• The data may come from pharmacy claims or patient data in PHRs or HIE. • The measure looks specifically in the past year for multiple diagnoses overlapping with office visits, overlapping with asthma medications that are not short term, that are not rescue inhalers to confirm that the patient is truly asthmatic. Also a lot of our patient and provider feedback is telling us that the patient truly doesn't have asthma, and if they do give us that feedback, we pull them out of the denominator. When it comes to samples, we allow for patients and providers to also tell us that they have given the patient samples. The shelf life for the medication is addressed.
DO NOT RECOMMENDENDORSEMENT

1876 Optimal asthma care

Status: New Submission

Description: The Optimal Asthma Care measure is an all-or-none, composite measure. The measure reflects the percentage of patients ages 5-50 (pediatrics ages 5-17) who have optimally managed asthma with all of following components met: a) Asthma is well-controlled; b) Patient is not at increased risk of exacerbations; and c) Patient has been educated and has a current, written asthma action/management plan. Asthma control is assessed using one of three validated asthma control tools. Asthma risk of exacerbations is assessed by asking the patient about emergency department visits and hospitalizations due to asthma in the past 12 months. Asthma education with a current, written asthma management/action plan is completed using an asthma action plan that contains information on: medication doses and purposes, how to recognize and what to do during an exacerbation, and the patient´s triggers.

Numerator Statement: The numerator is the number of patients ages 5-50 who meet all components of the measure (see below). (MN Community Measurement stratifies data by age group: Children ages 5-17 and Adults ages 18-50).

a) Asthma well-controlled as demonstrated by the use of one of four validated asthma control tests that scores the patient as "in-control" or "well-controlled".

b) Patient is not at elevated risk of exacerbation as evidenced by patient reported emergency department visits and inpatient hospitalizations due to asthma in the past 12 months. The total number of emergency department visits and hospitalizations due to asthma must be less than 2.

c) Patient has been educated about his or her asthma and self-management of the condition with a written asthma management plan present (created or reviewed and revised within the measurement period) that contains information about the patient´s triggers, the patients medication doses and effects of those medications, and what to do during an exacerbation.

Denominator Statement: Patients ages 5 to 50 with asthma who have at least two visits for this diagnosis in the last 24 months (established patient) and who have had at least one visit in the last 12 months.

Exclusions: Valid exclusions include patients who only had one visit to the clinic for asthma during the last two years, patients who are nursing home residents, in hospice, or have died, or patients who have COPD, emphysema, cystic fibrosis, or acute respiratory failure.

Adjustment/Stratification: Other Case-mix adjustment Risk adjustment for the Optimal Asthma Care measure is based on case mix (health plan product). Health plan product was selected because it can serve as a proxy for socioeconomic status if more specific variables are not reliably and consistently availabl -Patient age group (children ages 5-17 and adults ages 18-50)

-Patient gender

-Patient zip code, primary residence (format text: XXXXX)

-Race and ethnicity code or codes (up to five) as defined in the Optimal Asthma Care Data Collection Guide 2011 (format numeric: see guide for codes)

-Country of origin as defined in the Optimal Asthma Care Data Collection Guide 2011 (format numeric: see guide for codes)

-Primary language as defined in the Optimal Asthma Care Data Collection Guide 2011 (format numeric: see guide for codes)

-Insurance coverage code as defined in the Optimal Asthma Care Data Collection Guide 2011 (format numeric: see guide for codes)

Level of Analysis: Clinician : Group/Practice

Type of Measure: Outcome

Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records

Measure Steward: MN Community Measurement

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria

1a. Impact: H-13; M-6; L-0; I-1; 1b. Performance Gap: H-11; M-5; L-0; I-4

Rationale:

- This is an all or none composite measure of optimal asthma care that looks at three different components.
- The MN statewide average for optimal control was 15.7 percent for adults and 24% for children. The Committee thought these results were very low and questioned the accuracy of the results.
    - The developer responded that this is a first year measure that was implemented on a statewide basis under the MN health reform act which required all providers to submit data. 34% of the eligible, established patients with asthma did not have a control test assessment, count of ED visits or hospital stays or a written asthma action plan. Of the patients who did have all three components present during the measurement year, 63% achieved the composite all-or-none optimal care rate.

1876 Optimal asthma care

1c. Evidence (*based on decision logic*): Y-6; N-1; I-13

Rationale:

- Component 1 – asthma control tests – The Committee noted that the asthma control survey is a survey that was developed and authenticated by performance testing in asthma clinics of allergists and -- which meant that these were areas where you have individuals who probably had a higher degree of severity of asthma and also a relationship with their asthma that probably made them good candidates for testing of survey and repeated testing of surveys. The committee had concerns that there would likely be significant numbers of patients with very mild asthma included included in the broad population.
- Component 2 – The Committee asked about the evidence for ≤ 2 ED visits or hospitalizations means optimal control. The Committee questioned why the absence of ED visits or hospitalizations would not be an indication of optimal control? With the measure's threshold, one hospitalization is considered well-controlled but two ED visits is not. The Committee questioned how the thresholds were selected? Committee members also questioned treating hospitalization and emergency department visits as essentially equal weights since they may be dramatically different events.
- Component 3: An asthma care plan is recommended in the NHLBI guidelines for asthma care. The specifications for asthma management plan seemed to have a large degree of variability.
    - The developer responded that they are not requiring a standard asthma plan to be used by all clinics. They require that the plans contain written components including medications, dose and purpose, triggers, recognizing what to do during an exacerbation, and validation process against what was stated.
    - The developer provided additional documentation of evidence which stated "Written asthma action plan – Research unclear if the presence of an action plan vs. no action plan improves health outcomes. Research does link written action plans when combined with self-management education to improved health outcomes."
- While there are studies on the individual elements, there are no studies on the composite. The Committee agreed the measure is likely to prove to be an important one, but more data is needed.

Additional comments:

- Some Committee members suggested that the components should be evaluated (particularly testing) as indiviudal measures before considering the composite.
    - The developer responded that the measures were not tested individually before the composite was developed.
- The measure as specified includes both the outcome of control (survey, ED/hospitalization) and a method by which control may be achieved (action plan). As long as control is achieved, the Committee questioned why the the action plan was identifide as the method that must be included in order for a provider to be successful (as opposed to other methods that promote control).
- The Committee was generally supportive of a composite measure as an important move forward in asthma measurement and encouraged continued work to imporve the measure.

DO NOT RECOMMEND ENDORSEMENT

COPD MEASURES NOT RECOMMENDED

0549 Pharmacotherapy management of COPD exacerbation (PCE)

Status: Maintenance, Original Endorsement: Aug 05, 2009
Description: This measure assesses the percentage of COPD exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter on or between January 1–November 30 of the measurement year and who were dispensed appropriate medications.
Two rates are reported.
1. Dispensed a systemic corticosteroid within 14 days of the event
2. Dispensed a bronchodilator within 30 days of the event
Note: The eligible population for this measure is based on acute inpatient discharges and ED visits, not on members. It is possible for the denominator to include multiple events for the same individual.
Numerator Statement: This measure looks at the number of patients with an acute exacerbation related to COPD who were discharged and were dispensed medications following the discharge with appropriate medications. Two rates are reported for the numerator.
Rate 1: Dispensed prescription for systemic corticosteroid (Table PCE-C) on or 14 days after the Episode Date.
Rate 2: Dispensed prescription for a bronchodilator (Table PCE-D) on or 30 days after the Episode Date.
Denominator Statement: The eligible population for the measure includes all health plan members 40 years or older as of January 1 of the measurement year discharged from an inpatient setting (acute inpatient or ED) with a principal diagnosis of COPD
Exclusions: 1) Exclude any episodes on which the patient was transferred directly to an acute or nonacute care facility for any diagnosis.
2) Exclude inpatient ED Episodes on which the patient was readmitted to an acute or nonacute care facility for any diagnosis on or seven days after discharge.
Adjustment/Stratification: No risk adjustment or risk stratification N/A N/A
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy
Measure Steward: National Committee for Quality Assurance

IMPLEMENTATION COMMENTS

- America's Health Insurance Plans: Measures #0549 and 0577 are not very useful as they are subject to small numbers issues. Additionally, there are issues with data availability. For example, if a spirometry test is performed in the hospital these data may not be captured and the patient could be classified as non-compliant. The measure is also designed to identify new diagnosis of COPD and the timeline is insufficient to have data on new enrollees.
- None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): PASSED all three sub-criteria
1a. Impact: H-15; M-3; L-0; I-0; 1b. Performance Gap: H-2; M-13; L-2; I-1
Rationale:

- 1a: Measure focuses on high impact condition affecting 12M Americans and contributing to significant mortality.
- 1b: Limited evidence presented regarding under utilization of pharmacotherapy management
- Developer submitted the following current performance:
  Rate 1 (steroids): commercial health plan means: 69.8 (2010); 66.1 (2009); 67 (2008)
  Rate 2 (bronchodilator): commercial health plan means: 77.8 (2010); 78.7 (2009)
- There is lack of evidence that measure is currently informing quality improvement.

1c. Evidence (*based on decision logic*): Y-15; N-1; I-2
Rationale:

- Developer's assessment of evidence is inconsistent with materials presented.
- Does not cite original literature, uses concensus statements only.

0549 Pharmacotherapy management of COPD exacerbation (PCE)

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Did not pass validity
2a. Reliability: H-1; M-11; L-5; I-1; 2b. Validity: H-1; M-7; L-8; I-2
Rationale:

- Testing results provided at the health plan level only.
- Reliability and validity testing are difficult to interpret.
- RELIABILITY: specifications – claims-based measure
  - Numerator for rate 1 includes both inhaled and oral steroids
  - Age 40 and over – concerns with lack of harmonization with other COPD measures
  - Uses only a primary discharge diagnosis of COPD. The Committee asked about inclusion ofrespiratory failure with a secondary diagnosis of COPD.
- VALIDITY: The Committee raised a series of questions.
  - Does the measure capture inhalers that were given to patients in the ED – something that is happending with growing frequency to encourage compliance. Are the medications only captured if the patient is charged for it?
  - What if the patient has existing medications and does not need a new prescription? Is there a pharmacy look back period?
  - How does the measure handle medications that are "stockpiled" for use in the event of an exacerbation?
    - The developer replied that there is not an active look back period but considers whether there is an active prescription and noted that the measures is "dispensed" based and not prescription based.
  - The measure lacks assessment of need for stratification for disparities.
  - A validation test was conducted in 2006 to determine the ability to capture COPD exacerbations (the denominator data element) in administrative claims data compared to chart review; testing on the numerator data elements was not provided.

Additional developer response to discussion of reliability and validity:

- *1) Does our measure capture samples providing in the ED or hospital?* There currently is no mechanism for capturing this practice in any setting or level of accountability, whether that is a health plan, a hospital, ED or physician office. Additionally, since this is a health plan specified measure (for patients with insurance coverage) we have found that there are positive incentives for providers of all types to submit claims to insurers for payment, including medications. We would also like to add that all NCQA medication related measures rely on dispensed drugs (not prescribed) which we believe best captures patient adherence. Health plans are clearly accountable for performance and in a position to drive improved performance.
- *2) Does our measure capture prescriptions provided at the ED?* Yes ED visits and related prescription medication claims are captured by the health plans, the same way as any outpatient visit and related dispensed medications.
- *3) How do you capture listed medications that are in current use (active prescription) at the time of the event (i.e., is there a look back period)?* If the member is on a prescription prior to the date of the exacerbation, any days supply left from that script can be used to count the person as a numerator hit. For example, if the member filled a script on December 1, of the measurement year with a 60 day supply, then had a COPD exacerbation on January 2, of the measurement year, that person would have some days supply. That active script would be counted as a numerator hit for this member's event. We are not prescriptive about how long to look back, so regardless of what method the health plan is using, if the method meets the intent, it is acceptable. I can tell you that most industry vendors look back 90 or 120 days. Very rarely is a prescription issued for more than 90 days at a time. There are some inhalers on the list, so it is harder to predict exactly how long those will last. We do know that some vendors prefer to use 120 days for this reason. They want to make sure they are catching anything that might be relevant. As a reminder, all of HEDIS health plan measures are audited by certified vendors.

The Committee considered the responses from the developer in the weeks after the meeting.

- The majority of the Committee agreed that the additional information did not resolve their questions. The key issue is whether or not administrative claims-based data can reliably and accurately capture whether a patient hospitalized or in the ED for a COPD exacerbation receives systemic steroids within 14 days post discharge (e.g., including those that may already have supplies or those who received samples from the hospital or ED).

DO NOT RECOMMEND ENDORSEMENT

PNEUMONIA MEASURES NOT RECOMMENDED

0148 Blood cultures performed in the emergency department prior to initial antibiotic received in hospital

Status: Maintenance, Original Endorsement: Mar 09, 2007
Description: Percentage of pneumonia patients 18 years of age and older who have had blood cultures performed in the emergency department prior to initial antibiotic received in hospital
Numerator Statement: Number of pneumonia patients whose initial emergency room blood culture was performed prior to the administration of the first hospital dose of antibiotics
Denominator Statement: Pneumonia patients 18 years of age and older who have an initial blood culture collected in the emergency department
Exclusions: •Received in transfer from another acute care or critical access hospital, including another emergency department
•No working diagnosis of pneumonia at the time of admission
•Receiving comfort measures only4
•<18 years of age
•Do not receive antibiotics or a blood culture
•No chest x-ray or CT scan that indicated positive infiltrate within 24 hours prior to hospital arrival or anytime during this hospitalization
Adjustment/Stratification: No risk adjustment or risk stratification N/A N/A
Level of Analysis: Facility
Type of Measure: Process
Data Source: Administrative claims, Paper Records
Measure Steward: Centers for Medicare & Medicaid Services Other organizations: The Joint Commission, Centers for Disease Control and Prevention, Infectious Diseases Society of America, American Thoracic Society, Johns Hopkins University, Northeastern Ohio Univ. College of Medicine, Pneumonia Patient Outcomes Team, New Jersey Medical

IMPLEMENTATION COMMENTS

- APIC does not approve measure 0148. The IDSA/ATS Guidelines do not recommend routine collection of blood culture – even for those who are subsequently admitted. Instead these Guidelines indicate diagnostic testing should be obtained for patients with certain clinical indications or if findings from same would alter maintenance antibiotic therapy.
    - Developer response: The epidemiology of community-acquired pneumonia is well described and empiric antibiotic recommendations are explicitly defined in guidelines from IDSA/ATS. The CMS performance measure is based on that guideline with ongoing technical expert panel input from members of the guideline-writing committee of IDSA/ATS, as well as other experts. The inpatient measure relies on collection of the actual antibiotic administered (consistent with guidelines) based on the clinical presentation of the patient. The PQRS measure does not provide specificity with regards to antibiotic selection.
- The ACCP QIC noted that the data that has been collected from this measure may show evidence for unintended consequences.
    - Developer response: Not sure what unintended consequences of the blood culture measure you are referencing. The performance measure specifications leave the decision to do a blood culture entirely to the physician at the bedside so there is no requirement to collect a culture. However, if the practitioner decides to do a blood culture, there is good data that the yield of cultures is reduced substantially if the patient has already received antibiotics. Indeed the usefulness of the cultures is markedly reduced (Metersky et al).
      In the past we have evaluated the usefulness of blood cultures for patients with pneumonia. We agree that requiring all pneumonia patients to have a blood culture is associated with unintended consequences because the majority of cultured organisms reported are contaminants and not pathogens. However, we have addressed this problem with blood cultures years ago and no longer require that a culture be obtained on all pneumonia patients. There has been some ongoing confusion about this in the performance measure but a patient is only eligible for this measure if the bedside clinician decides to order a blood culture.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria
1a. Impact: H-4; M-4; L-8; I-2; 1b. Performance Gap: H-; M-; L-; I-
Rationale:

0148 Blood cultures performed in the emergency department prior to initial antibiotic received in hospital
• Not congruent with ICU measure 0356. • There is no requirement that a blood culture is done appropriately. • Current national rate as reported on Hospital Compare for the quality indicator "Pneumonia Patients Whose Initial Emergency Room Blood Culture Was Performed Prior To The Administration Of The First Hospital Dose Of Antibiotics" is 96%. 1c. Evidence (*based on decision logic*): Y-; N-:I- Rationale: • The measure as written has no direct link to an outcome or a particular physician or care provider behavior that could be linked to a patient care outcome. • The evidence from a systematic review (Afshar et al, 1999) demonstrates that blood culutres have very limited utility in immunocompetent patients hospitalized with CAP. • The data are observational, small in number, absent rigor in confounding search, and not clearly linked to an outcome of importance.
DO NOT RECOMMEND ENDORSEMENT

0233 Assessment of Oxygen Saturation for Community-Acquired Bacterial Pneumonia

Status: Maintenance, Original Endorsement: May 01, 2007
Description: Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with oxygen saturation documented and reviewed
Numerator Statement: Patients with oxygen saturation documented and reviewed
Denominator Statement: All patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia
Exclusions: Documentation of medical reason(s) for not documenting and reviewing oxygen saturation
Documentation of patient reason(s) for not documenting and reviewing oxygen saturation
Documentation of system reason(s) for not documenting and reviewing oxygen saturation
Adjustment/Stratification: No risk adjustment or risk stratification None We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected
Level of Analysis: Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records
Measure Steward: American Medical Association - Physician Consortium for Performance Improvement Other organizations: This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.

IMPLEMENTATION COMMENTS
The American College of Chest Physicians (ACCP) the ACCP Quality Improvement Committee (QIC): None of the QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.

Steering Committee Evaluations

Importance to Measure and Report (*based on decision logic*): Did not pass all three sub-criteria
1a. Impact: H-15; M-4; L-1-; I-0; 1b. Performance Gap: H-13; M-4; L-0; I-3
Rationale:
Rationale:

- 1a. Impact of pneumonia the same as other measures.
- 1b. Developer provided PQRS 2008 data; 20.30% of patients reported on did not meet the measure.
  10th percentile: 38.89%
  25th percentile: 71.43%
  50th percentile: 93.33%
  75th percentile: 100.00%
  90th percentile: 100.00%
  The Committee notes there is some opportunity for improvement.
  The 2009 PQRS mean rate is 86%.
- The developer asserts that this is the "fifth vital sign" and is routinely done when patients enter the ED. If so, the Committee wonders whether the gap in performance represents a documentation gap. It is likely to be very high in EDs and less known in clinician offices.
- A similar inpatient measure was topped out at 100%.

1c. Evidence (*based on decision logic*): Y-5; N-2; I-12
Rationale:

- All pneumonia severity assessment tools include this factor. There is significant evidence that the degree of O2 saturation influences morbidity and mortality and detemination of whether a patient is hositalized or put in the ICU.
- Timing is not specified – this should be done early on when seeing the patient.
- The FIO2 should also be reported to interpret the O2 saturation value.
- Several unanswered questions: Does the evidence also apply to patients seen in the clinician office? What is the evidence that failure to assess oximetry in an office setting associated with diagnosis of pneumonia leads to a poorer outcome? What is the proportion of patients seen in ED versus clinician office for this measure?

0233 Assessment of Oxygen Saturation for Community-Acquired Bacterial Pneumonia
DO NOT RECOMMEND ENDORSEMENT

CRITICAL CARE MEASURES NOT RECOMMENDED

0336 Review of Unplanned PICU Readmissions
Status: Maintenance, Original Endorsement: May 15, 2008 Description: Periodic clinical review of unplanned readmissions to the PICU that occurred within 24 hours of discharge or transfer from the PICU. Numerator Statement: Number of unplanned readmissions that occurred within 24 hours after discharge or transfer from the PICU for which a clinical review is documented within the specified time period (time period to be determined through pilot testing) Denominator Statement: Total number of unplanned readmissions occurring within 24 hours of discharge/transfer from PICU for which clinical review is documented within specified time period, patients <18 yrs of age Exclusions: Adjustment/Stratification: No risk adjustment or risk stratification NA Level of Analysis: Facility Type of Measure: Process Data Source: Electronic Clinical Data : Electronic Health Record, Paper Records Measure Steward: Virtual PICU Systems, LLC Other organizations: National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria 1a. Impact: H-15; M-4; L-1; I-0; 1b. Performance Gap: H-13; M-4; L-0; I-3 Rationale: • This measure addresses a high impact area. Unplanned readmission to ICUs are associated with both increased mortality and resource utilization. • The Committee agreed there wasn't strong data showing optimal performance or disparities. 1c. Evidence (*based on decision logic*): Y-5; N-2; I-12 Rationale: • The Committee had difficulty determining use of this measure in addition to 0335 and questioned benefits of use for comparative purposes, accountability and public reporting. The functionality and score as a performance measure is unclear. • The developer confirmed that there wasn't any objective evidence submitted with this measure. There was consensus among the Committee that there was insufficent evidence to meet the criterion.
DO NOT RECOMMEND ENDORSEMENT

0342 PICU periodic pain assessment
Status: Maintenance, Original Endorsement: May 15, 2008 Description: Percentage of PICU patients receiving: a periodic pain assessment Numerator Statement: Number of PICU patients who are assessed for pain at a minimum of every six hours during the PICU stay. Denominator Statement: Total number of patients in the PICU PICU patients <18 yrs of age Exclusions: Exclude patients >= 18 years old. Adjustment/Stratification: No risk adjustment or risk stratification n/a Stratification is not part of the measure specifications. Level of Analysis: Facility Type of Measure: Process Data Source: Administrative claims, Electronic Clinical Data : Pharmacy, Electronic Clinical Data : Registry, Paper Records Measure Steward: Virtual PICU Systems, LLC Other organizations: National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS
Steering Committee Evaluations
Importance to Measure and Report (*based on decision logic*): Passed all three subcriteria 1a. Impact: H-12; M-6; L-1; I-0; 1b. Performance Gap: H-5; M-14; L-0; I-0 Rationale: • A high impact area, as pain assessment and management are critical to the well-being and care experience of children. • The data provided results from 14 PICUs in VPS database and ranged from 77-100 percent. 1c. Evidence (*based on decision logic*): Y-14; N-3;I-3 Rationale: • The Committee agreed that although existing evidence is limited, there is some evidence suggesting that implementation of an ongoing assessment will improve compliance. One center demonstrated a 12% improvement in pain and sedation management through implementation of ongoing assessments.
2. Scientific Acceptability of Measure Properties (*based on decision logic*): Did not pass both subcriteria 2a. Reliability: H-0; M-6; L-4; I-9; 2b. Validity: H-; M-; L-; I- Rationale: • Previously in use by Joint Commission as a standard. • The Committee felt that greater specification was needed to standardize and validate the measure. • Testing results were not provided for the evaluation of reliability and validity for this measure. The measure did not pass this criterion.
DO NOT RECOMMEND ENDORSEMENT

1861 National healthcare safety network (NHSN) ventilator-associated event (VAE) outcome measure

Status: New Submission

Description: The measures are two Standardized Incidence Ratios (SIR) for healthcare-associated, ventilator-associated events (VAEs) among adult patients, >=18 years old, in acute and long-term acute care hospitals and inpatient rehabilitation facilities, receiving conventional mechanical ventilator support for >=3 calendar days. Persons receiving rescue mechanical ventilation therapies are excluded. The two SIRS are for:

1. Ventilator-Associated Conditions (VAC)
2. Infection-related Ventilator-Associated Complications (IVAC)

These "Standardized Incidence Ratios" are analogous to the "Standardized Infection Ratios" for selected healthcare-associated infections that have previously been submitted to NQF by the Centers for Disease Control and Prevention (CDC). Because the VAE algorithm will capture events that are not infection-related, as well as some that are infection-related, "SIR" in the context of this submission refers to "Standardized Incidence Ratio."

