Pulmonary and Critical Care 2015-2016

DRAFT REPORT FOR COMMENT

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NATIONAL QUALITY FORUM

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Pulmonary and Critical Care

DRAFT REPORT

Executive Summary

Chronic lower respiratory disease caused 138,000 deaths in 2010 and is the third leading cause of death in adults older than 18.[1] The treatment and management of respiratory disease places an enormous burden on the healthcare system, with an estimated economic cost of $106 billion for asthma, chronic obstructive pulmonary disease (COPD), and pneumonia in 2009 ($81 billion in direct health expenditures and $25 billion in indirect cost of mortality).[2] Critical care is the specialized treatment of patients whose conditions are life-threatening and who require comprehensive care and constant monitoring, usually in intensive care units (ICUs); for critical care, there are approximately 6,000 ICU beds in the United States, caring for over 55,000 critically ill patients each day.

At the outset of this project in 2015, NQF's pulmonary and critical care portfolio (PCC) included 30 measures that addressed conditions, treatments, diagnostic studies, interventions, and procedures specific to pulmonary conditions and critical care. The Pulmonary and Critical Care (PCC) portfolio contains seven measures for asthma, one for asthma/ COPD, seven for COPD, seven for pneumonia, three for imaging, and five for critical care. Appendix B details the full portfolio of PCC measures. Most of the measures in the PCC portfolio were reviewed for maintenance of endorsement in this project; some measures in the portfolio will be reviewed in other NQF projects (e.g., Readmissions, Patient- and Family-Centered Care). The PCC Standing Committee did not identify gaps in the portfolio during the in-person meeting.

For this project, the Committee evaluated 22 measures against NQF's standard evaluation criteria—four new measures and 18 measures undergoing maintenance review. Ten measures were recommended for endorsement, and one measure was recommended for inactive endorsement with reserve status. The Committee did not reach consensus on eight measures and did not recommend three measures.

Ten measures were recommended by the Standing Committee:

- 0047 Asthma: Pharmacologic Therapy for Persistent Asthma
- 0091 COPD: Spirometry Evaluation
- 0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)
- 0283 Asthma in Younger Adults Admission Rate (PQI 15)
- 0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
- 0513 Thorax CT—Use of Contrast Material
- 0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD
- 1800 Asthma Medication Ratio

- 1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
- 2856 Pharmacotherapy Management of COPD Exacerbation

One measure was recommended for Inactive Endorsement with Reserve Status:

- 0102 COPD: inhaled bronchodilator therapy

The Committee did not reach consensus on the following measures:

- 0279 Bacterial Pneumonia Admission Rate (PQI 11)
- 0334 PICU Severity-adjusted Length of Stay
- 0335 PICU Unplanned Readmission Rate
- 0343 PICU Standardized Mortality Ratio
- 0703 Intensive Care: In-hospital mortality rate
- 1799 Medication Management for People with Asthma
- 2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
- 2852 Optimal Asthma Control

The Committee did not recommend the following measures:

- 0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
- 0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
- 2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure

Brief summaries of the measures currently under review are included in the body of the report; detailed summaries of the Committee's discussion and ratings of the criteria for each measure are in Appendix A.

Introduction

Chronic lower respiratory disease caused 138,000 deaths in 2010 and is the third leading cause of death in adults older than 18.[3] In 2012, the Behavioral Risk Factor Surveillance System (BRFSS) survey found approximately 8.9% (21.1 million) of adults residing in the United States and 9.0% of children from 36 states and Washington, DC reported currently having asthma, and approximately 15.3 million adults (6.4%) reported having been diagnosed with chronic obstructive pulmonary disease (COPD). The burden on the healthcare system to treat and manage pulmonary conditions is significant, with an estimated economic cost of $106 billion for asthma, COPD, and pneumonia in 2009 ($81 billion in direct health expenditures and $25 billion in indirect cost of mortality).[4]

Critical care is the specialized care of patients whose conditions are life-threatening and who require comprehensive care and constant monitoring, usually in intensive care units (ICUs). In terms of critical care, there are approximately 6,000 ICU beds in the United States, caring for 55,000 critically ill patients each day. Also evident is the dramatic rise in patients 85 years and older, from 4.1% of the population in 1991 to 6.9% in 2004. [5]

This NQF project sought to identify and endorse performance measures for accountability and quality improvement that address conditions, treatments, diagnostic studies, interventions, procedures, or outcomes specific to pulmonary conditions and critical care, including: asthma management, COPD mortality, pneumonia management and mortality, and critical care mortality and length of stay. On March 15-16, 2016, NQF convened a new multi-stakeholder Pulmonary and Critical Care Standing Committee (PCC) composed of 23 individuals to evaluate 18 NQF-endorsed maintenance measures and four new measures related to the quality of pulmonary and critical care and make recommendations for NQF endorsement.

NQF Portfolio of Performance Measures for Pulmonary and Critical Care (PCC) Conditions

The PCC Standing Committee (Appendix D) oversees NQF's portfolio of 30 PCC measures (Appendix B). While most of those measures are part of this Committee's purview, other measures related to pulmonary and critical care conditions have been designated as more appropriate for evaluation in other NQF projects, such as Person- and Family-Centered Care, Health and Well-Being, and Readmissions.

This portfolio contains 30 measures: 12 process measures, one efficiency measure and 17 outcome measures (Table 1).

Table 1. NQF PCC Portfolio of Measures

	Process	Efficiency	Outcome	Composite
PCC Project	7		11	0

	Process	Efficiency	Outcome	Composite
Other Projects (Person and Family Centered Care, Health and Well Being, and Readmissions)	0		6	0
To Be Withdrawn by the Developer	5	1		
Total	12	1	17	0

National Quality Strategy

NQF-endorsed measures for pulmonary and critical care support the National Quality Strategy (NQS). NQS serves as the overarching framework for guiding and aligning public and private efforts across all levels (local, state, and national) to improve the quality of healthcare in the United States. The NQS establishes the "triple aim" of better care, affordable care, and healthy people/communities, focusing on 6 priorities to achieve those aims: *Safety, Person and Family Centered Care, Communication and Care Coordination, Effective Prevention and Treatment of Illness, Best Practices for Healthy Living, and Affordable Care.*

Quality measures for pulmonary and critical care align with several of the NQS priorities, including:

- **Effective Prevention and Treatment of Illness.** Chronic lower respiratory disease is the third leading cause of death in adults older than 18. The burden to treat and manage pulmonary conditions continues to generate significant costs for the U.S. healthcare system.
- **Safety.** The PCC measure portfolio includes measures that promote patient safety, including appropriate use of medications and improving mortality rates after hospitalization.
- **Best Practices for Healthy Living**. Three measures in the PCC portfolio have a population health focus: NQF #0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05), NQF #0283 Asthma in Younger Adults Admission Rate (PQI 15), and NQF #0279 Bacterial Pneumonia Admission Rate (PQI 11).

Use of Measures in the Portfolio

Federal programs use many of the measures from NQF's PCC portfolio (Appendix C). Additionally, state measurement initiatives and internal quality improvement efforts also deploy NQF-endorsed pulmonary and critical care measures.

Endorsement of measures by NQF is valued because the evaluation process is both rigorous and transparent, and also because evaluations are conducted by multi-stakeholder committees comprised of clinicians and other experts from the full range of healthcare providers, employers, health plans, public agencies, suppliers, community coalitions, and patients—many of whom use measures on a daily basis to ensure better care. Moreover, NQF-endorsed measures undergo routine "maintenance" (i.e., re-evaluation) to ensure they are still the best-available measures and reflect current science. Importantly,

federal law requires that preference be given to NQF-endorsed measures for use in federal public reporting and performance-based payment programs. NQF measures also are used by a variety of stakeholders in the private sector, including hospitals, health plans, and communities.

Pulmonary and Critical Care Measure Evaluation

The PCC Standing Committee evaluated four new measures and 18 measures undergoing maintenance review against NQF's standard evaluation criteria. To facilitate the evaluation, the Committee and candidate standards were divided into four workgroups for preliminary review prior to consideration by the entire Standing Committee.

Comments Received Prior to Committee Evaluation

NQF solicits comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF solicits comments prior to the evaluation of the measures via an online tool located on the project webpage. For this evaluation cycle, the pre-evaluation comment period was open from February 10-24, 2016, for all measures under review. No pre-evaluation comments were received.

Refining the NQF Measure Evaluation Process

To streamline and improve the periodic evaluation of currently-endorsed measures, NQF has updated the way it re-evaluates measures for maintenance of endorsement. This change took effect beginning October 1, 2015. NQF's endorsement criteria have not changed, and all measures continue to be evaluated using the same criteria. However, under the new approach, there is a shift in emphasis for evaluation of currently-endorsed measures:

- **Evidence:** If the developer attests that the evidence for a measure has not changed since its previous endorsement evaluation, there is a decreased emphasis on evidence, meaning that the Committee may accept the prior evaluation of this criterion without further discussion or need for a vote. This applies only to measures that previously passed the evidence criterion without an exception. If a measure was granted an evidence exception, the evidence for that measure must be revisited.
- **Opportunity for Improvement (Gap):** For re-evaluation of endorsed measures, there is increased emphasis on current performance and opportunity for improvement. Endorsed measures that are "topped out" with little opportunity for further improvement are eligible for Inactive Endorsement with Reserve Status.
- **Reliability**
    - Specifications: There is no change in the evaluation of the current specifications.
    - Testing: If the developer has not presented additional testing information, the Committee may accept the prior evaluation of the testing results without further discussion or need for a vote.
- **Validity:** There is less emphasis on this criterion if the developer has not presented additional testing information, and the Committee may accept the prior evaluation of this subcriterion without further discussion and vote. However, the Committee l still considers whether the specifications are consistent with the evidence. Also, for outcome measures, the Committee discusses questions required for the SDS Trial even if no change in testing is presented.

- **Feasibility:** The emphasis on this criterion is the same for both new and previously-endorsed measures, as feasibility issues might have arisen for endorsed measures that have been implemented.

Usability and Use: For re-evaluation of endorsed measures, there is increased emphasis on the use of the measure, especially use for accountability purposes. There also is an increased emphasis on improvement in results over time and on unexpected findings, both positive and negative.

Committee Evaluation

Of the 18 maintenance and 4 new measures reviewed by the PCC Committee at its March 15-16, 2016, meeting, 11 are recommended for endorsement and 1 for inactive endorsement with Reserve Status. The Committee did not reach consensus on 8 measures and did not recommend 3 measures. Table 2 summarizes the results of the Committee's evaluation.

Table 2. Pulmonary and Critical Care Measure Evaluation Summary

	Maintenance	New	Total
Measures under consideration	18	4	22
Measures recommended for endorsement	9	1	10
Measures recommended for inactive endorsement with reserve status	1	0	1
Measures where consensus is not yet reached	6	2	8
Measures not recommended for endorsement	2	1	3
Reasons for not recommending	Importance – 1 Scientific Acceptability – 0 Overall – 1 Competing Measure – 0	Importance – 1 Scientific Acceptability – 0 Overall – 0 Competing Measure – 0	

Overarching Issues

During the Standing Committee's discussion of the measures, one overarching issue emerged that was factored into the Committee's ratings and recommendations for multiple measures and is not repeated in detail with each individual measure.

Implementation of Measures at Different Level of Analysis than Endorsed

During the discussion of several of the measures, the Committee expressed concern about the measure being used at a different level of analysis than specified by the developer in the submission. For example, during the review of the Agency for Health Care Research and Quality (AHRQ) population-level measures, committee members noted that while the measures are specified at the population level, at least one is being used by the federal government at the practice level (specifically, as a part of the Value-Based Modifier Program). The Committee expressed concern about recommending a measure knowing it could or would be implemented in a manner not currently specified. NQF staff acknowledged

the discomfort, but clarified that measures should be reviewed as submitted and intended by the developer; it is not within NQF's purview to control the measure's implementation after endorsement review, and the implementation burden also may be out of the developer's control.

Summary of Measure Evaluation

The following brief summaries of the measure evaluations highlight the major issues that were considered by the Committee. Details of the Committee's discussion and ratings of the criteria for each measure are in included in Appendix A.

Recommended

0047 Asthma: Pharmacologic Therapy for Persistent Asthma (The American Academy of Asthma Allergy and Immunology (AAAAI)): Recommended

Description: Percentage of patients aged 5 years and older 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; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Clinician,: Individual; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims, Electronic Clinical Data, Paper Medical Records, Electronic Clinical Data: Registry

This clinician-level measure was last endorsed in 2012. It currently is used in the CMS Physician Quality Reporting System (PQRS) program. The evidence base for the measure derives from the clinical practice guidelines from the National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health for the use of long-term medications for patients with persistent asthma. The Committee agreed the underlying evidence for the measure had not changed since the last NQF endorsement review and accepted the prior evaluation. Overall, Committee members were concerned the measure will be "topped out" in the near future, but they noted currently opportunities for improvement still exist given the disparities data presented by the developer. The Committee agreed the measure met the NQF criteria and recommended NQF #0047 for endorsement.

0091 COPD: Spirometry Evaluation (American Thoracic Society (ATS)): Recommended

Description: Percentage of patients aged 18 years and older with a diagnosis of COPD who had spirometry results documented; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Clinician: Team; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims, Electronic Clinical Data: Registry

This clinician-level measure was originally endorsed in 2009 and maintained endorsement in 2012. The measure has been used by the CMS Physician Quality Reporting System (PQRS) program since 2007 and is planned for integration into the CMS Physician Compare Program. The measure's evidence derives from the 2011 Clinical Practice Guideline Update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. Overall, the Committee felt the bar on this

measure was set too low, but it agreed a performance gap of 45.7% indicates the measure is needed. The Committee agreed the measure met the NQF criteria and recommended NQF #0091 for endorsement.

0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05) (Agency for Healthcare Research and Quality (AHRQ)): Recommended

Description: Admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 1,000 population, ages 40 years and older. Excludes obstetric admissions and transfers from other institutions; **Measure Type**: Outcome; **Level of Analysis**: Population: County or City; **Setting of Care**: Other; **Data Source**: Administrative claims

NQF #0275 is a population quality indicator specified for county- or city-level populations. It aims to broadly provide an assessment of population health for COPD by measuring the rate of exacerbations requiring hospitalizations, which can be improved by access to high-quality care and community resources that promote improved population health, combined with appropriate self-care for emphysema, chronic bronchitis, and asthma. The measure is not specified nor intended for use to measure the performance of any particular provider, individual clinician, or hospital; it is currently being used for public reporting, including the Medicare Shared Savings Program. The Committee generally supported the measure, but it recommended that some of the exclusionary criteria include the corollary adult diagnoses, not just the pediatric diagnoses. The Committee agreed the measure met the NQF criteria and recommended NQF #0275 for endorsement.

0283 Asthma in Younger Adults Admission Rate (PQI 15) (AHRQ): Recommended

Description: Admissions for a principal diagnosis of asthma per 1,000 population, ages 18 to 39 years. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions, and transfers from other institutions; **Measure Type**: Outcome; **Level of Analysis**: Population: County or City; **Setting of Care**: Other; **Data Source**: Administrative claims

NQF #0283 is a population quality indicator specified for county- or city-level populations. It aims to identify hospitalizations for asthma in younger adults age 18-39; appropriate pharmaceutical and other outpatient management will decrease the risk of hospitalization. The measure is not specified nor intended for use to measure the performance of any particular provider, individual clinician, or hospital; it is currently being used for public reporting, including the Medicare Shared Savings Program. Although, the developer provided some updated evidence related to aspects of hospitalization for asthma, the Committee agreed the underlying rationale for this outcome measure has not changed since the last NQF endorsement review and accepted the prior evaluation of this criterion without further discussion. The Committee agreed the measurement the NQF criteria and recommended NQF #0283 for endorsement.

0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization (Centers for Medicare & Medicaid (CMS) and Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation (YNHHSC/CORE)): Recommended

Description: The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the date of admission for the index

admission, discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary diagnosis of pneumonia (including aspiration pneumonia) coded as present on admission (POA). CMS annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Administrative claims

NQF #0468, a facility-level measure, was originally endorsed in 2007, and it maintained endorsement in 2012; the measure is currently in use nationally in the Hospital Inpatient Quality Reporting (IQR) and Hospital Value-Based Purchasing (HVBP) programs. Based on the 3 years of performance data provided by the developer, the Committee questioned whether the measure was having any impact. The developer explained the mortality rates appeared to be increasing due to the expansion of the denominator to include patients with a principal discharge diagnosis of aspiration pneumonia and sepsis. The Committee did not reach consensus on whether a sufficient performance gap exists, but it ultimately agreed NQF #0468 met the NQF criteria and recommended it for endorsement.

0513 Thorax CT—Use of Contrast Material (CMS and The Lewin Group): Recommended

Description: This measure calculates the percentage of thorax computed tomography (CT) studies that are performed with and without contrast out of all thorax CT studies performed (those with contrast, those without contrast and those with both) at each facility. 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 (CMS), since 2010, as a component of its Hospital Outpatient Quality Reporting (HOQR) Program; **Measure Type**: Process; **Level of Analysis**: Facility, Population: National, Population: State; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Imaging Facility; **Data Source**: Administrative claims

This facility-level measure was originally endorsed in 2008, and it maintained endorsement in 2012; the measure is currently in use nationally in the Hospital Outpatient Quality Reporting program. The measure's evidence base derives from the American College of Radiology (ACR) appropriate use criteria (AUC) and 2 clinical practice guidelines from the National Collaborating Centre for Cancer (NCCC) and AIM Specialty Health. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee agreed agreed 2015 performance rates, which ranged from 0.0% to 46.5%, demonstrated considerable variation and an opportunity for improvement; Committee members also noted disparities based on the size of the facility, age, gender, and race could be observed. The Committee agreed the measure met the NQF criteria and recommended NQF #0513 for endorsement.

0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD (National Committee for Quality Assurance (NCQA)): Recommended

Description: The percentage of patients 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; **Measure**

Type: Process; **Level of Analysis**: Health Plan, Integrated Delivery System; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims

This health plan measure was originally endorsed in 2009, and it maintained endorsement in 2012; the measure is currently in use for National Committee for Quality Assurance (NCQA's) State of Health Care annual report, Quality Compass, and by Consumer Reports on its website. The evidence base for the measure derives from 2015 Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines, 2013 Institute for Clinical Systems Improvement (ICSI) Guidelines, and 2011 Clinical Practice Guideline Update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee expressed concern about the lack of performance improvement within each plan type from 2012 to 2014 (~1%), however, it agreed the data demonstrated variation in utilization of spirometry amongst the plan types (e.g., commercial vs. Medicaid). While the developer provided testing at the score level using newer data, the Committee agreed the underlying method and results for the measure had not significantly changed since the last NQF endorsement review. The Committee expressed some concern about the measure's specified timeframe of 2 years prior to the Index Episode Start Date through six months after the Index Episode Start Date as not being evidence-based, but ultimately concluded the measure met the Scientific Acceptability criterion. The Committee agreed the measure met the NQF criteria and recommended NQF #0517 for endorsement.

1800 Asthma Medication Ratio (NCQA): Recommended

Description: The percentage of patients 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; **Measure Type**: Process; **Level of Analysis**: Health Plan, Integrated Delivery System; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims

NQF #1800 was originally endorsed in 2012; it is specified at a health plan, integrated delivery system level. NQF #1800 is publicly reported nationally and by geographic regions. It is also is reported in Consumer Reports and on the NCQA website. The measure's evidence derives from the 2007 guidelines for the diagnosis and management of asthma from the National Heart and Lung and Blood Institutes (NHLBI), National Institutes of Health (NIH). The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee noted the biggest threat to validity is the percentage of people excluded from the measure, particularly the older age cohort. The Committee ultimately agreed met the NQF criteria and recommended NQF #1800 for endorsement.

1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization (CMS and YNHHSC/CORE): Recommended

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

reports the measure for patients who are aged 65 or older, are enrolled in fee-for-service (FFS) Medicare, and hospitalized in non-federal hospitals; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Administrative claims

This facility-level measure was originally endorsed in 2013; the measure is being reported on CMS' Hospital Compare. The Committee agreed the underlying evidence, reliability, and validity for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation and accepted the prior evaluation of these criteria. The Committee noted there was minor improvement, but agreed there was enough of a gap in care that warranted a national performance measure. The Committee agreed the measure met the NQF criteria and recommended NQF #1893for endorsement.

2856 Pharmacotherapy Management of COPD Exacerbation (NCQA): Recommended

Description: This measure assesses the percentage of COPD exacerbations for patients 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 (or there was evidence of an active prescription) within 14 days of the event; and 2. Dispensed a bronchodilator (or there was evidence of an active prescription) within 30 days of the event; **Measure Type**: Process; **Level of Analysis**: Health Plan, Integrated Delivery System; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims

This health plan/integrated delivery system measure was previously endorsed as NQF #0549, however endorsement was removed during the last review in July 2012; the measure is currently in use in NCQA's State of Health Care annual report, Quality Compass, and by Consumer Reports on its website. The evidence for this measure derives from 2 clinical practice guidelines for the use of systemic corticosteroid and short acting bronchodilator medications to treat patients with COPD exacerbations from Global Initiative for Chronic Obstructive Lung Disease (GOLD) and Institute for Clinical Systems Improvement (ICSI). The Committee expressed several concerns regarding the validity of the measure, in particular, concern over not capturing medications dispensed outside the patient's pharmacy benefit, as well as concern over some measure specifications and care setting exclusions. After robust discussion regarding validity, however, the Committee agreed the measure met the criterion and ultimately agreed NQF #2856 met the NQF criteria and recommended it for endorsement.

Recommended for Inactive Endorsement with Reserve Status

0102 COPD: Inhaled bronchodilator therapy (ATS): Recommended for Reserve Status

Description: Percentage of patients aged 18 years or older, with a diagnosis of COPD (FEV1/FVC < 70%) who have an FEV1 < 60% predicted and have symptoms who were prescribed an inhaled bronchodilator; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Clinician: Team; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims, Electronic Clinical Data: Registry

The developer originally brought forward NQF #0102 with an updated numerator, but lacked an updated gap analysis, as well data for reliability and validity testing to support the new numerator. The Committee noted it was not possible to evaluate the measure without the updated data and voted the

measure down on gap. Since data for the previous version were provided, however, the Committee agreed to review the previous specifications for endorsement maintenance, and to consider it for endorsement with Reserve Status, if the developer reverted back to the previous numerator. The developer agreed, and the specifications for the original measure are presented in this report.

The Chronic Obstructive Lung Disease (GOLD) 2015 guidelines and American College of Physicians (ACP), American College of Chest Physicians, American Thoracic Society, and European Respiratory Society 2011 guidelines provide the evidence base for the measure. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. As noted, given performance levels in 2012-2014 of 95.9%-98.5%, the Committee questioned whether there is opportunity for improvement and voted to consider the measure for endorsement with Reserve Status. This measure has been in use for the CMS PQRS program since 2007 and is planned for integration into the CMS Physician Compare Program. After agreeing the measure was "topped out" and so failing it on gap, the Committee agreed the measure met the remaining NQF criteria and recommended NQF #0102 for Inactive Endorsement with Reserve Status.

Consensus Not Reached

0279 Bacterial Pneumonia Admission Rate (PQI 11) (AHRQ): Consensus Not Reached

Description: Admissions with a principal diagnosis of bacterial pneumonia per 1,000 population, ages 18 years and older. Excludes sickle cell or hemoglobin-S admissions, other indications of immunocompromised state admissions, obstetric admissions, and transfers from other institutions; **Measure Type**: Outcome; **Level of Analysis**: Population: County or City; **Setting of Care**: Other; **Data Source**: Administrative claims

NQF #0279 is a population quality indicator specified for county- or city-level populations. It aims to identify hospitalizations for pneumonia, either specified as bacterial or unspecified organism. With access to high quality care, early intervention, and appropriate pharmaceutical treatment, this condition can often be managed on an outpatient basis. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. While the Committee agreed the data demonstrate variation in care, it did not reach consensus on whether a performance gap exists. The Committee also noted the measure specifications are more consistent with an assessment of community-acquired pneumonia instead of "Bacterial Pneumonia Admission Rate," and recommended the developer change the name of the measure. The measure is not specified nor intended for use to measure the performance of any particular provider, individual clinician, or hospital; it is currently being used for public reporting, including the Medicare Shared Savings Program. Overall, the Committee did not reach consensus on the suitability for endorsement of NQF #0279.

0334 PICU Severity-adjusted Length of Stay (Virtual PICU Systems, LLC (VPS)): Consensus Not Reached

Description: The number of days between PICU admission and PICU discharge; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry

The developer recommends, and Committee concurred, that during implementation this measure should be paired with NQF #0335, PICU Unplanned Readmissions. This measure, NQF#0334, is a facility-level measure that was originally endorsed in 2008, and it maintained endorsement in 2012; several private sector payer payment and quality improvement programs currently use it. The measure uses the PRISM III algorithm, which is proprietary. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee also agreed the measure met the Reliability and Validity criteria. While NQF endorses measures with proprietary components, committee members expressed concern about the proprietary nature of the measure and hence the feasibility and usability of it. Overall, the Committee did not reach consensus on the suitability for endorsement of NQF #0334.

0335 PICU Unplanned Readmission Rate (VPS): Consensus Not Reached

Description: The total number of patients requiring unscheduled readmission to the ICU within 24 hours of discharge or transfer; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This facility-level measure was originally endorsed in 2008, and it maintained endorsement in 2012. The developer recommends that during implementation this measure should be paired with NQF #0334, PICU Severity-adjusted Length of Stay; the Committee concurred. As with NQF #0334, the measure uses the PRISM III algorithm, which is proprietary. Performance on the measure is not generally publicly reported, however, some hospitals participating in the VPS system may individually publicly report their data. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee expressed doubts about the potential impact of the measure, and it did not reach consensus on whether enough of a performance gap exists to warrant a national performance measure. The Committee agreed the measure met the Reliability and Validity criteria, but Committee members expressed concerns about the proprietary nature of the measure and hence its feasibility and usability. Overall, the Committee did not reach consensus on the suitability for endorsement of NQF #0335.

0343 PICU Standardized Mortality Ratio (VPS): Consensus Not Reached

Description: The ratio of actual deaths over predicted deaths for PICU patients; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry

This facility-level measure was originally endorsed in 2008, and it maintained endorsement in 2012. The measure uses the PRISM III algorithm, which is proprietary. Performance on the measure is not generally publicly reported, however, some hospitals participating in the VPS system may individually publicly report their data. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee agreed the measure met the Reliability and Validity criteria, but Committee members expressed concerns about the proprietary nature of the measure and hence its feasibility and usability. NQF staff clarified measures with proprietary components are eligible for endorsement. Overall, the Committee did not reach consensus on the suitability for endorsement of NQF #0335.

0703 Intensive Care: In-hospital mortality rate (Philip R. Lee Institute for Health Policy Studies): Consensus Not Reached

Description: 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); **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Paper Medical Records

NQF #0703 is a facility-level measure that was originally endorsed in 2011. Until 2013, this measure was used and publicly reported in California, but use was discontinued in favor of converting the measure into an eMeasure for CMS consideration; the developer anticipates this will be completed in 2016. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation.The Committee agreed the measure met the Reliability criterion, but it did not reach consensus on Validity. Overall, the Committee's concern about validity focused on the impact of patient transfer exclusions; this issue also was raised during the 2011 NQF review. Ultimately, the Committee did not reach consensus on the suitability for endorsement of NQF #0703.

1799 Medication Management for People with Asthma (NCQA): Consensus Not Reached

Description: The percentage of patients 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 patients who remained on an asthma controller medication for at least 50% of their treatment period and 2. The percentage of patients who remained on an asthma controller medication for at least 75% of their treatment period; **Measure Type**: Process; **Level of Analysis**: Health Plan, Integrated Delivery System; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Administrative claims

This health plan measure was originally endorsed in 2012, and it maintained endorsement in 2014; the measure is currently in use in NCQA's State of Health Care annual report, Quality Compass, and by Consumer Reports on its website. During the 2012 review, the Committee voiced concern over the lack of evidence related to the thresholds (50% and 75%) specified for compliance with the measure. As part of the current submission, the developer presented results from a literature search, including a study by Yoon et al (2015),[6] which found that patients who achieved 50% threshold in 2012 did not have fewer hospitalizations, but did have fewer ED visits in 2013, compared to those who were 50% compliant. The Committee had a robust discussion about the 50% and 75% thresholds, overall evidence, and about this new study, in particular, and did not reach consensus on Evidence. The Committee felt the measure did meet the Performance Gap subcriterion, as well as the Reliability, Validity, Feasibility criteria. The Committee raised concern about the potential for an unintended consequence of increasing costs and medication use without improving patient outcomes. Ultimately, however, the Committee passed this measure on Usability and Use. Overall, the Committee did not reach consensus on the suitability for endorsement of NQF #1799.