The SIRs for VAC and IVAC are proposed to replace the previously-endorsed NQF measure for Ventilator-Associated Pneumonia (VAP) that had been maintained by CDC: Ventilator-associated pneumonia for ICU and high-risk nursery [HRN] patients (NQF measure #0140). CDC no longer supports that measure and plans to discontinue its use in the National Healthcare Safety Network (NHSN).

The transition from reporting infection or event rates to reporting SIRs is consistent with CDC's decision to use the Standardized Infection Ratio (SIR) as the summary measure for healthcare-associated infections (HAIs), including catheter-associated urinary tract infections (CAUTIs), central line-associated bloodstream infections (CLABSIs), and surgical site infections (SSIs). CDC previously submitted SIR-based measure proposals to NQF for CAUTIs, CLABSIs, and SSIs. The SIR enables summarization of healthcare-associated event data across multiple strata, e.g., different ICU types, into a single statistic, adjusting for differences in event incidence among those strata and obviating the need to report separate event rates for each stratum. The SIR compares the observed to expected infection experience (or event experience, in the case of VAEs) for each stratum. The number of expected infections or other healthcare-associated events is derived from the infection or event experience for a specific stratum in a standard population during a baseline time period. For example, the expected value for a HAI among medical intensive care unit (MICU) patients may be derived from the infection experience among all MICU patients reported to NHSN for the years 2006-2008.

The VAE algorithm included in this measure proposal was developed in collaboration with the CDC Prevention Epicenters and with the Ventilator-Associated Pneumonia Surveillance Definition Working Group. The Working Group is composed of representatives of several key societies and organizations. Member organizations and individual representatives are listed in Co.6. And Ad.1. of this submission.

Numerator Statement: VAC: Total number of observed healthcare-associated VACs among adult patients in acute and long-term acute care hospitals and inpatient rehabilitation facilities

IVAC: Total number of observed healthcare-associated IVACs among adult patients in acute and long-term acute care hospitals and inpatient rehabilitation facilities

Denominator Statement: VAC: Total number of expected VACs, calculated by multiplying the number of ventilator days for each location under surveillance for VAEs during the period by the VAC rate for the same types of locations obtained from the standard population.

IVAC: Total number of expected IVACs, calculated by multiplying the number of ventilator days for each location under surveillance for VAEs during the period by the IVAC rate for the same types of locations obtained from the standard population.

Exclusions: Patients receiving non-conventional (rescue) mechanical ventilation therapies are excluded. Rescue mechanical ventilation therapies that are excluded from VAC and IVAC surveillance include (but are not limited to) the following: high-frequency mechanical ventilation, mechanical ventilation in the prone position, and extracorporeal membrane oxygenation.

Adjustment/Stratification: Stratification by risk category/subgroup SIR is an indirect standardization method for summarizing healthcare-associated event experience across any number of stratified groups of data. VAC and IVAC incidence rates will be stratified by patient care location and in some instances, location bed s 1. CDC location: A CDC-defined designation given to a patient care area housing patients who have similar disease conditions or who are receiving care for similar medical or surgical specialties. Each facility location that is monitored is "mapped" to a CDC location. The specific CDC location code is determined by the type of patients cared for in that area according to the 80% Rule. That is, if 80% of patients are of a certain type (e.g., adult patients with orthopedic problems) then that area is designated as that type of location (in this case, an Inpatient Adult Orthopedic Ward).

2. Facility-specific data for individual patient locations (i.e., bed size of location, affiliation and level of affiliation with a medical school based on teaching status: major, graduate, limited, not affiliated) -

- Major: A hospital that is an important part of the teaching program of a medical school and the majority of medical students rotate through multiple clinical services.
- Graduate: Hospital is used by the medical school for graduate trainings only (residency and/or fellowships).

1861 National healthcare safety network (NHSN) ventilator-associated event (VAE) outcome measure

- Limited: Hospital is used in the medical school's teaching program to only a limited extent.
Level of Analysis: Facility, Population : National, Population : State
Type of Measure: Outcome
Data Source: Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Laboratory, Electronic Clinical Data : Pharmacy, Paper Records
Measure Steward: Centers for Disease Control and Prevention Other organizations: Critical Care Societies Collaborative—Society of Critical Care Medicine, American Association of Critical Care Nurses, American Thoracic Society, American College of Chest Physicians
Society for Healthcare Epidemiology of America
Infectious Diseases Soc

Steering Committee Evaluation

Importance to Measure and Report (*based on decision logic*): Did not pass all three subcriteria
1a. Impact: H-14; M-3; L-; I-1; 1b. Performance Gap: H-5; M-6; L-; I-7
Rationale:

- Intended to replace the current ventilator-associated pneumonia measure *0140 Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients (CDC)* which is being retired.
- Important area to measure with 50,000 cases a year and a, mortality rate between 50-60 percent.
- New metric with new definitions. Evidence citations of a performance gap with ventilator-associated events support that there is a performance issue in this area.

1c. Evidence (*based on decision logic*): Y-13; N-1: I-4
Rationale:

- The Committee found the rationale provided for this outcome measure to be acceptable evidence. The ventilator-associated events are reducible through process change.
- The developer revealed that a recent small pilot study showed that patients with events detected by a similar definition algorithm to VAE do tend to have longer length of stay, even higher mortality than patients who do not meet the definition.

2. Scientific Acceptability of Measure Properties (*based on decision logic*): Did not pass – measure has not been tested
2a. Reliability: H-; M-; L-2; I-16; 2b. Validity: H-; M-; L-; I-
Rationale:

- There are published data on variations of the definition algorothim, however prior analyses do not utilize the new definition algorithm.
- Data demonstrating that the measure is reliable and valid was not available at the time of review. The measure developer reiterated that they are currently working on these analyses and that additional information would be available in the next one totwo years .
- The Committee agreed that the measure has not yet been adequated tested for reliabilty and validity at this time.

Additional Comments/Questions:

- The Committee appreciated the importance of this measure and is looking forward to the opportunity to evaluate the measure after testing is completed.

DO NOT RECOMMEND ENDORSEMENT

DYSPNEA MEASURE NOT RECOMMENDED

0179 Improvement in dyspnea
Status: Maintenance, Original Endorsement: Mar 31, 2009 Description: Percentage of home health episodes of care during which the patient became less short of breath or dyspneic. Numerator Statement: Number of home health episodes of care where the patient has less dyspnea at discharge than at start (or resumption) of care. Denominator Statement: Number of home health episodes of care ending with a discharge during the reporting period, other than those covered by generic or measure-specific exclusions. Exclusions: All home health episodes where at the start (or resumption) of care assessment the patient had no impairment, or the episode of care ended in transfer to inpatient facility or death at home, or was covered by the generic exclusions. Adjustment/Stratification: Statistical risk model Logistic regression models for risk adjustment were developed using three million episodes of care based on OASIS national repository data from assessments submitted between January 1, 2010 and September 30, 2010. Details of the model are available at: http://collegebasketballtalk.nbcsports.com/2012/03/13/syracuse-wont-have-fab-melo-for-ncaa-tournament/related/: Not stratified Level of Analysis: Facility Type of Measure: Outcome Data Source: Electronic Clinical Data Measure Steward: Centers for Medicare & Medicaid Services Other organizations: Abt Associates, Inc. Case Western Reserve University University of Colorado at Denver, Division of Health Care Policy and Research
IMPLEMENTATION COMMENTS • None of the ACCP QIC members use this measure at their institution and have never seen any data related to this measure. The QIC questions whether or not this measure sees widespread use.
Steering Committee Evaluation
Importance to Measure and Report (*based on decision logic*): Did not pass all three sub-criteria 1a. Impact: H-0; M-7; L-7; I-6; 1b. Performance Gap: H-; M-; L-; I- Rationale: • 1a: Evidence of measures impact, such as number of home care patients impacted and cost are not provided • Only one published study was cited regarding: impact. The source of the measure developer reference to "70% have some dyspnea"" is not clear. • Measure applies to all home health patients and seems overly broad. The Committee suggested that it might be more meaningful if restricted to patients with cardiopulmonary conditions. • How does individual patient improvement due to natural resolution of their original problem (i.e., recovering from surgery, regaining activity level) impact the improvement that is attributable to the home health agency? • The Committee had questions regarding the interpretability of the impact: Does the 58% improved outcome mean that the 42% not improved should have improved due to action on the part of the home health agency? • Trend data over time would help understand the impact of this measure. 1c. Evidence (*based on decision logic*): Y-; N-; I- Rationale: • Developer's assessment of the evidence in the areas of quality and consistency seem strong. • Limited quantity of evidence that only addresses COPD population - not general home health population for which this measure is intended.
DO NOT RECOMMEND ENDORSEMENT

MEASURES WITHDRAWN FROM CONSIDERATION

Measure	Steward	Description	Reason Withdrawn
0001: Asthma assessment	AMA-PCPI	Percentage of patients who were evaluated during at least one office visit for the frequency (numeric) of daytime and nocturnal asthma symptoms.	Withdrawn and no longer supported by evidence.
0025: Management plan for people with asthma	IPRO	Percentage of patients for whom there is documentation that a written asthma management plan was provided either to the patient or the patient's caregiver or, at minimum, specific written instructions on under what conditions the patient's doctor should be contacted or the patient should go to the emergency room.	IPRO is no longer using and will not be maintaining the measure.
0080: Chronic Obstructive Pulmonary Disease (COPD): assessment of oxygen saturation	AMA-PCPI	Percentage of patients with COPD with oxygen saturation assessed at least annually.	Withdrawn and superseded by new measure.
0140: Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients	CDC	Percentage of ICU and HRN patients who over a certain amount of days have ventilator-associated pneumonia.	CDC is currently working on developing a new measure for VAE outcomes.
0151: Initial antibiotic received within 6 hours of hospital arrival	CMS	Percentage of pneumonia patients 18 years of age and older who receive their first dose of antibiotics within 6 hours after arrival at the hospital.	CMS will no longer be maintaining the measure.
0332: Severity-Standardized ALOS - Special Care	The Leapfrog Group	Standardized ALOS for special inpatient care (i.e., care provided in intensive care units).	Leapfrog does not have the resources to take the measure through maintenance.
0341: PICU pain assessment on admission	National Association of Children's Hospitals and Related Institutions	Percentage of PICU patients receiving: a. Pain assessment on admission, b. Periodic pain assessment.	Withdrawn from consideration and combined with 0342.
0628: COPD with exacerbations – use of long-acting bronchodilator therapy	ActiveHealth Management	Percentage of patients 40 years and older with COPD exacerbations that are receiving a long acting bronchodilator	ActiveHealth indicated that this measure is no longer in line with evidence-based medical literature and has developed a new measure that they feel is better supported.

Notes

1 American Lung Association. Available at www.lungusa.org/assets/documents/publications/lung-disease-data/solddc_2010.pdf. Last accessed October 2011.

2. Ibid.
3. National Heart, Lung and Blood Institute. Available at www.nhlbi.nih.gov/resources/docs/2009_ChartBook.pdf . Last accessed October 2011.
4. American Lung Association.
5. Ibid.
6. Society of Critical Care Medicine. Available at http://sccmwww.sccm.org/Documents/WebStatisticsPamphletFinalJune06.pdf. Last accessed October 2011.

NATIONAL QUALITY FORUM

NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PULMONARY AND CRITICAL CARE ENDORSEMENT MAINTENANCE

APPENDIX A: MEASURE SPECIFICATIONS

	0036 Use of appropriate medications for people with asthma
Status	Maintenance, Original Endorsement: Aug 10, 2009, Most Recent Endorsement: Jan 25, 2012
Steward	National Committee for Quality Assurance
Description	The measure assesses the percentage of members 5-64 years of age during the measurement year who were identified as having moderate to severe persistent asthma and who were appropriately prescribed medication during the measurement year.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Laboratory, Electronic Clinical Data : Pharmacy, Paper Records NCQA collects HEDIS data directly from Health Management Organizations and Preferred Provider Organizations via a data submission portal - the Interactive Data Submission System (IDSS). URL http://www.ncqa.org/tabid/370/default.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Health Plan, Integrated Delivery System, Population : National, Population : Regional, Population : State
Setting	Ambulatory Care : Clinician Office
Numerator Statement	The number of members who were dispensed at least one prescription for a preferred therapy during the measurement year
Numerator Details	**Time Window:** The measurement year (one calendar year) The number of members who were dispensed at least one prescription for a preferred therapy (Table ASM-D) during the measurement year Table ASM-D: Preferred Asthma Therapy Medications Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline, potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone, triamcinolone Leukotriene modifiers: montelukast, zafirlukast, zileuton Mast cell stabilizers: cromolyn, nedocromil Methylxanthines: aminophylline, dyphylline, oxtriphylline, theophylline
Denominator Statement	All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma
Denominator Details	**Time Window:** The measurement year and the calendar year prior to the measurement year. The steps below are used to identify eligible members with persistent asthma for inclusion in the denominator: Step 1. Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient discharge (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) • At least four asthma medication dispensing events (Table ASM-C) Step 2. A member identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers were the sole asthma medication dispensed in that year, must also meet the following criterion. • Have at least one diagnosis of asthma, in any setting, in the same year as the leukotriene modifier (i.e., measurement year or year prior to the measurement year). Table ASM-A: Codes to Identify Asthma Description: ICD-9-CM Diagnosis Asthma: 493.0, 493.1, 493.8, 493.9 Table ASM-B: Codes to Identify Visit Type Outpatient: CPT 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99382-99386, 99392-99396, 99401-99404, 99411, 99412, 99420, 99429; UB Revenue 051x, 0520-0523, 0526-0529, 057x- 059x, 0982, 0983 Acute inpatient: CPT 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291; UB Revenue 010x, 0110-0114, 0119,

	0036 Use of appropriate medications for people with asthma
	0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 0987 ED: CPT 99281-99285; UB Revenue 045x, 0981 Table ASM-C: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline, potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone, triamcinolone Leukotriene modifiers: montelukast, zafirlukast, zileuton Long-acting, inhaled beta-2 agonists: aformoterol, formoterol, salmeterol Mast cell stabilizers: cromolyn, nedocromil Methylxanthines: aminophylline, dyphylline, oxtriphylline, theophylline Short-acting, inhaled beta-2 agonists: albuterol, levalbuterol, metaproterenol, pirbuterol
Exclusions	Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis, or acute respiratory failure (Table ASM-E) any time on or prior to December 31 of the measurement year.
Exclusion Details	Table ASM-E: Codes to Identify Exclusions Emphysema: 492, 506.4, 518.1, 518.2 COPD: 491.2, 493.2, 496 Cystic fibrosis: 277.0 Acute respiratory failure: 518.81
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year. 1) 5–11 years 2) 12–18 years 3) 19-50 years 4) 51-64 years 5) Total
Type Score	Rate/proportion better quality = higher score
Algorithm	The measure determines how well a health plan member with moderate to severe persistent asthma is taking their prescribed medications. The measure calculation is detailed in the steps listed below: Step 1: Determine eligible population: Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient claim/encounter (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) At least four asthma medication dispensing events (Table ASM-C) Step 2: A member identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (Table ASM-A), in any setting, in the same year as the leukotriene modifier (i.e., the measurement year or the year prior to the measurement year). Step 3: Required Exclusions. • Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through

	0036 Use of appropriate medications for people with asthma
	December 31 of the measurement year. Exclude any members who have no medication events present in their record during the measurement year. Step 4: Calculate the number of members who were dispensed at least one prescription for a preferred therapy (Table ASM-D) during the measurement year
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	0047 Asthma: Pharmacologic therapy for persistent asthma
Status	Maintenance, Original Endorsement: Aug 10, 2009, Most Recent Endorsement: Aug 10, 2009
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** National Committee for Quality Assurance (NCQA)
Description	Percentage of patients aged 5 through 50 years with a diagnosis of persistent asthma who were prescribed long-term control medication. Three rates are reported for this measure: 1. Patients prescribed inhaled corticosteroids (ICS) as their long term control medication 2. Patients prescribed other alternative long term control medications (non-ICS) 3. Total patients prescribed long-term control medication
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Medical Records Not Applicable
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinician Office/Clinic
Numerator Statement	Patients who were prescribed long-term control medication Numerator Definitions: Long Term Control Medication Includes: Patients prescribed inhaled corticosteroids (the preferred long-term control medication at any step of asthma pharmacological therapy) OR Patients prescribed alternative long-term control medications (inhaled steroid combinations, anti-asthmatic combinations, antibody inhibitor, leukotriene modifiers, mast cell stabilizers, methylxanthines) Prescribed – May include prescription given to the patient for inhaled corticosteroid OR an acceptable alternative long-term control medication at one or more visits in the 12-month period OR patient already taking inhaled corticosteroid OR an acceptable alternative long-term control medication as documented in current medication list.
Numerator Details	**Time Window:** At least once during the measurement period For EHR: See attached eMeasure For Claims/Administrative Data: To submit the numerator option for Long-Term Control Medication or Acceptable Alternative Treatment Prescribed, report the following: CPT II 4140F: Inhaled corticosteroids prescribed OR CPT II 4144F: Alternative long-term control medication prescribed
Denominator Statement	All patients aged 5 through 50 years with a diagnosis of persistent asthma
Denominator Details	**Time Window:** 12 consecutive months For EHR: See attached eMeasure For Claims/Administrative Data: Patients aged 5 through 50 years on date of encounter AND Diagnosis for asthma (ICD-9-CM): 493.00, 493.02, 493.10, 493.12, 493.20, 493.22, 493.81, 493.82, 493.90, 493.92 AND Diagnosis for asthma (ICD-10-CM): J45.20, J45.30, J45.31, J45.40, J45.41, J45.50, J45.21, J44.9, J44.1, J45.901, J45.909, J45.990, J45.991, J45.998, J45.51 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99241, 99242, 99243, 99244, 99245, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND

	0047 Asthma: Pharmacologic therapy for persistent asthma
	CPT II 1038F: Persistent asthma (mild, moderate or severe) Note: If ICD-10 CM is used to identify the denominator, CPT II code for 1038F is not required; ICD-10 CM codes capture "persistent asthma".
Exclusions	Documentation of patient reason(s) for not prescribing either an inhaled corticosteroid (ICS) or an alternative long-term control medication
Exclusion Details	The PCPI methodology uses three categories of reasons for which a patient may be excluded from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For measure 0047, exceptions may include patient reason(s) for not prescribing either an inhaled corticosteroid (ICS) or an alternative long-term control medication. Where examples of exceptions are included in the measure language, these examples are coded and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exception. Additional details by data source are as follows: For EHR: See attached eMeasure For Claims/Administrative Data: Documentation of patient reason(s) for not prescribing either the preferred long-term control medication (inhaled corticosteriod) or an acceptable alternative treatment. Append modifier 2P to CPT Category II code 4140F to report documented circumstances that appropriately exclude patients from the denominator: 4140F-2P
Risk Adjustment	No risk adjustment or risk stratification
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1)Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2)From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3)From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4)From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified [for this measure: medical reason(s) (eg, patient allergy), patient reason(s) (eg, patient declined), or system reason(s) (eg, vaccine not available)]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment Measure Calculation_0047.pdf
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	0047 Asthma: Pharmacologic therapy for persistent asthma
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	0091 COPD: Spirometry evaluation
Status	Maintenance, Original Endorsement: Aug 10, 2009, Most Recent Endorsement: Aug 10, 2009
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of COPD who had spirometry results documented
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records Not Applicable Attachment Data_Elements_0091.xls
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinician Office
Numerator Statement	Patients with documented spirometry results in the medical record (FEV1 and FEV1/FVC)
Numerator Details	**Time Window:** At least once during the measurement period Numerator Instructions: Look for most recent documentation of spirometry evaluation results in the medical record; do not limit the search to the reporting period. For EHR: eSpecification currently under development. Data elements (using the Quality Data Model) required for the measure attached. For Claims/Administrative Data: To submit the numerator option for spirometry results documented and reviewed, report the following: CPT II 3023F: Spirometry results documented and reviewed
Denominator Statement	All patients aged 18 years and older with a diagnosis of COPD
Denominator Details	**Time Window:** 12 consecutive months For EHR: eSpecification currently under development. Data elements (using the Quality Data Model) required for the measure attached. For Claims/Administrative Data: Patients aged >= 18 years on date of encounter AND Diagnosis for COPD (ICD-9-CM): 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 496 Diagnosis for COPD (ICD-10-CM): J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245
Exclusions	Documentation of medical reason(s) for not documenting spirometry results; Documentation of patient reason(s) for not documenting spirometry results; Documentation of system reason(s) for not documenting spirometry results
Exclusion Details	The PCPI methodology uses three categories of reasons for which a patient may be excluded from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples may be provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. Where examples of exceptions are included in the measure language, these examples are coded and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exception. Additional details by data source are as follows: For EHR: eSpecification currently under development. Data elements (using the Quality Data Model) required for the measure attached. For Claims/Administrative Data:

	0091 COPD: Spirometry evaluation
	Documentation of medical, patient, or system reason(s) for not documenting and reviewing spirometry results. • Append modifier 1P to CPT Category II code 3023F to report documented medical reason(s) that appropriately exclude patients from the denominator: 3023F-1P • Append modifier 2P to CPT Category II code 3023F to report documented patient reason(s) that appropriately exclude patients from the denominator: 3023F-2P • Append modifier 3P to CPT Category II code 3023F to report documented system reason(s) that appropriately exclude patients from the denominator: 3023F-3P
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification.
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified [for this measure: medical reason(s), patient reason(s), or system reason(s)]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Attachment Measure Calculation_0091.pdf
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	0091 COPD: Spirometry evaluation
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	0096 Empiric antibiotic for community-acquired bacterial pneumonia
Status	Maintenance, Original Endorsement: May 01, 2007, Most Recent Endorsement: Oct 18, 2011
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.
Description	Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with an appropriate empiric antibiotic prescribed
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy, Electronic Clinical Data : Registry, Paper Records Not applicable Attachment AMA-PCPI_0096_DataElements.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinic/Urgent Care, Ambulatory Care : Clinician Office, Home Health, Hospital/Acute Care Facility, Other, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Emergency Department, 'Domiciliary, Rest Home or Custodial Care Services'
Numerator Statement	Patients with appropriate empiric antibiotic prescribed
Numerator Details	**Time Window:** Once for each episode of CAP during measurement period Numerator Instructions: This measure is to be reported once for each occurrence of community-acquired bacterial pneumonia during the reporting period. Each unique occurrence is defined as a 45-day period from onset of community-acquired bacterial pneumonia. Numerator Definitions: Appropriate Empiric Antibiotic – For treatment of community-acquired bacterial pneumonia (CAP) should include any medication from one of the following four drug classes: Fluoroquinolones, Macrolides, Doxycycline, Beta Lactam with Macrolide or Doxycycline (as defined by current ATS/IDSA guidelines). Prescribed – Includes patients who are currently receiving medication(s) that follow the treatment plan recommended at an encounter during the reporting period, even if the prescription for that medication was ordered prior to the encounter. For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Administrative: CPT Category II code: 4045F: Appropriate empiric antibiotic prescribed
Denominator Statement	All patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia
Denominator Details	**Time Window:** Each episode of CAP during 12 month measurement period For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Administrative: Patients aged >= 18 years on date of encounter AND ICD-9-CM diagnosis codes: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0 ICD-10-CM diagnosis codes: A48.1, J10.00, J10.08, J11.00, J11.08, J12.9, J13, J14, J15.0, J15.1, J15.20, J15.21, J15.29, J15.3, J15.4, J15.5, J15.6, J15.7, J15.8, J15.9, J16.0, J16.8, J18.0, J18.1, J18.8, J18.9 AND CPT Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99281, 99282, 99283, 99284, 99285, 99291*, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 *Clinicians utilizing the critical care code (99291) must indicate the emergency department place-of-service (23) on the Medicare Part B claim form.

	0096 Empiric antibiotic for community-acquired bacterial pneumonia
Exclusions	Documentation of medical reason(s) for not prescribing appropriate empiric antibiotic Documentation of patient reason(s) for not prescribing appropriate empiric antibiotic Documentation of system reason(s) for not prescribing appropriate empiric antibiotic
Exclusion Details	The PCPI methodology uses three categories of reasons for which a patient may be excluded from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For measure Empiric Antibiotic for Community-Acquired Bacterial Pneumonia, exceptions may include medical reasons, patient reasons or system reasons. Where examples of exceptions are included in the measure language, these examples are coded and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exception. Additional details by data source are as follows: For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Administrative: Documentation of medical reason(s) for not prescribing appropriate empiric antibiotic - Append modifier to CPT Category II code: 4045F-1P Documentation of patient reason(s) for not prescribing appropriate empiric antibiotic - Append modifier to CPT Category II code: 4045F-2P Documentation of system reason(s) for not prescribing appropriate empiric antibiotic - Append modifier to CPT Category II code: 4045F-3P
Risk Adjustment	No risk adjustment or risk stratification None
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1. Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2. From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3. From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator. 4. If the measure does not have exceptions, STOP. If the measure has exceptions, proceed with the following steps:From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment AMA-PCPI_Measure Calculation-Standard Measures-634625099605483392.pdf
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	0096 Empiric antibiotic for community-acquired bacterial pneumonia
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	0102 COPD: Inhaled bronchodilator therapy
Status	Maintenance, Original Endorsement: Aug 10, 2009, Most Recent Endorsement: Aug 10, 2009
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI)
Description	Percentage of patients aged 18 years and older with a diagnosis of COPD and who have an FEV1/FVC < 70% and have symptoms who were prescribed an inhaled bronchodilator
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records Not Applicable
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinician Office
Numerator Statement	Patients who were prescribed an inhaled bronchodilator
Numerator Details	**Time Window:** At least once during the measurement period Numerator Definitions: Prescribed – Includes patients who are currently receiving medication(s) that follow the treatment plan recommended at an encounter during the reporting period, even if the prescription for that medication was ordered prior to the encounter. For EHR: See attached eMeasure For Claims/Administrative Data: To submit the numerator option for Patient Prescribed Inhaled Bronchodilator Therapy, report the following: CPT II 4025F: Inhaled bronchodilator prescribed
Denominator Statement	All patients aged 18 years and older with a diagnosis of COPD, who have an FEV1/FVC <70% and have symptoms (eg, dyspnea, cough/sputum, wheezing)
Denominator Details	**Time Window:** 12 consecutive months For EHR: See attached eMeasure For Claims/Administrative Data: Patients aged >= 18 years on date of encounter AND Diagnosis for COPD (ICD-9-CM): 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 496 Diagnosis for COPD (ICD-10-CM): J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245 AND CPT II 3025F: Spirometry test results demonstrate FEV1/FVC < 70% with COPD symptoms (eg, dyspnea, cough/sputum, wheezing)
Exclusions	Documentation of medical reason(s) for not prescribing an inhaled bronchodilator; documentation of patient reason(s) for not prescribing an inhaled bronchodilator; documentation of system reason(s) for not prescribing an inhaled bronchodilator
Exclusion Details	The PCPI methodology uses three categories of reasons for which a patient may be excluded from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples may be provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. Where examples of exceptions are included in the measure language, these examples are coded and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exception.

	0102 COPD: Inhaled bronchodilator therapy
	Additional details by data source are as follows: For EHR: See attached eMeasure For Claims/Administrative Data: Documentation of medical, patient, or system reason(s) for not prescribing an inhaled bronchodilator. • Append modifier 1P to CPT Category II code 4025F to report documented medical reason(s) that appropriately exclude patients from the denominator: 4025F-1P • Append modifier 2P to CPT Category II code 4025F to report documented patient reason(s) that appropriately exclude patients from the denominator: 4025F-2P • Append modifier 3P to CPT Category II code 4025F to report documented system reason(s) that appropriately exclude patients from the denominator: 4025F-3P
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification.
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected.
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified [for this measure: medical reason(s), patient reason(s), or system reason(s)]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Attachment Measure Calculation_0102.pdf
Copyright/ Disclaimer	Physician Performance Measures (Measures) and related data specifications, developed by the Physician Consortium for Performance Improvement® (PCPI), are intended to facilitate quality improvement activities by physicians. These measures are intended to assist physicians in enhancing quality of care. Measures are designed for use by any physician who manages the care of a patient for a specific condition or for prevention. These performance measures are not clinical guidelines and do not establish a standard of medical care. The PCPI has not tested its measures for all potential applications. The PCPI encourages the testing and evaluation of its measures. Measures are subject to review and may be revised or rescinded at any time by the PCPI. The measures may not be altered without the prior written approval of the PCPI. Measures developed by the PCPI, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes, eg, use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of measures for commercial gain, or incorporation of the measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the measures require a license agreement between the user and American Medical Association, on behalf of the PCPI. Neither the PCPI nor its members shall be responsible for any use of these measures. THE MEASURES ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND © 2006 American Medical Association. All Rights Reserved. Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, the PCPI and its

	0102 COPD: Inhaled bronchodilator therapy
	members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. CPT® contained in the Measure specifications is copyright 2004- 2010 American Medical Association. LOINC® copyright 2004-2010 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms® (SNOMED CT®) copyright 2004-2010 International Health Terminology Standards Development Organisation. All Rights Reserved.

	0143 CAC-1: Relievers for inpatient asthma
Status	Maintenance, Original Endorsement: Mar 09, 2007, Most Recent Endorsement: Mar 09, 2007
Steward	The Joint Commission
Description	Use of relievers in pediatric patients, age 2 years through 17 years, admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-2: Systemic Corticosteroids for Inpatient Asthma, and CAC-03: Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver) that are used in The Joint Commission's accreditation process.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Pediatric asthma inpatients who received relievers during hospitalization
Numerator Details	**Time Window:** Episode of Care One data element is used to calculate the numerator: Relievers Administered. This data element is defined as: Documentation that the patient received reliever medication(s) for asthma exacerbation during this hospitalization. Inpatient hospitalization includes the time from arrival to the emergency department (ED) or observation area until discharge from the inpatient setting.
Denominator Statement	Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.
Denominator Details	**Time Window:** Episode of Care Six Data Elements are used to calculate the denominator: • Admission Date The month, day, and year of admission to acute inpatient care. • Birthdate The month, day, and year the patient was born. • Clinical Trial Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with the same condition as the measure set were being studied. • Reason for Not Administering Relievers Reasons for not administering relievers during this hospitalization: o Allergy to relievers o Other reasons documented by physician/APN/PA or pharmacist • Discharge Date The month, day, and year the patient was discharged from acute care, left against medical advice, or expired during this stay. • ICD-9-CM Principal Diagnosis Code for asthma as defined in Appendix A. Table 6.1 below Table 6.1 Asthma Code -Shortened Description 493.00 -EXTRINSIC ASTHMA NOS 493.01 -EXT ASTHMA W STATUS ASTH 493.02 -EXT ASTHMA W(ACUTE) EXAC 493.10 -INTRINSIC ASTHMA NOS 493.11 -INT ASTHMA W STATUS ASTH 493.12 -INT ASTHMA W (AC) EXAC 493.81 -EXERCSE IND BRONCHOSPASM 493.82 -COUGH VARIANT ASTHMA 493.90 -ASTHMA NOS 493.91 -ASTHMA W STATUS ASTHMAT

	0143 CAC-1: Relievers for inpatient asthma
	493.92 -ASTHMA NOS W (AC) EXAC
Exclusions	Excluded Populations: • Patients with age less than 2 years or 18 years or greater • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials • Patients with a documented Reason for Not Administering Relievers
Exclusion Details	• The patient age in years is equal to the Admission Date minus the Birthdate. The month and day portion of the admission date and birthdate are used to yield the most accurate age. • Length of stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days, the patient is excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Reasons for not administering relievers during this hospitalization: Acceptable reasons include allergy to relievers, and other reasons documented by physician/APN/PA or pharmacist
Risk Adjustment	No risk adjustment or risk stratification Not Applicable
Stratification	This measure is stratified by age as noted in the following table: CAC-1a Relievers for Inpatient Asthma (age 2 years through 17 years) - Overall Rate CAC-1b Relievers for Inpatient Asthma (age 2 years through 4 years) CAC-1c Relievers for Inpatient Asthma (age 5 years through 12 years) CAC-1d Relievers for Inpatient Asthma (age 13 years through 17 years)
Type Score	
Algorithm	1. Start processing. Run cases that are included in the CAC Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). c. If Clinical Trial equals No, continue processing and proceed to Relievers Administered. 3. Check Relievers Administered a. If Relievers Administered is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-1a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). b. If Relievers Administered equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). c. If Relievers Administered equals No, continue processing and proceed to Reason for Not Administering Relievers. 4. Check Reason for Not Administering Relievers a. If Reason for Not Administering Relievers is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-1a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). b. If Reason for Not Administering Relievers equals Yes, the case will proceed to a Measure Category Assignment of B for Overall Rate (CAC-1a) and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). c. If Reason for Not Administering Relievers equals No, the case will proceed to a Measure Category Assignment of D for Overall Rate (CAC-1a) and will be in the Measure Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-1a). 5. Continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for all Strata Measure to equal 'B.' Do not change the Measure Category Assignment that was already calculated for the overall rate CAC-1a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (CAC-1a) Measure Category Assignment. 6. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, keep Measure Category Assignment for the strata measures equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the Patient Age. Note:

	0143 CAC-1: Relievers for inpatient asthma
	The Patient Age is calculated from Admission Date minus Birthdate as part of the ICD Population logic. 7. Check the Patient Age a. If the Patient Age is greater than or equal to 2 years and less than 5 years for Stratified Measure CAC-1b, set the Measure Category Assignment for measure CAC-1b to equal the Measure Category Assignment for measure CAC-1a. Stop processing. b. If the Patient Age is greater than or equal to 5 years and less than 13 years for Stratified Measure CAC-1c, set the Measure Category Assignment for measure CAC-1c to equal the Measure Category Assignment for measure CAC-1a. Stop processing. c. If the Patient Age is greater than or equal to 13 years and less than 18 years for Stratified Measure CAC-1d, set the Measure Category Assignment for measure CAC-1d to equal the Measure Category Assignment for measure CAC-1a. Stop processing. Attachment 2ze_CAC1[1].pdf
Copyright/ Disclaimer	The Specifications Manual for National Hospital Inpatient Quality Measures (Specifications Manual) version 4.0, January, 2012 is the result of the collaborative efforts of the Centers for Medicare & Medicaid Services (CMS) and The Joint Commission to publish a uniform set of national hospital quality measures. A primary objective of this collaborative effort is to promote and enhance the utility of these measures for all hospitals. No royalty or use fee is required for copying or reprinting this manual, but the following are required as a condition of usage: 1) disclosure that the Specifications Manual is periodically updated, and that the version being copied or reprinted may not be up-to-date when used unless the copier or printer has verified the version to be up-to-date and affirms that, and 2) users participating in the QIO supported initiatives, the Hospital Inpatient Quality Reporting Program, and Joint Commission accreditation; including performance measures systems; are required to update their software and associated documentation based on the published manual production timelines. none

	0144 CAC-2 Systemic corticosteroids for inpatient asthma
Status	Maintenance, Original Endorsement: Mar 09, 2007, Most Recent Endorsement: Mar 09, 2007
Steward	The Joint Commission
Description	Use of systemic corticosteroids in pediatric asthma patients (age 2 through 17 years) admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-1: Relievers for Inpatient Asthma, CAC-3: Home Management Plan of Care (HMPC) Document Given to Parent/Caregiver) that are used in The Joint Commission's accreditation process.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Records Each data element in the data dictionary includes suggested data sources. The data are collected using contracted Performance Measurement Systems (vendors) that develop data collection tools based on the measure specifications. The tools are verified and Attachment CAC Data Dictionary NHIQM 4.0.pdf
Level	Facility, Population : National
Setting	Hospital/Acute Care Facility
Numerator Statement	Pediatric asthma inpatients who received systemic corticosteroids during hospitalization.
Numerator Details	**Time Window:** Episode of care One data element is used to calculate the numerator: Systemic Corticosteroids Administered. This data element is defined as: Documentation that the patient received oral, IM, or intravenous (systemic) corticosteroids for asthma exacerbation during this inpatient hospitalization. Inpatient hospitalization includes the time from arrival to the emergency department (ED) or observation area until discharge from the inpatient setting.
Denominator Statement	Pediatric asthma inpatients (age 2 years through 17 years) who were discharged with a principal diagnosis of asthma.
Denominator Details	**Time Window:** Episode of care Six data elements used to calculate the denominator: • Admission Date The month, day, and year of admission to acute inpatient care. • Birthdate The month, day, and year the patient was born. • Clinical Trial Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with the same condition as the measure set were being studied. • Reason for Not Administering Systemic Corticosteroids Reasons for not administering Systemic Corticosteriods during this hospitalization: o Allergy to Systemic Corticosteroids o Other reasons documented by physician/APN/PA or pharmacist • Discharge Date The month, day, and year the patient was discharged from acute care, left against medical advice, or expired during this stay. • ICD-9-CM Principal Diagnosis Code for asthma as defined in Appendix A. Table 6.1 below Populations: Discharges with: Table 6.1 Asthma Code Shortened Description 493.00 EXTRINSIC ASTHMA NOS 493.01 EXT ASTHMA W STATUS ASTH 493.02 EXT ASTHMA W(ACUTE) EXAC 493.10 INTRINSIC ASTHMA NOS 493.11 INT ASTHMA W STATUS ASTH 493.12 INT ASTHMA W (AC) EXAC 493.81 EXERCSE IND BRONCHOSPASM 493.82 COUGH VARIANT ASTHMA

	0144 CAC-2 Systemic corticosteroids for inpatient asthma
	493.90 ASTHMA NOS 493.91 ASTHMA W STATUS ASTHMAT 493.92 ASTHMA NOS W (AC) EXAC
Exclusions	Excluded Populations: • Patients with an age less than 2 years or 18 years or greater • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials • Patients with a documented Reason for Not Administering Systemic Corticosteroids
Exclusion Details	• The patient age in years is equal to the Admission Date minus the Birthdate. The month and day portion of the admission date and birthdate are used to yield the most accurate age. • Length of stay (LOS) in days is equal to the Discharge Date minus the Admission Date. If the LOS is greater than 120 days the patient is excluded. • Patients are excluded if "Yes" is selected for Clinical Trial. • Reason for Not Administering Systemic Corticosteroids: Acceptable reasons include allergy to systemic corticosteroids, oral, IM, or intravenous (systemic) corticosteroids were administered to the patient within 24 hours prior to arrival AND patient was not a candidate to receive an additional dose during this hospitalization, or other reasons documented by physician/APN/PA or pharmacist
Risk Adjustment	No risk adjustment or risk stratification None
Stratification	This measure is stratified by age as noted in the following table: CAC-2a Systemic Corticosteroids for Inpatient Asthma (age 2 years through 17 years) - Overall Rate CAC-2b Systemic Corticosteroids for Inpatient Asthma (age 2 years through 4 years) CAC-2c Systemic Corticosteroids for Inpatient Asthma (age 5 years through 12 years) CAC-2d Systemic Corticosteroids for Inpatient Asthma (age 13 years through 17 years)
Type Score	
Algorithm	1. Start processing. Run cases that are included in the CAC Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). c. If Clinical Trial equals No, continue processing and proceed to Systemic Corticosteroids Administered. 3. Check Systemic Corticosteroids Administered a. If Systemic Corticosteroids Administered is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-2a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). b. If Systemic Corticosteroids Administered equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). c. If Systemic Corticosteroids Administered equals No, continue processing and proceed to Reason for Not Administering Systemic Corticosteroids. 4. Check Reason for Not Administering Systemic Corticosteroids a. If Reason for Not Administering Systemic Corticosteroids is missing, the case will proceed to a Measure Category Assignment of X for Overall Rate (CAC-2a) and will be rejected. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). b. If Reason for Not Administering Systemic Corticosteroids equals Yes, the case will proceed to a Measure Category Assignment of B for Overall Rate (CAC-2a) and will not be in the measure population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a). c. If Reason for Not Administering Systemic Corticosteroids equals No, the case will proceed to a Measure Category Assignment of D for Overall Rate (CAC-2a) and will be in the Measure Population. Proceed to step 5 and check the Stratified Measures for Overall Rate (CAC-2a).