2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure (Collaboration for Pediatric Quality Measures (CAPQuaM)): Consensus Not Reached

Description: This measure estimates the rate of emergency department visits for children ages 2 – 21 who are being managed for identifiable asthma. The measure is reported in visits per 100 child-years; **Measure Type**: Outcome; **Level of Analysis**: Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Emergency Medical Services/Ambulance, Hospital/Acute Care Facility, Other, Pharmacy, Ambulatory Care: Urgent Care; **Data Source**: Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records

This measure was newly submitted for this project. The Committee agreed with the rationale for this outcome measure that high-quality primary care reduces the need for emergency department (ED) visits. Consensus was not reached for the Validity criterion. The Committee raised concern about the lack of stratification by risk; while the developer stratified by age, the Committee expressed concern about clinical differences across the age spectra, especially in the first six years of life, which are not accounted for by the measure. The Committee also noted that while the developer provided for stratification by race, it did not address demographic and environmental factors that impact race (e.g., location), which can affect patient risk and quality of care. The Committee discussed this lack of stratification leading to misinterpretation of results as a potential unintended consequence if the measure is implemented. Overall, the Committee did not reach consensus on the overall suitability for endorsement of NQF #2794.

2852 Optimal Asthma Control (MN Community Measurement): Consensus Not Reached

Description: The percentage of pediatric (5-17 years of age) and adult (18-50 years of age) patients who had a diagnosis of asthma and whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following: (1) Asthma well-controlled as defined by the most recent asthma control tool result available during the measurement period (2) Patient not at elevated risk of exacerbation as defined by less than two emergency department visits and/or hospitalizations due to asthma in the last 12 months; **Measure Type**: Composite; **Level of Analysis**: Clinician: Group/Practice; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic; **Data Source**: Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Paper Medical Records

A version of this measure was previously reviewed as #1876, a 3-part composite, in the 2012-2013 Pulmonary Project; it is publicly reported in Minnesota. It was not recommended, but the previous Committee encouraged the developer to continue working on it. The developer considered the feedback and submitted the measure as a 2-part composite for consideration in this project. NQF #2852 is an all-or-none composite consisting of two outcome measures (control and risk). During its discussions, the Committee raised questions regarding the specifications of the second component of the measure, which focuses on Asthma Control Test (ACT) greater than or equal to 20. Committee members requested clarification on how the composite is calculated, particularly how the ACT would be scored if one were not available in the previous 12 months. The developer responded the measure looks for a result from a standardized asthma control tool in the 12-month period, and the absence of a result is judged as not in control (i.e., a numerator miss). The developer further noted established patients

who have a face-to-face contact with an eligible provider and diagnosis in the denominator also must report "in control" based on the tool *and* report fewer than 2 emergency department (ED) visits and/or hospitalizations due to asthma in the last 12 months. The Committee expressed concern about the use of patient recall to define ED visits and/or hospitalization, and suggested the developer change the data source to claims data or another source that does not rely on recall; the developer noted, however, it did not have access to such a data source with the measure's current use. The Committee also expressed concern about the measure's exclusions. Based on these discussions, the Committee did not reach consensus on Composite Quality Construct and Rationale, Reliability, and Validity. Overall, the Committee did not reach consensus of the overall suitability for endorsement of NQF #2852.

Not Recommended

0702 Intensive Care Unit (ICU) Length-of-Stay (LOS) (Philip R. Lee Institute for Health Policy Studies): Not Recommended

Description: For all eligible patients =18 years old admitted to the intensive care unit (ICU), total duration of time spent in the ICU until time of discharge from the ICU; both observed and risk-adjusted LOS reported with the predicted LOS measured using the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS); **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Paper Medical Records

NQF #0702 is a facility-level measure originally endorsed in 2011. Until 2013, the measure was used for internal quality improvement in California. The developer noted beginning in 2013; it began developing the eMeasure version for CMS consideration. The developer recommends this measure be paired with NQF #0703, Intensive Care: In-hospital mortality rate. The Committee discussed several concerns: a small gap (overall unadjusted mean LOS was 3.4 days from 2010 and 2011); validity of the data reported by chart reviewers when determining a patient's level of care versus location of care; and time required to extract measure data. The Committee also expressed concern about the potential unintended consequences of premature discharge from ICUs and avoidance of high-risk patients. Overall, the Committee did not recommend NQF #0702 for endorsement.

0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window) (Health Care Incentives Improvement Institute): Not Recommended

Description: Percent of adult population aged 18+ years with Community Acquired Pneumonia who are followed for one-month, and have one or more potentially avoidable complication (PAC) during the episode time window; **Measure Type**: Outcome; **Level of Analysis**: Facility, Clinician: Individual, Population: Regional; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other, Ambulatory Care: Urgent Care; **Data Source**: Administrative claims

NQF #0708 is a facility-level and clinician/group-level measure originally endorsed in 2011; the specifications were updated for this project. The Committee agreed the underlying evidence for the measure has not changed since the last NQF endorsement review and accepted the prior evaluation. The Committee raised several concerns about the performance gap information provided by the developer—specifically whether an actual performance gap exists just because variability exists. It was noted that natural variability occurs because some patients are outpatients and some are inpatients, for example, and that this and other ascertainment biases, coupled with the broad nature and types of PACs specified and coding variations (timing and practices), means the information provided about variation does not actually indicate whether a performance gap exists. The Committee also noted there was no analysis related to gender, socioeconomic status, race or ethnicity, or geographic differences nor any context to determine whether a gap exists or the nature of any gap—i.e., whether patients with pneumonia look different from other acutely ill patients. Similarly, in questioning what the scores actually represented and whether they provided information about a gap, Committee members also raised concerns regarding the dichotomous approach of the measure. The PACs are not weighted and all preventable events are equally rated. Yet providers treating elder patients in the home settings may have less opportunity to prevent complications versus patients being treated in assisted living or skilled nursing facilities. Data may be skewed for the cohorts of medical practices treating patients in the home or medical facilities but, again, the measure does not account for such differences so one cannot discern if the variability that was reported by the developer is actually a care gap. NQF #0708 ultimately failed on Performance Gap and, after a brief discussion, the Committee agreed the measure did not meet the criteria for Reserve Status and so it did not recommend NQF #0708 for endorsement.

2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure (CAPQuaM): Not Recommended

Description: This measure estimates the proportion of emergency department (ED) visits that meet criteria for the ED being the appropriate level of care, among all ED visits for identifiable asthma in children and adolescents; **Measure Type**: Process; **Level of Analysis**: Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other; **Data Source**: Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records

NQF #2816 was newly submitted for this project. Committee members concluded this is not a process of care measure and recommended that the developer consider changing it to an outcome measure that focuses on the appropriateness of emergency department visits for children and adolescents. The Committee noted there are processes, structures and changes in care that could potentially impact the outcome for the measure. As submitted as an outcome measure, the Committee felt the measure did not meet the Evidence criterion. The Committee did not recommend NQF #2816 for endorsement.

References

[1] NHLBI Fact Book, Fiscal Year 2012. http://www.nhlbi.nih.gov/about/documents/factbook/2012/chapter4. Accessed July 9, 2015.

[2] Estimated Prevalence and Incidence of Lung Disease. American Lung Association. Epidemiology and Statistics Unit. May 2014. http://www.lung.org/finding-cures/our-research/trend-reports/estimated-prevalence.pdf

[3] NHLBI Fact Book, Fiscal Year 2012. http://www.nhlbi.nih.gov/about/documents/factbook/2012/chapter4. Accessed July 9, 2015.

[4] Estimated Prevalence and Incidence of Lung Disease. American Lung Association. Epidemiology and Statistics Unit. May 2014. http://www.lung.org/finding-cures/our-research/trend-reports/estimated-prevalence.pdf

[5] Critical Care Statistics. Society of Critical Care Medicine. http://www.sccm.org/Communications/Pages/CriticalCareStats.aspx, Accessed July 9, 2015.

[6] Yoon A, Crawford W, Sheikh J, Nakahiro R, Gong A and Schatz M. The HEDIS Medication Management for People with Asthma Measure is Not Related to Improved Asthma Outcomes. J Allergy Clin Immunol Pract 2015; 3:547-52.

Appendix A: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable; **Y**=Yes; **N**=No

Measures Recommended

0047 Asthma: Pharmacologic Therapy for Persistent Asthma

Submission | Specifications

Description: Percentage of patients aged 5 years and older 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

Denominator Statement: All patients aged 5 years and older with a diagnosis of persistent asthma

Exclusions: Denominator Exceptions:

Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason).

The American Academy of Asthma Allergy and Immunology (AAAAI) follows PCPI exception methodology and PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure.

For this measure, exceptions may include patient reason(s) (eg, patient declined). Although this methodology does not require the external reporting of more detailed exception data, the AAAAI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. In further accordance with PCPI exception methodology, the AAAAI advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement.

Adjustment/Stratification:

Level of Analysis: Clinician: Group/Practice, Clinician: Individual

Setting of Care: Ambulatory Care :: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims, Electronic Clinical Data, Paper Medical Records, Electronic Clinical Data :: Registry

Measure Steward: The American Academy of Asthma Allergy and Immunology

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation**; 1b. Performance Gap: **H-4**; **M-16**; **L-0**; **I-0**

<u>Rationale</u>:

- The developer provided evidence from clinical practice guidelines for the use of long-term medications for patients with persistent asthma from the National Heart, Lung, and Blood Institute (NHLBI), National Asthma Education and Prevention Program (NAEPP), National Institutes of Health. The evidence was ranked Category A and includes randomized control trials (RCTs) and expert panels.
- The Committee agreed with the developer that there is no new evidence for this measure. The Committee

accepted the prior evaluation of this criterion without further discussion.

- According to the Centers for Medicare & Medicaid Services (CMS) Physician Quality Reporting Initiative/System (PQRI/S) 2008 claims data, 46.29% of patients did not meet the measure, which the developer states is evidence of a gap. Based on its updated testing (CY 2014 data) for 44 clinics, the developer states the inhaled corticoid steroid rate prescribed for long-term control was 88.24 %, and the non-inhaled corticosteroid rate long term control medication rate was 71.77%. The total percentage of patients prescribed long-term control medications for persistent asthma was 99.3%, with some overlap of patients being prescribed BOTH inhaled corticosteroids AND non-inhaled corticosteroids.
- The developer cited several published articles and Centers for Disease Control and Prevention (CDC) studies stating disparities exist based on gender, race, age, ethnicity, and income level: African-American adult Medicaid patients with Chronic Obstructive Pulmonary Disease (COPD), asthma, or both have a higher mortality and morbidity than their White counterparts.
- Some Committee members expressed concern the measure will be "topped out" in the near future if progress continues. However, they noted there are still opportunities for improvement at this time given the disparities data presented by the developer.
- One Committee member also noted, according to PQRS, a significant portion of physicians are not performing at the highest performance rate for this measure.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-12**; **M-8**; **L-0**; **I-0**; 2b. Validity: **H-0**; **M-17**; **L-3**; **I-0**

<u>Rationale</u>:

- The developer changed the specifications since the last NQF endorsement review. The age range limitations were removed from the denominator, and the numerator was updated to include generic drug names.
- The Committee expressed concern about the long list of medications included in this measure. The Committee recommended the developer include two separate numerators, i.e., controller vs. inhaled corticosteroids (ICS).
- The Committee agreed the reliability of the measure was demonstrated, with the developer providing reliability testing at both the measure score (2016) and data element levels (2013).
- For the measure score reliability, the developer updated testing by conducting beta-binomial analysis at the measure-score level. The developer reports rates equal to or greater than 0.97 for ICS long-term control, non-inhaled corticosteroid (non-ICS) long-term control, and combined long-term control medications. Data element-level validity testing (1 medical center, 86 patients) was conducted during the last review.
- New face validity was assessed by an expert panel of 29 members. The mean rating was 4.79 out of 5.

3. Feasibility: H-17; M-3; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee agreed the measure is feasible, since it is specified for claims, registry, and abstraction from paper medical records or electronic health records.

4. Usability and Use: H-15; M-5; L-0; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is publicly reported and used in the PQRS program, payment programs, professional certification/recognition programs, and quality improvement programs.
- According to the 2013 PQRS experience report, the average performance score was 89.4% in 2013, which was an increase from 69.1% in 2011.
- The Committee did not envision unintended consequences of continued use.

0047 Asthma: Pharmacologic Therapy for Persistent Asthma

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - 1799: Medication Management for People with Asthma
  - 1800: Asthma Medication Ratio
- The Committee encouraged developers to harmonize all of the asthma measures. Specifically, the developers should harmonize the age limit, data source, diagnoses definitions, and risk adjustment method.

Standing Committee Recommendation for Endorsement: **Y-20**; **N-0**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0091 COPD: Spirometry Evaluation

Submission | Specifications

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 and reviewing spirometry results

Documentation of patient reason(s) for not documenting and reviewing spirometry results

Documentation of system reason(s) for not documenting and reviewing spirometry results

Adjustment/Stratification:

Level of Analysis: Clinician: Group/Practice, Clinician: Team

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims, Electronic Clinical Data: Registry

Measure Steward: American Thoracic Society

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-10**; **M-9**; **L-1**; **I-0;**

<u>Rationale</u>:

- The Committee agreed with the developer the underlying evidence for the measure has not changed since the last NQF endorsement review, which included recommendations from the 2011 Clinical Practice Guideline Update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. The Committee accepted the prior evaluation of this criterion without further discussion.
- The developer reported 45.7% of patients did not meet this measure based on 2008 Physician Quality Reporting System (PQRS) data. The Committee agreed there is a large enough gap in care to warrant a national performance measure.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

0091 COPD: Spirometry Evaluation

2a. Reliability: **H-4**; **M-15**; **L-3**; **I-0**; 2b. Validity: **H-0**; **M-18**; **L-3**; **I-0**

Rationale:

- The Committee expressed concern that the time window indicates a 1-year measurement period, but it appears that a spirometry test at any time from age 18 and up counts in the numerator. The developer clarified the goal of the measure is to capture whether the spirometry test was conducted before treatment occurred. The physicians conducting treatment do not necessarily have to perform the test within that year, but need to verify that the test was completed and annually record the results.
- The developer stated the performance measure score-level reliability for this measure was 0.73 among groups with 25 or more eligible professionals (EPs) and 0.83 among groups with 100 or more EPs. The developer also conducted empirical testing at the data element level and face validity. The Committee agreed the measure was reliable and valid.

3. Feasibility: H-12; M-9; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed all data elements are in defined fields in electronic claims and generated or collected and used by healthcare personnel during the provision of care. No concerns regarding feasibility were noted.

4. Usability and Use: H-8; M-12; L-1; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure has been in use in the Centers for Medicare & Medicaid Services (CMS) Physician Quality Reporting System (PQRIS) program since 2007 and is planned for integration into the CMS Physician Compare program. Although Physician Compare has been launched, this measure has not been included as of December 2015.
- The developer acknowledged the possibility of spirometry overuse due to patients moving or switching physicians, however noted research finds underuse of spirometry is a far greater problem than overuse. The Committee agreed the benefits of the measure outweigh any potential unintended consequences.
- Overall the Committee felt the bar on this measure was set too low, but it agreed a large gap in care indicates the measure is needed.

5. Related and Competing Measures

- This measure was identified as related to:
    - NQF # 0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD
- The Committee felt measure #0091 and #0577 were related and should be harmonized. Since the measures have similar goals, the developers should consider harmonizing the age limit and timeframe.

- **Standing Committee Recommendation for Endorsement**: **Y-19**; **N-2**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)

Submission | Specifications

0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)

Description: Admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 1,000 population, ages 40 years and older. Excludes obstetric admissions and transfers from other institutions.

[NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report admissions per 100,000 population.]

Numerator Statement: Discharges, for patients ages 40 years and older, with either

• a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for COPD (excluding acute bronchitis); or

• a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for asthma

[NOTE: By definition, discharges with a principal diagnosis of COPD or asthma are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]

Denominator Statement: Population ages 40 years and older in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.

Exclusions: n/a

Adjustment/Stratification:

Level of Analysis: Population: County or City

Setting of Care: Other

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-22**; **N-0**; 1b. Performance Gap: **H-6**; **M-16**; **L-0**; **I-0**

<u>Rationale</u>:

- The developer reported COPD is one of the most common chronic diseases in the United States, and is currently the third leading cause of death. The developer provided updated evidence related to access to care for COPD.
- Data provided by the developer demonstrated the average performance rate decreased from 7.10 percent in 2009 to 5.12 percent in 2013.
- The Committee agreed the data demonstrated gap. However, it noted contradictory information on the rate of hospitalization based on the race of the patient.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-3**; **M-19**; **L-0**; **I-0**; 2b. Validity: **H-2**; **M-18**; **L-2**; **I-0**

<u>Rationale</u>:

- Reliability testing at the level of the measure score was conducted using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID).
- The developer reported a signal-to-noise ratio of 0.97. The measure uses two risk models; when SES is added to the risk adjustment, the signal-to-noise ratio is 0.96.
- One Committee member asked about which risk adjusted model is being used, e.g., age and gender or socioeconomic status. The developer responded that entities usually use age and gender or no risk adjustment.
- Validity was assessed by systematic assessment of face validity by 4 clinical expert panels involving 73

0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)

panelists from 2008-2009.

- The developer also conducted empirical validity testing by correlating the measure score to various factors, including health behaviors, access to care, etc.
- Committee members observed that the exclusionary criteria included only pediatric diagnoses. They recommended the developer retool the exclusionary criteria to include adults, e.g., diseases such as bronchiectasis occur across age groups.

3. Feasibility: H-14; M-8; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee acknowledged the measure is feasible. It is based on readily available administrative billing, claims data, and U.S. Census data, and all data elements are in defined fields in electronic claims.
- The AHRQ Quality Indicators (QI) software is publicly available and users have more than 10 years of experience using it.

4. Usability and Use: H-3; M-15; L-4; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is publicly reported and used in payment programs, quality improvement, regulatory, and accreditation programs.
- The developer reports the Prevention Quality Indicator (PQI) 05 hospital admissions rate decreased by 104,000 fewer hospitalizations from 2011 to 2013.
- The Committee's discussion of unintended consequences included unintended implementation. Specifically, one Committee member noted while the measure is specified at the population level, it is being used at the practice level as a part of the Value-Based Modifier Program. NQF does not place implementation burden on the developer.

5. Related and Competing Measures

- No related or competing measures identified.

Standing Committee Recommendation for Endorsement: **Y-18**; **N-4**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0283 Asthma in Younger Adults Admission Rate (PQI 15)

Submission | Specifications

Description: Admissions for a principal diagnosis of asthma per 1,000 population, ages 18 to 39 years. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.

Numerator Statement: Discharges, for patients ages 18 through 39 years, with a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for asthma.

[NOTE: By definition, discharges with a principal diagnosis of asthma are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]

0283 Asthma in Younger Adults Admission Rate (PQI 15)

Denominator Statement: Population ages 18 through 39 years in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.

Exclusions: Not applicable.

Adjustment/Stratification:

Level of Analysis: Population: County or City

Setting of Care: Other

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-4**; **M-17**; **L-1**; **I-0**

<u>Rationale</u>:

- The Committee agreed the developer provided sufficient evidence to support the rationale. The developer reviewed literature from January 2012 to October 2015 related to aspects of hospitalization for asthma.
- Although, the developer provided some updated evidence related to aspects of hospitalization for asthma, the Committee agreed with the developer that the underlying rationale for this outcome measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- Data provided by the developer found the average performance rate decreased from 0.50 percent in 2009 to 0.28 percent in 2013. The Committee agreed the data demonstrated gap, especially as relates to community income level, race, and sex.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5**; **M-16**; **L-1**; **I-0**; 2b. Validity: **H-0**; **M-17**; **L-5**; **I-0**

<u>Rationale</u>:

- Reliability testing was conducted at the performance measure score level, using signal-to-noise analysis. The developer reported a signal-to-noise ratio of 0.75. When sociodemographic status (SDS) is added to the risk adjustment, the signal-to-noise ratio is 0.74.
- The Committee noted the reliability does not meet the threshold for counties with eligible populations <3,800 and encouraged the developer to prominently note this.
- Validity was assessed by systematic assessment of face validity by 4 clinical expert panels involving 73 panelists from 2008-2009. The panelist indicated the measure was useful. Specific actions could improve rates, such as access to medications, patient education, and reduction of risk factors, such as environmental exposure to pollution or allergens and smoking.
- The developer also conducted empirical testing for validity at the performance measure score level. The developer assessed the relationship of county-level hospital admission rate with county level measures of socioeconomic status (SES) and community environment, heath behaviors and individual risk factors, and access to quality care measures. The developer reported prevalence, health behaviors (HB) and SES/environment were statistically significant predictors (p<.0001). Access to care (AC) was not significant when HB and SES/E are included in the model.
- The Committee noted the risk adjustment model was well-calibrated, but the c-statistic is poor, suggesting the developer should consider additional variables.

3. Feasibility: H-19; M-2; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

0283 Asthma in Younger Adults Admission Rate (PQI 15)

Rationale:

- The Committee agreed the measure is feasible. The measure is specified for several data sources, including administrative billing and claims. All data elements are in defined fields in electronic claims. The AHRQ Quality Indicators (QI) software is publicly available and users have more than 10 years of experience using it.

4. Usability and Use: H-13; M-9; L-0; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is currently in use in several federal and state public reporting, payment, regulatory, accreditation, and quality improvement with benchmarking programs.
- The developer provided data demonstrating improvement in rates of hospitalization between 2011 and 2013; Prevention Quality Indicator (PQI) 11 hospital admissions rate decreased by 9,000 fewer hospitalizations.

5. Related and Competing Measures

- This measure was identified as potentially related to:
    - 0728: Asthma Admission Rate (PDI 14)
- The Committee encouraged developers to harmonize all of the asthma measures. Specifically, the developers should harmonize the age limit, data source, diagnoses definitions, and risk adjustment method.

Standing Committee Recommendation for Endorsement: **Y-21**; **N-1**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

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

Submission | Specifications

Description: The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the date of admission for the index admission, discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary diagnosis of pneumonia (including aspiration pneumonia) coded as present on admission (POA). CMS annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities.

Please note this measure has been substantially updated since the last submission; as described in S.3., the cohort has been expanded. Throughout this application we refer to this measure as version 9.2.

Numerator Statement: The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the index admission date for patients 18 and older discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA and no secondary discharge diagnosis of severe sepsis.

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

The cohort includes admissions for patients aged 18 years and older discharged from the hospital with principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not

severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA but no secondary discharge diagnosis of severe sepsis; and with a complete claims history for the 12 months prior to admission. The measure will be publicly reported by CMS for those patients 65 years or older who are Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals.

Additional details are provided in S.9 Denominator Details.

Exclusions: The mortality measures exclude index admissions for patients:

1. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility;

2. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data;

3. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission, including the first day of the index admission; or

4. Discharged against medical advice (AMA).

For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Centers for Medicare & Medicaid Services (CMS)

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: <u>Consensus Not Reached on the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-1**; **M-11**; **L-8**; **I-1**

<u>Rationale</u>:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- The Committee noted that mortality rates appeared to be increasing based on the 3 years of data provided and questioned whether the measure was actually having an impact. The developer explained the mortality rates appeared to be increasing due to the expansion of the cohort to include: patients with a principal discharge diagnosis of aspiration pneumonia; principal discharge diagnosis of sepsis (not including severe sepsis); secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as present on arrival; and no secondary discharge diagnosis of severe sepsis. The developer stated these patients have a higher mortality risk. The Committee did not reach consensus on whether a sufficient performance gap exists to warrant a national performance measure.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5**; **M-13**; **L-3**; **I-0** 2b. Validity: **H-2**; **M-14**; **L-4**; **I-1**

<u>Rationale</u>:

- The developer used a split-sample (or "test-retest") methodology to test score-level reliability. For this analysis, the developer randomly assigned half of the patients in each hospital to two separate groups, calculated the performance measure score for each hospital in each of the two groups, and compared the agreement between each hospital's paired scores using the intra-class-correlation coefficient (ICC) and applying a correction factor to account for the overall sample size. The Committee agreed the ICC value from the split-sample analysis of 0.79, indicating that 79% of the variance in scores is due to differences between

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

hospitals, indicated sufficient reliability.

- The Committee expressed concern that only additional testing of the risk-adjustment model using an updated dataset was conducted, and not updated testing of the re-specified measure itself. The developer noted the measure originally was validated by correlating the claims-based performance score results to results from a similar mortality measure that used clinical data obtained via manual chart audit of medical records for the same patient population. The developer further stated it expected the updated measure to have greater validity due to mitigated biases introduced by hospital coding patterns, so felt confirming the effectiveness of the approach to risk adjustment was more relevant. Overall, the Committee agreed with the developer's response.

3. Feasibility: H-8; M-13; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and generated or collected by and used by healthcare personnel during the provision of care. The data are coded by someone other than person obtaining original information.
- The Committee expressed concern about the measure's ability to assess mortality in patients under 65 years old. The developer agreed there were implementation concerns for individuals under 65, and for that reason, the measure is specified for reporting only for >65 years by Medicare fee-for-service programs.

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

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is publicly reported nationally in the Hospital Inpatient Quality Reporting (IQR) Program and used in the Hospital Value-Based Purchasing (HVBP) Program.
- While there were concerns about more widespread use, the Committee agreed the benefits of the measure outweigh any potential unintended consequences.

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - #0231: Pneumonia Mortality Rate (IQI #20)
- The Committee was unable to discuss related and competing measures during the in-person meeting and will have the opportunity to do so during the post-comment call.

Standing Committee Recommendation for Endorsement: **Y-17**; **N-4**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0513 Thorax CT—Use of Contrast Material

Submission | Specifications

Description: This measure calculates the percentage of thorax computed tomography (CT) studies that are performed with and without contrast out of all thorax CT studies performed (those with contrast, those without contrast and those with both) at each facility. 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 (CMS), since 2010, as a component of its Hospital Outpatient Quality Reporting (HOQR) Program.

Numerator Statement: The number of thorax CT studies with and without contrast ("combined studies").

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.

Exclusions: Indications for measure exclusion include any patients with diagnosis codes associated with: internal injury of chest, abdomen, and pelvis; injury to blood vessels; or crushing injury.

Adjustment/Stratification:

Level of Analysis: Facility, Population: National, Population: State

Setting of Care: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Imaging Facility

Type of Measure: Process

Data Source: Administrative claims

Measure Steward: Centers for Medicare & Medicaid Services

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-18**; **M-3**; **L-0**; **I-0**; 1b. Performance Gap: **H-13**; **M-7**; **L-0**; **I-0**

<u>Rationale</u>:

- The Committee agreed the updated evidence based on 36 American College of Radiology (ACR) appropriate use criteria (AUC) and two clinical practice guidelines from National Collaborating Centre for Cancer (NCCC), a center of the National Institute for Health and Care Excellence (NICE), and AIM Specialty Health (a radiology benefit management company) was strong.
- Based on data from 2,413 facilities in 2015, the Committee agreed the performance rates ranging from 0.0% to 46.5%, with a mean of 3.3%, demonstrated an improvement in performance, but also considerable variation. The Committee also noted the developer provided disparities data on the size of the facility, age, gender, and race.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-14**; **M-7**; **L-0**; **I-0**; 2b. Validity: **H-1**; **M-20**; **L-0; I-0**

<u>Rationale</u>:

- The developer used the beta-binomial approach on an updated sample (2013) of 3,666 facilities. The Committee agreed results of a 30.3% to 100.0% signal-to-noise ratio range indicated the measure is reliable.
- The Committee concluded sufficient validity was demonstrated based on the face validity testing performed by the developer through survey of a 10-member Technical Expert Panel (TEP).

3. Feasibility: H-20; M-1; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and generated or collected by and used by healthcare personnel during the provision of care.

4. Usability and Use: H-16; M-5; L-0; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is used in the Hospital Outpatient Quality Reporting Program.
- The Committee noted the median rate of overuse decreased significantly from 2010 to 2015 and more

0513 Thorax CT—Use of Contrast Material

widespread use of the measure would be beneficial to the community.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: **Y-21**; **N-0**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD

Submission | Specifications

Description: The percentage of patients 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: At least one claim/encounter for spirometry during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD.

Denominator Statement: All patients age 42 years or older as of December 31 of the measurement year, who had a new diagnosis of COPD or newly active COPD during the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year.

Exclusions: N/A

Adjustment/Stratification:

Level of Analysis: Health Plan, Integrated Delivery System

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims

Measure Steward: National Committee for Quality Assurance

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-9**; **M-12**; **L-0**; **I-0**

<u>Rationale</u>:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review, which included recommendations from 2015 Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines, 2013 Institute for Clinical Systems Improvement (ICSI) Guidelines, and 2011 Clinical Practice Guideline Update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. The Committee accepted the prior evaluation of this criterion without further discussion.
- The developer provided data collected from the National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) for Commercial Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), Medicare HMOs and PPOs, and Medicaid HMO. The mean results ranged from 31% to 44% among the various types of plans, although there was little improvement from 2012 to 2014 (~1%) within each plan type.