	0144 CAC-2 Systemic corticosteroids for inpatient asthma
	5. Continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for all Strata Measure to equal 'B.' Do not change the Measure Category Assignment that was already calculated for the overall rate CAC-2a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (CAC-2a) Measure Category Assignment. 6. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, keep Measure Category Assignment for the strata measures equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the Patient Age. Note: The Patient Age is calculated from Admission Date minus Birthdate as part of the ICD Population logic. 7. Check The Patient Age a. If the Patient Age is greater than or equal to 2 years and less than 5 years for Stratified Measure CAC-2b, set the Measure Category Assignment for measure CAC-2b to equal the Measure Category Assignment for measure CAC-2a. Stop processing. b. If the Patient Age is greater than or equal to 5 years and less than 13 years for Stratified Measure CAC-2c, set the Measure Category Assignment for measure CAC-2c to equal the Measure Category Assignment for measure CAC-2a. Stop processing. c. If the Patient Age is greater than or equal to 13 years and less than 18 years for Stratified Measure CAC-2d, set the Measure Category Assignment for measure CAC-2d to equal the Measure Category Assignment for measure CAC-2a. Stop processing. Attachment 2zn_CAC2[1].doc
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	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
Status	Maintenance, Original Endorsement: Mar 09, 2007, Most Recent Endorsement: Jan 31, 2012
Steward	Centers for Medicare and Medicaid Services **Other organizations:** The Joint Commission, Centers for Disease Control and Prevention, Infectious Diseases Society of America, American Thoracic Society, Johns Hopkins University, Northeastern Ohio Univ. College of Medicine, Pneumonia Patient Outcomes Team, New Jersey Medical
Description	Percentage of pneumonia patients 18 years of age or older selected for initial receipts of antibiotics for community-acquired pneumonia (CAP)
Type	Process
Data Source	Electronic Clinical Data : Electronic Health Record, Paper Records Patient medical record can be collected using the CMS Abstraction and Reporting Tool (CART). URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 N/A URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228767363466 N/A
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Pneumonia patients who received an initial antibiotic regimen consistent with current guidelines during the first 24 hours of hospitalization
Numerator Details	**Time Window:** From arrival to the hospital through 24 hours after hospital arrival. 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
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

	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
	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 STAPHYLCOCC SEPTICEM NOS 038.11 METH SUSC STAPH AUR SEPT 038.12 MRSA SEPTICEMIA 038.19 STAPHYLCOCC 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 RESPIRATRY FAILURE 518.84 ACUTE & CHRONC 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

	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
	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
Denominator Details	**Time Window:** From arrival to the hospital through 24 hours after hospital arrival. The following data elements are used to determine the denominator; Admission Time Another Source of Infection Antibiotic Administration Date Antibiotic Administration Time Antibiotic Name Antibiotic Received Birthdate Chest X-Ray Clinical Trial Comfort Measures Only Compromised Discharge Date Healthcare Associated PN ICD-9-CM Other Diagnosis Codes ICD-9-CM Principal Diagnosis Code ICU Admission or Transfer Pneumonia Diagnosis: ED/Direct Admit Pseudomonas Risk

	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
	Transfer from Another Hospital or ASC 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 STAPHYLCOCC SEPTICEM NOS 038.11 METH SUSC STAPH AUR SEPT 038.12 MRSA SEPTICEMIA 038.19 STAPHYLCOCC 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 RESPIRATRY FAILURE 518.84 ACUTE & CHRONC 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

	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
	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

	0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients
	J 98.8 Other specified respiratory disorders
Exclusions	Patients less than 18 years of age Patients who hae 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 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; (2) a prior hospitalization within 14 days [the patient was discharged from an acute care facility for inpatient care to a non-acute setting—home, SNF, ICF, or rehabilitation hospital—before the second admission to the same or different acute care facility]) and abstraction guidelines With healthcare associated pneumonia as defined in data dictionary (i.e., presence of at least one of the following: (1) hospitalization for 2 days 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; (4) wound care provided by a health care professional within the last 30 days) and abstraction guidelines Patients transferred/admitted to the ICU wihtin 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 recommened for pneumonia but did receive antibiotics within the first 24 hours of hospitalization
Exclusion Details	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
Risk Adjustment	N/A
Stratification	Can be stratified by ICU and non-ICU patients. However, CMS does not stratify.
Type Score	Rate/proportion better quality = higher score
Algorithm	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 2a1.11. It was way too long to include it in this box. URL N/A http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228767363466
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	0231 Pneumonia mortality rate (IQI #20)
Status	Maintenance, Original Endorsement: Mar 09, 2007, Most Recent Endorsement: Mar 09, 2007
Steward	Agency for Healthcare Research and Quality **Other organizations:** Battelle Memorial Institute, Stanford University, University of California-Davis
Description	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
Type	Outcome
Data Source	Administrative claims HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. URL http://hcup-us.ahrq.gov/sidoverview.jsp Not applicable URL http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V43/AHRQ%20QI%20Software%20Instructions,%20WinQI.pdf Not applicable
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of in-hospital deaths among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	**Time Window:** Users may select the time window, but generally one calendar year In-hospital death (DISP=20)
Denominator Statement	Number of discharges, age 18 years and older, with an ICD-9-CM principal diagnosis code of pneumonia.
Denominator Details	**Time Window:** Users may select the time window, but generally one calendar year 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 COCCIDIOIDOMYCOS 1144 CHRONIC PULMONCOCCIDIOIDOMYCOSIS 1145 UNSPEC PULMON COCCIDIOIDOMYCOSIS 11505 HISTOPLASM CAPS PNEUMON 11515 HISTOPLASM DUB PNEUMONIA 11595 HISTOPLASMOSIS PNEUMONIA 1304 TOXOPLASMA PNEUMONITIS

	0231 Pneumonia mortality rate (IQI #20)
	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

	0231 Pneumonia mortality rate (IQI #20)
	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
Exclusions	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
Exclusion Details	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)
Risk Adjustment	Statistical risk model 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

	0231 Pneumonia mortality rate (IQI #20)
	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 URL http://qualityindicators.ahrq.gov/Downloads/Software/SAS/V43/Risk%20Adjustment%20Tables%20IQI%204.3.pdf Not applicable
Stratification	Not applicable
Type Score	Rate/proportion better quality = lower score
Algorithm	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. URL Not applicable http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf
Copyright/ Disclaimer	Not appliable Not appliable

	0232 Vital signs for community-acquired bacterial pneumonia
Status	Maintenance, Original Endorsement: May 01, 2007, Most Recent Endorsement: May 01, 2007
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.
Description	Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with vital signs documented and reviewed
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records Not Applicable Attachment AMA-PCPI_0232_DataElements.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinic/Urgent Care, Ambulatory Care : Clinician Office, Home Health, Hospital/Acute Care Facility, Other, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Emergency Department, 'Domiciliary, Rest Home or Custodial Care Services'
Numerator Statement	Patients with vital signs documented and reviewed
Numerator Details	**Time Window:** Once for each episode of CAP during measurement period Numerator Definitions: Vital Signs – temperature, pulse, respiratory rate, and blood pressure (for the purposes of this measure) Documented and Reviewed – May include one of the following: Clinician documentation that vital signs were reviewed, dictation by the clinician including vital signs, clinician initials in the chart that vital signs were reviewed, or other indication that vital signs had been acknowledged by the clinician Numerator Instructions: This measure is to be reported once for each occurrence of community-acquired bacterial pneumonia during the measurement period. Each unique occurrence is defined as a 45-day period from onset of community-acquired bacterial pneumonia. For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Adminisrative: Report CPT Category II code 2010F: Vital signs (temperature, pulse, respiratory rate, and blood pressure) documented and reviewed
Denominator Statement	All patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia
Denominator Details	**Time Window:** Each episode of CAP during 12 month measurement period For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Adminisrative: Patients aged >= 18 years on date of encounter AND ICD-9-CM diagnosis codes: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0 ICD-10-CM diagnosis codes: A48.1, J10.00, J10.08, J11.00, J11.08, J12.9, J13, J14, J15.0, J15.1, J15.20, J15.21, J15.29, J15.3, J15.4, J15.5, J15.6, J15.7, J15.8, J15.9, J16.0, J16.8, J18.0, J18.1, J18.8, J18.9 AND CPT Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99281, 99282, 99283, 99284, 99285, 99291*, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 *Clinicians utilizing the critical care code (99291) must indicate the emergency department place-of-service (23) on the Medicare Part B claim form. Both must be present on claim to meet denominator inclusion criteria.

	0232 Vital signs for community-acquired bacterial pneumonia
Exclusions	None
Exclusion Details	This measure has no exclusions
Risk Adjustment	No risk adjustment or risk stratification None
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1. Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2. From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3. From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4. If the measure does not have exceptions, STOP. If the measure has exceptions, proceed with the following steps: From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment AMA-PCPI_Measure Calculation-Standard Measures-634624965756970517.pdf
Copyright/ Disclaimer	Physician Performance Measures (Measures) and related data specifications, developed by the American Medical Association (AMA) in collaboration with the Physician Consortium for Performance Improvement (the Consortium) and the National Committee for Quality Assurance (NCQA) pursuant to government sponsorship under subcontract 6205-05-054 with Mathematica Policy Research, Inc. under contract 500-00-0033 with Centers for Medicare & Medicaid Services. These performance Measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications. The Measures, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes, e.g., use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of the Measures for commercial gain, or incorporation of the Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the Measures require a license agreement between the user and the AMA, (on behalf of the Consortium) or NCQA. Neither the AMA, NCQA, Consortium nor its members shall be responsible for any use of the Measures. THE MEASURES AND SPECIFICATIONS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. © 2004-6 American Medical Association and National Committee for Quality Assurance. All Rights Reserved. Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, NCQA, the Consortium and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. See copyright statement above.

	0334 PICU Severity-adjusted length of stay
Status	Maintenance, Original Endorsement: May 15, 2008, Most Recent Endorsement: May 15, 2008
Steward	Virtual PICU Systems, LLC **Other organizations:** National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS
Description	The number of days between PICU admission and PICU discharge.
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data : Registry, Paper Records No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Thus, 2a1.27 and 2a1.30 are not applicable
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of PICU days, PICU days = Number of days between PICU admission and PICU discharge
Numerator Details	**Time Window:** Submitted quarterly for all discharges during that time period All patients < 18 years of age
Denominator Statement	Discharges from the PICU (including tranfers to other units) during the time period being reported
Denominator Details	**Time Window:** Submitted quarterly for all discharges during that time period Patient age, Date of discharge
Exclusions	Patients => 18 years of age
Exclusion Details	Patient age
Risk Adjustment	Statistical risk model Selection criteria for risk adjustment tool for pediatric ICU's: - Tool must allow quality assessment and comparison between intensive care units, and must be widely used - Tool must be valid and reliable for severity adjustment and measurement of quality of care provided - Computation of mortality risk must be in the public domain (i.e. free ofcharge) - Algorithms must receive ongoing validation and recalibration The PRISM 3 model meets these criteria. 1. Pollack MM, Patel KM, Ruttimann UE. PRISM III: an updated pediatric risk of mortality score. Crit Care Med 1996;24:743-52. URL https://portal.myvps.org/document/NQFMeasures.pdf
Stratification	Risk-adjustment using approved severity of illness tool.
Type Score	Rate/proportion better quality = score within a defined interval
Algorithm	Numerator of number of days between PICU admission and PICU discharge is determined. All discharges including transfer from PICU are counted for same time period to serve as denominator. Risk stratification addressed using PRISM 3 methodology. PRISM 3 is a valid, realiable and internationally accepted risk measurement tool. The methodology and measure specifications have been published(1) and are available at https://portal.myvps.org/document/NQFMeasures.pdf 1. Pollack MM, Patel KM, Ruttimann UE. PRISM III: an updated pediatric risk of mortality score. Crit Care Med 1996;24:743-52.
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	0335 PICU Unplanned readmission rate
Status	Maintenance, Original Endorsement: May 15, 2008, Most Recent Endorsement: May 15, 2008
Steward	Virtual PICU Systems, LLC **Other organizations:** National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS
Description	The total number of patients requiring unscheduled readmission to the ICU within 24 hours of discharge or transfer.
Type	Outcome
Data Source	Electronic Clinical Data : Electronic Health Record, Paper Records No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Thus, 2a1.27 and 2a1.30 are not applicable
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Total number of unplanned readmissions within 24 hours after discharge/transfer from the PICU
Numerator Details	**Time Window:** Unplanned readmission within 24 hours of discharge/transfer. Data submission quarterly with reporting on annual basis. Inclusion: All PICU patients < 18 years of age Exclusions: • Patients = 18 years of age • Readmissions > 24 hours following discharge/transfer from PICU • All planned readmissions
Denominator Statement	100 PICU Discharges, <18 yrs of age
Denominator Details	**Time Window:** Per 100 PICU discharges All PICU patients <18 years of age
Exclusions	Patients =>18 years of age,
Exclusion Details	Patients not yet discharged from PICU
Risk Adjustment	No risk adjustment or risk stratification
Stratification	NONE
Type Score	Rate/proportion better quality = lower score
Algorithm	First, identify all discharges/transfers from PICU who are readmitted, limited to children <18 years of age. Second, exclude all planned readmissions. Third, use above number as numerator over denominator of PICU dischages/transfers. Report per 100 PICU discharges
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	0343 PICU Standardized mortality ratio
Status	Maintenance, Original Endorsement: May 15, 2008, Most Recent Endorsement: May 15, 2008
Steward	Virtual PICU Systems, LLC **Other organizations:** National Association of Children´s Hospitals and Related Institutions, Child Health Corporation of America, Medical Management Planning, VPS
Description	The ratio of actual deaths over predicted deaths for PICU patients.
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data : Registry, Paper Records No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Thus, 2a1.27 and 2a1.30 are not applicable
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Actual number of deaths occurring in PICU.
Numerator Details	**Time Window:** All PICU patients < 18 year of age admitted to the PICU for greater than 2 hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment. Data submission quarterly with reporting on annual basis. Exclusions: • PICU patients >=18 years of age • PICU patients under the age of 18 years with a stay < 2 hours in the PICU or < 2 consecutive sets of vital signs consistent with life • Patients admitted to PICU for palliative care • Preterm infants post-gestational age 36 weeks
Denominator Statement	Predicted mortality, "Predicted mortality" = Number of deaths expected based on assessed physiologic risk of mortality Include all PICU patients < 18 year of age admitted to the PICU for greater than 2 hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment
Denominator Details	**Time Window:** All PICU patients < 18 year of age admitted to the PICU for greater than 2 hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment. Data submission quarterly with reporting on annual basis. Inclusions: • All PICU patients < 18 year of age admitted to the PICU for greater than 2 hours or with at least two consecutive sets of vital signs consistent with life with risk of mortality assessment
Exclusions	Preterm infants and/or adults who are admitted to the PICU in addition to patients admitted solely for palliative care
Exclusion Details	All PICU patients >= 18 years of age, PICU patients with a stay < 2 hours or < 2 consecutive sets of vital signs consistent with life, Deaths occurring outside the PICU, Preterm infants post-gestational age < 36 weeks, Patients admitted to PICU for palliative care: AAP Committee on Bioethics
Risk Adjustment	Statistical risk model Selection criteria for risk adjustment tool for pediatric ICU's: - Tool must allow quality assessment and comparison between intensive care units, and must be widely used - Tool must be valid and reliable for severity adjustment and measurement of quality of care provided - Computation of mortality risk must be in the public domain (i.e. free ofcharge) - Algorithms must receive ongoing validation and recalibration The PRISM 3 model meets these criteria. The risk model was developed using forward stepping logistic regression. Final variables were selected using a significance level p<0.05. The risk factor variables used in the version of PRISM 3 currently in use in the VPS dataset include: • PRISM 3 12-hour score • PRISM 3 12-hour score squared • Pre-ICU care area • Operative status • Acute diagnosis of diabetes

	0343 PICU Standardized mortality ratio
	• Pre-ICU cardiac massage • Age 1. Pollack MM, Patel KM, Ruttimann UE. PRISM III: an updated pediatric risk of mortality score. Crit Care Med 1996;24:743-52. Attachment NQF response Risk of Mortality PRISM 3.docx
Stratification	No additional stratification occurs beyond the risk adjustment inherent to this measure. That is, the expected mortality that serves as the denominator in this measure specifically accounts for the severity of illness of patients included in the measure. No further stratification is appropriate based on current literature.
Type Score	Ratio better quality = lower score
Algorithm	PRISM 3 is a valid, realiable and internationally accepted risk measurement tool. The methodology and measure specifications have been published(1) and are available at https://portal.myvps.org/document/NQFMeasures.pdf 1. Pollack MM, Patel KM, Ruttimann UE. PRISM III: an updated pediatric risk of mortality score. Crit Care Med 1996;24:743-52.
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	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
Status	Maintenance, Original Endorsement: May 15, 2008, Most Recent Endorsement: Jan 31, 2012
Steward	Centers for Medicare and Medicaid Services **Other organizations:** The Joint Commission, Centers for Disease Control and Prevention, Infectious Diseases Society of America, American Thoracic Society, Johns Hopkins University, Northeastern Ohio Univ. College of Medicine, Pneumonia Patient Outcomes Team, New Jersey Medical
Description	Percent of pneumonia patients, age 18 years or older, transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital.
Type	Process
Data Source	Administrative claims, Paper Records Patient medical record can be collected using the CMS Abstraction and Reporting Tool (CART). URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 N/A URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228767363466 N/A
Level	Facility, Population : National, Population : Regional, Population : State
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital
Numerator Details	**Time Window:** The time period included in this measure is from arrival to the hospital through 24 hours after arrival to the hospital. The following patients are included in the numerator; pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital The data elements needed for the numerator are: Arrival Date Arrival Time Blood Culture Collected Initial Blood Culture Collection Date Initial Blood Culture Collection Time
Denominator Statement	Patients, age 18 years or older, discharged with: ICD-9-CM principal diagnosis code of pneumonia OR ICD-9-CM principal diagnosis code of septicemia or respiratory failure (acute or chronic) AND an ICD-9-CM Other diagnosis code of pneumonia 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

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	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 STAPHYLCOCC SEPTICEM NOS 038.11 METH SUSC STAPH AUR SEPT 038.12 MRSA SEPTICEMIA 038.19 STAPHYLCOCC 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 RESPIRATRY FAILURE 518.84 ACUTE & CHRONC 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

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	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
Denominator Details	**Time Window:** The time period included in this measure is from arrival to the hospital through 24 hours after arrival to the hospital. Patients, age 18 years or older, discharged with: ICD-9-CM principal diagnosis code of pneumonia OR ICD-9-CM principal diagnosis code of septicemia or respiratory failure (acute or chronic) AND an ICD-9-CM Other diagnosis code of pneumonia 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

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	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 STAPHYLCOCC SEPTICEM NOS 038.11 METH SUSC STAPH AUR SEPT 038.12 MRSA SEPTICEMIA 038.19 STAPHYLCOCC 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 RESPIRATRY FAILURE 518.84 ACUTE & CHRONC 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

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	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 The data elements needed for the denominator are: Admission Date Birthdate Chest X-Ray Clinical Trial Comfort Measures Only Discharge Date ICD-9-CM Other Diagnosis Codes ICD-9-CM Principal Diagnosis Codes ICU Admission or Transfer Pneumonia Diagnosis: ED/Direct Admit

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	Transfer from Another Hospital or ASC
Exclusions	Patients less than 18 years of age, Patients with a length of stay greater than 120 days, Patients with Cystic Fibrosis, Patients who had not chest x-ray or CT scan that indicated abnormal findings within 24 hours prior to hospital arrival or anytime during this hospitalization, Patients with Comfort Measures Only, Patients enrolled in clinical trial, Patients received as a transfer from emergency/observation department of another hospital, Patients received as a transfer from an inpatient or outpatient department of another hospital, Patients received as a transfer from an ambulatory surgery center, Patients who had no diagnosis of pneumonia either as an ED final diagnosis/impression or direct admission diagnosis/impression and Patients who have a duration of stay less than or equal to one day
Exclusion Details	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
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	This measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	Numerator: Number of pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital. Denominator: Pneumonia ICU patients 18 years of age and older. Variable Key: Duration of Stay, Arrival Date Time, Initial Blood Culture Date Time, Initial Blood Day, and Initial Blood Minutes 1. Start processing. Run cases that are included in the Pneumonia (PN) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Chest X-Ray a. If Chest X-Ray is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Chest X-Ray equals 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Chest X-Ray equals 1, continue processing and proceed to Comfort Measures Only. 3. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 2, 3, or 4, continue processing and proceed to Clinical Trial. 4. Check Clinical Trial

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Transfer From Another Hospital or ASC. 5. Check Transfer From Another Hospital or ASC a. If Transfer From Another Hospital or ASC is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Transfer From Another Hospital or ASC equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Transfer From Another Hospital or ASC equals No, continue processing and proceed to Pneumonia Diagnosis: ED/Direct Admit. 6. Check Pneumonia Diagnosis: ED/Direct Admit a. If Pneumonia Diagnosis: ED/Direct Admit is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Pneumonia Diagnosis: ED/Direct Admit equals 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Pneumonia Diagnosis: ED/Direct Admit equals 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. d. If Pneumonia Diagnosis: ED/Direct Admit equals 1, continue processing and proceed to ICU Admission or Transfer. 7. Check ICU Admission or Transfer a. If ICU Admission or Transfer is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If ICU Admission or Transfer equals 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If ICU Admission or Transfer equals 1, continue processing and proceed to Blood Culture Collected. 8. Check Blood Culture Collected a. If Blood Culture Collected is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Blood Culture Collected equals 3, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Blood Culture Collected equals 1, 2, or 4, continue processing and proceed to Arrival Date. 9. Check Arrival Date a. If the Arrival Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Arrival Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Date equals a Non Unable to Determine Value, continue processing and proceed to the Duration of Stay calculation. 10. Calculate Duration of Stay. Duration of Stay, in days, is equal to the Discharge Date minus the Arrival Date. 11. Check Duration of Stay a. If the Duration of Stay is less than or equal to 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Duration of Stay is greater than 1, continue processing and proceed to recheck Blood Culture Collected. 12. Recheck Blood Culture Collected a. If Blood Culture Collected equals 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b. If Blood Cultures Collected equals 1 or 2, continue processing and proceed to Initial Blood Culture Collection Date. 13. Check Initial Blood Culture Collection Date a. If the Initial Blood Culture Collection Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Initial Blood Culture Collection Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.