0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD

- The Committee agreed the data demonstrated variation in utilization of spirometry among the plans.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **Accepted Prior Evaluation;** 2b. Validity: **H-8**; **M-13**; **L-0**; **I-0**

<u>Rationale</u>:

- While the developer provided testing at the score level using newer data, the Committee agreed the underlying method and results for the measure had not significantly changed since the last NQF endorsement review. The beta-binomial method was used to determine the ratio of signal to noise using health plan data from July 1, 2011 through December 31, 2014 with a median score of 0.88 for Commercial, 0.88 for Medicaid, and 0.95 for Medicare. The Committee accepted the prior evaluation of the reliability criterion without further discussion.
- The Committee expressed concern about the timeframe of 2 years prior to the Index Episode Start Date through 6 months after the Index Episode Start Date as not being evidence-based. However, it concluded it was a reasonable timeframe based on face validity.
- The Committee agreed the additional validity testing conducted at the measure score level since the last NQF endorsement review further strengthened the measure.

3. Feasibility: H-16; M-5; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and generated or collected by and used by healthcare personnel during the provision of care.

4. Usability and Use: H-7; M-13; L-1; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is in use in NCQA's State of Health Care annual report and Quality Compass, as well as *Consumer Reports*' website.
- Some Committee members expressed concern about the slow increase in improvement by plans, but agreed some improvement can be seen.

5. Related and Competing Measures

- This measure was identified as related to:
    - NQF # 0091 COPD: spirometry evaluation
- The Committee felt measure #0091 and #0577 were related and should be harmonized. Specifically, since the measures have similar goals, the developers should harmonize the age limit and timeframe or justify why the differences exist.

Standing Committee Recommendation for Endorsement: **Y-21**; **N-0**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

1800 Asthma Medication Ratio

Submission | Specifications

1800 Asthma Medication Ratio

Description: The percentage of patients 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 patients who had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.

Denominator Statement: All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year:

• At least one emergency department visit with asthma as the principal diagnosis

• At least one acute inpatient claim/encounter with asthma as the principal diagnosis

• At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits.

• At least four asthma medication dispensing events

Exclusions: Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31):

-COPD

-Emphysema

-Obstructive Chronic Bronchitis

-Chronic Respiratory Conditions Due To Fumes/Vapors

-Cystic Fibrosis

-Acute Respiratory Failure

Exclude any patients who had no asthma medications (controller or reliever) dispensed during the measurement year.

Adjustment/Stratification:

Level of Analysis: Health Plan, Integrated Delivery System

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims

Measure Steward: National Committee for Quality Assurance

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-6**; **M-14**; **L-0**; **I-0**

<u>Rationale</u>:

- Evidence provided by the developer included the 2007 guidelines for the diagnosis and management of asthma from the National Heart and Lung and Blood Institutes (NHLBI). The evidence included a systematic review, graded Category A. The Committee agreed with the developer that although the guidelines were updated, the underlying evidence of the measures had not changed. The Committee accepted the prior evaluation of this criterion without further discussion.
- The developer summarized the performance data at a health plan level and stratified by year and product line (Medicaid, Health Maintenance Organization (HMO), and Preferred Provider Organization (PPO)).
- Committee members commented the only gap identified occurs among the different types of products, e.g., commercial product versus Medicaid and Medicare. They noted gaps have been consistent throughout 2012, 2013, and 2014. The measure showed slight improvement (approximately 2 percentage points) across Medicaid health plans.
- The developer does not currently collect performance data stratified by race, ethnicity, or language. However, the Committee noted it would be helpful to see data stratified by race, ethnicity, urban versus rural, and age.

1800 Asthma Medication Ratio

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-15**; **M-5**; **L-0**; **I-0**; 2b. Validity: **H-8**; **M-12**; **L-0**; **I-0**

<u>Rationale</u>:

- The specifications had not changed since the last NQF evaluation, and the Committee had no additional comments.
- The developer conducted reliability testing at the performance measure score level, using signal to noise analysis. The developer provides the 2015 measure score reliability results, which used data from the 2014 measurement year (386 commercial health plans and 164 Medicaid health plans). The reliability statistics ranged from 0.93-0.97.
- The developer used face validity with input from 3 expert panels (2015); the panels concluded that the measure accurately differentiates quality across providers. The developer also conducted construct validity testing (2015) by examining whether the score for this measure was correlated with similar measures of respiratory care. Construct validity testing indicated the asthma measures were significantly ($p<.05$) correlated with each other.
- The Committee noted the biggest threat to validity is the percentage of people excluded from the measure, particularly the older age cohort. This also was noted as a concern during the Committee evaluation in 2012.

3. Feasibility: H-15; M-5; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee agreed the measure is feasible. All data are generated during care processes and are currently included in defined fields in electronic claims.

4. Usability and Use: H-13; M-6; L-1; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is widely used and publicly reported.
- The developer noted a slight improvement in the Medicaid health plans and no improvement in the commercial plans. A wide gap between commercial product and Medicaid/ Medicare products was noted.
- One Committee member commented, “There’s a push in the Medicaid managed care programs to use this measure. As the measure gains traction, I think we’ll see better improvement. “

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - 0047: Asthma: Pharmacologic Therapy for Persistent Asthma
  - 1799: Medication Management for People with Asthma
- The Committee encouraged developers to harmonize all of the asthma measures. Specifically, the developers should harmonize the age limit, data source, diagnoses definitions, and risk adjustment method.

Standing Committee Recommendation for Endorsement: **Y-20**; **N-0**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

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

Submission | Specifications

Description: The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD. CMS annually reports the measure for patients who are aged 65 or older, are enrolled in fee-for-service (FFS) Medicare, and hospitalized in non-federal hospitals.

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 discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary discharge 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 or older or (2) patients aged 40 years or older.

The cohort includes admissions for patients discharged from the hospital with either a principal discharge diagnosis of COPD (see codes below) OR a principal discharge 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. The measure is currently publicly reported by CMS for those patients aged 65 or older who are Medicare FFS beneficiaries admitted to non-federal hospitals.

Additional details are provided in S.9 Denominator Details.

Exclusions: The mortality measures exclude index admissions for patients:

1. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data;

2. Enrolled in the Medicare hospice program any time in the 12 months prior to the index admission, including the first day of the index admission; or

3. Discharged against medical advice (AMA).

For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Centers for Medicare & Medicaid Services

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: The measure meets the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-2**; **M-14**; **L-4**; **I-0**

Rationale:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- The Committee noted there was minor improvement, but agreed there was enough of a gap in care that warranted a national performance measure.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criterion.

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **Accepted Prior Evaluation;** 2b. Validity: **Accepted Prior Evaluation**

Rationale:

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

- The Committee agreed the underlying reliability and validity testing provided by the developer had not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and generated or collected by and used by healthcare personnel during the provision of care.

4. Usability and Use: H-5; M-12; L-2; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is publicly reported nationally on Hospital Compare.
- While there was concern about the small degree of improvement, the Committee agreed the benefits of the measure outweigh any potential unintended consequences.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: **Y-18**; **N-1**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

2856 Pharmacotherapy Management of COPD Exacerbation

Submission | Specifications

Description: This measure assesses the percentage of COPD exacerbations for patients 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 (or there was evidence of an active prescription) within 14 days of the event

2. Dispensed a bronchodilator (or there was evidence of an active prescription) within 30 days of the event

Note: The eligible population for this measure is based on acute inpatient discharges and ED visits, not on patients. It is possible for the denominator to include multiple events for the same individual.

Numerator Statement: Numerator 1 (Systemic Corticosteroids): The number of patients dispensed a prescription for systemic corticosteroid on or 14 days after the Episode Date*. Count systemic corticosteroids that are active on the relevant date.

Numerator 2 (Bronchodilator): The number of patients dispensed a prescription for a bronchodilator on or 30 days after the Episode Date*. Count bronchodilators that are active on the relevant date.

*The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD.

Denominator Statement: All patients age 40 years or older as of January 1 of the measurement year with a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a principal diagnosis of COPD.

2856 Pharmacotherapy Management of COPD Exacerbation

Exclusions: 1) Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis.

2) Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date.

3) Exclude episode dates when the patient had an ED visit for any diagnosis within 14 days after the Episode date.

Adjustment/Stratification:

Level of Analysis: Health Plan, Integrated Delivery System

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims

Measure Steward: National Committee for Quality Assurance

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-9**; **M-12**; **L-1**; **I-0**; 1b. Performance Gap: **H-13**; **M-7**; **L-2**; **I-0**

<u>Rationale</u>:

- This measure was previously endorsed as NQF #0549, however the endorsement was removed during the last review in July 2012, and the developer has resubmitted the measure for consideration.
- The developer provided evidence for this measure based on two clinical practice guidelines for the use of systemic corticosteroid and short acting bronchodilator medications to treat patients with Chronic Obstructive Pulmonary Disease (COPD) exacerbations from Global Initiative for Chronic Obstructive Lung Disease (GOLD) and Institute for Clinical Systems Improvement (ICSI). The Committee agreed that the evidence provided by the developer generally supported the measure.
- The developer provided Healthcare Effectiveness Data and Information Set (HEDIS) data based that identified a statistically significant 7 to 16% gap in performance between the 25th and 75th percentile performing plans across the different product lines and indicators.
- The developer does not collect disparities data, but cited published articles and *Healthy People 2020* data stating that disparities exist for COPD, generally, race, age, gender, existing comorbidities, and income level.
- The Committee agreed the data indicate an opportunity for improvement.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5**; **M-16**; **L-1**; **I-0** 2b. Validity: **H-1**; **M-13**; **L-8**; **I-0**

<u>Rationale</u>:

- The developer conducted beta-binomial at the measure score level utilizing data from health plans (241 commercial, 157 Medicaid) that submitted HEDIS data for 2012 and 2015.
- Per the developer, the 10-90th percentile distribution of health plan level-reliability on the rates in this measure show the vast majority of health plans exceeded 0.7, and the majority of plans exceeded 0.8.
- The beta-binomial method also was used for #0549. Reliability statistics for #2856 vs. #0549 were similar for Medicaid plans. For commercial plans, reliability statistics were poorer for #2856 (current submission) as compared that for #0549.
- The Committee agreed that the data provided by the developer supported the reliability of the measure.
- Face validity was assessed by 3 clinical expert panels for a total of 73 panelists. The developer also conducted data element-level validity testing since the prior submission of #0549.
- The Committee had a robust discussion regarding validity:
    - Pearson Correlation Coefficients (PCC) were calculated for 2015 HEDIS data from 241 commercial health plans, 357 Medicare health plans, and 157 Medicaid health plans. The developer reported that the results indicated that the COPD measures were significantly ($p<.05$) correlated with each other in the

2856 Pharmacotherapy Management of COPD Exacerbation
hypothesized direction. ○ The developer noted endorsement was removed during the last review because it did not pass on validity due to the Committee's concerns about capturing medication samples dispensed in the ED and the developer's definition of active medications. The current Committee expressed concern over the effect of not capturing medications dispensed outside of patients' pharmacy benefit. The developer discussed how health plans are working to get this data from pharmacies via a data exchange. The Committee also voiced concern over the burden involved in such data collection for plans, and the developer explained that there were initiatives underway to close this data gap with health plans. ○ The Committee also raised concerns about the measure specifications, especially the timeframe specified for the dispensing and administration of medication. The Committee also questioned the exclusion of urgent care facilities from the care settings for this measure. ○ The Committee expressed concerns regarding the sensitivity and specificity of the data, i.e., whether patients who are labeled as not receiving corticosteroids or bronchodilators actually were prescribed these medications according to their medical record.
3. Feasibility: H-2; M-17; L-3; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)* Rationale: • The Committee agreed the measure is generally feasible. However, one Committee member expressed concerns regarding potential threats to feasibility, including inability of the ED to access medical records and patients filling patients in various locations not captured by this measure.
4. Usability and Use: H-16; M-6; L-0; I-0 *(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)* Rationale: • This measure is a health plan accountability measure that is widely used in national public reporting programs. • The Committee did not identify any issues with the usability and use of the measure.
5. Related and Competing Measures • This measure was identified as potentially related to: ○ 0102: COPD: inhaled bronchodilator therapy • The Committee felt measure #0102 and #2856 are not related and no further harmonization was needed.
Standing Committee Recommendation for Endorsement: **Y-17**; **N-5**
6. Public and Member Comment
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measure Recommended for Inactive Endorsement With Reserve Status

0102 COPD: inhaled bronchodilator therapy
Submission | Specifications
Description: Percentage of patients aged 18 years or older, with a diagnosis of COPD (FEV1/FVC < 70%) who have an FEV1 < 60% predicted 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 FEV1/FVC <

0102 COPD: inhaled bronchodilator therapy

70%, FEV1 <60% predicted and have symptoms (eg, dyspnea, cough/sputum, wheezing)

Exclusions: ATS continues to use the PCPI exception methodology that uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure: medical, patient and system reasons.

Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions is based on clinical judgment, individual patient characteristics, or patient preferences. 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 this measure, exceptions include medical reason(s), patient reason(s) or system reason(s) for not prescribing inhaled bronchodilators. Although this methodology does not require the external reporting of more detailed exception data, the ATS recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness.

Adjustment/Stratification:

Level of Analysis: Clinician : Group/Practice, Clinician : Team

Setting of Care: Ambulatory Care : Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims, Electronic Clinical Data : Registry

Measure Steward: American Thoracic Society

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-3**; **M-11**; **L-6**; **I-2**; 1b. Performance Gap: **H-1**; **M-0**; **L-20**; **I-1**

<u>Rationale</u>:

- The developer originally brought forward the measure with an updated numerator statement, edited to more closely align to the most recent evidence-based guidelines. The prior numerator was: "Patients who were prescribed an inhaled bronchodilator." It had been updated to: "Patients who were prescribed a long-acting inhaled bronchodilator."
- While the numerator statement had been updated, updated gap analysis, and reliability and validity testing to support the new numerator was not provided by the developer. The Committee noted it was not possible to evaluate the measure without the updated data and voted the measure down on gap. Since gap and testing data for the old measure were provided, the Committee agreed to review the original specifications for endorsement maintenance, if the developer reverted back to the old numerator. The developer agreed and the specifications for the original measure are presented in this report.
- Updated evidence for this process measure is based on clinical practice guidelines for the diagnosis and management of Chronic Obstructive Lung Disease from Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2015 guidelines and American College of Physicians (ACP), American College of Chest Physicians, American Thoracic Society, and European Respiratory Society 2011 guidelines.
- The developer reported this measure was used in the CMS Physician Quality Reporting Initiative/System (PQRS): 2007 through 2013 claims option; 2009 through 2013 registry option; 2011 through 2012 group practice reporting II option; and the 2012 ACO option. In the 2008 data, 53.61% of patients reported on did not meet the measure. The Committee questioned whether there is opportunity for improvement (From 2010-2014, the gap ranged from 73.4% TO 98.5%, and voted to consider the measure for endorsement with reserve status.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

0102 COPD: inhaled bronchodilator therapy

2a. Reliability: **H-11**; **M-9**; **L-1**; **I-0**; 2b. Validity: **H-4**; **M-16**; **L-2**; **I-0**

Rationale:

- The developer presented 2012 performance measure score-level reliability testing with a reliability score of 0.85 among groups with 25 or more EPs participating in the PQRS GPRO program. The Committee agreed the measure demonstrated sufficient reliability so that differences in performance can be identified.
- The developer presented 2015 face validity testing, with 88.9% of panelists agreeing or strongly agreeing this measure can accurately distinguish good and poor quality. The Committee agreed sufficient validity was demonstrated.

3. Feasibility: H-18; M-4; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and generated or collected by and used by healthcare personnel during the provision of care.

4. Usability and Use: H-10; M-11; L-1; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure has been in use for the Centers for Medicare & Medicaid Services (CMS) Physician Quality Reporting System (PQRS) program since 2007 and is planned for integration into the CMS Physician Compare Program.
- The Committee did not identify any issues with usability and use.

5. Related and Competing Measures

- This measure was identified as related by staff to:
    - NQF #2856: Pharmacotherapy Management of COPD Exacerbation
- The Committee felt measure #0102 and #2856 are not related and no further harmonization was needed.

Standing Committee Recommendation for Potential for Reserve Status: **Y-16**; **N-6**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

Measures Where Consensus Is Not Yet Reached

0279 Bacterial Pneumonia Admission Rate (PQI 11)

Submission | Specifications

Description: Admissions with a principal diagnosis of bacterial pneumonia per 1,000 population, ages 18 years and older. Excludes sickle cell or hemoglobin-S admissions, other indications of immunocompromised state admissions, obstetric admissions, and transfers from other institutions.

Numerator Statement: Discharges, for patients ages 18 years and older, with a principal ICD-9-CM or ICD-10-CM-PCS diagnosis code for bacterial pneumonia.

[NOTE: By definition, discharges with a principal diagnosis of bacterial pneumonia are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]

0279 Bacterial Pneumonia Admission Rate (PQI 11)

Denominator Statement: Population ages 18 years and older in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.

Exclusions: Not applicable.

Adjustment/Stratification:

Level of Analysis: Population: County or City

Setting of Care: Other

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: Consensus Not Reached on the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-1**; **M-11**; **L-10**; **I-0**

Rationale:

- Although the developer provided some updated evidence related to aspects of hospitalization for pneumonia, the Committee agreed with the developer that the underlying rationale for this outcome measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- Data provided by the developer shows the average performance rate decreased from 5.20 percent in 2009 to 3.28 percent in 2013.
- The developer provided gap data that demonstrated an improvement from 2009 to 2013 (3.02 per 1,000 population to 2.23 per 1,000 population). The developer did not provide disparities data related to race, but noted males, patients over 65 years, patients with the lowest income, and patients living in rural areas have the highest rate.
- Overall, the Committee generally agreed the data demonstrate variations in care, but one member noted that male gender and age >65 years are significant predictors of pneumonia mortality, and by inference hospitalizations. Given this, the Committee questioned whether a gap and opportunity for improvement exist—i.e., how much more can healthcare interventions drive improvement on the measure.
- The developer responded, "Early outpatient detection should still influence the population level [hospitalization] rates regardless of whether an elder male or elder pneumonia patient presents, they should be admitted."

2. Scientific Acceptability of Measure Properties: Consensus Not Reached on the Scientific Acceptability criterion.

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-6**; **M-13**; **L-3**; **I-0**; 2b. Validity: **H-1**; **M-9**; **L-12**; **I-0**

Rationale:

- The developer updated the measure specifications measure by: adding diagnosis codes; removing numerator exclusions (MDC14 and MDC15); and added exclusion of patients with any diagnosis code or procedure code for Immunocompromised state.
- Signal-to-noise reliability testing at the level of the measure score was conducted using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). The developer reported a signal-to-noise ratio of 0.97.
- A Committee member questioned the measure title, "Bacterial Pneumonia Admission Rate," since the developer seems to be tracking discharges. The member questioned whether the developer could reconcile using discharge diagnosis as a proxy for admission. The developer responded that by using hospital billing data, records are created at the time of discharge and the principle diagnosis has been adjusted, as necessary, to be the major cause of admission—hence it is a more accurate reflection of admissions.

0279 Bacterial Pneumonia Admission Rate (PQI 11)

- Validity testing was conducted with a systematic assessment of face validity by 4 clinical expert panels involving 73 panelists from 2008-2009. The developer reports the panels indicated the measure was useful. The developer and panels acknowledged complex factors influence the measure.
- The Committee questioned whether recommendations from an expert panel convened in 2008 and 2009 were still applicable.
- The Committee expressed concern regarding the large number of discharges excluded due to a diagnosis of an immunocompromised state. One Committee member noted, "If you replace those discharged patients, one would increase the numerator by over 10%." Another member commented, "The ability to be confident about the presence or absence of immunocompromised state would probably increase the uncertainty of the measure."
- Although the measure focused on bacterial pneumonia, the Committee discussed whether the measure really assessed bacterial pneumonia or community-acquired pneumonia. The developer agreed the measure mostly reflected community-acquired pneumonia and stated it would be willing to consider changing the measure title and description.

3. Feasibility: H-17; M-3; L-2; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims. The measure is based on readily available administrative billing and claims data. The AHRQ QI software is publicly available and users have more than 10 years of experience using it.

4. Usability and Use: H-5; M-11; L-6; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is currently publicly reported and used in accountability programs.
- The developer reports bacterial pneumonia/community-acquired pneumonia hospital admissions have decreased by 87,000 fewer hospitalizations from 2011-2013. The Committee noted the performance results can be used to further quality improvement in healthcare.
- A Committee member expressed concern about two potential unintended consequences: 1) the measure being used at a practice level despite being designated for population-level evaluation; and 2) the diagnostic ability for viral pneumonia has improved, which may explain the decrease in the admission rate.

5. Related and Competing Measures

- No related or competing measures were identified.

Standing Committee Recommendation for Endorsement: **Y-13**; **N-9**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0334 PICU Severity-adjusted Length of Stay

Submission | Specifications

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.(For all eligible patients admitted to the ICU, the time at discharge from ICU minus the time of ICU

admission (first recorded vital sign on ICU flow sheet)

Denominator Statement: The denominator is the average (mean) predicted length of stay using the adjustment model.

Exclusions: Patients => 18 years of age

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry

Measure Steward: Virtual PICU Systems, LLC

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: <u>The measure meets the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-6**; **M-13**; **L-2**; **I-0**

<u>Rationale</u>:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion.
- The developer recommended, and the Committee concurred, this measure be paired with NQF #0335 during implementation.
- While a performance gap exists, the Committee agreed with the developer's assessment of the performance from 2014, which showed no monotonic trend, i.e., no increasing or decreasing trend.

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-9**; **M-12**; **L-0**; **I-0** 2b. Validity: **H-6**; **M-13**; **L-1**; **I-1**

<u>Rationale</u>:

- The developer conducted new validity testing at the data element level. Per NQF guidance, separate reliability testing is not required when validity testing at the data element level is performed for all critical data elements.
- The measure used the PRISM III algorithm, a proprietary risk adjustment scheme. The developer requires initial and quarterly inter-rater reliability from all clinical data collectors for each unit participating in VPS. The developer does not explicitly indicate all critical data elements are assessed during this process. The developer reported an aggregate IRR concordance rate of 96.81% using 2014 data

3. Feasibility: H-3; M-13; L-5; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- Some data elements are in defined fields in electronic form and generated or collected by and used by healthcare personnel during the provision of care.
- Committee members expressed concern about the measure being proprietary. Unlike, measure #0335, pulling data for this measure would be much harder without the software.

4. Usability and Use: H-0; M-14; L-6; I-1

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- The measure is currently in use in several private sector payer payment and quality improvement programs.
- The Committee expressed concern regarding consistency in implementation. The developer acknowledged the

0334 PICU Severity-adjusted Length of Stay

potential for under-coding complications, noting it was reasonable to think this could occur.

5. Related and Competing Measures

- This measure was identified as related by staff to:
  - NQF #0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
- The Committee was unable to discuss related and competing measures during the in-person meeting and will have the opportunity to do so during the post-comment call.

Standing Committee Recommendation for Endorsement: **Y-11**; **N-10**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0335 PICU Unplanned Readmission Rate

Submission | Specifications

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:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: Virtual PICU Systems, LLC

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: Consensus Not Reached on the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-0**; **M-13**; **L-8**; **I-1**

Rationale:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion. The Committee accepted the prior evaluation of this criterion without further discussion.
- The Committee expressed concern about the potential impact of the measure. The developer stated this measure should be paired with NQF #0334 during implementation, thus making it more impactful. The Committee concurred this measure was more helpful when used as a balancing measure to #0334 because it provided information on whether patients were being unjustifiably discharged from the PICU; however, each paired measure must be reviewed separately on its own merits.
- The unit-level unscheduled readmission rate ranges between 0% and 1.67%, and data provided by the developer for 2012-2014 showed no monotonic trend, i.e., no increasing or decreasing trend. The Committee was not able to reach consensus on whether enough of a performance gap exists to warrant a national performance measure.

0335 PICU Unplanned Readmission Rate

2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **Accepted Prior Evaluation;** 2b. Validity: **H-3**; **M-13**; **L-5**; **I-0**

<u>Rationale</u>:

- The developer noted "numerators, denominators and all definitions are standardized with an inter-rater reliability (IRR) >96%." From this it was inferred that validity testing at the data element level was assessed. Per NQF guidance, separate reliability testing is not required when validity testing at the data element level is performed for all critical data elements. The Committee agreed the underlying reliability for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- While the Committee ultimately concluded the measure was valid, it expressed the following concerns:
  - Specific decisionmaking elements (leading to successful and unsuccessful PICU discharges) were not teased out. The assumption is that mistakes made regarding deciding who may and may not be successfully discharged from the PICU directly relate to quality of care. While intuitively valid, there are no empirical results to demonstrate this.
  - Intuitively, the score from this measure as specified is an indicator of quality, but there also are variables (e.g., quality of post-PICU care, etc.) that directly affect the numerator and that might not reflect the quality in the PICU or the original discharge decision.
  - Overall readmission rate is so low that even a low IRR "unreliability rate" could have a statistical impact.
  - A lack of risk adjustment assumes PICUs inherently have the same population and patient characteristics.

3. Feasibility: H-3; M-13; L-5; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- Some data elements are in defined fields in electronic form and generated or collected by and used by healthcare personnel during the provision of care.
- Committee members expressed concern about the measure being proprietary. Committee members with PICU expertise stated the software is widely used in PICUs, and the developer reassured the Committee that, while much harder to collect and expect the same level of reliability and validity, the underlying formula for pulling the data is available for use without the software.

4. Usability and Use: H-0; M-14; L-7; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- The measure data are not aggregated and publicly reported; however, some hospitals participating in the VPS system may individually publicly report their data.
- The measure is part of programs at the Texas Children and the Hospital California Children Health Services.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: **Y-12**; **N-9**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0343 PICU Standardized Mortality Ratio

Submission | Specifications

Description: The ratio of actual deaths over predicted deaths for PICU patients.

Numerator Statement: Actual number of deaths occurring in PICU.

Denominator Statement: The sum of of predicted PRISM 3 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 or boarder/IMCU status.

Exclusions: 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 or boarder/IMCU status.

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry

Measure Steward: Virtual PICU Systems, LLC

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: The measure meets the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-4**; **M-11**; **L-5**; **I-0**

Rationale:

- The Committee agreed with the developer that the underlying evidence for the measure has not changed since the last NQF endorsement review. The Committee accepted the prior evaluation of this criterion without further discussion.
- The Committee agreed with the developer's assessment of the performance over time, which showed no monotonic trend (i.e., no increasing or decreasing trend). The Committee found, however, the unit-level standardized mortality ratio (SMR) range of 0.16 to 2.02 demonstrated a gap.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criterion.

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **Accepted Prior Evaluation;** 2b. Validity: **H-2**; **M-15**; **L-3**; **I-0**

Rationale:

- The measure used the PRISM III algorithm, a proprietary risk adjustment scheme. The developer states elsewhere (measures #0334, #0335) that for the VPS system, "numerators, denominators and all definitions are standardized with an inter-rater reliability (IRR) >96%." From this it was inferred that validity testing at the data element level was conducted. Per NQF guidance, separate reliability testing is not required when validity testing at the data element level is performed for all critical data elements.
- Some Committee members expressed concern that the severity of patient mix may not be adequately accounted for in the methodology, leading to potential inaccurate results when reporting outcomes. Others questioned whether higher SMR than predicted ("which is calculated using proprietary software and black-box scoring") does not identify the correct deficit. Overall, the Committee agreed the measure was valid.

3. Feasibility: H-3; M-14; L-3; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- Some data elements are in defined fields in electronic form and generated or collected by and used by healthcare personnel during the provision of care.
- Committee members expressed concern about the measure being proprietary. Unlike, NQF #0335, pulling

0343 PICU Standardized Mortality Ratio

data for this measure would be much harder without the software.

4. Usability and Use: H-0; M-8; L-12; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- The measure data are not aggregated and publicly reported; however, some hospitals participating in the VPS system may individually publicly report their data.
- The measure is part of programs at the Texas Children and the Hospital California Children Health Services.
- The Committee expressed several concerns during its discussion and was not able to come to consensus on usability and use:
    - Use of the measure is not mandatory and there was a lack of interest by providers to monitor this performance in order to improve the quality of care.
    - Little to no improvement has been made since previous endorsement.
    - The lack of public reporting means stakeholders cannot compare performance across different users, facilities, or populations.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: **Y-9**; **N-11**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0703 Intensive Care: In-hospital mortality rate

Submission | Specifications

Description: 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).

Numerator Statement: Total number of eligible patients whose hospital outcome is death. The measure is risk-adjusted, please see S.18.

Denominator Statement: Total number of eligible patients who are discharged (including deaths and transfers out to other hospitals).

Exclusions: <18 years of age at time of ICU admission, ICU readmission, <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, transfers from another acute care hospital.

Adjustment/Stratification:

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Paper Medical Records

Measure Steward: Philip R. Lee Institute for Health Policy Studies

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: The measure meets the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

0703 Intensive Care: In-hospital mortality rate

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-5**; **M-13**; **L-2**; **I-2**

Rationale:

- The Committee agreed with the developer that the underlying rationale appears to be the same since the last NQF endorsement review. The Committee accepted the prior evaluation of the Evidence criterion without further discussion.
- The developer provided performance scores based on 2010 and 2011 data. Using 2007 as the baseline (mortality rate = 13.85%) mortality declined 2.18% in 2011 (mortality rate =11.67%).
- Disparities were not included in the measurement data provided by the developer. However, the developer provided literature that documents disparities. The Committee noted disease-specific racial variation, disparities for the elderly, insurance status, and disparities based on gender.

2. Scientific Acceptability of Measure Properties: Consensus Not Reached on the Scientific Acceptability criterion.

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-4**; **M-15**; **L-3**; **I-0**; 2b. Validity: **H-0**; **M-13**; **L-9**; **I-0**

Rationale:

- The developer provided updated validity testing at the data element level by comparing hospital abstraction results to an auditor's. Per NQF guidance, separate reliability testing is not required when validity testing at the data element level is performed for all critical data elements. Nevertheless, the developer also conducted empirical testing for reliability at the measure score level. The developer reported a correlation coefficient of 0.792 between the hospital's predicted probabilities of death and the auditor's predicted probabilities. The developer stated there was no clear pattern suggesting hospitals over-reported risk factors—i.e., in some cases, hospitals were over-reporting, in others, they were under-reporting).
- For the validity testing at the data element level, the developer assessed agreement between trained auditors (the authoritative source) and hospital data collectors for all individual risk model elements. Percent agreement between auditors and hospital data collectors across all individual risk model elements was 94%, with a range for specific risk variables from 85-97%.
- The Committee asked the developer to clarify if ongoing quality checks on hospital abstracters or data collectors exist, since the measure's reliability hinges on the developer calculating the correlation of data collected by hospital's data collector and trained auditors. The developer responded that training is strongly recommended for new and existing individuals collecting data.
- The Committee requested clarification on transfers; this issue was also discussed during the previous NQF review. A Committee member asked the developer to clarify "why transfers into a hospital are excluded from the denominator, while transfers out of the hospital remain and are considered a patient who survived the hospitalization." Another Committee member requested "the numbers of patients who are excluded due to transfers or the number of patients who are transferred out and considered alive that are included in the dataset."
    - The developer responded that "the number was quite small." The developer analyzed the data during the previous review and found the impact of excluding all transfers in each direction and the performance score correlations was approximately 0.95. The decision was made to exclude transfers into centers that were accepting high-risk patients.

3. Feasibility: H-2; M-14; L-6; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The measure requires manual chart abstraction because not all of the data elements are in defined fields in electronic sources. Despite the collection burden, the Committee agreed the usefulness of the measure outweighs the burden of manual chart abstraction.

4. Usability and Use: H-1; M-11; L-10; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c.

0703 Intensive Care: In-hospital mortality rate

Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is not currently in use. Beginning in 2013, the developer began changing the measure to an eMeasure.

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - 0702: Intensive Care Unit (ICU) Length-of-Stay (LOS)
- The measure specifications for #0702 and #0703 have been harmonized. The measures have been paired.

Standing Committee Recommendation for Endorsement: **Y-13**; **N-9**

Rationale

- Some Committee members raised concerns regarding hospital mortality rates misinforming the public about hospital quality, questioning their accuracy.
- The developer responded that "it reduces the risk of misclassification both by having carefully tested various risk adjustments and having a large enough sample size that the probability of risk adjustment is low".

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

1799 Medication Management for People with Asthma

Submission | Specifications

Description: The percentage of patients 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 patients who remained on an asthma controller medication for at least 50% of their treatment period.

2. The percentage of patients who remained on an asthma controller medication for at least 75% of their treatment period.

Numerator Statement: Numerator 1 (Medication Adherence 50%): The number of patients who achieved a PDC* of at least 50% for their asthma controller medications during the measurement year. A higher rate is better.

Numerator 2 (Medication Adherence 75%): The number of patients who achieved a PDC* of at least 75% for their asthma controller medications during the measurement year. A higher rate is better.

*PDC is the proportion of days covered by at least one asthma controller medication prescription, divided by the number of days in the treatment period. The treatment period is the period of time beginning on the earliest prescription dispensing date for any asthma controller medication during the measurement year through the last day of the measurement year.

Denominator Statement: All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year:

• At least one emergency department visit with asthma as the principal diagnosis

• At least one acute inpatient claim/encounter with asthma as the principal diagnosis

• At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits.

• At least four asthma medication dispensing events

1799 Medication Management for People with Asthma

Exclusions: 1) Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31):

-COPD

-Emphysema

-Obstructive Chronic Bronchitis

-Chronic Respiratory Conditions Due To Fumes/Vapors

-Cystic Fibrosis

-Acute Respiratory Failure

2) Exclude any patients who had no asthma controller medications dispensed during the measurement year.

Adjustment/Stratification:

Level of Analysis: Health Plan, Integrated Delivery System

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims

Measure Steward: National Committee for Quality Assurance

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: Consensus was not reached on the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **H-1**; **M-11**; **L-5**; **I-3**; 1b. Performance Gap: **H-5**; **M-12**; **L-3**; **I-0**

Rationale:

- Evidence for this process measure is based on Clinical Practice Guideline recommendations (National Heart Lung and Blood Institute/National Asthma Education and Prevention Program 2007 Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma).
- During the last review, the Committee noted concern over the lack of evidence related to 50% and 75% compliance markers.
- Since the last review, the developer conducted a literature search for published peer-reviewed journals related to the correlation between asthma controller medication adherence rates and improved outcomes. A study by Yoon et al showed that, using HEDIS measures, patients who achieved 75% compliance in 2012 did not have fewer hospitalizations or ED visits in 2013 compared to those who were not 75% compliant. Patients who achieved 50% threshold in 2012 did not have fewer hospitalizations, but did have fewer ED visits in 2013, compared to those who were not 50% compliant.
- The Committee had much discussion on the Yoon study and about 50% and 75% threshold rates. It ultimately did not come to consensus on evidence for this measure.
- The developer provided data that showed a 16% performance difference in 2014 for the Medication Adherence 50% indicator between commercial plans in the 10th percentile and commercial plans in the 90th percentile; data also demonstrated a26% difference for Medicaid plans. Similarly for the Medication Adherence 75% indicator, there was a 20% performance difference between commercial plans in the 10th percentile and plans in the 90th percentile for 2014, and a 26% difference for Medicaid plans.
- The Committee agreed that the data demonstrated a gap in performance between commercial plans and Medicaid at both the 50% and 75% rates and recognized opportunity for improvement.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criterion.

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-5**; **M-14**; **L-1**; **I-0**; 2b. Validity: **H-0**; **M-15**; **L-5**; **I-0**

Rationale:

- In the prior NQF review (2012), the developer conducted field testing in 9 health plans, including both commercial and Medicaid plans, with membership ranging from 2,000 to 700,288.

1799 Medication Management for People with Asthma

• For this submission, additional empirical validity testing of the measure score was conducted with HEDIS data for 2012 and 2015. The overall beta-binomial statistics for each indicator for commercial and Medicaid plans follow:
  ○ Medication Adherence 50%: Commercial = 0.84; Medicaid = 0.93
  ○ Medication Adherence 75%: Commercial = 0.87; Medicaid = 0.97
• The Committee agreed that despite updated testing, there were no major changes in reliability issues since the last submission and that the new testing data continued to support reliability of the measure.
• NCQA previously tested the measure results for face validity in 2007 using 3 expert panels with a total of 36 experts. Since the last NQF review, the developer conducted empirical validity testing at the level of the performance score. The developer examined Pearson Correlation Coefficients for Medication Adherence 50% and Medication Adherence 75% (PCC=0.9), Medication Adherence 50% and Asthma Medication Ratio (PCC=0.3) and Medication Adherence 75% and Asthma Medication Ratio (PCC=0.2).
• One Committee member questioned the use of proportion of days covered to indicate compliance and suggested that asthma medication ratio may be more reflective of actual compliance.
• Some Committee members expressed concern regarding the lack of difference between adherent and non-adherent groups in the outcome data and questioned whether the data really indicated something confounding the population that the developer did not consider.
• The Committee ultimately agreed the data supported the validity of the measure.

3. Feasibility: H-19; M-1; L-0; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)* Rationale: • The Committee agreed the measure is feasible. All data elements are in defined fields in electronic claims and are generated by or collected by healthcare personnel during the provision of care.
4. Usability and Use: H-2; M-11; L-6; I-1 *(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)* Rationale: • This measure is publicly reported and included in consumer reports. • Some Committee members noted the potential for unintended consequences, including increased costs and medication use without improving patient outcomes.

5. Related and Competing Measures
• This measure was identified as potentially related to:
  ○ 0047: Asthma: Pharmacologic Therapy for Persistent Asthma
  ○ 1800: Asthma Medication Ratio
• The Committee encouraged developers to harmonize all of the asthma measures. Specifically, the developers should harmonize the age limit, data source, diagnoses definitions, and risk adjustment method.

Standing Committee Recommendation for Endorsement: Y-12; N-8
6. Public and Member Comment
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure

Submission | Specifications

Description: This measure estimates the rate of emergency department visits for children ages 2 – 21 who are being managed for identifiable asthma. The measure is reported in visits per 100 child-years.

Numerator Statement: The numerator uses the number of undesirable utilization outcomes (i.e., claims for ED visits or hospitalizations for asthma) experienced by children who are managed for identifiable asthma to estimate the number of emergency room visits

Denominator Statement: The denominator represents the person time experience among eligible children with identifiable asthma. Assessment of eligibility is determined for each child monthly. The total number of child months experienced is summed and divided by 1200 to achieve the units of 100 child years.

Exclusions: Children with concurrent or pre-existing: Chronic Obstructive Pulmonary Disease (COPD) diagnosis (ICD-9 Code: 496), Cystic Fibrosis diagnosis (ICD-9 code 277.0, 277.01. 277.02, 277.03, 277.09), or Emphysema diagnosis (ICD-9 code 492xx).

These exclusion incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.

Children who have not been consecutively enrolled in the reporting plan for at least two months prior to the index reporting month and for the reporting month (a total of three consecutive months ending in the reporting month).

Adjustment/Stratification:

Level of Analysis: Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State

Setting of Care: Ambulatory Care: Clinician Office/Clinic, Emergency Medical Services/Ambulance, Hospital/Acute Care Facility, Other, Pharmacy, Ambulatory Care: Urgent Care

Type of Measure: Outcome

Data Source: Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records

Measure Steward: University Hospitals Cleveland Medical Center

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: The measure meets the Importance criterion.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-21**; **N-0**; 1b. Performance Gap: **H-6**; **M-14**; **L-1**; **I-0**

Rationale:

- The Committee agreed the evidence presented by the developer supports the rationale that high-quality primary care reduces the need for emergency department (ED) visits.
- Data provided by the developer show a mean performance score of 88.4%, with a range of 76.6 to 95.1%. The developer reported disparities by age, urbanicity, race/ethnicity, and level of poverty.

2. Scientific Acceptability of Measure Properties: Consensus Not Reached for Scientific Acceptability criterion

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-2**; **M-17**; **L-2**; **I-0**; 2b. Validity: **H-0**; **M-10**; **L-11**; **I-0**

Rationale:

- The developer relied on pre-existing data element-level validity testing to identify children who are being managed for identifiable asthma. Per NQF guidance, separate reliability testing is not required if data element-level validity testing is performed. Specifically, the developer relied on literature to support its conclusion of the validity of administrative data elements for this measure to identify children who are being managed with identifiable asthma. The developer also cited face validity, but did not specifically assess face validity of at the computed measure score level, as required by NQF for face validity testing.
- The Committee raised concern about the possibility of pharmacy data not being available to determine outcomes. One Committee member commented “asthma is clearly a pharmacy driven measure”.
- The developer responded that pharmacy data is not fundamentally critical because the use of the data

2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure

qualified a few more children, but not a large enough percentage to impact the rate.

- The Committee raised concern about the lack of stratification by risk. While the developer stratified by age, the Committee expressed concern about clinical differences across the age spectra, especially in the first six years of life, which are not accounted for by the measure. The Committee also noted that while the developer provided for stratification by race, it did not address demographic and environmental factors that impact race (e.g., location), which can affect patient risk and quality of care.

3. Feasibility: H-15; M-6; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee agreed the measure is feasible. The measure is specified for several data sources, including claims, electronic health record, paper records and electronic clinical data. All data elements are in defined fields in electronic claims.

4. Usability and Use: H-4; M-11; L-5; I-1

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

Rationale:

- This measure is not being publicly reported and is not currently in use.
- The Committee discussed the lack of stratification by risk leading to misinterpretation of results as a potential unintended consequence if the measure is implemented.

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - 2852: Optimal Asthma Control
  - 2816: Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma
- The Committee agreed measures #2794 and #2852 would be difficult to harmonize, noting the data sources and foci are different.
- The Committee encouraged developers to harmonize all of the asthma measures. Specifically, the developers should harmonize the age limit, data source, diagnoses definitions, and risk adjustment method.

Standing Committee Recommendation for Endorsement: **Y-11**; **N-10**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

2852 Optimal Asthma Control

Submission | Specifications

Description: The percentage of pediatric (5-17 years of age) and adult (18-50 years of age) patients who had a diagnosis of asthma and whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following:

•Asthma well-controlled as defined by the most recent asthma control tool result available during the measurement period

•Patient not at elevated risk of exacerbation as defined by less than two emergency department visits and/or

2852 Optimal Asthma Control

hospitalizations due to asthma in the last 12 months

Numerator Statement: The number of patients in the denominator whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following:

•Asthma well-controlled as defined by the most recent asthma control tool result during the measurement period:

-Asthma Control Test (ACT) greater than or equal to 20 (patients 12 years of age and older)

-Childhood Asthma Control Test (C-ACT) greater than or equal to 20 (patients 11 years of age and younger)

-Asthma Control Questionnaire (ACQ) less than or equal to 0.75 (patients 17 years of age and older)

-Asthma Therapy Assessment Questionnaire (ATAQ) equal to 0 – Pediatric (5 to 17 years of age) or Adult (18 years of age and older).

AND

•Patient not at elevated risk of exacerbation as defined by less than two patient reported emergency department visits and/or hospitalizations due to asthma in the last 12 months

Denominator Statement: Patients aged 5 - 50 years at the start of the measurement period who were seen for asthma by an eligible provider in an eligible specialty face-to-face visit at least 2 times during the current or prior year measurement periods AND who were seen for any reason at least once during the measurement period.

Exclusions: Valid exclusions include patients who are nursing home residents, in hospice or palliative care, have died or who have COPD, emphysema, cystic fibrosis or acute respiratory failure.

Adjustment/Stratification: Statistical Risk Model

Level of Analysis: Clinician: Group/Practice

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Composite

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

Measure Steward: MN Community Measurement

STANDING COMMITTEE MEETING [03/15/2016]

1. Importance to Measure and Report: <u>Consensus Not Reached on the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-22**; **N-0**; 1b. Performance Gap: **H-16**; **M-6**; **L-0**; **I-0;** 1c. Composite – Quality Construct and Rationale **H-3**; **M-10**; **L-8**; **I-1**

<u>Rationale</u>:

- A version of this measure was previously reviewed as NQF #1876, a 3-part composite, in the 2012-2013 Pulmonary Project. It was not recommended, but the previous Committee encouraged the developer to continue working on it. The measure developer considered the Committee's feedback and submitted the measure as a 2-part composite for consideration.
- The developer cited evidence for this all-or-none composite as consisting of two outcome measures (control and risk) based on three sets of clinical guidelines: the National Heart, Lung, and Blood Institute EPR-3 2007 (NHLBI), the Global Initiative for Asthma (GINA) updated in 2014, and again in April 2015, and the Institute for Clinical Systems Improvement (ICSI) Asthma Guideline updated in 2012.
- A few Committee members requested the developer clarify how the composite is calculated, particularly how the Asthma Control test would be scored if one were not available in the last 12 months. The developer responded it is looking for a result from a standardized Asthma Control Tool in the 12-month period. The absence of a result is judged as not in control, i.e., a numerator miss. Established patients who have a face-to-face contact with an eligible provider and diagnosis in the denominator also must report "in control" based on the tool *and* report fewer than 2 emergency department (ED) visits and/or hospitalizations due to asthma in the last 12 months.
- The developer presented the following performance gap data: Adults: Number of clinics reportable (≥ 30 patients): 436; Number of patients: 63,429; Mean = 49.4%. Children: Number of clinics reportable (≥ 30 patients): 295; Number of patients: 39,408; Mean = 55.8%.
- The Committee agreed the developer submitted sufficient gap information, identifying racial, language, and

ethnicity gaps.

2. Scientific Acceptability of Measure Properties: <u>Consensus Not Reached on the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-0**; **M-11**; **L-9**; **I-2**; 2b. Validity: **H-0**; **M-14**; **L-8**; **I-0**

<u>Rationale</u>:

- The Committee raised questions regarding the validity of the specifications for the second component of the measure, i.e., patient recall of one or more emergency department (ED) or hospitalization in the course of a 12-month period. The Committee discussed whether patient recall of ED or inpatient admission actually reflected accurate ED and inpatient admissions. One Committee member commented "without some type of verification, i.e., claims-based database for the emergency room visit, this measure is subject to vagary." The Committee suggested the developer change the data source from provider record to claims data or other source.
  - The developer responded "there is strong evidence to support that patient recall is accurate in the last 12 months regarding emergency room and inpatient hospitalizations." Also, the developer responded that Minnesota does not have a data source to provide complete claims history. Patient-to-patient level matching of self-reported to claims data, already difficult, would be further problematic by the lack of available, complete data.
- One Committee member raised a concern regarding the hospitalization and ED visits not being equivalent for purposes of patient risk and characterization as lack of control. The Committee member commented "there is a subjective component to whether one goes to the ED, but objective criteria to whether someone gets hospitalized." This concern was also discussed during the initial review of this measure.
  - The developer responded that the measure development workgroup relied on the NHLBI Guidelines. The guidelines determined ED or hospitalizations were defined as well controlled in the last 12 months.
- The developer reported less than 1% of the total population met the exclusion criterion. The Committee requested the developer clarify this data because there is high incidence of the diseases excluded.
  - The developer responded that the providers share an exclusion file on allowable exclusions, including other respiratory conditions not included in the 1%. However, the percentage of patients excluded due to the respiratory conditions is not available. The developer also commented "the measure development work group felt strongly about excluding these conditions. Given that the control tools were not validated on patients with those comorbid conditions and control of asthma symptoms, they felt it was difficult to assess the symptom burden and isolate asthma from these other respiratory conditions."
- The developer conducted reliability testing at the measure score level using the beta-binomial approach (BETABIN/ SAS). The testing results were adults 0.972 and children 0.951.
- Empirical validity testing was conducted at the performance measure score level. The developer tested the correlation of medical groups' performance with its performance on the Optimal Diabetes Care measure (NQF #0729); correlation coefficient was 0.63 for the adult measure and 0.66 for the children measure.

3. Feasibility: H-7; M-12; L-3; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The Committee agreed the measure is feasible. All data elements are clearly defined.

4. Usability and Use: H-9; M-12; L-1; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is publicly reported and currently in use in several accountability programs. This measure is being used in the Physician Quality Reporting System (PQRS).

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5. Related and Competing Measures
• This measure was identified as potentially related to measures:
  ○ 2794: Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma (University Hospitals Cleveland Medical Center)
  ○ 2816: Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma
• While the Committee was unable to have a full discussion on related and competing measures during the in-person meeting, one Committee member noted measures 0283, 2794 and 0728 may potentially be related. The Committee will have the opportunity to discuss during the post comment call.

Standing Committee Recommendation for Endorsement Y-10; **N-12**
6. Public and Member Comment
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measures Not Recommended

0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
Submission | Specifications
Description: For all eligible patients =18 years old admitted to the intensive care unit (ICU), total duration of time spent in the ICU until time of discharge from the ICU; both observed and risk-adjusted LOS reported with the predicted LOS measured using the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS). **Numerator Statement**: For all eligible patients admitted to the ICU, the time at discharge from ICU (either death or physical departure from the unit) minus the time of admission (first recorded vital sign on ICU flow sheet). The measure is risk-adjusted, please see S.18. **Denominator Statement**: Total number of eligible patients who are discharged (including deaths and transfers) **Exclusions**: <18 years of age at time of ICU admission, ICU readmission, <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, transfers from another acute care hospital. **Adjustment/Stratification**: **Level of Analysis:** Facility **Setting of Care:** Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Paper Medical Records **Measure Steward**: Philip R. Lee Institute for Health Policy Studies
STANDING COMMITTEE MEETING [03/16/2016] **1. Importance to Measure and Report: Consensus Not Reached on the Importance criterion.** (1a. Evidence, 1b. Performance Gap) 1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-2**; **M-10**; **L-10**; **I-0** Rationale: • The Committee agreed with the developer that there is no new evidence for this measure. The Committee accepted the prior evaluation of this criterion without further discussion. • The developer provided performance scores based on data from 2010 and 2011. The overall unadjusted mean LOS was 3.4 days; the standard deviation in LOS across hospitals was 0.8 days, with an interquartile range of 2.8 to 3.9 days.

0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)

- In response to Committee concerns regarding a small gap, the developer commented that the LOS gap generally decreased when data for 6 years is analyzed. The developer noted that, from a payer perspective, even a small gap is important.

2. Scientific Acceptability of Measure Properties: <u>Consensus Not Reached on the Scientific Acceptability criterion.</u>

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-1**; **M-14**; **L-7**; **I-0**; 2b. Validity: **H-0**; **M-12**; **L-10**; **I-0**

<u>Rationale</u>:

- The developer conducted validity testing at the data element level. Per NQF Per NQF guidance, separate reliability testing is not required when validity testing at the data element level is performed for all critical data elements.
- The developer stated it performed empirical testing for reliability at the measure score level, but reported results for mortality, not LOS; the developer posited that over-reporting of risk factors for mortality (if present) should reflect over-reporting for LOS. The correlation coefficient between the hospital's predicted probabilities of death and the auditor's predicted probabilities was 0.792.
- The developer performed empirical testing for validity at performance measure score level by comparing hospital abstraction results to an auditor's. The percent agreement between auditors and hospital data collectors across all individual risk model elements was 94%, with a range for specific risk variables from 85-97%.
- The Committee raised concerns regarding the validity of the data reported by chart reviewers when determining a patient's level of care versus location of care, i.e., whether a patient in the ICU is actually an ICU patient and not a step-down, telemetry, or floor patient.
- Another Committee member suggested pairing an ICU readmission measure when measuring LOS.

3. Feasibility: H-0; M-11; L-11; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

<u>Rationale</u>:

- The measure requires chart abstraction. All data elements are not in defined fields in electronic sources.
- One Committee member familiar with the measure noted he was familiar with the measure and that its use with an electronic medical record made it easier to navigate than as a paper-based measure, but even in this form took a significant amount of time to extract.

4. Usability and Use: H-0; M-10; L-12; I-0

(Used and useful to the intended audiences for 4a. Accountability and Transparency; 4b. Improvement; and 4c. Benefits outweigh evidence of unintended consequences)

<u>Rationale</u>:

- This measure is not currently in use. Beginning 2013, the developer began changing the measure to an eMeasure.
- The Committee discussed potential unintended consequences of the measure, in particular the potential for premature discharge from ICUs (and hence the recommendation to consider a paired ICU readmissions measure). It also noted the potential unintended consequence would be that hospitals may seek to avoid high-risk patients who, due to the severity of illness, may require longer ICU stays.

5. Related and Competing Measures

- This measure was identified as potentially related to:
  - 0703: Intensive Care: In-hospital mortality rate
  - 0334: PICU Severity-adjusted Length of Stay
- The Committee was unable to discuss related and competing during the in-person meeting, but will have the opportunity to do so during the post-comment call.

Standing Committee Recommendation for Endorsement: **Y-6**; **N-16**

0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
6. Public and Member Comment
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
Submission | Specifications
Description: Brief Description of Measure: Percent of adult population aged 18+ years with Community Acquired Pneumonia who are followed for one-month, and have one or more potentially avoidable complication (PAC) during the episode time window. Please reference the attached document labeled NQF_PNE_all_codes_risk_adjustment_12_14_15.xls, in the tab labeled PACS I-9 & I-10 for a list of code definitions of PACs relevant to pneumonia. Community Acquired Pneumonia may be managed in an inpatient setting, where the patient is admitted to a hospital within 1-3 days of onset of symptoms, or in milder cases, patients may be hospitalized a little later in the course of illness, or never at all where management could be solely in an outpatient setting. In any of these circumstances, potentially avoidable complications (PACs) may occur during the index stay, in the post-discharge period; or in patients who were never hospitalized, PACs may occur any time during the episode time window. Readmissions due to pneumonia or due to any related diagnosis are also considered as PACs. We define PACs as one of two types: (1) Type 1 PACs - PACs directly related to the index condition: Patients are considered to have a type 1 PAC if they develop one or more complication directly related to pneumonia or its management. Examples of these PACs are respiratory insufficiency, other lung complications, fluid electrolyte acid base problems, sepsis, respiratory failure etc. (2) Type 2 PACs - PACs suggesting Patient Safety Failures: Patients are considered to have a type 2 PAC, if they develop any of the complications related to patient safety failures such as phlebitis, deep vein thrombosis, pressure sores or for any of the CMS-defined hospital acquired conditions (HACs). PACs are counted as a dichotomous (yes/no) outcome. If a patient had one or more PAC in any of the above settings, they get counted as a "yes" or a 1. The enclosed workbook labeled NQF_PNE_all_codes_risk_adjustment_12_14_15.xls serves as an example. The tab labeled PAC overview gives the percent of pneumonia episodes that have a PAC and the tab labeled "PAC drill down" gives the types of PACs and their frequencies in pneumonia episodes within this dataset. The information is based on a two-year claims database from a large regional commercial insurer. The database had 3,258,706 covered lives and $25.9 billion in "allowed amounts" for claims costs. The database is an administrative claims database with medical as well as pharmacy claims. **Numerator Statement**: Outcome: Number of patients with pneumonia who had one or more potentially avoidable complications (PACs) during the episode time window. **Denominator Statement**: Adult patients aged 18 years and above who have a pneumonia episode and are followed for at least one-month. **Exclusions**: The target population captures adult patients (18+) in the dataset, who have a complete episode of community-acquired pneumonia, with no enrollment gaps, and no outlier costs. Patients who do not meet these criteria are excluded from the target population. **Adjustment/Stratification**: **Level of Analysis:** Facility, Clinician: Individual, Population: Regional **Setting of Care:** Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other, Ambulatory Care:

0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)

Urgent Care

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Health Care Incentives Improvement Institute

STANDING COMMITTEE MEETING [03/16/2016]

1. Importance to Measure and Report: <u>The measure did not meet the Importance criterion.</u>

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Accepted Prior Evaluation;** 1b. Performance Gap: **H-2**; **M-2**; **L-13**; **I-6**

<u>Rationale</u>:

- The Committee agreed with the developer there is no new evidence for this measure. The Committee accepted the prior evaluation of this criterion without further discussion.
- For the discussion on gap, the developer reported performance scores, preventable avoidable complication rates (PAC rates), for the 82 facilities and 170 providers that had at least 10 patients. The unadjusted facility range was 27-100%; the adjusted facility range was 30-100%; and the median for both was 63%. For providers, unadjusted and adjusted ranges were 0-100%, and the median 58% and 60%, respectively.
- Several committee members raised concerns regarding their view there was a lack of actual gap and disparities data, noting there was no analysis related to gender, socioeconomic status, race or ethnicity, or geographic differences. Another noted there was no context to determine whether a gap exists or the nature of any gap—i.e., do patients with pneumonia look different from other acutely ill patients?
- Concern was expressed about the premise that because there is variability, there is a gap. It was noted, however, that natural variability will exist because some patients are outpatients, some are inpatients and that this and other ascertainment biases, coupled with the broad nature and types of PACs specified and coding variations (timing and practices) means the information provided about variation does not actually address the issue of whether a performance gap exists. Overall, the Committee agreed that variability did not represent a true gap.
- Similarly, in questioning what the scores actually represented and whether they provided information about a gap, Committee members also raised concerns regarding the dichotomous approach of the measure. The PACs are not weighted and all preventable events are equally rated. Yet providers treating elder patients in the home settings may have less opportunity to prevent complications versus patients being treated in assisted living or skilled nursing facilities. Data may be skewed for the cohorts of medical practices treating patients in the home or medical facilities but, again, the measure does not account for such differences so one cannot discern if the variability that was reported by the developer is actually a care gap.
- Because the measure failed on gap, the measure was eligible for consideration of Reserve Status. The Committee voted against further consideration of the remaining criteria.