	0356 PN3a--Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival
	c. If the Initial Blood Culture Collection Date equals a Non Unable to Determine Value, continue processing and proceed to the Initial Blood Day calculation. 14. Calculate Initial Blood Day. The Initial Blood Day is equal to the Initial Blood Culture Collection Date minus the Arrival Date. 15. Check Initial Blood Day a. If the Initial Blood Day is less than zero, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. If the Initial Blood Day is equal to zero, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Note: Initial Blood Day equals zero means blood culture date same day as arrival date. So it is within 24 hours, no need for exact time. Stop processing. b. If the Initial Blood Day is greater than zero, continue processing and proceed to Arrival Time. 16. Check Arrival Time a. If the Arrival Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Arrival Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Arrival Time equals a Non Unable to Determine Value, continue processing and proceed to Initial Blood Culture Collection Time. 17. Check Initial Blood Culture Collection Time a. If the Initial Blood Culture Collection Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Initial Blood Culture Collection Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If the Initial Blood Culture Collection Time equals a Non Unable to Determine Value, continue processing and continue to concatenate the variables Arrival Date Time and Initial Blood Culture Date Time. 18. Concatenate arrival date and arrival time to create the variable Arrival Date Time. Concatenate initial blood culture collection date and initial blood culture collection time to create the variable Initial Blood Culture Date Time. Continue processing and proceed to the Initial Blood Minutes calculation. 19. Calculate Initial Blood Minutes. Initial Blood Minutes is equal to the Initial Blood Culture Date Time minus the Arrival Date Time. 20. Check Initial Blood Minutes a. If the Initial Blood Minutes is less than zero, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Initial Blood Minutes is greater than or equal to zero and less than or equal to 1440 (24 hours), the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If the Initial Blood Minutes is greater than 1440 (24 hours), the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228767363466
Copyright/ Disclaimer	Public measure N/A

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
Status	Maintenance, Original Endorsement: Mar 09, 2007, Most Recent Endorsement: Feb 01, 2012
Steward	Centers for Medicare and Medicaid Services **Other organizations:** MPR: Mathematica Policy Research; RTI-Research Triangle Institute
Description	The measure estimates a hospital-level risk-standardized mortality rate (RSMR) defined as death for any cause within 30 days of the admission date for the index hospitalization for patients discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities. Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.
Type	Outcome
Data Source	Administrative claims, Other Data sources for the FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This database contains claims data for fee-for service inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services Attachment 508 compliant pneumonia ICD-10 map.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day all-cause mortality. We define all-cause mortality as death from any cause within 30 days of the index admission date for patients discharged from the hospital with a principal diagnosis of pneumonia. The numerator of the risk-adjusted ratio is the predicted number of deaths within 30 days given the hospital's performance with its observed case mix. The term "predicted" describes the numerator result, which is calculated using the hospital-specific intercept term. (See details below in the 2a1.13 Statistical risk model and variables.)
Numerator Details	**Time Window:** We define this as death from any cause within 30 days from the admission date for the index pneumonia hospitalization. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure outcome. The measure counts deaths from any cause within 30 days from admission date of the index hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database (EDB). Identifying deaths in the all-payer measure For the purposes of development, deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI)
Denominator Statement	The cohort includes admissions for patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS and admitted to non-federal , or admitted to VA hospitals. The measure includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia and with a complete claims history for the 12 months prior to admission. If a patient has more than one pneumonia admission in a year, one hospitalization is randomly selected for inclusion in the measure.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Currently the measure is publicly-reported with three years of index hospitalizations. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS and admitted to non-federal hospitals, or admitted to a VA hospital. To be included in the Medicare FFS cohort the patients must have been continuously enrolled in

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. The denominator includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia (ICD-9-CM codes 480.0, 480.1, 480.2, 480.3, 480.8, 480.9, 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0, and 488.11; ICD-10-CM codes J120, J121, J122, J1281, J1289, J129, J13, J181, J150, J151, J14, J154, J154, J153, J154, J1520, J1521, J1521, Z16, J1529, J158, J155, J156, A481, J158, J159, J157, J160, J168, J180, J189, J1100, J129, J09119).
Exclusions	The measure excludes admissions for patients: For all cohorts, the measure excludes admissions for patients: • discharged alive on the day of admission or the following day and did not get transferred (because it is unlikely they had a significant pneumonia diagnosis); • transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted); • with inconsistent or unknown vital status or other unreliable data (e.g. date of death precedes admission date); • discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); For Medicare FFS patients, the measure additionally excludes admissions for patients: • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only);
Exclusion Details	Measure exclusions are determined as follows For all cohorts, the measure excludes admissions for patients: • Admissions for patients who were discharged alive on the day of admission or the following day and did not get transferred are identified by comparing the admission and discharge dates and examining the discharge destination indicator; • Admissions for patients who were transferred from another acute care hospital or VA hospital are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day; • Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years: 2) if the discharge date for a hospitalization is before the admission date; 3) if the patient has a sex other than "male" or "female"; • Discharges against medical advice (AMA) are identified by examining the discharge destination indicator; For Medicare FFS patients, the measure additionally excludes admissions for patients: • with Hospice enrollment in the 12 months prior to or on the index admission is identified using enrollment status derived from the EDB and the Inpatient SAF;
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et. al., 2006). The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals(Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail. Candidate and Final Risk-adjustment Variables: Candidate variables were patient-level risk-adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979. In addition, only comorbidities that convey information about the patient at that time or in the 12-months prior, and not complications that arise during the course of the hospitalization are included in the risk-adjustment. Hence, we do not risk-adjust for CCs that may represent adverse events of care and that are only recorded in the index admission. The final set of risk-adjustment variables is: Demographic Age-65 (years above 65, continuous)

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	Male Cardiovascular History of PTCA History of CABG Congestive heart failure (CC 80) Acute Myocardial Infarction (CC 81) Unstable angina (CC 82) Chronic atherosclerosis (CC 83, 84) Cardio-respiratory failure and shock (CC 79) Comorbidity Hypertension (CC 89, 91) Stroke (CC 95, 96) Cerebrovascular disease (CC 97-99, 103) Renal failure (CC 131) Chronic Obstructive Pulmonary Disease (CC 108) Pneumonia (CC 111-113) Protein-calorie malnutrition (CC 21) Dementia and senility (CC 49, 50) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177, 178) Peripheral vascular disease (CC104, 105) Metastatic cancer and acute leukemia and other severe cancers (CC 7, 8) Trauma in the last year (CC154-156, 158-162) Major psychiatric disorders (CC54-56) Chronic liver disease (CC25-27) Severe hematological disorders (CC44) Iron deficiency/anemias/blood diseases (CC47) Depression (CC 58) Parkinson's/Huntington's diseases (CC73) Seizure disorders and convulsions (CC 74) Fibrosis of lung and other chronic lung disorders (CC109) Asthma (CC 110) Vertebral fractures (CC 157) References: Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1163010421830
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	lower ratio indicates lower-than-expected mortality or better quality and a higher ratio indicates higher-than-expected mortality or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1163010421830
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	0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization
Status	Maintenance, Original Endorsement: Oct 28, 2008, Most Recent Endorsement: Jan 31, 2012
Steward	Centers for Medicare and Medicaid Services **Other organizations:** MPR: Mathematica Policy Research; RTI-Research Triangle Institute
Description	The measure estimates a hospital-level risk-standardized readmission rate (RSRR) defined as readmission for any cause within 30 days of the discharge date for the index hospitalization for patients discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities. Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.
Type	Outcome
Data Source	Administrative claims Data sources for the FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This database contains claims data for fee-for service inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services Attachment 508 compliant pneumonia ICD-10 map-634623950487720270.pdf URL Condition Category/ICD-9 Code Map available at: (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979) See attached ICD-9 to ICD-10 crosswalk
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30 day all-cause readmission. We define all-cause readmission as an inpatient admission for any cause within 30 days from the date of discharge from the index pneumonia admission. If a patient has one or more admissions (for any reason) within 30 days of the date of discharge of the index admission, only one was counted as a readmission. The numerator of the risk-adjusted ratio is the predicted number of readmissions within 30 days given the hospital's performance with its observed case mix. The term "predicted" describes the numerator result, which is calculated using the hospital-specific intercept term. (See details below in the 2a1.13 Statistical risk model and variables.)
Numerator Details	**Time Window:** We define this as readmission for any cause within 30 days from the date of discharge of the index pneumonia hospitalization. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure outcome. The measure counts readmissions to any acute care hospital for any cause within 30 days of the date of discharge of the index pneumonia admission.
Denominator Statement	The cohort includes admissions for patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS and admitted to non-federal hospitals, or admitted to VA hospitals. The measure includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia and with a complete claims history for the 12 months prior to admission.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Currently the measure is publicly-reported with three years of index hospitalizations. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for pneumonia. The measure is currently publicly reported by CMS for patients 65 years and older who are either enrolled in Medicare FFS and admitted to non-federal hospitals, or admitted to a VA hospital. To be included in the Medicare FFS cohort the patients must have been continuously enrolled in Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. The denominator includes admissions for patients discharged from the hospital with a principal diagnosis of pneumonia (ICD-9-CM codes 480.0, 480.1, 480.2, 480.3, 480.8, 480.9, 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40,

	0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization
	482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0, and 488.11; ICD-10-CM codes J120, J121, J122, J1281, J1289, J129, J13, J181, J150, J151, J14, J154, J154, J153, J154, J1520, J1521, J1521, Z16, J1529, J158, J155, J156, A481, J158, J159, J157, J160, J168, J180, J189, J1100, J129, J09119).
Exclusions	The measure excludes admissions for patients: For all cohorts, the measure excludes admissions for patients: • with an in-hospital death (because they are not eligible for readmission); • transferred to another acute care hospital (because the readmission is attributed to the hospital that discharges the patient to a non-acute setting); • discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); • admitted with pneumonia within 30 days of discharge from a qualifying index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.) For Medicare FFS patients, the measure additionally excludes admissions for patients: • without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day readmission outcome cannot be assessed in this group).
Exclusion Details	Measure exclusions are determined as follows For all cohorts, the measure excludes admissions for patients: • Admissions with an in-hospital death are identified in the discharge disposition indicator in claims data. • Admissions for patients who were transferred to another acute care hospital or VA hospital are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day; • Discharges against medical advice (AMA) are identified by examining the discharge destination indicator in claims data; • Pneumonia admissions within 30 days of discharge from a qualifying index admission are identified by comparing the discharge date from the index admission with the readmission date For Medicare FFS patients, the measure additionally excludes admissions for patients who: • Admissions without at least 30 days post-discharge enrollment in FFS Medicare is obtained by examining the Medicare Enrollment Database (EDB)
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et. al., 2006). The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSRR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of discharge for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission, after accounting for patient risk. See section 2a1.20. Calculation Algorithm/Measure Logic for more detail. Candidate and Final Risk-adjustment Variables: Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979. In addition, only comorbidities that convey information about the patient at admission or in the 12-months prior, and not complications that arise during the course of the hospitalization, are included in the risk-adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of care and that are only recorded in the index admission. The final set of risk-adjustment variables is: Demographics Age-65 (years above 65, continuous) Male

	0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization
	Comorbidities History of coronary artery bypass graft (CABG) surgery History of infection (CC 1, 3-6) Septicemia/shock (CC 2) Metastatic cancer and acute leukemia (CC7) Lung, upper digestive tract, and other severe cancers (CC8) Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors (CC 9-10) Diabetes mellitus (DM) and DM complications (CC 15-20, 119-120) Protein-calorie malnutrition (CC 21) Disorders of fluid/electrolyte/acid-base (CC 22-23) Other gastrointestinal disorders (CC 36) Severe hematological disorders (CC 44) Iron deficiency and other/unspecified anemias and blood disease (CC 47) Dementia and senility (CC 49-50) Drug/alcohol abuse/dependence/psychosis (CC 51-53) Major psychiatric disorders (CC 54-56) Other psychiatric disorders (CC 60) Hemiplegia, paraplegia, paralysis, functional disability (CC67-69, 100-102, 177-178) Cardio-respiratory failure and shock (CC 79) Congestive heart failure (CC 80) Acute coronary syndrome (CC 81-82) Chronic atherosclerosis (CC 83-84) Valvular and rheumatic heart disease (CC 86) Arrhythmias (CC 92-93) Stroke (CC 95-96) Vascular or circulatory disease (CC 104-106) Chronic obstructive pulmonary disease (CC 108) Fibrosis of lung and other chronic lung disorders (CC 109) Asthma (CC 110) Pneumonia (CC 111-113) Pleural effusion/pneumothorax (CC 114) Other lung disorders (CC 115) End-stage renal disease or dialysis (CC 129-130) Renal failure (CC 131) Urinary tract infection (CC 135) Other urinary tract disorders (CC 136) Decubitus ulcer or chronic skin ulcer (CC 148-149) Vertebral fractures (CC 157) Other injuries (CC 162) References: Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841 N/A
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The proposed measure employs a hierarchical logistic regression model to create a hospital level 30-day RSRR. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, each model adjusts the log-odds of readmission within 30-

	0506 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization
	days of discharge for age and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission, after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSRR is calculated as the ratio of the number of "predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio ("predicted") is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmissions for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841
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	0513 Thorax CT: Use of contrast material
Status	Maintenance, Original Endorsement: Oct 28, 2008, Most Recent Endorsement: Jan 31, 2012
Steward	Centers for Medicare and Medicaid Services **Other organizations:** The following consultants have participated in measure maintenance since the measure was initially endorsed: (1) Michael J. pentecost, M.D Associate Chief Medical Officer Thomas Dehn, M.D., F.A.C.P Chief Medical Officer Staci Barnett, M
Description	This measure calculates the percentage of thorax studies that are performed with and without contrast out of all thorax studies performed (those with contrast, those without contrast, and those with both). The measure is calculated based on a one year window of Medicare claims data. The measure has been publicly reported annually by the measure steward, the Centers for Medicare & Medicaid Services since summer 2010 as a component of its Hospital Outpatient Quality Reporting (OQR) Program. OQR is a quality data reporting program implemented by the Centers of Medicare & Medicaid Services (CMS) for outpatient hospital services. Under this program, hospitals report data using standardized measures of care to receive the full annual update to their Outpatient Prospective Payment System (OPPS) payment rate, effective for payments beginning in calendar year (CY) 2009. The Hospital OQR Program is modeled on the current quality data reporting program for inpatient services, the Hospital Inpatient Quality Reporting Program. To meet Hospital OQR requirements and receive the full Annual Payment Update (APU) under the OPPS, hospitals must meet administrative, data collection and submission, and data validation requirements. Participating hospitals agree that they will allow CMS to publicly report data for the quality measures (as stated in the current OPPS Final Rule.) In the context of this measures reporting program, NQF #0513 is referred to as “OP-11.” Regarding interpreting this measure, a high value indicates a higher facility-level use of both a contrast and non-contrast CT Thorax studies at the same time. As indicated below in the Scientific Acceptability section, we could find no clinical guidelines or peer reviewed literature that supports so-called CT Thorax "combined studies" (i.e., CT Thorax with and without contrast).
Type	Efficiency
Data Source	Administrative claims Fee-for-service Medicare hospital outpatient and Part B Standard Analytic Files. URL http://www.resdac.org/ddvh/index.asp URL http://www.resdac.org/ddvh/index.asp N/A
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The number of thorax CT studies with and without contrast (combined studies). Sum of global and technical units associated with CPT codes: CPT 71270 – Thorax CT With and Without Contrast A technical unit can be identified by a modifier code of TC. A global unit can be identified by the absence of a TC or 26 modifier code. Thorax CT studies can be billed separately for the technical and professional components, or billed globally to include both the professional and technical components. Professional component claims will out number Technical component claims due to over-reads. To capture all outpatient volume facility claims typically paid under the OPPS/APC methodology global and TC claims should be should be considered, and to avoid double counting of professional component claims (i.e., 26 modifier).
Numerator Details	**Time Window:** CT Thorax with and without contrast (a "combined study") occurring on the same day within a 12 month time window. 71270 – Thorax CT With and Without Contrast
Denominator Statement	The number of thorax CT studies performed (with contrast, without contrast or both with and without contrast)on Medicare beneficiaries within a 12 month time window. Sum of global and technical units for CPT codes: 71250 - Thorax Without Contrast 71260 – Thorax CT With Contrast 71270 – Thorax CT With and Without Contrast

	0513 Thorax CT: Use of contrast material
Denominator Details	**Time Window:** 12 months 71250 - Thorax Without Contrast 71260 – Thorax CT With Contrast 71270 – Thorax CT With and Without Contrast
Exclusions	This measure has no exclusions.
Exclusion Details	N/A
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	N/A
Type Score	better quality = lower score
Algorithm	OP-11 measure calculates the percentage of thorax studies that are performed with and without contrast out of all thorax studies performed (those with contrast, those without contrast, and those with both). The measure is calculated based on a one year window of hospital outpatient claims data as follows: 1. Selects hospital outpatient claims with a CPT code for any thorax CT (71250 – Thorax Without Contrast, 71260 – Thorax CT With Contrast, or 71270 – Thorax CT With and Without Contrast) on a revenue line item. 2. Exclude professional component only claims with modifier='26' 3. Set denominator counter=1 4. Set numerator counter=1 if CPT code = 71270 thorax CT studies with and without contrast (combined studies). 5. Summarize denominator and numerator counters by Medicare provider number 6. Measure = numerator counts / denominator counts Attachment ALGORITHM CT THORAX NQF 514.pdf
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	0548 Suboptimal asthma control (SAC) and absence of controller therapy (ACT)
Status	Maintenance, Original Endorsement: Aug 05, 2009, Most Recent Endorsement: Oct 18, 2011
Steward	Pharmacy Quality Alliance, Inc.
Description	Rate 1: The percentage of patients with persistent asthma who were dispensed more than 3 canisters of a short-acting beta2 agonist inhaler during the same 90-day period. Rate 2: The percentage of patients with persistent asthma during the measurement year who were dispensed more than three canisters of short acting beta2 agonist inhalers over a 90-day period and who did not receive controller therapy during the same 90-day period. The full detailed measure specifications have also been submitted as a separate attachment.
Type	Process
Data Source	Electronic Clinical Data : Pharmacy URL www.PQAalliance.org
Level	Health Plan
Setting	Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Pharmacy
Numerator Statement	Rate1: From the date of each prescription fill, count all of the canisters of short acting Beta2 Agonist Inhalers dispensed at that fill and dispensed within 90 days of that fill. If the patient receives 3 or more canisters in at least one 90 day period, then the patient is compliant for the numerator. Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA Rate 2: Patients who were not dispensed a controller therapy medication during the same 90-day period where they received more than three canisters of short-acting beta-agonist medication.
Numerator Details	**Time Window:** Long-Acting Beta Agonists: salmeterol, formoterol Inhaled Corticosteroids: beclomethasone, budesonide, flunisolide, fluticasone, fluticasone/salmeterol, mometasone, triamcinolone Leukotriene Inhibitors: zafirlukast, montelukast, zileuton Xanthines: long acting theophylline Mast Cell Stabilizers: nedocromil, cromolyn Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA
Denominator Statement	Rate 1: Step 1: Identify patients 5 - 50 years of age as of the last day of the measurement year. Step 2: Identify patients who were dispensed at least two consecutive fills for any asthma medication during the measurement year. Step 3: Exclude patients identified in step 1 who meet any of the following criteria: • Any patient who filled one or more COPD medications during the measurement year. • Any patient who filled one or more prescriptions for pulmozyme during the measurement year. • Any patient who filled one or more nasal steroid medications during the measurement year. Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA Long-Acting Beta Agonists: salmeterol, formoterol Inhaled Corticosteroids: beclomethasone, budesonide, flunisolide, fluticasone, fluticasone/salmeterol, mometasone, triamcinolone Leukotriene Inhibitors: zafirlukast, montelukast, zileuton Xanthines: long acting theophylline Mast Cell Stabilizers: nedocromil, cromolyn COPD Medications: tiotropium, ipratropium/albuterol MDI, ipratropium MDI Nasal Steroids: beclomethasone, budesonide, flunisolide, fluticasone, mometasone, triamcinolone Rate 2: Step 1: Identify patients 5 - 50 years of age as of the last day of the measurement year. Step 2: Identify patients who were dispensed at least two consecutive fills for any asthma medication (Table ACT-A: Asthma Medications) during the measurement year. Step 3: Exclude patients identified in step 1 who meet any of the following criteria • Any patient who filled one or more COPD medications during the measurement year. • Any patient who filled one or more prescriptions for pulmozyme during the measurement year. • Any patient who filled one or more nasal steroid medications during the measurement year.

	0548 Suboptimal asthma control (SAC) and absence of controller therapy (ACT)
	Step 4: For the remaining patients, identify those who were dispensed more than five canisters of a short-acting beta-agonist medication during the same 90-day period in the measurement year. It is those patients who, from the date of each prescription fill, had at least 3 canisters of short acting Beta2 Agonist Inhalers dispensed at that fill or dispensed within 90 days of that fill. Note: This is a count of canisters dispensed, not prescriptions filled. If a patient received 2 canisters at one fill, it counts as 2 canisters.
Denominator Details	**Time Window:** Short-Acting Inhaled Beta Agonists: albuterol MDI, albuterol HFA, pirbuterol, levalbuterol HFA Long-Acting Beta Agonists: salmeterol, formoterol Inhaled Corticosteroids: beclomethasone, budesonide, flunisolide, fluticasone, fluticasone/salmeterol, mometasone, triamcinolone Leukotriene Inhibitors: zafirlukast, montelukast, zileuton Xanthines: long acting theophylline Mast Cell Stabilizers: nedocromil, cromolyn COPD Medications: tiotropium, ipratropium/albuterol MDI, ipratropium MDI Nasal Steroids: beclomethasone, budesonide, flunisolide, fluticasone, mometasone, triamcinolone
Exclusions	
Exclusion Details	
Risk Adjustment	No risk adjustment or risk stratification
Stratification	
Type Score	
Algorithm	
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	0577 Use of spirometry testing in the assessment and diagnosis of COPD
Status	Maintenance, Original Endorsement: Dec 04, 2009, Most Recent Endorsement: Jan 25, 2012
Steward	National Committee for Quality Assurance
Description	This measure assesses the percentage of members 40 years of age and older with a new diagnosis of COPD or newly active COPD, who received appropriate spirometry testing to confirm the diagnosis.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy NCQA collects HEDIS data directly from Health Management Organizations and Preferred Provider Organizations via a data submission portal - the Interactive Data Submission System (IDSS). URL http://www.ncqa.org/tabid/370/default.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Setting	Ambulatory Care : Clinician Office, Home Health
Numerator Statement	The measure looks at the number of health plan members whose initial diagnosis of COPD is being confirmed using spirometry.
Numerator Details	**Time Window:** The numerator is calculated over a 12 month intake period beginning on July 1 of year prior to the measurement year (calendar year) and ending June 30 of the measurement year. Identify any members in the denominator with at least on claim/encounter with any code in Table SPR-B for spirometry in the 730 days before the index episode start date (IESD) to 180 days after the IESD. Index Episode Start Date is the earliest date of service for an eligible visit during the Intake Period with any diagnosis of COPD. Table SPR-B: Codes to Identify Spirometry Testing: CPT: 94010, 94014-94016, 94060, 94070, 94375, 94620
Denominator Statement	Any health plan member 42 years or older as of December 31 of the measurement year, who had a diagnosis of COPD during the Intake Period.
Denominator Details	**Time Window:** 12 month window from July 1 of year prior to June 30 of measurement year At least one claim/encounter with any code in Table SPR-B for spirometry 2 years before the Index Episode Start Date (IESD) to 6 months after the IESD. The IESD is the earliest date of service for an encounter with any diagnosis of COPD during the intake period.. For an outpatient claim/encounter, the IESD is the date of service. For an inpatient (acute or nonacute) claim, the IESD is the date of discharge. For a transfer or readmission, the IESD is the discharge date of original admission. If the member had more than one diagnosis of COPD, include only the first one. Members must be continuously enrolled in the organization 730 days (2 years) prior to the IESD through 180 days after the IESD. The intake period is a 12 month window that beings July 1 of the year prior to the measurement year and ends on June 30 of the measurement year. The Intake Period captures the first COPD diagnosis. Table SPR -A: ICD-9-CM Diagnosis Codes to Identify COPD Chronic bronchitis: 491 Emphysema: 492 COPD: 496 Table SPR-B: Codes to Identify Spirometry Testing: CPT: 94010, 94014-94016, 94060, 94070, 94375, 94620 Table SPR-C: Codes to Identify Visit Type Outpatient: CPT: 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99385-99387, 99395-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456; UB Revenue: 051x, 0520-0523, 0526-0529, 057x-059x, 082x-085x, 088x, 0982, 0983 Acute inpatient: CPT: 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291; UB Revenue: 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x, 021x, 072x, 080x, 0987 ED: CPT: 99281-99285; UB Revenue: 045x, 0981
Exclusions	Members are excluded from the denominator if they had a claim/encounter with a COPD diagnosis during the 730 days (2 years) prior to the index episode start date (IESD).
Exclusion	Any member with a claim/encounter (Table SPR-C) containing any diagnosis of COPD (Table SPR-A)_within the period of 730

	0577 Use of spirometry testing in the assessment and diagnosis of COPD
Details	days (2 years) prior to the IESD (inclusive). For an inpatient claim/encounter, use the date of admission to determine the Negative Diagnosis History.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Step 1 Identify all members who had an outpatient, ED or acute inpatient visit (Table SPR-C) with any diagnosis of COPD (Table SPR-A) during the Intake Period. If the member had more than one visit for COPD, include only the first one. Step 2 Test for Negative Diagnosis History. Exclude members who had an outpatient, ED or acute inpatient visit (Table SPR-C) with a COPD diagnosis during the 730 days (2 years) prior to the IESD. For an acute inpatient IESD, use the date of admission to determine the Negative Diagnosis History. Step 3 Calculate continuous enrollment. Members must be continuously enrolled in the organization 730 days (2 years) prior to the IESD through 180 days (6 months) after the IESD. Step 4: include in the numerator all members in the denominator who have at least one claim/encounter with any code in Table SPR-B for spirometry in the 730 days before the IESD to 180 days after the IESD.
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	1799 Medication management for people with asthma (MMA)
Status	New Submission
Steward	National Committee for Quality Assurance
Description	The percentage of members 5-64 years of age during the measurement year who were identified as having persistent asthma and were dispensed appropriate medications that they remained on during the treatment period. Two rates are reported. 1. The percentage of members who remained on an asthma controller medication for at least 50% of their treatment period. 2. The percentage of members who remained on an asthma controller medication for at least 75% of their treatment period.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy NCQA collects HEDIS data directly from Health Management Organizations and Preferred Provider Organizations via a data submission portal - the Interactive Data Submission System (IDSS). URL http://www.ncqa.org/tabid/370/default.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Setting	Ambulatory Care : Clinician Office
Numerator Statement	Numerator 1: The number of members who achieved a PDC* of at least 50% for their asthma controller medications during the treatment period Numerator 2: The number of members who achieved a PDC* of at least 75% for their asthma controller medications during the treatment period *PDC is the proportion of days covered by at least one asthma controller medication prescription in the measurement year.
Numerator Details	**Time Window:** The measurement year (one calendar year) First the treatment period must be calculated. To determine the treatment period, calculate the number of days from the Index Prescription Start Date (IPSD) to the end of the measurement period. The IPSD is the earliest dispensing event for any asthma controller medication (Table ASM-D) during the measurement year. To determine numerator compliance, Count the days covered by at least one prescription for an asthma controller medication (Table ASM-D) dispensed during the treatment period. To ensure that the days supply does not exceed the treatment period, subtract any days supply that extends beyond December 31 of the measurement year. Members who have multiple overlapping prescriptions should count the overlap days once towards the numerator. Table ASM-D: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline; potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; mometasone-formoterol Inhaled corticosteroids; beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free mometasone; triamcinolone Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn; nedocromil Methylxanthines: aminophylline; dyphylline; oxtriphylline theophylline
Denominator Statement	All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma.
Denominator Details	**Time Window:** The measurement year (one calendar year) and the year prior to the measurement year (2-year denominator identification window) The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient claim/encounter (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) • At least four asthma medication dispensing events (Table ASM-C) Step 2:

	1799 Medication management for people with asthma (MMA)
	A member identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (Table ASM-A), in any setting, in the same year as the leukotriene modifier (i.e., measurement year or year prior to the measurement year). Table ASM-A: Codes to Identify Asthma ICD-9-CM Diagnosis: 493.0, 493.1, 493.8, 493.9 Table ASM-B: Codes to Identify Visit Type Outpatient CPT: 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99382-99386, 99392-99396, 99401-99404, 99411, 99412, 99420, 99429 UB Revenue: 051x, 0520-0523, 0526-0529, 057x- 059x, 0982, 0983 Acute inpatient CPT: 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291 UB Revenue: 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x,021x, 072x, 0987 ED CPT: 99281-99285 UB Revenue: 045x, 0981 Table ASM-C Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline; potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol Inhaled corticosteroids: beclomethasone; budesonide ; ciclesonide; flunisolide; fluticasone CFC free; mometasone ; triamcinolone Leukotriene modifiers: montelukast; zafirlukast; zileuton Long-acting, inhaled beta-2 agonists: aformoterol; formoterol; salmeterol Mast cell stabilizers: cromolyn; nedocromil Methylxanthines: aminophylline; dyphylline; oxtriphylline; theophylline Short-acting, inhaled beta-2 agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Exclusions	1) Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year. 2) Exclude any members who have no medications dispensed during the measurement year.
Exclusion Details	Table ASM-E: Codes to Identify Required Exclusions Description: ICD-9-CM Diagnosis Emphysema: 492, 506.4, 518.1, 518.2 COPD: 491.2, 493.2, 496 Cystic fibrosis: 277.0 Acute respiratory failure: 518.81
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year. 1) 5–11 years 2) 12–18 years 3) 19-50 years 4) 51-64 years 5) Total
Type Score	Rate/proportion better quality = higher score

	1799 Medication management for people with asthma (MMA)
Algorithm	This measure determines the number of days covered with a controller medication based on information available from the published NDC codes to calculate adherence to asthma medications. The measure calculation is detailed in the steps listed below: Step 1: Determine eligible population: Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient claim/encounter (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) • At least four asthma medication dispensing events (Table ASM-C) Step 2: A member identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (Table ASM-A), in any setting, in the same year as the leukotriene modifier (i.e., the measurement year or the year prior to the measurement year). Step 3: Required Exclusions. Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year. Exclude any members who have no medication events present in their record during the measurement year. Step 4: Numerator: Identify the Index Prescription Dispensing Date (IPSD). The IPSD is the earliest dispensing event for any asthma controller medication (Table ASM-D) during the measurement year. Step 5: To determine the treatment period, calculate the number of days from the IPSD (inclusive) to the end of the measurement period. Step 6: Count the days covered by at least one prescription for an asthma controller medication (Table ASM-D) dispensed during the treatment period. To ensure that the days supply does not exceed the treatment period, subtract any days supply that extends beyond December 31 of the measurement year. Step 7: Calculate the member's PDC using the following equation. PDC=Total Days Covered by a Controller Medication in the Treatment Period (step 6)/Total Days in Treatment Period (step 5) Step 8: Sum the number of members whose PDC is =50% for their treatment period. Step 9: Sum the number of members whose PDC is =75% for their treatment period.
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	1800 Asthma medication ratio (AMR)
Status	New Submission
Steward	National Committee for Quality Assurance
Description	The percentage of members 5–64 years of age who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Pharmacy NCQA collects HEDIS data directly from Health Management Organizations and Preferred Provider Organizations via a data submission portal - the Interactive Data Submission System (IDSS). URL http://www.ncqa.org/tabid/370/default.aspx
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team, Facility, Health Plan, Integrated Delivery System, Population : National, Population : Regional
Setting	Ambulatory Care : Clinician Office
Numerator Statement	The number of members who have a medication ratio of at least 0.50
Numerator Details	**Time Window:** The measurement year (one calendar year) The steps below help to determine numerator-compliant members. Step 1: For each member, count the units of controller medications (Table ASM-A) dispensed during the measurement year. Each dispensing event is one unit. Step 2: For each member, count the units of reliever medications (Table ASM-A) dispensed during the measurement year. Each dispensing event is one unit. Step 3: For each member, sum the units calculated in step 1 and step 2 to determine units of total medications. Step 4: For each member, calculate the ratio of controller medications to total asthma medications using the following formula. AMR Ratio = Units of Controller Medications (step 1)/ Units of Total Medications (step 3) Step 5: Sum the total number of members who have a ratio of =0.50 in step 4. Table ASM-A: Asthma Controller and Reliever Medications Asthma Controller Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophyllinW; potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol: fluticasone-salmeterol; mometasone-formoterol; Inhaled corticosteroid; beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone; triamcinolone; Leukotriene modifier: montelukast; zafirlukas; zileuton Mast cell stabilizers: cromolyn; nedocromil Methylxanthines: aminophylline; dyphylline; oxtriphylline; theophylline Asthma Reliever Medications Short-acting, inhaled beta-2 agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Denominator Statement	All health plan members 5–64 years of age during the measurement year who were identified as having moderate to severe persistent asthma
Denominator Details	**Time Window:** The measurement year (one calendar year) and the year prior to the measurement year (2-year denominator identification window) The eligible population for the denominator is defined by following the series of steps below: Step 1 Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient claim/encounter (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) • At least four asthma medication dispensing events (Table ASM-C) Step 2:

	1800 Asthma medication ratio (AMR)
	A member identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (Table ASM-A), in any setting, in the same year as the leukotriene modifier (i.e., the measurement year or the year prior to the measurement year). Table ASM-A: Codes to Identify Asthma ICD-9-CM Diagnosis: 493.0, 493.1, 493.8, 493.9 Table ASM-B: Codes to Identify Visit Type Outpatient CPT: 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99382-99386, 99392-99396, 99401-99404, 99411, 99412, 99420, 99429 UB Revenue: 051x, 0520-0523, 0526-0529, 057x- 059x, 0982, 0983 Acute inpatient CPT: 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99291 UB Revenue: 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x,021x, 072x, 0987 ED CPT: 99281-99285 UB Revenue: 045x, 0981 Table ASM-C: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline; potassium iodide-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol Inhaled corticosteroids: beclomethasone; budesonide ; ciclesonide; flunisolide; fluticasone CFC free; mometasone ; triamcinolone Leukotriene modifiers: montelukast; zafirlukast; zileuton Long-acting, inhaled beta-2 agonists: aformoterol; formoterol; salmeterol Mast cell stabilizers: cromolyn; nedocromil Methylxanthines: aminophylline; dyphylline; oxtriphylline; theophylline Short-acting, inhaled beta-2 agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Exclusions	1)Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year. 2)Exclude any members who have no medication events present in their record during the measurement year.
Exclusion Details	Table ASM-E: Codes to Identify Required Exclusions Description: ICD-9-CM Diagnosis Emphysema: 492, 506.4, 518.1, 518.2 COPD: 491.2, 493.2, 496 Cystic fibrosis: 277.0 Acute respiratory failure: 518.81
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	The NCQA age strata for asthma measures are designed to align with both clinical practice guidelines and reporting requirements for child health quality improvement programs. Clinical guidelines specify appropriate age cohorts for measuring use of asthma medications as 5–11 years of age and 12–50 years of age, to account for the differences in medication regimens for children vs. for adolescents and adults. Implementation requires further stratification of the age ranges, to enable creation of comparable cohorts that align with child health populations. Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the member's age as of December 31st of the Measurement Year. 1) 5–11 years 2) 12–18 years 3) 19-50 years 4) 51-64 years 5) Total
Type Score	Rate/proportion better quality = higher score

	1800 Asthma medication ratio (AMR)
Algorithm	The measure determines how well a health plan member with moderate to severe persistent asthma is able to control their symptoms using controller medications as prescribed. The measure calculation is detailed in the steps listed below: Step 1: Determine eligible population: Identify members as having persistent asthma who met at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. • At least one ED visit (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least one acute inpatient claim/encounter (Table ASM-B) with asthma as the principal diagnosis (Table ASM-A) • At least four outpatient asthma visits (Table ASM-B) with asthma as one of the listed diagnoses (Table ASM-A) and at least two asthma medication dispensing events (Table ASM-C) • At least four asthma medication dispensing events (Table ASM-C) Step 2: A member identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (Table ASM-A), in any setting, in the same year as the leukotriene modifier (i.e., the measurement year or the year prior to the measurement year). Step 3: Required Exclusions. Exclude any members who had at least one encounter, in any setting, with any code to identify a diagnosis of emphysema, COPD, cystic fibrosis or acute respiratory failure (Table ASM-E). Look as far back as possible in the member's history through December 31 of the measurement year. Exclude any members who have no medication events present in their record during the measurement year. Step 4: For each member, count the units of controller medications (Table AMR-A) dispensed during the measurement year. Each dispensing event is one unit. Step 5: For each member, count the units of reliever medications (Table AMR-A) dispensed during the measurement year. Each dispensing event is one unit. Step 6: For each member, sum the units calculated in step 4 and step 5 to determine units of total medications. Step 7: For each member, calculate the ratio of controller medications to total asthma medications using the following formula. AMR Ratio= Units of Controller Medications (step 4)/ Units of Total Medications (step 6) Step 8: Sum the total number of members who have a ratio of =0.50 in step 7.
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	1825 COPD - Management of poorly controlled COPD
Status	New Submission
Steward	ActiveHealth Management
Description	The percentage of patients age 18 years or older with poorly controlled COPD, who are taking a long acting bronchodilator.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Pharmacy, Healthcare Provider Survey, Patient Reported Data/Survey Our data is collected from a number of electronic sources, e.g. health plans, pharmacy-based management systems, electronic health records, etc. Data may be collected in various forms. We accept claims from pharmacies, labs, third-party payors, hospitals, URL https://www.activehealthphrpp.net/PortalDemo/PortalLogin.aspx Username: PHRDemo181 Password: Testing456 Attachment NQF Measure Number 1825 Codes.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Facility, Health Plan, Integrated Delivery System, Population : County or City, Population : National, Population : Regional, Population : State
Setting	Ambulatory Care : Clinic/Urgent Care, Ambulatory Care : Clinician Office, Home Health, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility, Post Acute/Long Term Care Facility : Rehabilitation
Numerator Statement	Patients age 18 years or older with poorly controlled COPD, who are taking a long acting bronchodilator
Numerator Details	**Time Window:** 12 months (Words written in all capitals are element names. Please refer to the code set for full description) One of the following: 1. Presence of Health Information Exchange data indicating at least 1 refill of BRONCHODILATOR (LONG ACTING) in the past 12 months 2. Presence of at least 1 refill of BRONCHODILATOR (LONG ACTING) in the past 12 months 3. Presence of patient data confirming at least 1 refill of BRONCHODILATOR (LONG ACTING) in the past 12 months Prescence of feedback from provider or patients indicating BRONCHODILATOR (LONG ACTING) already implemented Prescence of feedback from provider or patients indicating BRONCHODILATOR (LONG ACTING) outside of benefit plan. Prescence of feedback from provider or patients is taking BRONCHODILATOR (LONG ACTING)drug samples. See attachment for code set
Denominator Statement	Patients age 18 years and older with poorly controlled COPD who are taking a short acting bronchodilator
Denominator Details	**Time Window:** 12 months (Words written in all capitals are element names. Please refer to the code set for full description.) All of the following expressions: 1. If patient age is greater than or equal to 18 years 2. One of the following: a. Presence of Health Information Exchange data indicating PM COPD diagnosis in the past 12 months b. Presence of at least 2 PM COPD diagnosis in the past 12 months 3. One of the following: a. Presence of at least 2 refills of B-AGONIST (SHORT ACTING-INHALED) in the past 12 months b. Presence of at least 2 refills of INHALED ANTICHOLINERGIC DRUGS (SHORT-ACTING)in the past 12 months c. Presence of at least 2 refills of INHALED ANTICHOLINERGIC AND BETA-AGONIST COMBO in the past 12 months 4. One of the following: a. Presence of at least 1 PM COPD diagnosis overlaps within 3 days of 1 COPD ACUTE TREATMENT procedure in the past 12 months b. All of the following: i. Presence of 1 refill of 25 total days supply of STEROIDS >/ 5MG PREDNISONE in the past 12 months ii. Presence of at least 1 PM COPD diagnosis overlaps within 3 days of 1 Refill of STEROIDS >/ 5MG PREDNISONE in the past 12 months iii. Excluding presence of at least 2 STEROIDS-INDICATIONS diagnosis in the past 24 months

	1825 COPD - Management of poorly controlled COPD
	See attachment for code set
Exclusions	Patients who had lung transplantation in the past 3 years.
Exclusion Details	One of the following: 1. Presence of at least 1 TRANSPLANT LUNG (CPT) Procedure in the past 3 years 2. Presence of At Least 1 TRANSPLANT LUNG (ICD9) Diagnosis in the past 3 Years See attachment for code set
Risk Adjustment	No risk adjustment or risk stratification This specific measure addresses all COPD patients, regardless of the disease, across the entire measured population. Using our highly specific condition validation rule algorithms, people with a confirmed diagnosis of COPD will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure.
Stratification	This specific measure addresses all COPD patients, regardless of the disease, across the entire measured population. Using our highly specific condition validation rule algorithms, people with a confirmed diagnosis of COPD will be included in the denominator. Therefore, no risk adjustment or risk stratification is necessary for this unique measure.
Type Score	Rate/proportion better quality = higher score
Algorithm	Calculation algorithm is included in the attachment for section 2a1.21. Attachment NQF Measure 1825 Rules.pdf
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	1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
Status	New Submission
Steward	Centers for Medicare and Medicaid Services **Other organizations:** MPR: Mathematica Policy Research; RTI: Research Triangle Institute
Description	The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as readmission for any cause within 30 days after the date of discharge of the index admission, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.
Type	Outcome
Data Source	Administrative claims Administrative Claims To apply the measure to Medicare FFS patients, Medicare Part A inpatient and outpatient and Part B outpatient claims are used. To apply the measure to a non-Medicare population, inpatient claims data are used. The Medicare data sour Attachment COPD ICD 9 to ICD10_Diag + Proc.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day all-cause readmission. We define all-cause readmission as an inpatient admissions for any cause within 30 days after the date of discharge from the index admission for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD. If a patient has one or more admissions (for any reason) within 30 days after discharge from the index admission, only one is counted as a readmission.
Numerator Details	**Time Window:** Patients who are readmitted for any cause within 30 days from the date of discharge of the index COPD admission. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes readmissions to any acute care hospital for any cause within 30 days from the date of discharge of the index admission.
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients discharged from the hospital with either a principal diagnosis of COPD (see codes below) OR a principal diagnosis of respiratory failure (see codes below) WITH a secondary discharge diagnosis of acute exacerbation of COPD (see codes below) and with a complete claims history for the 12 months prior to admission.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for COPD. The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort the inclusion criteria required that the patient be continuously enrolled in Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. Primary COPD and respiratory failure with a secondary diagnosis of acute exacerbation of COPD are defined by the following ICD-9-CM and ICD-10-CM codes: ICD-9-CM codes used to define COPD: 491.21 Obstructive chronic bronchitis; with (acute) exacerbation; acute exacerbation of COPD, decompensated COPD, decompensated COPD with exacerbation. 491.22 Obstructive chronic bronchitis; with acute bronchitis 491.8 Other chronic bronchitis. Chronic: tracheitis, tracheobronchitis. 491.9 Unspecified chronic bronchitis 492.8 Other emphysema; emphysema (lung or pulmonary): Not otherwise specified, centriacinar, centrilobular, obstructive,

	1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
	panacinar, panlobular, unilateral, vesicular. MacLeod´s syndrome; Swyer-James syndrome; unilateral hyperlucent lung 493.20 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, unspecified 493.21 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with status asthmaticus 493.22 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with (acute) exacerbation 496 Chronic: nonspecific lung disease, obstructive lung disease, obstructive pulmonary disease (COPD) NOS. ICD-10-CM codes used to define COPD: J441 Chronic obstructive pulmonary disease with (acute) exacerbation J418 Mixed simple and mucopurulent chronic bronchitis J42 Unspecified chronic bronchitis J439 Emphysema, unspecified J449 Chronic obstructive pulmonary disease, unspecified J440 Chronic obstructive pulmonary disease with acute lower respiratory infection ICD-9-CM codes used to define respiratory failure: 518.81 Other diseases of lung; acute respiratory failure; respiratory failure NOS 518.82 Other diseases of lung; acute respiratory failure; other pulmonary insufficiency, acute respiratory distress 518.84 Other diseases of lung; acute respiratory failure; acute and chronic respiratory failure 799.1 Other ill-defined and unknown causes of morbidity and mortality; respiratory arrest, cardiorespiratory failure ICD-9-CM codes used to define acute exacerbation of COPD: 491.21 Obstructive chronic bronchitis; with (acute) exacerbation; acute exacerbation of COPD, decompensated COPD, decompensated COPD with exacerbation. 491.22 Obstructive chronic bronchitis; with acute bronchitis 493.21 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with status asthmaticus 493.22 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with (acute) exacerbation ICD-10-CM codes used to define respiratory failure: J9600 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia J9690 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia J80 Acute Respiratory distress syndrome J9620 Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia R092 Respiratory arrest ICD-10-CM codes used to define acute exacerbation of COPD: J441 Chronic obstructive pulmonary disease with (acute) exacerbation J440 Chronic obstructive pulmonary disease with acute low respiratory infection
Exclusions	An index admission is any eligible admission to an acute care hospital assessed in the measure for the outcome (readmitted within 30 days of the date of discharge from the initial admission). The measure excludes admissions for patients: • with an in hospital death (because they are not eligible for readmission). • transferred to another acute care facility (We assign the outcome for the acute episode of care to the hospital that discharges the patient to the non-acute care setting because the discharging hospital initiates the discharge and the transition to the outpatient setting. Therefore, the last admission in the acute care setting for the episode of care is eligible to be an index admission in the measure. The prior admissions in the same acute episode are excluded from the measure.) • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge). • without at least 30 days post-discharge claims data (because the 30-day readmission outcome cannot be assessed in this group). Additionally, admissions that occur within 30 days of the discharge date of an earlier index admission are not themselves considered to be index admissions. Any COPD admission can only be an index admission or a readmission, but not both. Of note, a patient may satisfy multiple exclusion criteria.
Exclusion Details	We provide denominator exclusions details for the Medicare data. The specific fields used in “all-payer” data will vary. In-hospital deaths are identified using the discharge disposition vital status indicator. Transfers to other acute care facilities are defined when a patient with an inpatient hospital admission (with at least one qualifying COPD admission) is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator.