Standing Committee Recommendation for Endorsement: **Y-X**; **N-X**

6. Public and Member Comment

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure

Submission | Specifications

Description: This measure estimates the proportion of emergency department (ED) visits that meet criteria for the

2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
ED being the appropriate level of care, among all ED visits for identifiable asthma in children and adolescents. **Numerator Statement**: The numerator is the number of eligible asthma ED visits in the random sample that also satisfy at least one of the explicit criteria to indicate that the ED is an appropriate level of care. Distinct numerators are reported for children ages 2-5, 6-11, 12-18, and optionally, 19 - 21. **Denominator Statement**: The denominator represents a random sample of the patients in each age stratum who have visited the emergency department for asthma (as a first or second diagnosis) and meet the specified criteria for having identifiable asthma (Appendix Table 1). Separate numerators and denominators are reported for children age 2-5, 6-11, 12-18, and, optionally, 19-21 years. An overall rate across strata is not reported. **Exclusions**: ED visits that are already in the sample OR Children that fall outside of specified age range of 2-21 OR do not meet time enrollment criteria OR do not meet identifiable asthma prior to the ED visit, OR children with concurrent or pre-existing COPD, Cystic Fibrosis or Emphysema. Identifiable asthma is defined is section S.9. At the discretion of the accountability entity, the denominator may be restricted to children 2-18. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b. **Adjustment/Stratification**: **Level of Analysis:** Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State **Setting of Care:** Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other **Type of Measure**: Process **Data Source**: Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records **Measure Steward**: University Hospitals Cleveland Medical Center
STANDING COMMITTEE MEETING [03/15/2016] **1. Importance to Measure and Report: <u>The measure did not meet the Importance criterion.</u>** (1a. Evidence, 1b. Performance Gap) 1a. Evidence: **H-0**; **M-2**; **L-9**; **I-9** <u>Rationale</u>: • The developer stated the measure is "supported, but not defined by," a guideline from the National Heart, Lung, and Blood Institute (NHLBI) clinical practice guidelines. No systematic review, quality, quantity, and consistency or grading was provided by the developer. • Based on the developer's characterization of the measure as a process measure and the evidence provided, the measure failed on Evidence. The Committee generally agreed, however, this is not a process measure and recommended the developer consider it an outcome measure that focuses on the appropriateness of ED visits for children and adolescents. The Committee noted there are processes, structures, and changes in care that could potentially impact the outcome for such a measure and these could be described as the rationale in a revised submission.
Standing Committee Recommendation for Endorsement: **Y-X**; **N-X**
6. Public and Member Comment
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measures Withdrawn from Consideration

Six measures previously endorsed by NQF were not re-submitted for maintenance of endorsement or were withdrawn during the endorsement evaluation process. Endorsement for these measures will be removed.

Measure	Reason for Withdrawal
0036 Use of Appropriate Medications for People With Asthma (ASM) (National Committee for Quality Assurance)	Following a re-evaluation of this measure and recommendation by our Respiratory Measurement Advisory Panel, and review by our Committee on Performance Measurement, Use of Appropriate Medications for People with Asthma has been retired from HEDIS® and therefore is being removed from NQF maintenance endorsement.
0096 Community-Acquired Bacterial Pneumonia (CAP): Empiric Antibiotic (American College of Emergency Physicians)	Measure not submitted by developer. Reason not provided.
0147 Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients (Centers for Medicare & Medicaid Services)	Measure not submitted by developer. Reason not provided.
0548 Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT) (Pharmacy Quality Alliance; PQA)	PQA is testing new criteria for this measure, including how the denominator is defined, and revising specific medication lists based on clinical evidence. "Once we determine how these changes influence the reliability of the measure, we will consider submitting the new measure for NQF endorsement."
0666 Ultrasound guidance for Internal Jugular central venous catheter placement (American College of Emergency Physicians)	Measure not submitted by developer. Reason not provided.
0667 Inappropriate Pulmonary CT Imaging for Patients at Low Risk for Pulmonary Embolism (American College of Emergency Physicians)	Measure not submitted by developer. Reason not provided.

Appendix B: NQF Pulmonary and Critical Care Portfolio and Related Measures

*Measures reviewed in this Endorsement Maintenance project.

Measure Number	Title	Description	Steward	Related/ Competing
ASTHMA				
0283*	Asthma in Younger Adults Admission Rate (PQI 15)	Admissions for a principal diagnosis of asthma per 100,000 population, ages 18 to 39 years. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions,	Agency for Healthcare Research and Quality	Competing: 0275 &0728
0728	Asthma Admission Rate (pediatric)	Admission rate for asthma in children ages 2-17, per 100,000 population (area level rate)	AHRQ	Competing: 0275 & 0283
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	Competing with 0047- refer to PCC 2013 report for content
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	Competing with 0036- refer to PCC 2013 report for content
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	N/A

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	NCQA	N/A
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	NCQA	N/A
ASTHMA/CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)				
0275*	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 5)	Admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 100,000 population, ages 40 years and older. Excludes obstetric admissions and transfers from other institutions. [NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report admissions per 100,000 population.]	Agency for Healthcare Research and Quality	Competing: 0283 & 0728
CHRONIC OBSTRUCTIVE PULMONARY DISEASE (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	Competing with 0577-refer to PCC 2013 report for content
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	N/A
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	Competing with 0091-refer to PCC 2013 report for content

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	
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	N/A
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	NA
CRITICAL CARE				
0334*	PICU Severity-adjusted Length of Stay	The number of days between PICU admission and PICU discharge for PICU patients.	NACHRI	N/A
0335*	PICU Unplanned Readmission Rate	The total number of patients requiring unscheduled readmission to the ICU within 24 hours of discharge or transfer.	NACHRI	N/A
0343*	PICU Standardized Mortality Ratio	The ratio of actual deaths over predicted deaths for PICU patients.	NACHRI	N/A
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	N/A

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	NA
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	NA
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	Related to 0147- refer to PCC 2013 report for content
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	Related to 0096- refer to PCC 2013 report for content
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	Related to 0468- refer to PCC 2013 report for content
0279*	Bacterial Pneumonia Admission Rate (PQI 11)	Admissions with a principal diagnosis of bacterial pneumonia per 100,000 population, ages 18 years and older. Excludes sickle cell or hemoglobin-S admissions, other indications of immunocompromised state admissions, obstetric admissions, and transfers from other institutions. [NOTE: The software provides the rate per population. However, common practice	Agency for Healthcare Research and Quality	N/A

0468*	Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization	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)	CMS/Yale	Related to 0231- refer to PCC 2013 report for content
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	CMS/Yale	N/A
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	N/A
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	N/A

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	N/A

Appendix C: Pulmonary and Critical Care Portfolio—Use in Federal Programs

NQF #	Title	Federal Programs: Finalized as of April 20, 2016
0283	Asthma in Younger Adults Admission Rate (PQI 15)	Initial Core Set of Health Care Quality Measures for Medicaid-Eligible Adults
0036	Use of appropriate medications for people with asthma	Meaningful Use (EHR Incentive Program) - Eligible Professionals; Physician Feedback; Physician Quality Reporting System (PQRS); Value-Based Payment Modifier Program;
0047	Asthma: Pharmacologic Therapy for Persistent Asthma	Physician Feedback; Physician Quality Reporting System (PQRS); Value-Based Payment Modifier Program;
1799	Medication Management for People with Asthma (MMA)	Children's Health Insurance Program Reauthorization Act Quality Reporting
0275	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 5)	Initial Core Set of Health Care Quality Measures for Medicaid-Eligible Adults; Medicare Shared Savings Program; Physician Feedback;
0091	COPD: spirometry evaluation	Physician Feedback; Physician Quality Reporting System (PQRS); Value-Based Payment Modifier Program;
0102	COPD: inhaled bronchodilator therapy	Physician Feedback; Physician Quality Reporting System (PQRS); Value-Based Payment Modifier Program;
0577	Use of Spirometry Testing in the Assessment and Diagnosis of COPD	Medicare Part C Plan Rating; Physician Feedback; Physician Quality Reporting System (PQRS); Value-Based Payment Modifier Program;
1891	Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	Hospital Inpatient Quality Reporting; Hospital Readmission Reduction Program;
1893	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	Hospital Inpatient Quality Reporting
0096	Empiric Antibiotic for Community-Acquired Bacterial Pneumonia	Physician Feedback; Value-Based Payment Modifier Program;
0147	Initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent	Hospital Compare; Hospital Inpatient Quality Reporting; Hospital Value-Based Purchasing; Meaningful Use (EHR Incentive Program) - Hospitals, CAHs;

NQF #	Title	Federal Programs: Finalized as of April 20, 2016
	patients	
0279	Bacterial Pneumonia Admission Rate (PQI 11)	Physician Feedback
0468	Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization	Hospital Compare; Hospital Inpatient Quality Reporting; Hospital Value-Based Purchasing;
0506	Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization	Hospital Compare; Hospital Inpatient Quality Reporting; Hospital Readmission Reduction Program;
0513	Thorax CT: Use of Contrast Material	Hospital Compare; Hospital Outpatient Quality Reporting;

Appendix D: Project Standing Committee and NQF Staff

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Appendix E: Measure Specifications

	0047 Asthma: Pharmacologic Therapy for Persistent Asthma
Steward	The American Academy of Asthma Allergy and Immunology
Description	Percentage of patients aged 5 years and older 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, Paper Medical Records, Electronic Clinical Data: Registry Not Applicable Attachment Asthma_Pharma_NQF_0047_ICD-10_code_definitions.xlsx
Level	Clinician: Group/Practice, Clinician: Individual
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	Patients who were prescribed long-term control medication
Numerator Details	Patients who were prescribed long-term control medication Definition: 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, asthma biologic agents, leukotriene modifiers) 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. Table 1: Preferred Asthma Control Medication - Inhaled Corticosteroids beclomethasone budesonide ciclesonide flunisolide fluticasone mometasone Table 2: Alternative Long-term Control Medications Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; fluticasone-vilanterol; mometasone-formoterol Asthma biologic agents: mepolizumab; omalizumab Leukotriene modifiers: montelukast; zafirlukast; zileuton For Claims: Report CPT Category II code: Performance Met: Inhaled corticosteroids prescribed (4140F) OR Performance Met: Alternative long-term control medication prescribed (4144F)

	0047 Asthma: Pharmacologic Therapy for Persistent Asthma
	OR Patient Performance Exclusion: Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason) (4140F with 2P) OR Performance Not Met: Inhaled corticosteroids or alternative long-term control medication not prescribed, reason not otherwise specified (4140F with 8P)
Denominator Statement	All patients aged 5 years and older with a diagnosis of persistent asthma
Denominator Details	All patients aged 5 years and older with a diagnosis of persistent asthma Denominator Instructions: Documentation of persistent asthma must be present. One method of identifying persistent asthma is, at a minimum, more than twice a week but not daily use of short-acting bronchodilators for mild-persistent asthma, daily use for moderate persistent asthma; and several times a day for severe persistent asthma. Denominator Criteria (Eligible Cases): Patients aged = 5 years on date of encounter AND Diagnosis for asthma (ICD-10-CM): J45.30, J45.31, J45.32, J45.40, J45.41, J45.42, J45.50, J45.51, J45.52, J45.901, J45.902, J45.909, J45.990, J45.991, J45.998 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Persistent Asthma (mild, moderate or severe): 1038F **Note: If ICD-10 CM codes J45.30-J45.52 are used to identify the denominator, CPT II code for 1038F is not required; these ICD-10 CM codes capture “persistent asthma”.
Exclusions	Denominator Exceptions: Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason) The AAAAI follows PCPI exception methodology and PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For this measure, exceptions may include patient reason(s) (eg, patient declined). Although this methodology does not require the external reporting of more detailed exception data, the AAAAI recommends that physicians document the specific reasons for exception in patients’ medical records for purposes of optimal patient management and audit-readiness. In further accordance with PCPI exception methodology, the AAAAI advocates the systematic review and analysis of each physician’s exceptions data to identify practice patterns and opportunities for quality improvement.
Exclusion details	For Claims: Report CPT Category II code with modifier: 4140F-2P: Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason)
Risk Adjustment	No risk adjustment or risk stratification

	0047 Asthma: Pharmacologic Therapy for Persistent Asthma
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. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. –Although 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. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 1799: Medication Management for People with Asthma 1800: Asthma Medication Ratio 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0047 is similar to NQF measure 1800 (Asthma Medication Ratio) and measure 1799 (Medication Management for People with Asthma) in regards to the denominator population of patients with persistent asthma. However, the denominators differ with respect to the method by which patients with persistent asthma are identified. For measures 1800 and 1799, persistent asthma is defined from administrative data, while for measure 0047, persistent asthma is defined based on clinical information. Additionally, the denominator for measure 0047 been updated to include asthma patients aged 65 and older, an important population that is not reached by measures 1800 and 1799. The numerator for measure 0047 is similar to the numerator in measure 1799, except that inhaled corticosteroids and alternative controllers are reported separately as well as together. The separate reporting rates required by measure 0047 for inhaled corticosteroids and for alternative long-term control medications will be useful for clinicians to assess and manage the use of the preferred vs. alternative long-term control medications for their patients. The numerator of measure 0047 has also been updated to include current and appropriate alternative long-term control medications. While the inhaled corticosteroids in measure 0047 and 1799 are well harmonized, the alternative long-term controllers differ. Measure 1799 includes nedocromil, methylxanthines and cromolyn, all medications that were reviewed by the AAAAI's measure stewardship committee and removed. 5b.1 If competing, why superior or rationale for additive value:

	0091 COPD: Spirometry Evaluation
Steward	American Thoracic Society
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: Registry Not Applicable No data dictionary
Level	Clinician: Group/Practice, Clinician: Team
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	Patients with documented spirometry results in the medical record (FEV1 and FEV1/FVC)
Numerator Details	Numerator Quality-Data Coding Options for Reporting Satisfactorily Numerator Instructions: Look for most recent documentation of spirometry evaluation results in the medical record; do not limit the search to the reporting period. To submit the numerator option for spirometry results documented and reviewed, report the following: Performance Met: CPT II 3023F: Spirometry results documented and reviewed OR Spirometry Results not Documented for Medical, Patient, or System Reasons Append a modifier (1P, 2P or 3P) to CPT Category II code 3023F to report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion: 3023F with 1P: Documentation of medical reason(s) for not documenting and reviewing spirometry results OR Patient Performance Exclusion: 3023F with 2P: Documentation of patient reason(s) for not documenting and reviewing spirometry results OR System Performance Exclusion: 3023F with 3P: Documentation of system reason(s) for not documenting and reviewing spirometry results OR Spirometry Results not Documented, Reason not Otherwise Specified Append a reporting modifier (8P) to CPT Category II code 3023F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified. Performance Not Met: 3023F with 8P: Spirometry results not documented and reviewed, reason not otherwise specified
Denominator Statement	All patients aged 18 years and older with a diagnosis of COPD
Denominator Details	All Patients aged >= 18 years on date of encounter AND Diagnosis for COPD ICD-9-CM [for use before 9/30/2014]: 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 493.20, 493.21, 493.22, 496 ICD-10-CM [for use after 10/1/2014]:

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	J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 (Please see listing below for ICD-9/ICD-10 code definitions) AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 _____ ICD-9/ICD-10 code definitions ICD-9-CM [for use before 9/30/2014]: 491.0 – Simple chronic bronchitis 491.1 – Mucopurulent chronic bronchitis 491.20 – Obstructive chronic bronchitis without exacerbation 491.21 – Obstructive chronic bronchitis with (acute) exacerbation 491.22 – Obstructive chronic bronchitis with acute bronchitis 491.8 – Other chronic bronchitis 491.9 – Unspecified chronic bronchitis 492.0 – Emphysematous bleb 492.8 – Other emphysema 493.20 – Chronic obstructive asthma, unspecified 493.21 – Chronic obstructive asthma with status asthmaticus 493.22 – Chronic obstructive asthma with (acute) exacerbation 496 – Chronic airway obstruction, not elsewhere classified ICD-10-CM [for use after 10/1/2014]: J41.0 – Simple chronic bronchitis J41.1 – Mucopurulent chronic bronchitis J41.8 – Mixed simple and mucopurulent chronic bronchitis J42 – Unspecified chronic bronchitis J43.0 – Unilateral pulmonary emphysema [MacLeod's syndrome] J43.1 – Panlobular emphysema J43.2 – Centrilobular emphysema J43.8 – Other emphysema J43.9 – Emphysema, unspecified J44.0 – Chronic obstructive pulmonary disease with acute lower respiratory infection J44.1 – Chronic obstructive pulmonary disease with (acute) exacerbation J44.9 – Chronic obstructive pulmonary disease, unspecified
Exclusions	Documentation of medical reason(s) for not documenting and reviewing spirometry results Documentation of patient reason(s) for not documenting and reviewing spirometry results Documentation of system reason(s) for not documenting and reviewing spirometry results
Exclusion details	ATS continues to use the PCPI exception methodology that uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure: medical, patient and system reasons. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions is based on clinical judgment, individual patient characteristics, or patient preferences. These measure exception

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	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 this measure, exceptions include medical reason(s), patient reason(s) or system reason(s) for not documenting spirometry results. Although this methodology does not require the external reporting of more detailed exception data, the ATS recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The ATS also conducts systematic review and analysis of exceptions data to identify practice patterns and opportunities for quality improvement. For Claims: Documentation of medical, patient, or system reason(s) for not documenting and reviewing spirometry results. Append a modifier (1P, 2P or 3P) to CPT Category II code 3023F to report documented circumstances that appropriately exclude patients from the denominator. 3023F with 1P: Documentation of medical reason(s) for not documenting and reviewing spirometry results 3023F with 2P: Documentation of patient reason(s) for not documenting and reviewing spirometry results 3023F with 3P: Documentation of system reason(s) for not documenting and reviewing spirometry results
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, primary language, and administrative sex.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Start with Denominator 2. Check Patient Age: a. If the Age is greater than or equal to 18 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing. b. If the Age is greater than or equal to 18 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Diagnosis. 3. Check Patient Diagnosis: a. If Diagnosis of COPD as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Diagnosis of COPD as Listed in the Denominator equals Yes, proceed to check Encounter Performed. 4. Check Encounter Performed: a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Encounter as Listed in the Denominator equals Yes, include in the Eligible population. 5. Denominator Population: a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 patients in the sample calculation. 6. Start Numerator

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	7. Check Spirometry Results Documented and Reviewed: a. If Spirometry Results Documented and Reviewed equals Yes, include in Reporting Met and Performance Met. b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 patients in Sample Calculation. c. If Spirometry Results Documented and Reviewed equals No, proceed to Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results. 8. Check Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 patient in the Sample Calculation. c. If Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results. 9. Check Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 patients in the Sample Calculation. c. If Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results. 10. Check Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b3 equals 0 patients in the Sample Calculation. c. If Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Spirometry Results Not Documented and Reviewed, Reason Not Specified. 11. Check Spirometry Results Not Documented and Reviewed, Reason Not Specified: a. If Spirometry Results Not Documented and Reviewed, Reason Not Specified equals Yes, include in Reporting Met and Performance Not Met. b. Reporting Met and Performance Not Met letter is represented in the Reporting Met in the Sample Calculation listed at the end of document. Letter c equals 2 patients in the Sample Calculation. c. If Spirometry Results Not Documented and Reviewed, Reason Not Specified equals No, include in Reporting Not Met. 12. Check Reporting Not Met

	0091 COPD: Spirometry Evaluation
	a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from the reporting numerator in sample calculation. Please see Measure Flow in Appendix A.1 for 'Sample Calculation' referenced above. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 0577: Use of Spirometry Testing in the Assessment and Diagnosis of COPD 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: These measures have distinct differences in their denominators and numerators. First, our measure is broader in denominator population, being for all patients age 18 years and older with a diagnosis of COPD, while 0577 is for patients age 40 years and older with a new diagnosis of COPD. Our measure is more consistent with COPD guidelines, which do not state an age to start using a spirometry evaluation; rather, spirometry should be used to assess all adults with COPD, not just adults with a new diagnosis of COPD. Second, our measure's numerator is more flexible than 0577, allowing a spirometry evaluation anytime during the measurement period, rather than 0577's requirement that spirometry be performed within 6 months of a new diagnosis of COPD. Our measure numerator is also specific to spirometry results, requiring both the FEV1/FVC values. 5b.1 If competing, why superior or rationale for additive value: N/A

	0102 COPD: inhaled bronchodilator therapy
Steward	American Thoracic Society
Description	Percentage of patients aged 18 years or older, with a diagnosis of COPD (FEV1/FVC < 70%) who have an FEV1 < 60% predicted and have symptoms who were prescribed an inhaled bronchodilator
Type	Process
Data Source	Administrative claims, Electronic Clinical Data : Registry Not Applicable No data dictionary
Level	Clinician : Group/Practice, Clinician : Team
Setting	Ambulatory Care : Clinician Office/Clinic
Numerator Statement	Patients who were prescribed an inhaled bronchodilator
Numerator Details	Definition: 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. NUMERATOR NOTE: The correct combination of numerator code(s) must be reported on the claim form in order to properly report this measure. The “correct combination” of codes may require the submission of multiple numerator codes. Numerator Quality-Data Coding Options for Reporting Satisfactorily: Patient Prescribed Inhaled Bronchodilator Therapy

	0102 COPD: inhaled bronchodilator therapy
	(One CPT II code & one quality-data code [4025F & G8924] are required on the claim form to submit this numerator option) Performance Met: CPT II 4025F: Inhaled bronchodilator prescribed (NOTE: pending edited CPT II code) AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing) (NOTE: CMS approved edited G-code for 2017 PQRS year) OR Patient not Documented to have Inhaled Bronchodilator Prescribed for Medical, Patient, or System Reasons (One CPT II code & one quality-data code [4025F-xP & G8924] are required on the claim form to submit this numerator option) Append a modifier (1P, 2P or 3P) to CPT Category II code 4025F to report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion, Patient Performance Exclusion, or System Performance Exclusion: 4025F with 1P: Documentation of medical reason(s) for not prescribing an inhaled bronchodilator (e.g., contraindication due to comorbidities) 4025F with 2P: Documentation of patient reason(s) for not prescribing an inhaled bronchodilator 4025F with 3P: Documentation of system reason(s) for not prescribing an inhaled bronchodilator (e.g., not covered by insurance) AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing) OR If patient is not eligible for this measure because spirometry results demonstrate FEV1/FVC >= 70% or FEV1 >= 60% predicted or patient does not have COPD symptoms, report: Spirometry Results Demonstrate FEV1/FVC >= 70% or FEV1 >= 60% or Patient does not have COPD symptoms (One quality-data code [G8925 or G8926] is required on the claim form to submit this numerator option) Other Performance Exclusion: G8925: Spirometry test results demonstrate FEV1/FVC >= 70% or FEV1 >= 60% predicted or patient does not have COPD symptoms OR Spirometry Test not Performed or Documented Other Performance Exclusion: G8926: Spirometry test not performed or documented, reason not given OR Patient not Documented to have Long-acting Inhaled Bronchodilator Prescribed, Reason not Otherwise Specified (One CPT II code & one quality-data code [4025F-8P & G8924] are required on the claim form to submit this numerator option) Append a reporting modifier (8P) to CPT Category II code 4025F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified.

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	Performance Not Met: 4025F with 8P: Long-acting inhaled bronchodilator not prescribed, reason not otherwise specified AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing)
Denominator Statement	All patients aged 18 years and older with a diagnosis of COPD, who have FEV1/FVC < 70%, FEV1 <60% predicted and have symptoms (eg, dyspnea, cough/sputum, wheezing)
Denominator Details	All Patients aged >= 18 years on date of encounter AND Diagnosis for COPD ICD-9-CM [for use before 9/30/2014]: 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 493.20, 493.21, 493.22, 496 ICD-10-CM [for use after 10/1/2014]: J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 (Please see listing below for ICD-9/ICD-10 code definitions) AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 _____ ICD-9/ICD-10 code definitions ICD-9-CM [for use before 9/30/2014]: 491.0 – Simple chronic bronchitis 491.1 – Mucopurulent chronic bronchitis 491.20 – Obstructive chronic bronchitis without exacerbation 491.21 – Obstructive chronic bronchitis with (acute) exacerbation 491.22 – Obstructive chronic bronchitis with acute bronchitis 491.8 – Other chronic bronchitis 491.9 – Unspecified chronic bronchitis 492.0 – Emphysematous bleb 492.8 – Other emphysema 493.20 – Chronic obstructive asthma, unspecified 493.21 – Chronic obstructive asthma with status asthmaticus 493.22 – Chronic obstructive asthma with (acute) exacerbation 496 – Chronic airway obstruction, not elsewhere classified ICD-10-CM [for use after 10/1/2014]: J41.0 – Simple chronic bronchitis J41.1 – Mucopurulent chronic bronchitis J41.8 – Mixed simple and mucopurulent chronic bronchitis J42 – Unspecified chronic bronchitis J43.0 – Unilateral pulmonary emphysema [MacLeod's syndrome] J43.1 – Panlobular emphysema J43.2 – Centrilobular emphysema J43.8 – Other emphysema

	0102 COPD: inhaled bronchodilator therapy
	J43.9 – Emphysema, unspecified J44.0 – Chronic obstructive pulmonary disease with acute lower respiratory infection J44.1 – Chronic obstructive pulmonary disease with (acute) exacerbation J44.9 – Chronic obstructive pulmonary disease, unspecified
Exclusions	ATS continues to use the PCPI exception methodology that uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure: medical, patient and system reasons. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions is based on clinical judgment, individual patient characteristics, or patient preferences. 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 this measure, exceptions include medical reason(s), patient reason(s) or system reason(s) for not prescribing inhaled bronchodilators. Although this methodology does not require the external reporting of more detailed exception data, the ATS recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness.
Exclusion details	For Claims: Patient not Documented to have Inhaled Bronchodilator Prescribed for Medical, Patient, or System Reasons (One CPT II code & one quality-data code [4025F-xP & G8924] are required on the claim form to submit this numerator option) Append a modifier (1P, 2P or 3P) to CPT Category II code 4025F to report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion, Patient Performance Exclusion, or System Performance Exclusion: 4025F with 1P: Documentation of medical reason(s) for not prescribing a long-acting inhaled bronchodilator, e.g., contraindicated due to comorbidities OR 4025F with 2P: Documentation of patient reason(s) for not prescribing inhaled bronchodilator OR 4025F with 3P: Documentation of system reason(s) for not prescribing inhaled bronchodilator, e.g., not covered by insurance AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (e.g., dyspnea, cough/sputum, wheezing) NOTE: CMS approved edited G-code (correcting transcriptio error) for 2017 PQRS year and edited CPT II code is pending
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, primary language, and administrative sex.

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Type Score	Rate/proportion better quality = higher score
Algorithm	NOTE: This sequence of steps has not been edited to reflect updated CPT II or G-codes. It will be edited once all updated CPT II or G-codes are finalized. 1. Start with Denominator 2. Check Patient Age: a. If the Age is greater than or equal to 18 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing. b. If the Age is greater than or equal to 18 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Diagnosis. 3. Check Patient Diagnosis: a. If Diagnosis of COPD as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Diagnosis of COPD as Listed in the Denominator equals Yes, proceed to check Encounter Performed. 4. Check Encounter Performed: a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Encounter as Listed in the Denominator equals Yes, include in the Eligible population. 5. Denominator Population: a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 patients in the sample calculation. 6. Start Numerator 7. Check Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1<60% Predicted and Patient has COPD Symptoms: a. If Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Met. b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 patients in Sample Calculation. c. If Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1 <60% Predicted and Patient has COPD symptoms equals No, proceed to check Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator Therapy AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms. 8. Check Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 patient in the Sample Calculation. c. If Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Documentation of Patient Reason(s) for Not Prescribing Inhaled

	0102 COPD: inhaled bronchodilator therapy
	Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms. 9. Check Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 patients in the Sample Calculation. c. If Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms. 10. Check Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b3 equals 0 patients in the Sample Calculation. c. If Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Spirometry Results FEV1 = 60% Predicted OR Does not have COPD Symptoms. 11. Check Spirometry Results FEV1 = 60% Predicted OR does not have COPD Symptoms: a. If Spirometry Results FEV1 = 60% Predicted OR Does not have COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b4 equals 0 patients in the Sample Calculation. c. If Spirometry Results FEV1 = 60% Predicted OR Does not have COPD symptoms equals NO, proceed to check Spirometry Test Not Performed to Documented, Reason not Given. 12. Check Spirometry Test Not Performed to Documented, Reason Not Given: a. If Spirometry Test Not Performed to Documented, Reason Not Given equals Yes, include in reporting met and performance exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b5 equals 0 patients in the Sample Calculation. c. If Spirometry Test Not Performed to Documented, Reason Not Given equals No, proceed to check Inhaled Bronchodilator not Prescribed, Reason Not Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms. 13. Check Inhaled Bronchodilator not Prescribed, Reason Not Specified AND Results of FEV1 = 60% Predicted and Patient has COPD Symptoms: a. If Inhaled Bronchodilator not Prescribed, Reason not Otherwise Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met

	0102 COPD: inhaled bronchodilator therapy
	and Performance Not Met. b. Reporting Met and Performance Not Met letter is represented in the Reporting Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 patients in the Sample Calculation. c. If Inhaled Bronchodilator not Prescribed, Reason not Otherwise Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms equals No, proceed to check Reporting Not Met. 14. Check Reporting Not Met a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from reporting numerator in the sample calculation. Please see Measure Flow in Appendix A.1 for 'Sample Calculation' referenced above. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A COMMENT ON 5a.1 - N/A is not a selection. For this reason, we select yes. There are no competing measures to harmonize.