	1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
	Lack of claims data for 30 days post-discharge is identified by patient enrollment status in the CMS' Enrollment Database (EDB) (for Medicare FFS patients only).
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes"1. The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level, the model adjusts the log-odds of readmission within 30 days of discharge for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercepts represent the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSRR is calculated as the ratio of the number of "predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio ("predicted") is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmission for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that were expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Frequencies and odds ratios for the model development sample (2008 Medicare FFS patients aged 65 and older; n=170,480 admissions) are presented below. Table 1: Final set of risk-adjustment variables: Variable//Frequency (%)//Odds Ratio (95% confidence interval) Demographic

	1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
	• Age-65 (years above 65, continuous) for 65 and over cohorts/Frequency = -/OR (95% CI)=1.00 (1.00-1.00); (this variable is Age (years, continuous) for 18 and over cohorts) Cardiovascular/Respiratory • Sleep Apnea (ICD-9 CM diagnosis codes: 327.20, 327.21, 327.23, 327.27, 327.29, 780.51, 780.53, 780.57) / Frequency=10.46% / OR (95% CI)=1.00 (0.96-1.03) • History of mechanical ventilation (ICD-9 procedure codes: 93.90, 96.70, 96.71, 96.72)/ Frequency=7.33/ OR (95% CI)=1.13 (1.08-1.18) • Respirator dependence/respiratory failure (CC 77-78)/ Frequency=1.38/ OR (95% CI)=1.12 (1.03-1.23) • Cardio-respiratory failure and shock (CC 79)/ Frequency=29.84/ OR (95% CI)=1.21 (1.18-1.24) • Congestive heart failure (CC 80)/ Frequency=43.86/ OR (95% CI)=1.21 (1.18-1.24) • Chronic atherosclerosis (CC 83-84)/ Frequency=51.57/ OR (95% CI)=1.11 (1.08-1.13) • Arrhythmias (CC 92-93)/ Frequency=37.2/ OR (95% CI)=1.17 (1.12-1.22) • Vascular or circulatory disease (CC 104-106)/ Frequency=38.2/ OR (95% CI)=1.09 (1.05-1.14) • Arrhythmias (CC 92-93)/ Frequency=38.48/ OR (95% CI)=1.14 (1.11-1.17) • Other and Unspecified Heart Disease (CC 94)/ Frequency=19.45/ OR (95% CI)=1.08 (1.05-1.11) • Vascular or Circulatory Disease (CC 104-106)/ Frequency=39.42/ OR (95% CI)=1.09 (1.06-1.11) • Fibrosis of lung and other chronic lung disorder (CC 109)/ Frequency=18.12/ OR (95% CI)=1.09 (1.06-1.12) • Pneumonia (CC 111-113)/ Frequency=51.51/ OR (95% CI)=1.10 (1.07-1.13) Other Comorbid Conditions • History of Infection (CC 1, 3-6)/ Frequency=32.16/ OR (95% CI)=1.08 (1.05-1.11) • Metastatic cancer and acute leukemia (CC 7)/ Frequency=2.64/ OR (95% CI)=1.24 (1.15-1.33) • Lung, upper digestive tract, and other severe cancers (CC 8)/ Frequency=5.91/ OR (95% CI)=1.19 (1.13-1.25) • Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors; other respiratory and heart neoplasms (CC 9-11)/ Frequency=13.88/ OR (95% CI)=1.04 (1.01-1.08) • Other digestive and urinary neoplasms (CC 12)/ Frequency=7.06/ OR (95% CI)=0.96 (0.92-1.01) • Diabetes and DM complications (CC 15-20, 119-120)/ Frequency=39.15/ OR (95% CI)=1.08 (1.05-1.11) • Protein-calorie malnutrition (CC 21)/ Frequency=7.57/ OR (95% CI)=1.14 (1.09-1.19) • Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/ Frequency=34.57/ OR (95% CI)=1.17 (1.14-1.20) • Other Endocrine/Metabolic/Nutritional Disorders (CC 24)/ Frequency=68.61/ OR (95% CI)=0.91 (0.89-0.94) • Pancreatic Disease (CC 32)/ Frequency=4.85/ OR (95% CI)=1.12 (1.06-1.17) • Peptic Ulcer, Hemorrhage, Other Specified Gastrointestinal Disorders (CC 34)/ Frequency=12.58/ OR (95% CI)=1.07 (1.03-1.11) • Other Gastrointestinal Disorders (CC 36)/ Frequency=58.29/ OR (95% CI)=1.04 (1.02-1.07) • Severe Hematological Disorders (CC44)/ Frequency=2.07 /OR (95% CI)=1.12 (1.04-1.20) • Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/ Frequency=42.09/ OR (95% CI)=1.13 (1.10-1.16) • Dementia and senility (CC 49-50)/ Frequency=17.07 /OR (95% CI)=1.00 (0.97-1.04) • Drug/Alcohol Induced Dependence/Psychosis (CC 51-52)/ Frequency=3.67/ OR (95% CI)=1.15 (1.09-1.22) • Major Psych Disorders (CC 54-56)/ Frequency=10.79/ OR (95% CI)=1.08 (1.04-1.12) • Depression (CC 58)/ Frequency=19.63/ OR (95% CI)=1.06 (1.03-1.09) • Anxiety Disorders (CC 59)/ Frequency=3.27/ OR (95% CI)=1.15 (1.08-1.22) • Other Psychiatric Disorders (CC 60)/ Frequency=18.37/ OR (95% CI)=1.11 (1.08-1.15) • Quadriplegia, paraplegia, functional disability (CC 67-69, 100-102, 177-178)/ Frequency=5.02/ OR (95% CI)=1.08 (1.02-1.13) • Polyneuropathy (CC 71)/ Frequency=7.91/ OR (95% CI)=1.11 (1.06-1.16) • Acute Coronary Syndrome (CC 81-82)/ Frequency=9.54/ OR (95% CI)=1.08 (1.04-1.12) • Hypertensive Heart and Renal Disease or Encephalopathy (CC 89)/ Frequency=13.20/ OR (95% CI)=1.13 (1.09-1.17) • Stroke (CC 95-96)/ Frequency=6.84/ OR (95% CI)=1.04 (1.00-1.09) • Renal Failure (CC 131)/ Frequency=18.61/ OR (95% CI)=1.10 (1.06-1.14) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/ Frequency=7.43/ OR (95% CI)=1.03 (0.99-1.08) • Cellulitis, Local Skin Infection (CC 152)/ Frequency=12.50/ OR (95% CI)=1.07 (1.03-1.11) • Vertebral Fractures (CC 157)/ Frequency=5.24/ OR (95% CI)=1.14 (1.08 -1.19) ICD-10-CM codes for model variables (for those variables defined by ICD-9 CM codes rather than CCs)

	1891 Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following chronic obstructive pulmonary disease (COPD) hospitalization
	Mechanical Ventilation • 5A09357 Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure • 5A09457 Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure • 5A09557 Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure • 5A1935Z Respiratory Ventilation, Less than 24 Consecutive Hours • 5A1945Z Respiratory Ventilation, 24-96 Consecutive Hours •5A1955Z Respiratory Ventilation, Greater than 96 Consecutive Hours Sleep Apnea • G4730 Sleep apnea, unspecified • G4731 Primary central sleep apnea • G4733 Obstructive sleep apnea (adult) (pediatric) • G4737 Central sleep apnea in conditions classified elsewhere • G4739 Other sleep apnea Attachment Delv49b_COPD_ReadmissionMethodologyReport-9-29-11.pdf
Stratification	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSRR is calculated as the ratio of the number of "predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the numerator of the ratio ("predicted") is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of readmission for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of readmissions (the denominator) is the sum of expected probabilities of readmission for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Please see attachment for more details on the calculation algorithm. Attachment COPD Readmission Calculation Algorithm.pdf
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	1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
Status	New Submission
Steward	Centers for Medicare and Medicaid Services **Other organizations:** MPR: Mathematica Policy Research; RTI: Research Triangle Institute
Description	The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.
Type	Outcome
Data Source	Administrative claims, Other Administrative Claims To apply the measure to Medicare FFS patients, Medicare Part A inpatient and outpatient and Part B outpatient claims are used. To apply the measure to a non-Medicare population, inpatient claims data are used. The Medicare data sour Attachment COPD ICD 9 to ICD10_Diag + Proc-634620609481436797.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days from the date of admission for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.
Numerator Details	**Time Window:** Patients who die within 30 days of the index admission date. This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. Measure includes deaths from any cause within 30 days from admission date of the index hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database. Identifying deaths in the all-payer measure For the purposes of development deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI).
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients discharged from the hospital with either a principal diagnosis of COPD (see codes below) OR a principal diagnosis of respiratory failure (see codes below) WITH a secondary diagnosis of acute exacerbation of COPD (see codes below) and with a complete claims history for the 12 months prior to admission. If a patient has more than one COPD admission in a year, one hospitalization is randomly selected for inclusion in the measure.
Denominator Details	**Time Window:** This measure was developed with 12 months of data. Note: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. The denominator includes patients 18 and over hospitalized for COPD. The measure was developed in a cohort of patients 65 years and older who were enrolled in Medicare FFS and admitted to non-federal hospitals. To be included in the Medicare FFS cohort the inclusion criteria required that the patient be continuously enrolled in Medicare FFS Parts A and B for the 12 months prior to the index hospitalization. Primary COPD and respiratory failure with a secondary diagnosis of acute exacerbation of COPD are defined by the following ICD-9-CM and ICD-10-CM codes: ICD-9-CM codes used to define COPD: 491.21 Obstructive chronic bronchitis; with (acute) exacerbation; acute exacerbation of COPD, decompensated COPD, decompensated COPD with exacerbation. 491.22 Obstructive chronic bronchitis; with acute bronchitis

	1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	491.8 Other chronic bronchitis. Chronic: tracheitis, tracheobronchitis. 491.9 Unspecified chronic bronchitis. 492.8 Other emphysema; emphysema (lung or pulmonary): not otherwise specified, centriacinar, centrilobular, obstructive, panacinar, panlobular, unilateral, vesicular. MacLeod´s syndrome; Swyer-James syndrome; unilateral hyperlucent lung 493.20 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, unspecified 493.21 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with status asthmaticus 493.22 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with (acute) exacerbation 496 Chronic: nonspecific lung disease, obstructive lung disease, obstructive pulmonary disease (COPD) NOS. ICD-10-CM codes used to define COPD: J441 Chronic obstructive pulmonary disease with (acute) exacerbation J418 Mixed simple and mucopurulent chronic bronchitis J42 Unspecified chronic bronchitis J439 Emphysema, unspecified J449 Chronic obstructive pulmonary disease, unspecified J440 Chronic obstructive pulmonary disease with acute low respiratory infection ICD-9-CM codes used to define respiratory failure: 518.81 Other diseases of lung; acute Respiratory failure; respiratory failure NOS 518.82 Other diseases of lung; acute Respiratory failure; other pulmonary insufficiency, acute respiratory distress 518.84 Other diseases of lung; acute respiratory failure; acute and chronic respiratory failure. 799.1 Other ill-defined and unknown causes of morbidity and mortality; respiratory arrest, cardiorespiratory failure ICD-9-CM codes used to define acute exacerbation of COPD: 491.21 Obstructive chronic bronchitis; with (acute) exacerbation; acute exacerbation of COPD, decompensated COPD, decompensated COPD with exacerbation. 491.22 Obstructive chronic bronchitis; with acute bronchitis 493.21 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with status asthmaticus 493.22 Chronic obstructive asthma; asthma with COPD, chronic asthmatic bronchitis, with (acute) exacerbation ICD-10-CM codes used to define respiratory failure: J9600 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia J9690 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia J80 Acute Respiratory distress syndrome J9620 Acute and chronic respiratory failure, unspecified whether the hypoxia or hypercapnia R092 Respiratory arrest ICD-10-CM codes used to define acute exacerbation of COPD: J441 Chronic obstructive pulmonary disease with (acute) exacerbation J440 Chronic obstructive pulmonary disease with acute low respiratory infection
Exclusions	An index admission is any eligible admission to an acute care hospital assessed in the measure for the outcome (died within 30 days after the index admission date). For all cohorts, the measure excludes admissions for patients: • transferred into the hospital from another acute care hospital (We assign the outcome for the acute episode of care to the first admitting hospital because the first hospital initiates patient management and is responsible for any decision to transfer the patient. Therefore, the first admission in an acute episode of care is eligible to be an index admission in the measure. The second or subsequent admissions in the same acute episode are excluded from the measure). • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date). • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); For Medicare FFS patients, the measure additionally excludes admissions for patients: • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all-payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available. Of note, a patient may satisfy multiple exclusion criteria.
Exclusion Details	We provide denominator exclusion details for the Medicare data. The specific fields used in “all-payer” data will vary. Transfers to other acute care facilities are identified in the claims when a patient with an inpatient hospital admission (with at

	1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	least one qualifying COPD admission) is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day. Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years: 2) if the discharge date for a hospitalization is before the admission date; 3) if the patient has a sex other than 'male' or 'female'. Discharges Against Medical Advice (AMA) are identified using the discharge disposition indicator. Hospice enrollment in the 12 months prior to or on the index admission is identified using enrollment status derived from the EDB and the Inpatient SAF (this exclusion applies when the measure is used in Medicare FFS patients only).
Risk Adjustment	Statistical risk model Our approach to risk adjustment was tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes".1 The measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital mortality rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals.2 At the patient level the model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. The second level models hospital-specific intercepts as arising from a normal distribution. The hospital-specific intercept represents the hospital contribution to the risk of mortality, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected mortality or better quality and a higher ratio indicates higher-than-expected mortality or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk adjustors that were expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including age and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables. A file which contains a list of the ICD-9-CM codes and their groupings into CCs is available on www.qualitynet.org (http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979). We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. Only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. References: 1. Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. 2. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226.

	1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	Frequencies and odds ratios for the model development sample (2008 Medicare FFS patients aged 65 and older; n=150,035 admissions) are presented below. Table 1: Final set of risk-adjustment variables: Variable//Frequency (%)//Odds Ratio (95% confidence interval) Demographic • Age-65 (years above 65, continuous) for 65 and over cohorts/Frequency = -/OR (95% CI)=1.03 (1.03-1.04); (this variable is Age (years, continuous) for 18 and over cohorts) Cardiovascular/Respiratory • Sleep Apnea (ICD-9 CM diagnosis codes: 327.20, 327.21, 327.23, 327.27, 327.29, 780.51, 780.53, 780.57)/Frequency=9.6/OR (95% CI)=0.87 (0.81-0.94) • History of mechanical ventilation (ICD-9 procedure codes: 93.90, 96.70, 96.71, 96.72)/ Frequency= 6.0/OR (95% CI)=1.19 (1.11-1.28) • Respirator dependence/respiratory failure (CC 77-78)/ Frequency=1.2/OR (95% CI)=0.88 (0.76-1.02) • Cardio-respiratory failure and shock (CC 79)/ Frequency=26.4/OR (95% CI)=1.60 (1.53-1.68) • Congestive heart failure (CC 80)/ Frequency=41.5/OR (95% CI)=1.33 (1.28-1.40) • Chronic atherosclerosis (CC 83-84)/Frequency=50.4/OR (95% CI)=0.87 (0.83-0.90) • Arrhythmias (CC 92-93)/ Frequency=37.2/OR (95% CI)=1.17 (1.12-1.22) • Vascular or circulatory disease (CC 104-106)/ Frequency=38.2/OR (95% CI)=1.09 (1.05-1.14) • Fibrosis of lung and other chronic lung disorder (CC 109)/Frequency=17.0/OR (95% CI)=1.08 (1.03-1.13) • Asthma (CC 110)/ Frequency=17.1/OR (95% CI)=0.67 (0.63-0.71) • Pneumonia (CC 111-113)/ Frequency=49.5/OR (95 CI)=1.29 (1.24-1.35) • Pleural effusion/Pneumothorax (CC 114)/ Frequency=11.8/OR (95% CI)=1.17 (1.11-1.23) • Other lung disorders (CC 115)/ Frequency=53.1/OR (95% CI)=0.80 (0.77-0.83) Other Comorbid Conditions • Metastatic cancer and acute leukemia (CC 7)/ Frequency=2.8/OR (95% CI)=2.34 (2.13-2.56) • Lung, upper digestive tract, and other severe cancers (CC 8)/ Frequency=6.0/OR (95% CI)=1.80 (1.67-1.92) • Lymphatic, head and neck, brain, and other major cancers; breast, prostate, colorectal and other cancers and tumors; other respiratory and heart neoplasms (CC 9-11)/ Frequency=14.1/OR (95% CI)=1.03 (0.97-1.08) • Other digestive and urinary neoplasms (CC 12)/ Frequency=6.9/OR (95% CI)=0.91 (0.84-0.98) • Diabetes and DM complications (CC 15-20, 119-120)/ Frequency=38.3/OR (95% CI)=0.91 (0.87-0.94) • Protein-calorie malnutrition (CC 21)/ Frequency=7.4/OR (95% CI)=2.17 (2.05-2.29) • Disorders of Fluid/Electrolyte/Acid-Base (CC 22-23)/ Frequency=32.1/OR (95% CI)=1.13 (1.08-1.18) • Other Endocrine/Metabolic/Nutritional Disorders (CC 24)/ Frequency=68.0/OR (95% CI)=0.75 (0.72-0.78) • Other Gastrointestinal Disorders (CC 36)/Frequency=56.2/OR (95% CI)=0.81 (0.78-0.84) • Osteoarthritis of Hip or Knee (CC 40)/ Frequency=9.3/OR (95% CI)=0.74 (0.69-0.80) • Other Musculoskeletal and Connective Tissue Disorders (CC 43)/ Frequency=64.1/OR (95% CI)=0.83 (0.79-0.86) • Iron Deficiency and Other/Unspecified Anemias and Blood Disease (CC 47)/ Frequency=40.8/OR (95% CI)=1.08 (1.04-1.12) • Dementia and senility (CC 49-50)/ Frequency=17.1/OR (95% CI)=1.09 (1.04-1.14) • Drug/Alcohol Abuse, Without Dependence (CC 53)/ Frequency=23.5/OR (95% CI)=0.79 (0.75-0.83) • Other Psychiatric Disorders (CC 60)/ Frequency=16.5/OR (95% CI)=1.12 (1.07-1.18) • Quadriplegia, paraplegia, functional disability (CC 67-69, 100-102, 177-178)/ Frequency=4.9/OR (95% CI)=1.03 (0.95-1.12) • Mononeuropathy, Other Neurological Conditions/Injuries (CC 76)/ Frequency=11.4/OR 95% CI)=0.85 (0.80-0.91) • Hypertension and Hypertensive Disease (CC 90-91)/ Frequency=80.4/OR (95% CI)=0.78 (0.75-0.82) • Stroke (CC 95-96)/ Frequency=6.8/OR (95% CI)=1.00 (0.93-1.08) • Retinal Disorders, Except Detachment and vascular Retinopathies (CC 121)/ Frequency=10.8/OR (95% CI)=0.87 (0.82-0.93) • Other Eye Disorders (CC 124)/ Frequency=19.1/OR (95% CI)=0.90 (0.86-0.95) • Other Ear, Nose, Throat, and Mouth Disorders (CC 127)/Frequency=35.2/OR (95% CI)=0.83 (0.80-0.87) • Renal Failure (CC 131)/ Frequency=17.9/OR (95% CI)=1.12 (1.07-1.18) • Decubitus ulcer or chronic skin ulcer (CC 148-149)/ Frequency=7.4/OR (95% CI)1.27 (1.19-1.35) • Other Dermatological Disorders (CC 153)/ Frequency=28.5/OR (95% CI)0.91 (0.87-0.95) • Trauma (CC 154-156, 158-161)/ Frequency=9.0/OR (95% CI)1.10 (1.03-1.16) • Vertebral Fractures (CC 157)/ Frequency=5.0/OR (95% CI)=1.33 (1.24-1.44) • Major Complications of Medical Care and Trauma (CC 164)/ Frequency=5.5/OR (95% CI)=0.81 (0.75-0.88)