	0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)
Steward	Agency for Healthcare Research and Quality
Description	Admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 1,000 population, ages 40 years and older. Excludes obstetric admissions and transfers from other institutions. [NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report admissions per 100,000 population.]
Type	Outcome
Data Source	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM- or ICD-10-CM/PCS coded administrative billing/claims/discharge dataset. Available at measure-specific web page URL identified in S.1 Attachment PQI05_Technical_Specifications_v6.0_151214v02.xlsx
Level	Population: County or City
Setting	Other all community based care
Numerator Statement	Discharges, for patients ages 40 years and older, with either • a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for COPD (excluding acute bronchitis); or • a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for asthma [NOTE: By definition, discharges with a principal diagnosis of COPD or asthma are precluded from

	0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)
	an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]
Numerator Details	Please see attached excel file in S.2b. for Version 6.0 specifications. Prevention Quality Indicators technical specifications and appendices also available online at http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx). Note: The URL link currently provides Version 5.0 specifications. Version 6.0 specifications will be released publicly March 2016.
Denominator Statement	Population ages 40 years and older in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.
Denominator Details	The term "metropolitan area" (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, "area" could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software. See AHRQ QI website for 2014 Population File Denominator report for calculation of population estimates embedded within AHRQ QI software programs. http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V50/AHRQ_QI_Population_File_V50.pdf
Exclusions	n/a
Exclusion details	n/a
Risk Adjustment	Statistical risk model The predicted value for each case is computed using a logistic regression with covariates for gender and age (in 5-year age groups). An option model is available that includes percent of households under the federal poverty level as well. Because we cannot individually observe the age and gender of each person in a counties population, we use the age and gender distribution of the county to estimate the number of "cases" in each age*gender group. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the year 2013 (combined), a database consisting of 40 states and the U.S. Census data by county. 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., area). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Additional information on methodology can be found in the Empirical Methods document on the AHRQ Quality Indicator website (www.qualityindicators.ahrq.gov) and attached in the supplemental information. The specific covariates for this measure are as follows: PARAMETER LABEL SEX Female AGE Male, Age 40-44 AGE Male, Age 45-49 AGE Male, Age 50-54 AGE Male, Age 55-59 AGE Male, Age 60-64 AGE Male, Age 65-69

	0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)
	AGE Male, Age 70-74 AGE Male, Age 75-79 AGE Male, Age 80-84 AGE Male, Age 85+ AGE Female, Age 40-44 AGE Female, Age 45-49 AGE Female, Age 50-54 AGE Female, Age 55-59 AGE Female, Age 60-64 AGE Female, Age 65-69 AGE Female, Age 70-74 AGE Female, Age 75-79 AGE Female, Age 80-84 AGE Female, Age 85+ POVCAT Poverty Decile 2 POVCAT Poverty Decile 3 POVCAT Poverty Decile 4 POVCAT Poverty Decile 5 POVCAT Poverty Decile 6 POVCAT Poverty Decile 7 POVCAT Poverty Decile 8 POVCAT Poverty Decile 9 POVCAT Poverty Decile 10 (Highest percent poverty)* *Deciles are based on the percentage of households under the federal poverty level (FPL). Source: http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx Parameter estimates with and without SES covariates (POVCAT) are included with the Technical Specifications. Please note Version 6.0 will be released publicly in March 2016. Available in attached Excel or csv file at S.2b
Stratification	n/a
Type Score	Rate/proportion better quality = lower score
Algorithm	The observed rate of each PQI is simply the number of individuals living in a county admitted to the hospital for the condition of interest divided by the census population estimate for the area (for PQI 05 ages 40 and above). The expected rate is a comparative rate that incorporates information about a reference population that is not part of the user's input dataset – what rate would be observed if the expected performance observed in the reference population and estimated with risk adjustment regression models, were applied to the mix of patients with demographic distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. The expected rate is estimated for each county using logistic regression. The risk-adjusted rate is a comparative rate that also incorporates information about a reference population that is not part of the input dataset – what rate would be observed if the performance observed in the user's dataset were applied to a mix of patients with demographics distributed like the reference population. The risk adjusted rate is calculated using the indirect method as observed

	0275 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate (PQI 05)
	rate divided by expected rate multiplied by the reference population rate. The smoothed rate is the weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the reference population; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the variance of the estimated rate from the input dataset is large compared with the hospital-to-hospital variance estimated from the reference population. Thus, the smoothed rate is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. In practice, the smoothed rate brings rates toward the mean, and tends to do this more so for outliers (such as rural counties). For additional information, please see supporting information in the Quality Indicator Empirical Methods attached in the supplemental files. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	0279 Bacterial Pneumonia Admission Rate (PQI 11)
Steward	Agency for Healthcare Research and Quality
Description	Admissions with a principal diagnosis of bacterial pneumonia per 1,000 population, ages 18 years and older. Excludes sickle cell or hemoglobin-S admissions, other indications of immunocompromised state admissions, obstetric admissions, and transfers from other institutions.
Type	Outcome
Data Source	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM- or ICD-10-CM/PCS coded administrative billing/claims/discharge dataset. Available at measure-specific web page URL identified in S.1 Attachment PQI11_Technical_Specifications_v6.1alpha_151214_v02.xlsx
Level	Population: County or City
Setting	Other All community based care
Numerator Statement	Discharges, for patients ages 18 years and older, with a principal ICD-9-CM or ICD-10-CM-PCS diagnosis code for bacterial pneumonia. [NOTE: By definition, discharges with a principal diagnosis of bacterial pneumonia are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]
Numerator Details	Please see attached excel file in S.2b. for Version 6.0 specifications. Prevention Quality Indicators technical specifications and appendices also available online at http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx). Note: The URL link currently provides Version 5.0 specifications. Version 6.0 specifications will be released publicly March 2016.

	0279 Bacterial Pneumonia Admission Rate (PQI 11)
Denominator Statement	Population ages 18 years and older in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.
Denominator Details	The term "metropolitan area" (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, "area" could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software. See AHRQ QI website for 2014 Population File Denominator report for calculation of population estimates embedded within AHRQ QI software programs. http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V50/AHRQ_QI_Population_File_V50.pdf
Exclusions	Not applicable.
Exclusion details	Not applicable.
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 5-year age groups). An option model is available that includes percent of households under the federal poverty level as well. Because we cannot individually observe the age and gender of each person in a counties population, we use the age and gender distribution of the county to estimate the number of "cases" in each age*gender group. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the year 2013 (combined), a database consisting of 40 states, and the U.S. Census data by county. 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., area). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Additional information on methodology can be found in the Empirical Methods document on the AHRQ Quality Indicator website (www.qualityindicators.ahrq.gov) and in the supplemental information attached. The specific covariates for this measure are as follows: PARAMETER LABEL SEX Female AGE Male, Age 18-24 AGE Male, Age 25-29 AGE Male, Age 30-34 AGE Male, Age 35-39 AGE Male, Age 40-44 AGE Male, Age 45-49 AGE Male, Age 50-54 AGE Male, Age 55-59 AGE Male, Age 60-64 AGE Male, Age 65-69 AGE Male, Age 70-74 AGE Male, Age 75-79 AGE Male, Age 80-84

	0279 Bacterial Pneumonia Admission Rate (PQI 11)
	AGE Male, Age 85+ AGE Female, Age 18-24 AGE Female, Age 25-29 AGE Female, Age 30-34 AGE Female, Age 35-39 AGE Female, Age 40-44 AGE Female, Age 45-49 AGE Female, Age 50-54 AGE Female, Age 55-59 AGE Female, Age 60-64 AGE Female, Age 65-69 AGE Female, Age 70-74 AGE Female, Age 75-79 AGE Female, Age 80-84 AGE Female, Age 85+ POVCAT Poverty Decile 2 POVCAT Poverty Decile 3 POVCAT Poverty Decile 4 POVCAT Poverty Decile 5 POVCAT Poverty Decile 6 POVCAT Poverty Decile 7 POVCAT Poverty Decile 8 POVCAT Poverty Decile 9 POVCAT Poverty Decile 10 (Highest percent poverty)1 1Deciles are based on the percentage of households under the federal poverty level (FPL). Source: http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx Parameter estimates with and without SES covariates (POVCAT) are included with the Technical Specifications. Please note Version 6.0 will be released publicly in March 2016. Available in attached Excel or csv file at S.2b
Stratification	Not applicable.
Type Score	Rate/proportion better quality = lower score
Algorithm	The observed rate of each PQI is simply the number of individuals living in a county admitted to the hospital for the condition of interest divided by the census population estimate for the area (adult population for adult measures and child population for pediatric measures). The expected rate is a comparative rate that incorporates information about a reference population that is not part of the user's input dataset – what rate would be observed if the expected performance observed in the reference population and estimated with risk adjustment regression models, were applied to the mix of patients with demographic distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. The expected rate is estimated for each county using logistic regression. The risk-adjusted rate is a comparative rate that also incorporates information about a reference population that is not part of the input dataset – what rate would be observed if the performance observed in the user's dataset were applied to a mix of patients with demographics distributed like the reference population? The risk adjusted rate is calculated using the indirect method as

	0279 Bacterial Pneumonia Admission Rate (PQI 11)
	observed rate divided by expected rate multiplied by the reference population rate. The smoothed rate is the weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the reference population; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the variance of the estimated rate from the input dataset is large compared with the hospital-to-hospital variance estimated from the reference population. Thus, the smoothed rate is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. In practice, the smoothed rate brings rates toward the mean, and tends to do this more so for outliers (such as rural counties). For additional information, please see supporting information in the Quality Indicator Empirical Methods attached in the supplemental files. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	0283 Asthma in Younger Adults Admission Rate (PQI 15)
Steward	Agency for Healthcare Research and Quality
Description	Admissions for a principal diagnosis of asthma per 1,000 population, ages 18 to 39 years. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.
Type	Outcome
Data Source	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM or ICD-10-CM/PCS coded administrative billing/claims/discharge dataset. Available at measure-specific web page URL identified in S.1 Attachment PQI15_Technical_Specifications_v6.0_151214_v02.xlsx
Level	Population: County or City
Setting	Other All community based care
Numerator Statement	Discharges, for patients ages 18 through 39 years, with a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for asthma. [NOTE: By definition, discharges with a principal diagnosis of asthma are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]
Numerator Details	Please see attached excel file in S.2b. for Version 6.0 specifications. Prevention Quality Indicators technical specifications and appendices also available online at http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx). Note: The URL link currently provides Version 5.0 specifications. Version 6.0 specifications will be released publicly March 2016.
Denominator Statement	Population ages 18 through 39 years in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient

	0283 Asthma in Younger Adults Admission Rate (PQI 15)
	residence, not the metropolitan area or county of the hospital where the discharge occurred.
Denominator Details	† The term "metropolitan area" (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs) and primary metropolitan statistical areas (PMSAs). In addition, "area" could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software. See AHRQ QI website for 2014 Population File Denominator report for calculation of population estimates embedded within AHRQ QI software programs. http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V50/AHRQ_QI_Population_File_V50.pdf
Exclusions	Not applicable.
Exclusion details	Not applicable.
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 5-year age groups). An option model is available that includes percent of households under the federal poverty level as well. Because we cannot individually observe the age and gender of each person in a counties population, we use the age and gender distribution of the county to estimate the number of "cases" in each age*gender group. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the year 2013 (combined), a database consisting of 40 states and the U.S. Census data by county. 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., area). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Additional information on methodology can be found in the Empirical Methods document on the AHRQ Quality Indicator website (www.qualityindicators.ahrq.gov) and in the attached supplemental information. The specific covariates for this measure are as follows: PARAMETER LABEL SEX Female AGE Male, Age 18-24 AGE Male, Age 25-29 AGE Male, Age 30-34 AGE Male, Age 35-39 AGE Female, Age 18-24 AGE Female, Age 25-29 AGE Female, Age 30-34 AGE Female, Age 35-39 POVCAT Poverty Decile 2 POVCAT Poverty Decile 3 POVCAT Poverty Decile 4 POVCAT Poverty Decile 5 POVCAT Poverty Decile 6 POVCAT Poverty Decile 7 POVCAT Poverty Decile 8

	0283 Asthma in Younger Adults Admission Rate (PQI 15)
	POVCAT Poverty Decile 9 POVCAT Poverty Decile 10 (Highest percent poverty)1 1Deciles are based on the percentage of households under the federal poverty level (FPL). Source: http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx Parameter estimates with and without SES covariates (POVCAT) are included with the Technical Specifications. Please note Version 6.0 will be released publicly March 2016. Available in attached Excel or csv file at S.2b
Stratification	Not applicable.
Type Score	Rate/proportion better quality = lower score
Algorithm	The observed rate of each PQI is simply the number of individuals living in a county admitted to the hospital for the condition of interest divided by the census population estimate for the area (for PQI 15 ages 18-39). The expected rate is a comparative rate that incorporates information about a reference population that is not part of the user's input dataset – what rate would be observed if the expected performance observed in the reference population and estimated with risk adjustment regression models, were applied to the mix of patients with demographic distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. The expected rate is estimated for each county using logistic regression. The risk-adjusted rate is a comparative rate that also incorporates information about a reference population that is not part of the input dataset – what rate would be observed if the performance observed in the user's dataset were applied to a mix of patients with demographics distributed like the reference population. The risk adjusted rate is calculated using the indirect method as observed rate divided by expected rate multiplied by the reference population rate. The smoothed rate is the weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the reference population; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the variance of the estimated rate from the input dataset is large compared with the hospital-to-hospital variance estimated from the reference population. Thus, the smoothed rate is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. In practice, the smoothed rate brings rates toward the mean, and tends to do this more so for outliers (such as rural counties). For additional information, please see supporting information in the Quality Indicator Empirical Methods attached in the supplemental files. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	0334 PICU Severity-adjusted Length of Stay
Steward	Virtual PICU Systems, LLC

	0334 PICU Severity-adjusted Length of Stay
Description	The number of days between PICU admission and PICU discharge.
Type	Outcome
Data Source	Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of PICU days, PICU days = Number of days between PICU admission and PICU discharge.(For all eligible patients admitted to the ICU, the time at discharge from ICU minus the time of ICU admission (first recorded vital sign on ICU flow sheet)
Numerator Details	All patients < 18 years of age Numerator is the average (mean) observed LOS with the observed LOS (if the observed LOS exceeded 30 days, then the LOS was reduced to 30 days).
Denominator Statement	The denominator is the average (mean) predicted length of stay using the adjustment model.
Denominator Details	The denominator is the average (mean) predicted length of stay using the adjustment model.
Exclusions	Patients => 18 years of age
Exclusion details	Patient age > 18 years and patients not eligible for PRISM measurement
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 of charge) - Algorithms must receive ongoing validation and recalibration The PRISM 3 model meets these criteria. VPS has updated the original PRISM LOS model by adding more predictors and re-estimating the coefficients. We developed the linear regression model for LOS on the training dataset (based on admissions between Q2 2009 and Q1 2013, n=275,013), and independently confirmed the performance of the resulting model on the validation dataset (based on admissions between Q2 2013 and Q1 2014, n=73,705). A few patients having long ICU stays can disproportionately influence LOS models. We used a 30-day truncation: if any patient had an observed LOS exceeding 30 days, the LOS was reduced to 30 days. Among 348,718 PICU admissions, less than 2% of PICU stays were longer than 30 days. Since the latest model release is intended to be a refresh of the PRISM III LOS model, we used predictors that are included in PRISM III Risk of Mortality (ROM) and did not include interaction terms or site level predictors. The LOS (in days) is predicted from the following terms at the patient-level: (1) PRISM3 Score (2) Neonatal (less than 1 month) patient, (3) Infant (1 month to 1 year) patient, (4) Post-operative patient,

	0334 PICU Severity-adjusted Length of Stay
	(5) Admission of patient from Inpatient Unit, (6) Previous ICU admission, (7) Patient with an oncology diagnosis, (8) Patient with an acute overdose, (9) Patient with acute diabetes, (10) Patient with an operative cardiac disease, (11) Patient with pneumonia, (12) Patient with non-head trauma, (13) Patient associated with an acute problem, and (14) Patient on mechanical ventilation. References [1]. Pollack MM. Recalibration of the Length of Stay (LOS) Algorithm: 2006. Personal Communication. 2006. [2] VPS Webpage. VPS New PRISM 3 LOS Model. 2015. https://s3.amazonaws.com/vpspublic/PRISM+LOS+brochure.pdf
Stratification	Risk-adjustment measure, not stratification.
Type Score	Ratio better quality = lower score
Algorithm	The standardized length of stay ratio (SLOSR) is created by dividing the average (mean) observed physical length of stay (truncated at 30 days) by the average (mean) predicted length of stay. Cases must meet PRISM 3 inclusion criteria to receive a PRISM 3 length of stay prediction. Numerator is the average (mean) observed LOS with the observed LOS = observed LOS exceeding 30 days, the LOS was reduced to 30 days. The denominator is the average (mean) predicted length of stay using the adjustment model. Risk adjustment/severity of illness addressed using PRISM 3 methodology. https://s3.amazonaws.com/vpspublic/PRISM+LOS+brochure.pdf. Available at measure-specific web page URL identified in S.1
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A

	0335 PICU Unplanned Readmission Rate
Steward	Virtual PICU Systems, LLC
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 : Registry No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Available at measure-specific web page URL identified in S.1 No data dictionary
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	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	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 N/A
Stratification	N/A
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 Available at measure-specific web page URL identified in S.1
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: All existing and potentially competing measures endorsed by NQF are 1) focused on adults and 2) focused on hospital populations with an emphasis on readmission to the hospital, not the ICU. They are fundamentally different in their intent.

	0343 PICU Standardized Mortality Ratio
Steward	Virtual PICU Systems, LLC
Description	The ratio of actual deaths over predicted deaths for PICU patients.
Type	Outcome
Data Source	Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Actual number of deaths occurring in PICU.
Numerator Details	Exclusions: • PICU patients >=18 years of age • PICU patients under the age of 18 years with a stay < 2 hours in the PICU • < 2 consecutive sets of vital signs consistent with life • Patients housed in the ICU on boarder status or Intermediate care status
Denominator Statement	The sum of of predicted PRISM 3 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 or boarder/IMCU status.
Denominator Details	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	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 or boarder/IMCU status.
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, 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 of charge) - 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

	0343 PICU Standardized Mortality Ratio
	• Pre-ICU care area • Operative status • Acute diagnosis of diabetes • 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.
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.
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://s3.amazonaws.com/vpspublic/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.
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
Steward	Centers for Medicare & Medicaid Services (CMS)
Description	The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the date of admission for the index admission, discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary diagnosis of pneumonia (including aspiration pneumonia) coded as present on admission (POA). CMS annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities. Please note this measure has been substantially updated since the last submission; as described in S.3., the cohort has been expanded. Throughout this application we refer to this measure as version 9.2.
Type	Outcome
Data Source	Administrative claims Data sources for the Medicare FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This data source contains claims data for FFS inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, as well as inpatient and outpatient physician claims for the 12

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This data source was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming et al., 1992). 3. The American Community Survey (2008-2012): The American Community Survey data is collected annually and an aggregated 5-years data was used to calculate the AHRQ SES composite index score. 4. Data sources for the all-payer update: For our analyses to examine use in all-payer data, we used all-payer data from California in addition to CMS data for Medicare FFS patients aged 65 years or over (65+) in California hospitals. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. We used the California Patient Discharge Data, a large, linked database of patient hospital admissions. In 2009, there were 3,193,904 adult discharges from 446 non-Federal acute care hospitals. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations and to evaluate rates of both readmission and mortality (via linking with California vital statistics records). Using all-payer data from California as well as CMS Medicare FFS data for California hospitals, we performed analyses to determine whether the pneumonia mortality measure can be applied to all adult patients, including not only FFS Medicare patients aged 65 or over, but also non-FFS Medicare patients aged 18-64 years at the time of admission. Reference: Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. No data collection instrument provided Attachment NQF_0468_S2b_Mortality_Data_Dictionary_v0.5_forCMS-635856833973209589.xls
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 of the index admission date for patients 18 and older discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA and no secondary discharge diagnosis of severe sepsis.
Numerator Details	The measure counts deaths for any cause within 30 days of the date of admission of the index pneumonia hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients 65 years or over in the Medicare Enrollment Database (EDB). Identifying deaths in the all-payer measure For the purposes of development of an all-payer measure, 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).

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or over or (2) patients aged 18 years or older. We have specifically tested the measure in both age groups. The cohort includes admissions for patients aged 18 years and older discharged from the hospital with principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA but no secondary discharge diagnosis of severe sepsis; and with a complete claims history for the 12 months prior to admission. The measure will be publicly reported by CMS for those patients 65 years or older who are Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals. Additional details are provided in S.9 Denominator Details.
Denominator Details	To be included in the measure cohort used in public reporting, patients must meet the following inclusion criteria: 1. Principal discharge diagnosis of pneumonia, including aspiration pneumonia; or Principal discharge diagnosis of sepsis (not including severe sepsis), with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA but no secondary discharge diagnosis of severe sepsis. 2. Enrolled in Medicare fee-for-service (FFS) 3. Aged 65 or over 4. Not transferred from another acute care facility 5. Enrolled in Part A and Part B Medicare for the 12 months prior to the date of admission, and enrolled in Part A during the index admission. This measure can also be used for an all-payer population aged 18 years and older. We have explicitly tested the measure in both patients aged 18 years and older, and those aged 65 years or over (see Testing Attachment for details). International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes used to define the cohort for each measure are: ICD-9 codes that define patients with pneumonia: 480.0 Pneumonia due to adenovirus 480.1 Pneumonia due to respiratory syncytial virus 480.2 Pneumonia due to parainfluenza virus 480.3 Pneumonia due to SARS-associated coronavirus 480.8 Pneumonia due to other virus not elsewhere classified 480.9 Viral pneumonia, unspecified 481 Pneumococcal pneumonia 482.0 Pneumonia due to Klebsiella pneumoniae 482.1 Pneumonia due to Pseudomonas 482.2 Pneumonia due to Hemophilus influenzae 482.30 Pneumonia due to Streptococcus, unspecified 482.31 Pneumonia due to Streptococcus, group A 482.32 Pneumonia due to Streptococcus, group B 482.39 Pneumonia due to other Streptococcus 482.40 Pneumonia due to Staphylococcus, unspecified 482.41 Methicillin susceptible pneumonia due to Staphylococcus aureus

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	482.42 Methicillin resistant pneumonia due to Staphylococcus aureus 482.49 Other Staphylococcus pneumonia 482.81 Pneumonia due to anaerobes 482.82 Pneumonia due to escherichia coli 482.83 Pneumonia due to other gram-negative bacteria 482.84 Pneumonia due to Legionnaires' disease 482.89 Pneumonia due to other specified bacteria 482.9 Bacterial pneumonia, unspecified 483.0 Pneumonia due to mycoplasma pneumoniae 483.1 Pneumonia due to chlamydia 483.8 Pneumonia due to other specified organism 485 Bronchopneumonia, organism unspecified 486 Pneumonia, organism unspecified 487.0 Influenza with pneumonia 488.11 Influenza due to identified 2009 H1N1 influenza virus with pneumonia ICD-9 codes that define patients with aspiration pneumonia: 507.0 Pneumonitis due to inhalation of food or vomitus ICD-9 codes that define patients with sepsis (not including severe sepsis [995.92 or 785.52]) (Cohort requires principal discharge diagnosis of sepsis combined with a secondary discharge diagnosis of pneumonia or aspiration pneumonia coded as POA but no secondary discharge diagnosis of severe sepsis): 038.0 Streptococcal septicemia 038.10 Staphylococcal septicemia, unspecified 038.11 Methicillin susceptible Staphylococcus aureus septicemia 038.12 Methicillin resistant Staphylococcus aureus septicemia 038.19 Other staphylococcal septicemia 038.2 Pneumococcal septicemia [Streptococcus pneumoniae septicemia] 038.3 Septicemia due to anaerobes 038.40 Septicemia due to gram-negative organism, unspecified 038.41 Septicemia due to hemophilus influenzae [H. influenzae] 038.42 Septicemia due to escherichia coli [E. coli] 038.43 Septicemia due to pseudomonas 038.44 Septicemia due to serratia 038.49 Other septicemia due to gram-negative organisms 038.8 Other specified septicemias 038.9 Unspecified septicemia 995.91 Sepsis --- ICD-10 codes that define patients with pneumonia: J12.0 Adenoviral pneumonia J12.1 Respiratory syncytial virus pneumonia J12.2 Parainfluenza virus pneumonia J12.81 Pneumonia due to SARS-associated coronavirus J12.89 Other viral pneumonia

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	J12.9 Viral pneumonia, unspecified J13 Pneumonia due to Streptococcus pneumoniae J18.1 Lobar pneumonia, unspecified organism J15.0 Pneumonia due to Klebsiella pneumoniae J15.1 Pneumonia due to Pseudomonas J14 Pneumonia due to Hemophilus influenzae J15.4 Pneumonia due to other streptococci J15.3 Pneumonia due to streptococcus, group B J15.20 Pneumonia due to staphylococcus, unspecified J15.211 Pneumonia due to Methicillin susceptible staphylococcus J15.212 Pneumonia due to Methicillin resistant staphylococcus J15.29 Pneumonia due to other staphylococcus J15.8 Pneumonia due to other specified bacteria J15.5 Pneumonia due to Escherichia coli J15.6 Pneumonia due to other aerobic Gram-negative bacteria A48.1 Legionnaires' disease J15.8 Pneumonia due to other specified bacteria J15.9 Unspecified bacterial pneumonia J15.7 Pneumonia due to Mycoplasma pneumoniae J16.0 Chlamydial pneumonia J16.8 Pneumonia due to other specified infectious organisms J18.0 Bronchopneumonia, unspecified organism J18.9 Pneumonia, unspecified organism J11.00 Influenza due to unidentified influenza virus with unspecified type of pneumonia J12.9 Viral pneumonia, unspecified J10.08 Influenza due to other identified influenza virus ICD-10 codes that define patients with aspiration pneumonia: J69.0 Pneumonitis due to inhalation of food and vomit ICD-10 codes that define patients with sepsis (not including severe sepsis [ICD-9 995.92 or 785.52]) (Cohort requires principal discharge diagnosis of sepsis combined with a secondary discharge diagnosis of pneumonia or aspiration pneumonia coded as POA but no secondary discharge diagnosis of severe sepsis): A40.9 Streptococcal sepsis, unspecified A41.2 Sepsis due to unspecified staphylococcus A41.01 Sepsis due to Methicillin susceptible Staphylococcus A41.02 Sepsis due to Methicillin resistant Staphylococcus A41.1 Sepsis due to other specified staphylococcus A40.3 Sepsis due to Streptococcus pneumoniae A41.4 Sepsis due to anaerobes A41.50 Gram-negative sepsis, unspecified A41.3 Sepsis due to Hemophilus influenzae A41.51 Sepsis due to Escherichia coli [E. coli] A41.52 Sepsis due to Pseudomonas A41.53 Sepsis due to Serratia

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	A41.59 Other Gram-negative sepsis A41.89 Other specified sepsis A41.9 Sepsis, unspecified organism An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table).
Exclusions	The mortality measures exclude index admissions for patients: 1. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility; 2. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data; 3. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission, including the first day of the index admission; or 4. Discharged against medical advice (AMA). For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.
Exclusion details	1. The discharge disposition indicator is used to identify patients alive at discharge. Transfers 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. Patient length of stay and condition is identified from the admission claim. 2. 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'. 3. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice enrollment data. 4. Discharges against medical advice (AMA) are identified using the discharge disposition indicator. After all exclusions are applied, the measure randomly selects one index admission per patient per year for inclusion in the cohort so that each episode of care is mutually independent with the same probability of the outcome. For each patient, the probability of death increases with each subsequent admission, and therefore, the episodes of care are not mutually independent. Also, for the three year combined data, when index admissions occur during the transition between measure reporting periods (June and July of each year) and both are randomly selected for inclusion in the measure, the measure includes only the June admission. The July admissions are excluded to avoid assigning a single death to two admissions.
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 measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models data at the patient and hospital levels to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, the model adjusts the log-odds of mortality within 30 days of admission for age, sex, and selected clinical covariates. At the hospital level, the approach models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of death at the hospital, after accounting for patient risk. If there were no differences among hospitals, then after adjusting for patient risk, the

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	hospital intercepts should be identical across all hospitals. 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, sex, and indicators of comorbidity and disease severity. For each patient, covariates are obtained from claims records extending 12 months prior to and including the index admission. For the measure currently implemented by CMS, these risk-adjusters are identified using both inpatient and outpatient Medicare FFS claims data. However, in the all-payer hospital discharge database measure, the risk-adjustment variables can be obtained only from inpatient claims in the prior 12 months and 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 (Pope et al., 2000). A file that contains a list of the ICD-9-CM codes and their groupings into CCs is attached in data field S.2b (Data Dictionary or Code Table). 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 index hospitalization, are included in the risk adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of care when they are only recorded in the index admission. The final set of risk adjustment variables is: Demographics Male Age-65 (years, continuous) for patients aged 65 or over cohorts; or Age (years, continuous) for patients aged 18 and over cohorts. Comorbidities History of Percutaneous Transluminal Coronary Angioplasty (PTCA) (ICD-9 codes V45.82, 00.66, 36.06, 36.07) History of Coronary Artery Bypass Graft (CABG) (ICD-9 codes V45.81, 36.10–36.16) Congestive heart failure (CC 80) Acute myocardial infarction (CC 81) Other acute/subacute forms of ischemic heart disease (CC 82) Coronary atherosclerosis or angina (CC 83-84) Cardio-respiratory failure or shock (CC 78-79) Hypertension (CC 89, 91) Stroke (CC 95-96) Cerebrovascular disease (CC 97-99, 103) Renal failure (CC 131) Chronic obstructive pulmonary disease (COPD) (CC 108) Pneumonia (CC 111-114) Protein-calorie malnutrition (CC 21) Dementia or other specified brain disorders (CC 49-50) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177-178) Vascular disease and complications (CC 104-105) Metastatic cancer, acute leukemia and other severe cancers (CC 7-8) Trauma in last year (CC 154-156, 158-162) Major psychiatric disorders (CC 54-56)

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	Chronic liver disease (CC 25-27) Severe hematological disorders (CC 44) Iron deficiency or other unspecified anemias and blood disease (CC 47) Depression (CC 58) Parkinson's or Huntington's diseases (CC 73) Seizure disorders and convulsions (CC 74) Fibrosis of lung or other chronic lung disorders (CC 109) Asthma (CC 110) Vertebral fractures (CC 157) Septicemia/sepsis (CC 2) Respirator dependence/tracheostomy (CC 77) Disorders of fluid/electrolyte/acid-base (CC 23) Delirium and encephalopathy (CC 48) Decubitus ulcer of skin (CC 148) 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. Pope GC, et al. 2000. Principal Inpatient Diagnostic Cost Group Models for Medicare Risk Adjustment. Health Care Financing Review 21(3): 93-118. Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for pneumonia using hierarchical logistic regression models. In brief, the approach simultaneously models data at the patient and hospital levels to account for variance in patient outcomes within and between hospitals (Normand and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of index admission using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a mortality at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution 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 at a given hospital, multiplied by the national observed mortality rate. For each hospital, the numerator of the ratio 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 is the number of deaths expected based on 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.

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	Thus, a lower ratio indicates lower-than-expected mortality rates or better quality, and a higher ratio indicates higher-than-expected mortality rates or worse quality. The "predicted" number of deaths (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of mortality. The estimated hospital-specific intercept is added to the sum of the estimated regression coefficients multiplied by the patient characteristics. The results are transformed and summed over all patients attributed to a hospital to get a predicted value. The "expected" number of deaths (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the hospital-specific intercept. The results are transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period. This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed readmission rate. The hierarchical logistic regression models are described fully in the original methodology report (Krumholz et al., 2005). References: Krumholz H, Normand S, Galusha D, et al. Risk-Adjustment Models for AMI and HF 30-Day Mortality Methodology. 2005. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22(2): 206-226. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0708: Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window) 0231: Pneumonia Mortality Rate (IQI #20) 0506: Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following p 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The pneumonia mortality measure cohort, version 9.0, is harmonized with the hospital-level, risk-standardized payment associated with a 30-day episode of care for pneumonia cohort. Version 9.2 of the pneumonia mortality measure cohort is, however, not harmonized with the pneumonia payment measure cohort. There is intention to harmonize the pneumonia mortality and payment measure cohorts in the future. We did not include in our list of related measures any non-outcome (for example, process) measures with the same target population as our measure. Because this is an outcome measure, clinical coherence of the cohort takes precedence over alignment with related non-outcome measures. Furthermore, non-outcome measures are limited due to broader patient exclusions. This is because they typically only include a specific subset of patients who are eligible for that measure (for example, patients who receive a specific medication or undergo a specific procedure). Lastly, this measure and the NQF Inpatient Pneumonia Mortality (AHRQ) Measure #0231 are complementary rather than competing measures. Although they both assess mortality for patients admitted to acute care hospitals with a principal discharge diagnosis of pneumonia, the specified outcomes are different. This measure assesses 30-day mortality while #0231 assesses inpatient mortality. Assessment of 30-day and inpatient mortality outcomes have distinct advantages and uses which make them complementary as opposed to competing. For example the 30-day period provides a broader perspective on hospital care and utilizes standard time period to examine hospital performance to avoid bias by differences in length of stay among hospitals. However, in some settings it may not be feasible to capture post-discharge mortality making the

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization
	inpatient measure more useable. We have previously consulted with AHRQ to examine harmonization of complementary measures of mortality for patients with AMI and stroke. We have found that the measures are harmonized to the extent possible given that small differences in cohort inclusion and exclusion criteria are warranted on the basis of the use of different outcomes. However, this current measure has been modified from the last endorsed version to include patients with a principal discharge diagnosis of sepsis and a secondary discharge diagnosis of pneumonia that is present on admission. The cohort was also expanded to include patients with a principal discharge diagnosis of aspiration pneumonia. Thus the current measure cohort is no longer harmonized with measure #0231. 5b.1 If competing, why superior or rationale for additive value: N/A

	0513 Thorax CT—Use of Contrast Material
Steward	Centers for Medicare & Medicaid Services
Description	This measure calculates the percentage of thorax computed tomography (CT) studies that are performed with and without contrast out of all thorax CT studies performed (those with contrast, those without contrast and those with both) at each facility. 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 (CMS), since 2010, as a component of its Hospital Outpatient Quality Reporting (HOQR) Program.
Type	Process
Data Source	Administrative claims This measure was initially constructed using the 100 percent Medicare FFS outpatient SAFs from 2007. These outpatient SAFs contain the claims data on imaging utilization and performed in hospital outpatient departments (including emergency department services), which are necessary to attribute the measure to specific facilities. Public reporting of the measure currently uses the 100 percent Medicare FFS outpatients SAFs from 2013 and 2014. No data collection instrument provided Attachment NQF_0513_Measure_Value_Sets_2015-12-10.xlsx
Level	Facility, Population: National, Population: State
Setting	Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Imaging Facility
Numerator Statement	The number of thorax CT studies with and without contrast (“combined studies”).
Numerator Details	The numerator is defined by the following CPT Code: 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.
Denominator Details	The denominator is defined by the following CPT codes: 71250- Thorax CT without contrast. 71260- Thorax CT with contrast. 71270- Thorax CT with and without contrast. Global and TC claims should be considered in order to capture all outpatient volume facility claims, typically paid under the Outpatient Prospective Payment System (OPPS)/Ambulatory

	0513 Thorax CT—Use of Contrast Material
	Payment Classifications (APC) methodology, and to avoid double counting of professional component claims (i.e., 26 modifier). 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, which includes both the professional and TCs. Professional component claims will outnumber TC claims due to over-reads.
Exclusions	Indications for measure exclusion include any patients with diagnosis codes associated with: internal injury of chest, abdomen, and pelvis; injury to blood vessels; or crushing injury.
Exclusion details	Indications for measure exclusion include any patients with the following diagnosis codes: Internal Injury of Chest, Abdomen, and Pelvis ICD-9 Codes: 860-869 Injury to Blood Vessels ICD-9 Codes: 901-902 Crushing Injury ICD-9 Codes: 926, 929 Crushing Injury of unspecified hip with thigh ICD-10 Codes: S77.20* Injuries to the thorax ICD-10 codes: S21.301*-S21.459*, S25.00X*-S27.9XX* Injuries to the abdomen, lower back, lumbar spine, pelvis, and external genitals ICD-10 codes: S31.001*, S31.021*, S31.031*, S31.041*, S31.051*, S31.600*-S31.659*, S35.00X*-S38.1XX* For ICD-10 exclusion codes, an appending asterisk (*) represents a wildcard for that digit.
Risk Adjustment	No risk adjustment or risk stratification Not applicable; this measure does not risk adjust. Provided in response box S.15a
Stratification	Not applicable; this measure does not stratify its results.
Type Score	Other (specify): Percentage better quality = lower score
Algorithm	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 hospital outpatient claims data, as follows: 1. Select hospital outpatient claims with a CPT code for any thorax CT study (i.e., 71250- Thorax CT 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. Exclude cases with one or more exclusion diagnoses included on claim 4. Set denominator counter = 1 5. Set numerator counter = 1 if CPT code = 71270 thorax CT studies with and without contrast (combined studies) 6. Aggregate denominator and numerator counts by Medicare provider number 7. Measure = numerator counts/denominator counts [The value should be recorded as a percentage] No diagram provided
Copyright /	5.1 Identified measures:

	0513 Thorax CT—Use of Contrast Material
Disclaimer	5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: Not applicable

	0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD
Status	Submitted
Steward	National Committee for Quality Assurance
Description	The percentage of patients 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 This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 0577_SPR_Value_Sets.xlsx
Level	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	At least one claim/encounter for spirometry during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD.
Numerator Details	Follow the steps below to identify numerator compliance. Identify the number of patients who had at least one claim/encounter for spirometry (Spirometry Value Set) during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD. - For an outpatient claim/encounter, the Index Episode Start Date is the date of service. - For an acute inpatient claim/encounter, the Index Episode Start Date is the date of discharge. - For a transfer or readmission, the Index Episode Start Date is the discharge date of the original admission. See corresponding Excel file for value sets referenced above.
Denominator Statement	All patients age 42 years or older as of December 31 of the measurement year, who had a new diagnosis of COPD or newly active COPD during the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year.
Denominator Details	The eligible population for the denominator is defined by following the series of steps below: Step 1: Determine the Index Episode Start Date. Identify all patients who had any of the following during the intake period (the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year):

	0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD
	1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. If the patient had more than one eligible visit, include only the first visit. Step 2: Test for negative diagnosis history. Exclude patients who had any of the following during the 731-day period prior to the Index Episode Start Date. 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. For an acute inpatient Index Episode Start Date, use the Index Episode Start Date of admission to determine the 731-day period. See corresponding Excel file for value sets referenced above.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	The measure calculation is detailed in the steps listed below: Step 1: Determine the eligible population. A. Determine the Index Episode Start Date. Identify all patients who had any of the following during the intake period (the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year): 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set)

	0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD
	c. Identify the discharge date for the stay. If the patient had more than one eligible visit, include only the first visit. B. Test for negative diagnosis history. Exclude patients who had any of the following during the 731-day period prior to the Index Episode Start Date. 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. For an acute inpatient Index Episode Start Date, use the Index Episode Start Date of admission to determine the 731-day period. Step 2: determine the numerator. Identify the number of patients who had at least one claim/encounter for spirometry (Spirometry Value Set) during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD. - For an outpatient claim/encounter, the Index Episode Start Date is the date of service. - For an acute inpatient claim/encounter, the Index Episode Start Date is the date of discharge. - For a transfer or readmission, the Index Episode Start Date is the discharge date of the original admission. Step 3: calculate the rate: Numerator/Denominator. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0091: COPD: Spirometry Evaluation 0102: COPD: inhaled bronchodilator therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: NQF 0102 focuses on medication management for stable COPD or following an exacerbation, while our measure focuses on appropriate spirometry testing to confirm a new COPD diagnosis. There is no impact on interpretability or added burden of data collection because the focus of our measure is different. NQF 0091 is a physician-level measure that uses administrative claims or medical record data. There is no impact on interpretability or added burden of data collection because the data for our measure is collected from different data sources by different entities and the focus of our measure is different (0091 focuses on whether patients with a COPD diagnosis, not specifically a new diagnosis, had spirometry testing performed at least once during the measurement year, while 0577 specifies that patients with a new COPD diagnosis receive spirometry testing within 6 months following diagnosis). 5b.1 If competing, why superior or rationale for additive value: N/A

	0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
Steward	Philip R. Lee Institute for Health Policy Studies
Description	For all eligible patients =18 years old admitted to the intensive care unit (ICU), total duration of time spent in the ICU until time of discharge from the ICU; both observed and risk-adjusted LOS reported with the predicted LOS measured using the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS).
Type	Outcome
Data Source	Paper Medical Records ICU Outcomes Data Collection Instrument Available in attached appendix at A.1 Attachment ICU Outcomes Data Dictionary.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	For all eligible patients admitted to the ICU, the time at discharge from ICU (either death or physical departure from the unit) minus the time of admission (first recorded vital sign on ICU flow sheet). The measure is risk-adjusted, please see S.18.
Numerator Details	Eligible patients include those with an ICU stay of at least 4 hours and =18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Denominator Statement	Total number of eligible patients who are discharged (including deaths and transfers)
Denominator Details	Eligible patients include those with an ICU stay of at least 4 hours and =18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Exclusions	<18 years of age at time of ICU admission, ICU readmission, <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, transfers from another acute care hospital.
Exclusion details	<18 years of age at time of ICU admission (with time of ICU admission abstracted preferably from ICU vital signs flowsheet), ICU readmission (i.e. not the patient's first ICU admission during the current hospitalization), <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, patient transfers from another acute care hospital (i.e. patients whose physical site immediately prior to the index ICU admission was an acute care unit at an outside hospital).
Risk Adjustment	Statistical risk model Risk-adjustment variables include: age, heart rate >=150, SBP <=90, chronic renal, acute renal, GIB, cardiac arrhythmia, intracranial mass effect, mechanical ventilation, received CPR, cancer, cerebrovascular incident, cirrhosis, coma, medical admission or status post nonelective surgery, zero factor status (no risk factors other than age), and full code status (no restrictions on therapies or interventions at the time of ICU admission). The LOS risk-adjustment model is based on the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS) with candidate interactions among variables and variable coefficients customized for the population of interest. Provided in response box S.15a
Stratification	Not-applicable

	0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
Type Score	Rate/proportion better quality = lower score
Algorithm	The hospital's mean observed ICU LOS and and mean risk-adjusted LOS are calculated using the abstracted data. For each hospital, the model produces a median and 95% confidence interval for the standardized LOS ratio (SLOSR), which is the mean observed LOS divided by the mean predicted LOS. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0703: Intensive Care: In-hospital mortality rate 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure is completely harmonized with measure 0703 Intensive Care: In-hospital mortality rate. 5b.1 If competing, why superior or rationale for additive value:

	0703 Intensive Care: In-hospital mortality rate
Steward	Philip R. Lee Institute for Health Policy Studies
Description	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).
Type	Outcome
Data Source	Paper Medical Records ICU Outcomes Data Collection Instrument Available in attached appendix at A.1 Attachment ICU Outcomes Data Dictionary-633924321323431795.pdf
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Total number of eligible patients whose hospital outcome is death. The measure is risk-adjusted, please see S.18.
Numerator Details	Eligible patients include those with an ICU stay of at least 4 hours and >18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Denominator Statement	Total number of eligible patients who are discharged (including deaths and transfers out to other hospitals).
Denominator Details	Eligible patients include those with an ICU stay of at least 4 hours and =18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Exclusions	<18 years of age at time of ICU admission, ICU readmission, <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, transfers from another acute care hospital.

	0703 Intensive Care: In-hospital mortality rate
Exclusion details	<18 years of age at time of ICU admission (with time of ICU admission abstracted preferably from ICU vital signs flowsheet), ICU readmission (i.e. not the patient's first ICU admission during the current hospitalization), <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, patient transfers from another acute care hospital (i.e. patients whose physical site immediately prior to the index ICU admission was an acute care unit at an outside hospital)
Risk Adjustment	Statistical risk model Risk-adjustment variables include: age, heart rate >=150, SBP <=90, chronic renal, acute renal, GIB, cardiac arrhythmia, intracranial mass effect, mechanical ventilation, received CPR, cancer, cerebrovascular incident, cirrhosis, coma, medical admission or status post nonelective surgery, zero factor status (no risk factors other than age), and full code status (no restrictions on therapies or interventions at the time of ICU admission). The risk-adjustment model is based on the the Intensive Care Outcomes Model - Mortality (ICOMmort) with candidate interactions among variables and variable coefficients customized for the population of interest. Provided in response box S.15a
Stratification	Not-applicable
Type Score	Rate/proportion better quality = lower score
Algorithm	The hospital's observed mortality rate and risk-adjusted mortality rate are both calculated using the abstracted data. For each hospital, the model produces a median and 95% confidence interval for the Standardized Mortality Ratio (SMR), which is the death rate for the hospital adjusted to the average case mix. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0702: Intensive Care Unit (ICU) Length-of-Stay (LOS) 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure is completely harmonized with measure 0702: Intensive Care Unit (ICU) Length-of-Stay (LOS) 5b.1 If competing, why superior or rationale for additive value:

	0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
Steward	Health Care Incentives Improvement Institute
Description	Brief Description of Measure: Percent of adult population aged 18+ years with Community Acquired Pneumonia who are followed for one-month, and have one or more potentially avoidable complication (PAC) during the episode time window. Please reference the attached document labeled NQF_PNE_all_codes_risk_adjustment_12_14_15.xls, in the tab labeled PACS I-9 & I-10 for a list of code definitions of PACs relevant to pneumonia. Community Acquired Pneumonia may be managed in an inpatient setting, where the patient is admitted to a hospital within 1-3 days of onset of symptoms, or in milder cases, patients may be hospitalized a little later in the course of illness, or never at all where management could be solely in an outpatient setting. In any of these circumstances, potentially avoidable complications (PACs) may occur during the index stay, in the post-discharge period; or in

	0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
	patients who were never hospitalized, PACs may occur any time during the episode time window. Readmissions due to pneumonia or due to any related diagnosis are also considered as PACs. We define PACs as one of two types: (1) Type 1 PACs - PACs directly related to the index condition: Patients are considered to have a type 1 PAC if they develop one or more complication directly related to pneumonia or its management. Examples of these PACs are respiratory insufficiency, other lung complications, fluid electrolyte acid base problems, sepsis, respiratory failure etc. (2) Type 2 PACs - PACs suggesting Patient Safety Failures: Patients are considered to have a type 2 PAC, if they develop any of the complications related to patient safety failures such as phlebitis, deep vein thrombosis, pressure sores or for any of the CMS-defined hospital acquired conditions (HACs). PACs are counted as a dichotomous (yes/no) outcome. If a patient had one or more PAC in any of the above settings, they get counted as a "yes" or a 1. The enclosed workbook labeled NQF_PNE_all_codes_risk_adjustment_12_14_15.xls serves as an example. The tab labeled PAC overview gives the percent of pneumonia episodes that have a PAC and the tab labeled "PAC drill down" gives the types of PACs and their frequencies in pneumonia episodes within this dataset. The information is based on a two-year claims database from a large regional commercial insurer. The database had 3,258,706 covered lives and $25.9 billion in "allowed amounts" for claims costs. The database is an administrative claims database with medical as well as pharmacy claims.
Type	Outcome
Data Source	Administrative claims The information is based on a two-year claims database from a large regional commercial insurer. The database has 3,258,706 covered lives and $25.9 billion in "allowed amounts" for claims costs. The database is an administrative claims database with medical as well as pharmacy claims. The methodology can be used on any claims database with at least two years of data and a minimum of 150 patients with the index condition or hospitalization. The calculations of rates of potentially avoidable complications can be replicated by anyone that uses the measure specifications along with the metadata file that is available for free on our web site at http://www.hci3.org/ecre/xml-agreement.html. We also plan on providing a limited automated analysis, at no cost, on our website. The methodology has been tested on databases of several health plans as well as on a few employer databases. No data collection instrument was used. No data collection instrument provided Attachment nqf_pne_all_codes_risk_adjustment_12_14_15.xls
Level	Facility, Clinician: Individual, Population: Regional
Setting	Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other, Ambulatory Care: Urgent Care Across the care continuum
Numerator Statement	Outcome: Number of patients with pneumonia who had one or more potentially avoidable complications (PACs) during the episode time window.
Numerator Details	Patients with a pneumonia episode that have a potentially avoidable complication (PACs), during the episode time window. The enclosed excel workbook entitled NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls gives the detailed codes for PACs in the tab entitled PACS I-9 & I-10.

	0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
	Patients are identified as having a PACs if: a. The index stay for pneumonia has a PAC diagnosis code in any position except in the PRIMARY (principal) position b. They have a PAC diagnosis code in any position on any relevant claim (outpatient facility, professional, ancillary etc.) during the pneumonia episode time window c. Any readmission to an acute care facility that is relevant to pneumonia, within the 30-day time window d. Any admission to a post-acute care facility that is relevant to pneumonia and has a PAC code in any position on the claim We define PACs as one of two types: (1) Type 1 PACs - PACs directly related to the index condition: Patients are considered to have a type 1 PAC if they develop one or more complication directly related to pneumonia or its management. Examples of these PACs are respiratory insufficiency, other lung complications, fluid electrolyte acid base problems, sepsis, respiratory failure etc. (2) Type 2 PACs - PACs suggesting Patient Safety Failures: Patients are considered to have a type 2 PAC, if they develop any of the complications related to patient safety failures such as for phlebitis, deep vein thrombosis, pressure sores or for any of the CMS-defined hospital acquired conditions (HACs). PACs are counted as a dichotomous (yes/no) outcome. If a patient had one or more PAC in any of the above settings, they get counted as a "yes" or a 1.
Denominator Statement	Adult patients aged 18 years and above who have a pneumonia episode and are followed for at least one-month.
Denominator Details	Please refer to the enclosed excel workbook entitled NQF_PNE_all_codes_risk_adjustment_12_14_15.xls The target population is identified based on patients with claims that have a Pneumonia diagnosis codes as defined in the TRIGGERS tab (Triggers I-9 or Triggers I-10) of the enclosed workbook. In addition, they have to meet one of the following trigger criteria: 1. Have a hospitalization with a trigger code in the principal position of an inpatient stay claim 2. Have an outpatient facility visit such as an emergency department visit with one of the trigger codes in any position 3. Have a physician visit with a pneumonia code in any position AND a confirming claim between 7 days and 30 days of the first visit that could be any of the three above (an IP stay claim with a pneumonia code in the principal position, an outpatient facility visit claim or another professional visit claim with the pneumonia diagnosis in any position) Inclusion criteria: Patients identified to have Pneumonia based on the trigger criteria above are retained in the measure if they meet the following inclusion criteria: 1. The patient has continuous enrollment for the entire time window with no enrollment gaps with the entity providing the data (so we can ensure that the database has captured all the claims for the patient in the time window). 2. The patient has a complete episode time window in the claims data – so the end date of the episode should not be past the database claims end date. 3. Patient is at least 18 years of age Once the episode is triggered all relevant claims within the episode time window are assigned to the episode. Relevant claims could be inpatient facility claims, outpatient facility claims, professional services, laboratory services, imaging services, ancillary claims, home health, durable medical equipment as well as pharmacy claims across the entire continuum of care

	0708 Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window)
	centered around the patient's episode of care. Any of these relevant claims serve to identify the presence of a PAC.
Exclusions	The target population captures adult patients (18+) in the dataset, who have a complete episode of community-acquired pneumonia, with no enrollment gaps, and no outlier costs. Patients who do not meet these criteria are excluded from the target population.
Exclusion details	Please refer to the tab called "Decision Tree" in the enclosed excel workbook NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls Denominator exclusions include exclusions of "patients" as well as "claims" not relevant to pneumonia care. 1. "Patients" are excluded from the measure if they meet one of the following criteria: a. If age is < 18 years b. If gender is missing c. If they do not have continuous enrollment for the entire time window with the entity providing the data (this helps determine if the database has captured all the claims for the patient in the time window). If a patient has an enrollment gap for any time period during the episode time window, it is considered as an enrollment gap, and they are excluded from the measure. d. If the pneumonia episode time window extends outside the dataset time period (this helps eliminate incomplete episodes). e. The episode cost is an outlier (less than 1st percentile or greater than 99th percentile value for all episodes of the same type). This eliminates extreme variation that may result from random outlier events and eliminates random noise into the analysis from inappropriate codes or services. It is also another way to ensure that episodes included in the measure are complete and representative of the measure. 2. "Claims" are excluded from the pneumonia measure if they are considered not relevant to pneumonia care.
Risk Adjustment	Statistical risk model Conceptual Model: Variations in outcomes across populations may be due to patient-related factors or due to provider-controlled factors. When we adjust for patient-related factors, the remaining variance in PACs may be due to factors that could be controlled by all providers that are managing or co-managing the patient. Statistical Method: We use logistic regression to model the probability of at least one PAC occurring during the episode. For each patient the "predicted" coefficients from the risk adjustment model are summed to give the predicted probabilities of the occurrence of a PAC. A number of patient-related "risk factors" or covariates are included in the model: This list was selected based on input from various clinical experts in clinical working groups. Risk Factors used in the models were: Patient demographics: age, gender, and an indicator of whether a member has enrolled within the previous 6 months. This latter risk factor is intended to account for the patient's lack of claims history, which limits the number of potential comorbidities that can be identified. Comorbidities: These are conditions or events that occurred prior to the start of the episode that can have a potential impact on the patient's risk of having a potentially avoidable complication (PAC). The risk factors are 170 disease indicators (0/1) identified through the presence of ICD diagnosis codes on individual medical claims and collected from the historical

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	claims data before the start of an episode. These are universally applied across all episodes. Please see the tab labeled "All Risk Factors I-9" and "All Risk Factors I-10" for a list of risk factors and their corresponding codes in the enclosed workbook called NQF_PNE_all_codes_risk_adjustment_12_14_15.xls. Episode Subtypes or Severity Markers: These are markers that distinguish an episode as being more severe than another. They indicate either specific patient comorbidities that are known to make the procedure or condition more difficult to manage (e.g., morbid obesity) or severity of the illness itself (e.g., viral, gram negative, or MRSA pneumonia). Subtypes are specific to each unique episode and are included in the models only if they are present at the start of the episode. Please see the tab labeled "Subtypes I-9" and "Subtypes I-10" for a list of subtypes and their corresponding codes in the enclosed workbook called NQF_PNE_all_codes_risk_adjustment_12_14_15.xls. Risk Factors:(Please refer to the enclosed excel workbook entitled (NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls). The risk factors along with their codes are listed in the tabs called "All Risk Factors I-9" and "All Risk Factors I-10" and also listed below: AGE CONTINUOUS VARIABLE GENDER FEMALE = 1 (MALE IS REFERENCE = 0) Risk Factor # Risk Factor Name RF0101 Anoxic Brain Damage, persistent vegetative state RF0102 Delirium, Meningitis, Encephalitis RF0103 Previous Stroke, Paralysis RF0104 Cerebral Palsy and Other Paralytic Syndromes RF0105 Spinal Cord Disorders/Injuries RF0106 Polyneuropathy RF0107 Multiple Sclerosis RF0108 Convulsions, Epilepsy RF0109 Dementia RF0110 Parkinson´s and Huntington´s Diseases RF0111 Cerebrovascular Disease RF0115 after care, rehabilitation RF0201 visual loss, blindness, retinal tear, detachment RF0301 ENT, Upper Respiratory Problems RF0401 Respiratory Failure, O2, ventilator dependence RF0402 Advanced COPD, Asthma RF0403 Empyema, bronchiectasis, Pneumonias RF0404 Aspiration Pneumonia, Laryngeal Problems RF0406 TB, Pneumoconiosis, Aspergillosis RF0407 Tobacco use, Lung disease due to External Fumes RF0408 Other Lung Disease RF0501 Previous Shock, Syncope, Vent Fibrillation RF0503 Advanced CHF RF0504 Cardiomyopathy, valve disorders RF0505 Cardiac Arrhythmias, Heart Block

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	RF0506 Pacemaker, AICD RF0507 Endocarditis, Other post surgical cardiac problems RF0508 Other Cardiovascular Disease RF0511 DVT, Pulm Embolism, Pulm Heart Disease RF0512 Unstable Angina RF0513 Hypotension, chronic, orthostatic RF0514 Hyperlipidemia RF0515 Intraaortic Balloon Pump RF0516 ventricular assist device, ecmo, prolonged bypass RF0517 Previous electrophysiology studies, cryoablation RF0518 Recent AMI RF0519 Previous PCI RF0520 Previous CABG RF0521 Previous Heart & Valve Surgery RF0522 Previous aortic reconstruction RF0523 Previos carotid endarterectomy RF0524 Aortic and peripheral vascular disease RF0525 Advanced Aortic and Vascular Disease RF0601 GI Bleed RF0602 Intestinal Obstruction/Perforation RF0603 Acute Gastritis, Duodenitis RF0604 Gastroduodenal Ulcer RF0606 Intestinal Uro-genital Fistula RF0607 Abdominal hernia w complications RF0608 Vascular insufficiency of intestine RF0609 Inflammatory Bowel Disease RF0610 Irritable Bowel RF0611 Diverticulitis, Meckel´s RF0612 Digestive congenital anomalies RF0613 Intestinal infection RF0614 Esophageal Perforation, Hmg, Barretts, Compl Hiatal Hernia RF0615 Abnormal weight loss RF0616 Achalasia, Esophageal spasm, Stricture, Dysphagia RF0617 GERD, Hiatal Hernia, Other Upper GI Disorders RF0618 Previous Bariatric Surgery RF0619 Hx of colon polyps, family Hx of colon cancer RF0620 Enterostomy, GI devices, lap band RF0701 Pancreatic Disease RF0702 Perforation, fistula GB, bile duct, pancreas RF0703 Gall stones, cholecystitis RF0704 End-Stage Liver Disease RF0705 Hepatitis, Cirrhosis, Other Hepatbiliary Disorders RF0706 Recent Gall Bladder, Hepatobilary Surgery