	1893 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	ICD-10-CM codes for model variables (for those variables defined by ICD-9 CM codes rather than CCs) Mechanical Ventilation • 5A09357 Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure • 5A09457 Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure • 5A09557 Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure • 5A1935Z Respiratory Ventilation, Less than 24 Consecutive Hours • 5A1945Z Respiratory Ventilation, 24-96 Consecutive Hours•5A1955Z Respiratory Ventilation, Greater than 96 Consecutive Hours Sleep Apnea • G4730 Sleep apnea, unspecified • G4731 Primary central sleep apnea • G4733 Obstructive sleep apnea (adult) (pediatric) • G4737 Central sleep apnea in conditions classified elsewhere • G4739 Other sleep apnea Attachment Del49a_COPD_MortalityMethodologyReport_11 04 11 FINAL.pdf
Stratification	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus, a lower ratio indicates lower-than-expected mortality or better quality and a higher ratio indicates higher-than-expected mortality or worse quality. The predicted hospital outcome (the numerator) is the sum of predicted probabilities of death for all patients at a particular hospital. The predicted probability of each patient in that hospital is calculated using the hospital-specific intercept and patient risk factors. The expected number of deaths (the denominator) is the sum of expected probabilities of death for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. To assess hospital performance in any reporting period, the model coefficients are re-estimated using the years of data in that period. Please see attachment for more details on the calculation algorithm. Attachment COPD Mortality Calculation Algorithm.pdf
Copyright/ Disclaimer	N/A

	1895 Assessment of mental status for community-acquired bacterial pneumonia
Status	New Submission
Steward	American Medical Association - Physician Consortium for Performance Improvement (AMA-PCPI) **Other organizations:** This measure is jointly copyrighted by the AMA-PCPI and the National Committee for Quality Assurance. The measure set was also developed in collaboration with the American College of Emergency Medicine.
Description	Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with mental status assessed
Type	Process
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records Not Applicable Attachment AMA-PCPI_0095_DataElements.pdf
Level	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinic/Urgent Care, Ambulatory Care : Clinician Office, Home Health, Hospital/Acute Care Facility, Other, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility Emergency Department, 'Domiciliary, Rest Home or Custodial Care Services'
Numerator Statement	Patients for whom mental status was assessed
Numerator Details	**Time Window:** Once for each episode of CAP during measurement period Numerator Instructions: This measure is to be reported once for each occurrence of community-acquired bacterial pneumonia during the reporting period. Each unique occurrence is defined as a 45-day period from onset of community-acquired bacterial pneumonia. Numerator Definition: Assessed – May include: Documentation by clinician that patient's mental status was noted (e.g., patient is oriented or disoriented). For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Administrative: CPT Category II code: 2014F: Mental status assessed
Denominator Statement	All patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia
Denominator Details	**Time Window:** Each episode of CAP during 12 month measurement period For EHR: eSpecification currently under development. Data elements (using Quality Data Model) required for the measure attached. For Claims/Administrative: Patients aged >= 18 years on date of encounter AND ICD-9-CM diagnosis codes: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0 ICD-10-CM diagnosis codes: A48.1, J10.00, J10.08, J11.00, J11.08, J12.9, J13, J14, J15.0, J15.1, J15.20, J15.21, J15.29, J15.3, J15.4, J15.5, J15.6, J15.7, J15.8, J15.9, J16.0, J16.8, J18.0, J18.1, J18.8, J18.9 AND CPT Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99281, 99282, 99283, 99284, 99285, 99291*, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 *Clinicians utilizing the critical care code (99291) must indicate the emergency department place-of-service (23) on the Medicare Part B claim form.
Exclusions	None
Exclusion Details	This measure has no exclusions
Risk	No risk adjustment or risk stratification

	1895 Assessment of mental status for community-acquired bacterial pneumonia
Adjustment	None
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, gender, and primary language, and have included these variables as recommended data elements to be collected
Type Score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1. Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2. From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3. From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4. If the measure does not have exceptions, STOP. If the measure has exceptions, proceed with the following steps: From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for denominator exception when exceptions have been specified. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. Although the exception cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. Calculation algorithm is included in data dictionary/code table attachment 2a1.30. Attachment AMA-PCPI_Measure Calculation-Standard Measures-634631916513046857.pdf
Copyright/ Disclaimer	Physician Performance Measures (Measures) and related data specifications, developed by the American Medical Association (AMA) in collaboration with the Physician Consortium for Performance Improvement (the Consortium) and the National Committee for Quality Assurance (NCQA) pursuant to government sponsorship under subcontract 6205-05-054 with Mathematica Policy Research, Inc. under contract 500-00-0033 with Centers for Medicare & Medicaid Services. These performance Measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications. The Measures, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes, e.g., use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of the Measures for commercial gain, or incorporation of the Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the Measures require a license agreement between the user and the AMA, (on behalf of the Consortium) or NCQA. Neither the AMA, NCQA, Consortium nor its members shall be responsible for any use of the Measures. THE MEASURES AND SPECIFICATIONS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. © 2004-6 American Medical Association and National Committee for Quality Assurance. All Rights Reserved. Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, NCQA, the Consortium and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. See copyright statement above.

APPENDIX B – ASTHMA COMPETING MEASURES EVALUATION

	0036 Use of appropriate medications for people with asthma {NCQA)	0047 Asthma:Pharmacologic Therapy for Persistent Asthma {AMA PCPI)
Compare on ALL measure evaluation criteria, weighing the strengths and weaknesses across ALL criteria: Is one measure superior?	IMPACT: H18, M-1, L-0 GAP: H-16, M-3, L-0 EVIDENCE: YES-14, NO-S, 1-0 RELIABILITY: H-6, M-9, L-1, 1-1 VALIDITY: H-1, M-11, L-7 USABILITY: H-9, M-9, L-0 FEASIBILTY: H-10, M-9, L-0, 1-0 SUITABILTY: YES-17, N0-1	IMPACT: H-13, M-6, L-0, 1-0 GAP: H-12, M-7, L-0, 1-0 EVIDENCE: YES -16, No-2, 1-1 RELIABILITY: H-6, M-12, L-1, 1-0 VALIDITY: H-1, M-14, L-4, 1-0 USABILITY: H-4, M-13, L-1, 1-1 FEASIBILITY: H-12, M-7, L-0, 1-0 SUITABILITY: YES -16, N0-3
All else being equal on the criteria and subcriteria, the preference is for:		
Measures specified for the broadest application (target patient population as indicated by the evidence, settings, level of analysis)	TARGET POPULATION: All health plan members ages 5-64 years with moderate to severe persistent asthma SETIING: Ambulatory: Clinician office LEVEL of ANALYSIS: Clinician: Individual, Group/Practice/Team; Plan, Integrated Delivery System; Regional/National/State population	TARGET POPULATION: All patients aged 5-50 years with a diagnosis of persistent asthma SETIING: Ambulatory: Clinician office LEVEL of ANALYSIS: Clinician: Individual, Group/Practice/Team
Measures that address disparities in care when appropriate	Not stratified to detect disparities	Encourages stratification but not included in specifications
Measures with the widest use (e.g., settings, numbers of entities reporting performance results)	HEDIS plan measure Retooled eMeasure- meaningful use program CHIPRA Core Set	PQRS program since 2007 Retooled eMeasure- meaningful use program
Measures that are publicly reported	HEDIS measure publicly reported through State of Healthcare Quality report; Quality Compass; American's Best Health Plans	PQRS results not publicly reported
Measures based on data from electronic sources	All data elements are in a combination of electronic sources	
Clinical data from EHRs	Retooled eMeasure	Retooled eMeasure
Measures that are freely available	Yes	Yes

APPENDIX B – COPD COMPETING MEASURES EVALUATION

	0091COPD:spirometry evaluation (AMA PCPI)	0577 Use of Spirometry Testing in Assessment and Diagnosis of COPD
Compare on ALL measure evaluation criteria, weighing the strengths and weaknesses across ALL criteria: Is one measure superior?	IMPACT: H16, M-2, L-0 GAP: H-12, M-4, L-0, 1-2 EVIDENCE: YES-16, N0-0, 1-2 RELIABILITY: H-9, M-8, L-1, 1-0 VALIDITY: H-9, M-7, L-1, 1-1 USABILITY: H-9, M-7, L-1, 1-1 FEASIBILTY: H-10, M-8, L-0, 1-0 SUITABILTY: YES-17, N0-1	IMPACT: H-12, M-5, L-0, 1-1 GAP: H-14, M-4, L-0, 1-0 EVIDENCE: YES -18, No-0, 1-0 RELIABILITY: H-12, M-6, L-0, 1-0 VALIDITY: H-13, M-5, L-0, 1-0 USABILITY: H-7, M-10, L-1, 1-0 FEASIBILITY: H-12, M-6, L-0, 1-0 SUITABILITY: YES -18, N0-0
All else being equal on the criteria and subcriteria, the preference is for:		
Measures specified for the broadest application (target patient population as indicated by the evidence, settings, level of analysis)	TARGET POPULATION: All patients 18 years and older with a diagnosis of COPD SETTING: Ambulatory: Clinician office LEVEL of ANALYSIS: Clinician: Individual, Group/Practice/Team;	TARGET POPULATION: Any health plan member 42 years or older who had a diagnosis of COPD SETTING: Ambulatory: Clinician office; Home health LEVEL of ANALYSIS: Clinician: Individual, Group/Practice/Team; Plan, Integrated Delivery System; Regional/National/State population
Measures that address disparities in care when appropriate	Not stratified to detect disparities.	Encourages stratification but not included in specifications.
Measures with the widest use (e.g., settings, numbers of entities reporting performance results)	PQRS program since 2007	HEDIS measure
Measures that are publicly reported	PQRS results are not publicly reported.	HEDIS measure publicly reported through State of Healthcare Quality report; Quality Compass; American's Best Health Plans
Measures based on data from electronic sources	All data elements are in a combination of electronic sources	EHR specifications
Clinical data from EHRs		EHR specifications
Measures that are freely available	Yes	Yes

APPENDIX C – PULMONARY AND CRITICAL CARE ENDORSEMENT MAINTENANCE STEERING COMMITTEE AND NQF STAFF

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Catholic Health Partners, Cincinnati, OH

Kevin Weiss, MD, MPH: Co-Chair
American Board of Medical Specialties, Chicago, IL

Peter Almenoff, MD, FCCP
Veterans Health Administration, Washington, DC

Hayley Burgess, PharmD, BCPP
Hospital Corporation of America, Nashville, TN

Michael E. Cantine, BSAST, RRT, CPFT
Morristown Medical Center, Morristown, NJ

Rubin Cohen, MD, FCCP
Hofstra University School of Medicine, New Hyde Park, NY

Norman H. Edelman, MD
American Lung Association, New York, NY

William Brendle Glomb, MD, FCCP, FAAP
Texas Health and Human Services Commission, Austin, TX

Trude A. Haecker, MD, FAAP
The Children's Hospital of Philadelphia, Bryn Mawr, PA

Dianne V. Jewell, PT, DPT, PhD, CCS
The Rehab Intel Network, Richmond, VA

Ella Kazerooni, MD, MS
University of Michigan Health System, Ann Arbor, MI

David Lang, MD
Cleveland Clinic, Cleveland, OH

Janet Larson, PhD, RN, FAAN
University of Michigan School of Nursing, Ann Arbor, MI

Mitchell M. Levy, MD, FCCM, FCCP
Society of Critical Care Medicine, Providence, RI

John Pellicone, MD, FCCP, FACP
Helen Hayes Hospital, West Haverstraw, NY

David Rhew, MD
Zynx Health Incorporated, Los Angeles, CA

Christine Stearns, JD, MS
NJ Business and Industry Association, Trenton, NJ

Charles Stemple, DO, MBA
Humana, Loveland, OH

David C. Stockwell, MD, MBA
Children's National Medical Center, Washington, DC

Christy Whetsell, RN, MBA, ACM
West Virginia University Hospitals, Morgantown, WV

Donald M. Yealy, MD, FACEP
University of Pittsburgh, Pittsburgh, PA

NQF STAFF

Helen Burstin, MD, MPH
Senior Vice President for Performance Measures

Heidi Bossley, MSN, MBA
Vice President for Performance Measures

Reva Winkler, MD, MPH
Senior Director

Kathryn Streeter, MS
Project Manager

Jessica Weber, MPH
Project Analyst

APPENDIX D – NQF PORTFOLIO OF PULMONARY AND CRITICAL CARE MEASURES

*Measures have been recommended for endorsement by the Steering Committee
**Measures have been recommended for reserve status by the Steering Committee

Measure Number	Title	Description	Steward
ASTHMA			
0047*	Asthma: Pharmacologic Therapy for Persistent Asthma	Percentage of patients aged 5 through 50 years with a diagnosis of persistent asthma who were prescribed long-term control medication. Three rates are reported for this measure: 1. Patients prescribed inhaled corticosteroids (ICS) as their long term control medication 2. Patients prescribed other alternative long term control medications (non-ICS) 3. Total patients prescribed long-term control medication	AMA-PCPI
0036*	Use of appropriate medications for people with asthma	The percentage of members 5-64 years of age during the measurement who were identified as having persistent asthma and who were appropriately prescribed medication during the measurement year.	NCQA
0728	Asthma Admission Rate (pediatric)	Admission rate for asthma in children ages 2-17, per 100,000 population (area level rate)	AHRQ
1381	Asthma Emergency Department Visits	Percentage of patients with asthma who have greater than or equal to one visit to the emergency room for asthma during the measurement period.	Alabama Medicaid Agency
1799	Medication Management for People with Asthma (MMA)	The percentage of members 5-64 years of age during the measurement year who were identified as having persistent asthma and were dispensed appropriate medications that they remained on during the treatment period. Two rates are reported. 1. The percentage of members who remained on an asthma controller medication for at least 50% of their treatment period. 2. The percentage of members who remained on an asthma controller medication for at least 75% of their treatment period.	NCQA
1800	Asthma Medication Ratio (AMR)	The percentage of members 5–64 years of age who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.	NCQA

NATIONAL QUALITY FORUM

COPD			
0091*	COPD: spirometry evaluation	Percentage of patients aged 18 years and older with a diagnosis of COPD who had spirometry results documented	AMA-PCPI
0102*	COPD: inhaled bronchodilator therapy	Percentage of patients aged 18 years and older with a diagnosis of COPD and who have an FEV1/FVC < 70% and have symptoms who were prescribed an inhaled bronchodilator	AMA-PCPI
0143**	CAC-1: Relievers for Inpatient Asthma	Use of relievers in pediatric patients, age 2 years through 17 years, admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-2: Systemic Corticosteroids for Inpatient Asthma, and CAC-03: Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver) that are used in The Joint Commission's accreditation process.	Joint Commission
0144**	CAC-2 Systemic corticosteroids for Inpatient Asthma	Use of systemic corticosteroids in pediatric asthma patients (age 2 through 17 years) admitted for inpatient treatment of asthma. This measure is a part of a set of three nationally implemented measures that address children's asthma care (CAC-1: Relievers for Inpatient Asthma, CAC-3: Home Management Plan of Care (HMPC) Document Given to Parent/Caregiver) that are used in The Joint Commission's accreditation process.	Joint Commission
0548*	Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT)	Rate 1: The percentage of patients with persistent asthma who were dispensed more than 3 canisters of a short-acting beta2 agonist inhaler during the same 90-day period. Rate 2: The percentage of patients with persistent asthma during the measurement year who were dispensed more than three canisters of short acting beta2 agonist inhalers over a 90-day period and who did not receive controller therapy during the same 90-day period.	PQA
0577*	Use of Spirometry Testing in the Assessment and Diagnosis of COPD	The percentage of members 40 years of age and older with a new diagnosis of COPD or newly active COPD, who received appropriate spirometry testing to confirm the diagnosis.	NCQA

0700	Health-related Quality of Life in COPD patients before and after Pulmonary Rehabilitation	The percentage of patients with COPD enrolled in pulmonary rehabilitation (PR) who are found to increase their health-related quality of life score (HRQOL).	AACVPR
0701	Functional Capacity in COPD patients before and after Pulmonary Rehabilitation	The percentage of patients with COPD who are enrolled in pulmonary rehabilitation (PR) who are found to increase their functional capacity by at least 25 meters (82 feet), as measured by a standardized 6 minute walk test (6MWT).	AACVPR
1825*	COPD - Management of Poorly Controlled COPD	The percentage of patients age 18 years or older with poorly controlled COPD, who are taking a long acting bronchodilator.	Active Health
1891*	Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	The measure estimates a hospital-level risk-standardized readmission rate (RSRR), defined as readmission for any cause within 30 days after the date of discharge of the index admission, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.	CMS/Yale
1893*	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with either a principal diagnosis of COPD or a principal diagnosis of respiratory failure with a secondary diagnosis of acute exacerbation of COPD.	CMS/Yale
CRITICAL CARE			
0356*	PN3a--Blood Cultures Performed Within 24 Hours Prior to or 24 Hours After Hospital Arrival for Patients Who Were Transferred or Admitted to the ICU Within 24 Hours of Hospital Arrival (CMS)	Percent of pneumonia patients, age 18 years or older, transferred or admitted to the ICU within 24 hours of hospital arrival who had blood cultures performed within 24 hours prior to or 24 hours after arrival at the hospital.	CMS
0334*	PICU Severity-adjusted Length of Stay	The number of days between PICU admission and PICU discharge for PICU patients.	NACHRI

0335*	PICU Unplanned Readmission Rate	The total number of patients requiring unscheduled readmission to the ICU within 24 hours of discharge or transfer.	NACHRI
0343*	PICU Standardized Mortality Ratio	The ratio of actual deaths over predicted deaths for PICU patients.	NACHRI
0666	Ultrasound guidance for Internal Jugular central venous catheter placement	Percent of adult patients aged 18 years and older with an Internal Jugular central venous catheter placed in the emergency department (ED) under ultrasound guidance.	ACEP
0702	Intensive Care Unit (ICU) Length-of-Stay (LOS)	For all patients admitted to the ICU, total duration of time spent in the ICU until time of discharge; both observed and risk-adjusted LOS reported with the predicted LOS measured using the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS).	PRL Institute for Health Policy Studies
0703	Intensive Care: In-hospital mortality rate	For all adult patients admitted to the intensive care unit (ICU), the percentage of patients whose hospital outcome is death; both observed and risk-adjusted mortality rates are reported with predicted rates based on the Intensive Care Outcomes Model - Mortality (ICOMmort).	PRL Institute for Health Policy Studies
PNEUMONIA			
0096*	Empiric Antibiotic for Community-Acquired Bacterial Pneumonia	Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with an appropriate empiric antibiotic prescribed.	AMA-PCPI
0147*	Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients	Percentage of pneumonia patients 18 years of age or older selected for initial receipts of antibiotics for community-acquired pneumonia (CAP)	CMS
0231*	Pneumonia Mortality Rate (IQI #20)	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	AHRQ
0232*	Vital Signs for Community-Acquired Bacterial Pneumonia	Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with vital signs (temperature, pulse, respiratory rate, and blood pressure) documented and reviewed.	AMA-PCPI
0468*	Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia	The measure estimates a hospital-level risk-standardized mortality rate (RSMR) defined as death for any cause within 30 days of the admission date for the index hospitalization for patients	CMS/Yale

	hospitalization	discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities. Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.	
0506*	Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization	The measure estimates a hospital-level risk-standardized readmission rate (RSRR) defined as readmission for any cause within 30 days of the discharge date for the index hospitalization for patients discharged from the hospital with a principal diagnosis of pneumonia. The target population is patients 18 and over. CMS annually reports the measure for patients who are 65 years or older and are either enrolled in fee-for-service (FFS) Medicare and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities. Since NQF-endorsement, the measure has been tested and shown to perform well in an all-payer population aged 18 and older and has been re-specified for this broader age group. The full details of the all-payer analysis and testing are attached.	CMS/Yale
1895*	Assessment of Mental Status for Community-Acquired Bacterial Pneumonia	Percentage of patients aged 18 years and older with a diagnosis of community-acquired bacterial pneumonia with mental status assessed	AMA-PCPI
0708	Proportion of Patients Hospitalized with Pneumonia that have a Potentially Avoidable Complication (during the Index Stay or in the 30-day Post-Discharge Period)	Percent of adult population aged 18 – 65 years who were admitted to a hospital with Pneumonia, were followed for one-month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during the index stay or during the 30-day post discharge period	Bridges to Excellence
IMAGING			

0513*	Thorax CT: Use of Contrast Material	This measure calculates the percentage of thorax studies that are performed with and without contrast out of all thorax studies performed (those with contrast, those without contrast, and those with both). The measure is calculated based on a one year window of Medicare claims data. The measure has been publicly reported annually by the measure steward, the Centers for Medicare & Medicaid Services since summer 2010 as a component of its Hospital Outpatient Quality Reporting (OQR) Program.	CMS
0667	Inappropriate Pulmonary CT Imaging for Patients at Low Risk for Pulmonary Embolism	Percent of patients undergoing CT pulmonary angiogram for the evaluation of possible PE who are at low-risk for PE consistent with guidelines prior to CT imaging.	Partners