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	RF0707 Acute Pancreatitis, pseudo cyst RF0801 Bone/Joint/Muscle Infections/Necrosis RF0802 Muscular Dystrophy RF0803 Osteoporosis, ostetits deformans, pathological fracture RF0804 Rheumatoid Arthritis and Inflammatory Connective Tissue Disease RF0805 Gout and other crystal arthropathies RF0806 Other arthropathies RF0807 Osteoarthritis RF0808 Joint Deformities RF0809 Knee derangements RF0810 Traumatic Dislocation Knee RF0811 Dislocation Hip RF0812 Synovitis, Ruture Tendon RF0813 Status Knee Replacement RF0814 Status Total Hip Replacement RF0901 Decubitus Ulcer RF0902 Skin and wound problems RF1001 Diabetes, poor control RF1002 Advanced diabetes RF1003 diabetes RF1101 Acute renal failure RF1102 Dialysis Dependent RF1103 Nephritis RF1104 Chronic renal failure RF1105 Urinary Tract Infections RF1301 Endometriosis RF1302 Fibroid uterus, benign tumors of female organs RF1303 Pelvic Inflammatory disease RF1304 Uterine prolapse, cystocele, vaginocele RF1305 Female Harmonal Disorders RF1306 Ovarian, Broad Ligament Disorders RF1308 Other disorders of uterus, cervix RF1309 Menopausal Disorders RF1310 Menstrual Disorders RF1401 Multiparity, multigravida RF1402 Elderly Primi, other RF1403 Poor obstetric history RF1406 Cervical incompetence RF1407 Abnormalities of uterus, female genital tract RF1410 Maternal, gestational diabetes, large for date RF1411 Genital Herpes RF1467 Tobacco Use in Mother RF1601 Bleeding Disorders

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	RF1602 Severe Hematological Disorders RF1603 Disorders of Immunity RF1604 Nutritional and other Anemias RF1605 Long-term use of anticoag, Aspirin RF1701 Head and Neck Cancers RF1702 Lung and Intrathoracic Cancers RF1703 Neuroendocrine, Myeloproliferative Cancers RF1704 Poorly differentiated, Secondary, Metastatic Cancers RF1705 Other Tumors RF1706 Acute Leukemia RF1707 Cancer uterus, localized female organs RF1708 Colorectal, Hepatobiliary and other GI cancers RF1709 Breast, Prostate, Thyroid cancers RF1710 Testicular Cancer and localized of male organs RF1711 Cancer of Bladder and Urinary Tract RF1712 Musculoskeletal Cancers RF1801 Sepsis, MRSA, Opportunitistic infections RF1901 Schizophrenia RF1902 Major Depressive, Bipolar, and Paranoid Disorders RF2001 Drug/Alcohol Psychosis RF2002 Drug/Alcohol Dependence RF2101 Drug Reactions, long term use of drugs RF2102 Intra-abdominal injury RF2201 Extensive Third-Degree Burns RF2301 Major Organ Transplant Status RF2302 Artificial Openings for Feeding or Elimination RF2303 Complications of Medical & Surgical Care and Trauma RF2304 severe morbid obesity RF2305 morbid obesity RF2306 obesity RF2307 mild sleep apnea, hypoventilation RF2308 moderate sleep apnea, hypoventilation RF2309 obstructive sleep apnea RF2310 Severe Protein-Calorie Malnutrition RF2311 Mild-mod malnutrition RF2401 Severe Head Injury RF2402 Major Head Injury RF2403 Vertebral Fractures without Spinal Cord Injury RF2404 Falls, Fractures RF2405 Amputation RF2501 HIV/AIDS Subtypes for pneumonia STDX04138 Viral Pneumonia

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	STDX04171 Influenza w pneumonia STDX04172 Gram Negative Pneumonia STDX04173 MRSA Pneumonia STDX04174 Other Staph Pneumonia STDX1019 Morbid Obesity (concurrent) STDX10107 Obesity (concurrent) STDX1007 Overweight (concurrent) STDX10108 Sleep Apnea (concurrent) As you may notice some of the covariates (risk factors) such as obesity are collected from both historical claims as well as from the index stay and look-back period of the episode. The prevalence of the risk factors in our analysis dataset are listed in the enclosed workbook entitled NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls – see tab "Risk Factor Prevalence". The regression model with its coefficients are given in the same workbook in the tab "Risk Model'. Available in attached Excel or csv file at S.2b
Stratification	None
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to the enclosed excel workbook entitled (NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls). Assembling the Denominator: Using administrative claims database, patients with pneumonia are identified as those who fulfilled the trigger criteria for pneumonia. Pneumonia patients should have claims that have a Pneumonia diagnosis codes as defined in the TRIGGERS tab (Triggers I-9 or Triggers I-10) of the enclosed workbook. In addition, they have to meet one of the following trigger criteria: 1. Have a hospitalization with a trigger code in the principal position of an inpatient stay claim 2. Have an outpatient facility visit such as an emergency department visit with one of the trigger codes in any position 3. Have a physician visit with a pneumonia code in any position AND a confirming claim between 7 days and 30 days of the first visit that could be any of the three above (an IP stay claim with a pneumonia code in the principal position, an outpatient facility visit claim or another professional visit claim with the pneumonia diagnosis in any position) Patients are retained if they are 18 years of age or more, do not have a missing gender, have continuous enrollment for the entire episode time window, and their entire time window is covered in the claims dataset. Once the episode is triggered all relevant claims within the episode time window are assigned to the episode. Relevant claims could be inpatient facility claims, outpatient facility claims, professional services, laboratory services, imaging services, ancillary claims, home health, durable medical equipment as well as pharmacy claims across the entire continuum of care centered around the patient's episode of care. Any of these relevant claims serve to identify the presence of a PAC. Readmissions carrying diagnosis codes relevant to pneumonia, and relevant admissions to post-acute care facilities are also included in the episode. If a patient has more than one concurrent episode open, and the claim is relevant to both episodes, the claim gets multi-assigned to all relevant open episodes preventing undercounting of PACs.

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	Once all the episodes are assembled, episodes that have outlier costs, are flagged (those with total episode costs less than 1st percentile or greater than 99th percentile), and excluded from the final analysis. This retains episodes that are more representative of care around pneumonia and excludes episodes that may be incomplete (low outlier costs), or have inappropriate codes or services leading to high outlier costs. Assembling the Numerator: For every episode included in the denominator, episodes are flagged as having a PAC (potentially avoidable complication) based on the criteria listed below: Any Index stay that has a PAC diagnosis code in any position except in the PRIMARY (principal) position Any readmission to an acute care facility 2 days or later after discharge but within 30-days post-discharge Any admission to a post-acute care facility with a PAC code in any position on the claim Any other service (professional, outpatient facility, ancillary) with a PAC code in any position on the claim Relevant claims that do not qualify as a PAC based on the criteria outlined above, are listed as typical claims. All included relevant pharmacy services are flagged as typical. Patients that have even a single PAC claim are counted as part of the numerator. Calculating the measure: Proportion of pneumonia patients that have a PAC is simply the ratio of patients with PACs within the pneumonia population, and is called the PAC rate as shown in the equation below: PAC rate = Patients with pneumonia that have at least one PAC / Total number of pneumonia patients A flow chart demonstrating the series of steps and the counts of patients at each step is shown in tab entitled “Decision Tree” of the enclosed workbook called NQF_PNE_all_codes_risk_adjustment_12_14_15.xls Drill Down Calculations: Further analysis from this construct helps create actionable reports. For example as shown in the tab labeled “PAC overview”, not only do we have the PAC rate for the entire pneumonia population analyzed (54.7%), we can calculate the frequency of PACs occurring in the hospital setting, in the outpatient facility, or in professional claims. These could be further broken down by the PAC type – type 1 being directly related to pneumonia and so actionable by the servicing physician, while type 2 PACs are related to patient safety failures and can be improved by process improvement by hospitals and nursing facilities (see tab labeled as “PAC Drill down Graph”). Additionally, readmissions could be analyzed separately. This helps focus strategies in reducing PACs and makes the data immensely actionable. Risk Adjustment: Once we have the observed PAC rates, we risk-adjust them for patient factors such as patient demographics, comorbidities collected historically, and for severity of illness using subtypes collected from the trigger claim and / or look-back period. This helps adjust for factors outside the providers control and levels the playing field for provider performance comparisons. Unit of Analysis: The unit of analysis is the individual episode. Dependent Variable: The dependent variable is a dichotomous variable indicating whether an episode had one or

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	more PACs (=1) or not (=0). Independent Variables: A number of patient-related "risk factors" or covariates are included in the models: Patient demographics: age, gender, and an indicator of whether a member has enrolled within the previous 6 months. This latter risk factor is intended to account for the patient's lack of claims history, which limits the number of potential comorbidities that can be identified. Comorbidities: These are conditions or events that occurred prior to the start of the episode that can have a potential impact on the patient's risk of having a PAC. The risk factors are 170 disease indicators (0/1) identified through the presence of ICD diagnosis codes on individual medical claims and collected from the historical claims data before the start of an episode. These are universally applied across all episodes. Please see the tab labeled "All Risk Factors I-9" and "All Risk Factors I-10" for a list of risk factors and their corresponding codes in the enclosed workbook called NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls Episode Subtypes or Severity Markers: These are markers that distinguish an episode as being more severe than another. They indicate either specific patient comorbidities that are known to make the procedure or condition more difficult to treat (e.g., obesity) or severity of the illness itself (e.g., viral, gram negative, or MRSA pneumonia). Please see the tab labeled "Subtypes I-9" and "Subtypes I-10" for a list of subtypes and their corresponding codes in the enclosed workbook called NQF_PNE_all_codes_risk_adjustment_12_14_15 .xls As mentioned previously, to avoid creating perverse incentives all comorbidities and subtypes are identified prior to or at the very start of the episode. None are identified during the episode period. Statistical Methods: We use logistic regression to model the probability of at least one PAC occurring during the episode. For each patient the "predicted" coefficients from the risk adjustment model are summed to give the "patient-level" predicted probabilities of the occurrence of a PAC. Episodes with predicted probabilities <50% were classified as having a predicted 0 (not having a PAC). Episodes with predicted probabilities >50% were classified as having a predicted 1 (having a PAC). To prevent unstable coefficients, comorbidities and subtypes are included in the models as covariates only if they are present in at least 10 episodes. No further model building is conducted after the initial models are built. This reflects a desire to explain as much variation in the probability of having a PAC as possible, but it does not make it a priority that all covariates in the model be individually significant or even uncorrelated with each other. Accordingly, the model uses a very large group of covariates. This modeling approach allows for fewer potentially artificial constraints around the definitions of what constitutes severity of a episode condition, and lets each regression model determine for itself which of the factors are more significant for a specific episode. Non-significant covariates in episode models can not overly influence predicted outcomes, nor is much harm realized, if a group of correlated covariates work together to explain variation rather than having the variation explained by a single best factor. When more than one line of business is included in the data, separate models are calculated for each sample (i.e., commercial, Medicaid etc.). Provider Attribution and calculating PAC rates by provider: Once episodes are constructed they are attributed to providers based on one of the attribution rules. For community acquired pneumonia episodes, where the index claim is in

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	the hospital setting, the episode is attributed to the facility where the index hospitalization occurred. In a second attribution exercise, all community acquired pneumonia episodes are attributed to the physician who has the maximum number of E&M claims during the episode time window. To directly compare PAC rates across facilities or physicians while also appropriately accounting for differences in patient severity, we calculate a risk-standardized PAC rate (RSPR) for each provider. This method is similar to the methods employed by the Centers for Medicare and Medicaid Services (CMS) and endorsed by the National Quality Forum (NQF) to construct similar facility- and practice-level measures (i.e., mortality, readmissions, etc.). 1. For each provider, the actual number of PAC occurrence is summed across all attributed pneumonia patients, to give the observed PAC rates for the provider. 2. Similarly, patient-level probability estimates are summed across all attributed patients to give expected PAC rates for the provider. 3. The observed sum is then divided by the summed probabilities (O/E). This number yields whether the provider or facility had more PACs than expected (ratio>1), as expected (ratio=1), or less than expected (ratio<1). This calculation yields a practice-level unstandardized performance ratio. 4. To facilitate accurate comparisons of rates across providers, the O/E ratio is multiplied by the overall expected PAC rate across all facilities or physicians, to obtain the risk-standardized PAC rate (RSPR) for the facility or physician. The formula for this calculation is as follows: RSPR_j={(SUM Observed_ij)/(SUM Prob_ij)} × {(SUM Prob_i) / (# of episodes)} Where an individual i is attributed to the unit of attribution j (e.g., facility, physician, etc.) The risk-standardized PAC rate (RSPR) therefore adjusts the provider's observed PAC rate, by the severity of the panel of their patients. It represents what a provider's PAC rate would be if their patient population was reflective of the overall population, leveling the playing field, and allowing for meaningful comparisons across all providers adjusted similarly. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 0094: Assessment of Oxygen Saturation for Community-Acquired Bacterial Pneumonia 0095: Assessment Mental Status for Community-Acquired Bacterial Pneumonia 0096: Community-Acquired Bacterial Pneumonia (CAP): Empiric Antibiotic 0141: Patient Fall Rate 0 5a.1 Are specs completely harmonized? NoNo 5a.2 If not completely harmonized, identify difference, rationale, impact: Denominator Harmonization: Several of the measures listed in the prior section are harmonized to the extent possible for denominator definitions with the submitted measure. In particular process measures related to community-acquired pneumonia (CAP) 0096, 0151, 0147, 0148 have defined CAP target population that matches closely to our submitted measure. Numerator Harmonization: Regarding numerator harmonization, several of the measures are subsets of our measure. In particular 0450, 0337, 0141, and 0202 list adverse events that have been synchronized with those definitions within the PAC measure. In addition, 0705, 0709 have numerator definitions harmonized completely for the definitions of PACs. However, there are some measures that are not harmonized, in particular the 30-day all-cause readmission

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	measures. While the submitted PAC measures include readmissions that occur within 30 days of discharge, the readmissions, by definition, are related to pneumonia and not due to any cause. While 30-day all-cause readmissions might make sense in a Medicare population, it is not self-evident that they do for commercial or Medicaid populations. However, that said, our data suggest that there are, in fact, very few readmissions within 30 days post discharge that aren't relevant to the index hospitalization. It is worth noting that there is some mounting controversy about the 30 day all cause readmission measures and some data suggest that these measures might have simply pushed out certain readmissions to 31 or more days post discharge. Irrespective of these points, PACs include readmissions and are designed to enable accountability at the locus of provider control as well as some shared accountability between settings, centered around a patient, and for a specific medical episode of care. In that sense, they are consistent with the all-cause 30-day readmission rates, but represent a subset of those admissions. As such, the PAC measures, as submitted, don't create added burden of reporting because the readmissions reported are simply a part of the broader 30-day all-cause readmission measures already endorsed by NQF. Because PAC measures are comprehensive, they include patient safety events that can occur during the stay, as well as adverse events, including readmissions, that can occur post-discharge. As a result, they provide facilities and physicians with an overall measure of avoidable complications for a specific medical episode. The data collection for all of the HCI3 measures is automated by a software package and is fully harmonized with all other PAC measures. A single download automates creation of all reports related to each of the PAC measures.Denominator Harmonization: Several of the measures listed in the prior section are harmonized to the extent possible for denominator definitions with the submitted measure. In particular process measures related to community-acquired pneumonia (CAP) 0096, 0151, 0147, 0148 have defined CAP target population that matches closely to our submitted measure. Numerator Harmonization: Regarding numerator harmonization, several of the measures are subsets of our measure. In particular 0450, 0337, 0141, and 0202 list adverse events that have been synchronized with those definitions within the PAC measure. In addition, 0705, 0709 have numerator definitions harmonized completely for the definitions of PACs. However, there are some measures that are not harmonized, in particular the 30-day all-cause readmission measures. While the submitted PAC measures include readmissions that occur within 30 days of discharge, the readmissions, by definition, are related to pneumonia and not due to any cause. While 30-day all-cause readmissions might make sense in a Medicare population, it is not self-evident that they do for commercial or Medicaid populations. However, that said, our data suggest that there are, in fact, very few readmissions within 30 days post discharge that aren't relevant to the index hospitalization. It is worth noting that there is some mounting controversy about the 30 day all cause readmission measures and some data suggest that these measures might have simply pushed out certain readmissions to 31 or more days post discharge. Irrespective of these points, PACs include readmissions and are designed to enable accountability at the locus of provider control as well as some shared accountability between settings, centered around a patient, and for a specific medical episode of care. In that sense, they are consistent with the all-cause 30-day readmission rates, but represent a subset of those admissions. As such, the PAC measures, as submitted, don't create added burden of reporting because the readmissions reported are simply a part of the broader 30-day all-cause readmission measures already endorsed by NQF. Because PAC measures are comprehensive, they include patient safety events that can occur during the stay, as well as adverse events, including readmissions, that can occur post-discharge. As a result, they provide facilities and physicians with an overall measure of avoidable complications for a specific medical episode. The data collection for all of the HCI3 measures is automated by a software package and is fully harmonized with all other PAC measures. A single download automates creation of all reports related to each of

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	the PAC measures. 5b.1 If competing, why superior or rationale for additive value: Not Applicable Related Measures: AHRQ-PQIs (PQI 11) Bacterial Pneumonia Admission Rate; CMS-HACs (Hospital Acquired Conditions)Not Applicable Related Measures: AHRQ-PQIs (PQI 11) Bacterial Pneumonia Admission Rate; CMS-HACs (Hospital Acquired Conditions

	1799 Medication Management for People with Asthma
Steward	National Committee for Quality Assurance
Description	The percentage of patients 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 patients who remained on an asthma controller medication for at least 50% of their treatment period. 2. The percentage of patients who remained on an asthma controller medication for at least 75% of their treatment period.
Type	Process
Data Source	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 1799_MMA_Value_Sets.xlsx
Level	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	Numerator 1 (Medication Adherence 50%): The number of patients who achieved a PDC* of at least 50% for their asthma controller medications during the measurement year. A higher rate is better. Numerator 2 (Medication Adherence 75%): The number of patients who achieved a PDC* of at least 75% for their asthma controller medications during the measurement year. A higher rate is better. *PDC is the proportion of days covered by at least one asthma controller medication prescription, divided by the number of days in the treatment period. The treatment period is the period of time beginning on the earliest prescription dispensing date for any asthma controller medication during the measurement year through the last day of the measurement year.
Numerator Details	Follow the steps below to identify numerator compliance. Step 1: Identify the Index Prescription Start Date*. The Index Prescription Start Date is the earliest dispensing event for any asthma controller medication (refer to MMA-B Asthma Controller Medications) during the measurement year. Step 2: To determine the treatment period, calculate the number of days beginning on the Index Prescription Start Date through the end of the measurement year. Step 3: Count the days covered by at least one prescription for an asthma controller medication (refer to MMA-B Asthma Controller Medications) during the treatment period. To

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	ensure that days supply that extends beyond the measurement year is not counted, subtract any days supply that extends beyond the end of the of the measurement year (e.g., December 31). Step 4: Calculate the patient's Proportion of Days Covered using the following equation. Round (using the .5 rule) to two decimal places. (Total Days Covered by a Controller Medication in the Treatment Period (Step 3) /Total Days in Treatment Period (Step 2)) Numerator 1 (Medication Adherence 50%): Sum the number of patients whose Proportion of Days Covered is > or =50% for their treatment period. Numerator 2 (Medication Adherence 75%): Sum the number of patients whose Proportion of Days Covered is > or =75% for their treatment period MMA-B: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone, Leukotriene modifiers: montelukast, zafirlukast, zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline, dyphylline, theophylline
Denominator Statement	All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year: • At least one emergency department visit with asthma as the principal diagnosis • At least one acute inpatient claim/encounter with asthma as the principal diagnosis • At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits. • At least four asthma medication dispensing events
Denominator Details	The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify patients 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 (refer to codes in ED Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least one acute inpatient claim/encounter (refer to codes in Acute Inpatient Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least four outpatient visits (refer to codes in Outpatient Value Set) or observation visits (refer to codes in Observation Value Set) on different dates of service, with any diagnosis of asthma (refer to codes in Asthma Value Set) AND at least two asthma medication dispensing events (see MMA-A). Visit type need not be the same for the four visits. • At least four asthma medication dispensing events (see MMA-A) Step 2: A patient identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (refer to codes in Asthma Value Set), in any setting, in the same year as the

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	leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). See attached value set Excel document for the following value sets: - ED Value Set - Asthma Value Set - Acute Inpatient Value Set - Outpatient Value Set - Observation Value Set MMA-A: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; Mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Exclusions	1) Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31): -COPD -Emphysema -Obstructive Chronic Bronchitis -Chronic Respiratory Conditions Due To Fumes/Vapors -Cystic Fibrosis -Acute Respiratory Failure 2) Exclude any patients who had no asthma controller medications dispensed during the measurement year.
Exclusion details	1) Exclude patients who had any diagnosis of Emphysema (refer to codes in Emphysema Value Set or Other Emphysema Value Set), COPD (refer to codes in COPD Value Set), Chronic Bronchitis (refer to codes in Obstructive Chronic Bronchitis Value Set), Chronic Respiratory Conditions Due To Fumes/Vapors (refer to codes in Chronic Respiratory Conditions Due to Fumes/Vapors Value Set), Cystic Fibrosis (refer to codes in Cystic Fibrosis Value Set) or Acute Respiratory Failure (refer to codes in Acute Respiratory Failure Value Set) any time during the patient's history through the end of the measurement year (e.g., December 31). 2) Exclude any patients who had no asthma controller medications (see MMA-B) dispensed during the measurement year. See attached value set Excel document for the following value sets: - Emphysema Value Set – Other Emphysema Value Set – COPD Value Set – Obstructive Chronic Bronchitis Value Set – Chronic Respiratory Conditions Due to Fumes/Vapors Value Set – Cystic Fibrosis Value Set

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	– Acute Respiratory Failure Value Set MMA-B: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone Leukotriene modifiers: montelukast, zafirlukast, zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline, dyphylline, theophylline
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the patient's age as of the end of the Measurement Year (e.g., December 31). 1) 5–11 years 2) 12–18 years 3) 19-50 years 4) 51-64 years 5) Total (5-
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. 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 the eligible population: Identify patients 5–64 years of age as of December 31 of the measurement year 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 year: a) At least one ED visit with asthma as the principal diagnosis; or b) At least one acute inpatient claim/encounter with asthma as the principal diagnosis; or c) At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits; or d) At least four asthma medication dispensing events* *A patient identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma, in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). Step 2: Determine denominator exclusions: a) Exclude patients who had any diagnosis of Emphysema, COPD, Chronic Bronchitis, Chronic Respiratory Conditions Due to Fumes/Vapors, Cystic Fibrosis or Acute Respiratory Failure any time during the patient's history through the end of the measurement year b) Exclude patients who had no asthma controller medications dispensed during the

	1799 Medication Management for People with Asthma
	measurement year. Step 3: Determine numerator: a) Identify the Index Prescription Start Date. The Index Prescription Start Date is the earliest dispensing event for any asthma controller medication during the measurement year. b) To determine the treatment period, calculate the number of days beginning on the Index Prescription Start Date through the end of the measurement year. c) Count the days covered by at least one prescription for an asthma controller medication during the treatment period. To ensure that days supply that extends beyond the measurement year is not counted, subtract any days supply that extends beyond the end of the of the measurement year (e.g., December 31). d) Calculate the patient's Proportion of Days Covered using the following equation. Round (using the .5 rule) to two decimal places: (Total Days Covered by a Controller Medication in the Treatment Period/Total Days in Treatment Period) e) Calculate Numerator 1: Sum the number of patients whose Proportion of Days Covered is > or =50% for their treatment period. f) Calculate Numerator 2: Sum the number of patients whose Proportion of Days Covered is > or =75% for their treatment period Step 4: Calculate two rates: a) Number of patients whose PDC is > or =50% for their treatment period/Denominator b) Number of patients whose PDC is > or =75% for their treatment period/Denominator No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0047: Asthma: Pharmacologic Therapy for Persistent Asthma 0548: Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT) 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0047 is a physician-level measure that assesses whether a patient was prescribed medication at least once during the measurement year, while our measure assesses patient adherence to asthma controller medications throughout the measurement year. 0548 is a health plan-level measure that assesses two rates of poor asthma control that indicate over-utilization of rescue medication and need for additional therapeutic intervention; meanwhile our measure assesses patient adherence to asthma controller medications during the measurement year. There is no impact on interpretability or added burden of data collection because the focus of each measure is different and the data for each measure is collected from different data sources by different entities. 5b.1 If competing, why superior or rationale for additive value:

	1800 Asthma Medication Ratio
Steward	National Committee for Quality Assurance
Description	The percentage of patients 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.

	1800 Asthma Medication Ratio
Type	Process
Data Source	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 1800_AMR_Value_Sets.xlsx
Level	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	The number of patients who had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.
Numerator Details	Follow the steps below to identify numerator compliance. Step 1: For each patient, count the units of controller medications (see AMR-A) dispensed during the measurement year. When identifying medication units for the numerator, count each individual medication, defined as an amount lasting 30 days or less, as one medication unit. One medication unit equals one inhaler canister, one injection, or a 30-day or less supply of an oral medication. For example, two inhaler canisters of the same medication dispensed on the same day count as two medication units and only one dispensing event. Use the package size and units columns in the NDC list to determine the number of canisters or injections. Divide the dispensed amount by the package size to determine the number of canisters or injections dispensed. For example, if the package size for an inhaled medication is 10g and pharmacy data indicates the dispensed amount is 30 g, this indicates 3 inhaler canisters were dispensed. Step 2: For each patient, count the units of reliever medications (see AMR-A) dispensed during the measurement year. Step 3: For each patient, sum the units calculated in step 1 and step 2 to determine units of total asthma medications. Step 4: For each patient, calculate the ratio of controller medications to total asthma medications using the following formula: Units of Controller Medications (Step 1)/ Units of Total Asthma Medications (Step 3) Step 5: Sum the total number of patients who have a ratio of 0.50 or greater in step 4. AMR-A: Asthma Controller and Reliever Medications Asthma Controller Medications: -Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline -Antibody inhibitors: omalizumab -Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; mometasone-formoterol -Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone -Leukotriene modifiers: montelukast; zafirlukast; zileuton -Mast cell stabilizers: cromolyn -Methylxanthines: aminophylline; dyphylline; theophylline. Asthma Reliever Medications: -Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; pirbuterol.
Denominator Statement	All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year:

	1800 Asthma Medication Ratio
	• At least one emergency department visit with asthma as the principal diagnosis • At least one acute inpatient claim/encounter with asthma as the principal diagnosis • At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits. • At least four asthma medication dispensing events
Denominator Details	The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify patients 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 (refer to codes in ED Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least one acute inpatient claim/encounter (refer to codes in Acute Inpatient Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least four outpatient visits (refer to codes in Outpatient Value Set) or observation visits (refer to codes in Observation Value Set) on different dates of service, with any diagnosis of asthma (refer to codes in Asthma Value Set) AND at least two asthma medication dispensing events (see MMA-A). Visit type need not be the same for the four visits. • At least four asthma medication dispensing events (see MMA-A) Step 2: A patient identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (refer to codes in Asthma Value Set), in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). See attached value set Excel document for the following value sets: - ED Value Set - Asthma Value Set - Acute Inpatient Value Set - Outpatient Value Set - Observation Value Set MMA-A: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; Mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Exclusions	Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31): -COPD -Emphysema

	1800 Asthma Medication Ratio
	-Obstructive Chronic Bronchitis -Chronic Respiratory Conditions Due To Fumes/Vapors -Cystic Fibrosis -Acute Respiratory Failure Exclude any patients who had no asthma medications (controller or reliever) dispensed during the measurement year.
Exclusion details	1) Exclude patients who had any diagnosis of Emphysema (refer to codes in Emphysema Value Set or Other Emphysema Value Set), COPD (refer to codes in COPD Value Set), Chronic Bronchitis (refer to codes in Obstructive Chronic Bronchitis Value Set), Chronic Respiratory Conditions Due To Fumes/Vapors (refer to codes in Chronic Respiratory Conditions Due to Fumes/Vapors Value Set), Cystic Fibrosis (refer to codes in Cystic Fibrosis Value Set) or Acute Respiratory Failure (refer to codes in Acute Respiratory Failure Value Set) any time during the patient's history through the end of the measurement year (e.g., December 31). 2) Exclude any patients who had no asthma medications (controller or reliever) (see AMR-A) dispensed during the measurement year. See attached value set Excel document for the following value sets: - Emphysema Value Set – Other Emphysema Value Set – COPD Value Set – Obstructive Chronic Bronchitis Value Set – Chronic Respiratory Conditions Due to Fumes/Vapors Value Set – Cystic Fibrosis Value Set – Acute Respiratory Failure Value Set AMR-A: Asthma Controller and Reliever Medications: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitors: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone; Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline. Asthma Reliever Medications: Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; pirbuterol.
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the patient's age as of the end of the Measurement Year (e.g., December 31). 1) 5–11 years 2) 12–18 years 3) 19-50 years 4) 51-64 years

	1800 Asthma Medication Ratio
	5) Total (5-
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. This measure determines the percentage of patients with persistent asthma who had a ratio of controller medications to total asthma medications of 0.50 or greater based on information available from the published NDC codes. The measure calculation is detailed in the steps listed below: Step 1: Determine the eligible population: Identify patients 5–64 years of age as of December 31 of the measurement year 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 year: a) At least one ED visit with asthma as the principal diagnosis; or b) At least one acute inpatient claim/encounter with asthma as the principal diagnosis; or c) At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits; or d) At least four asthma medication dispensing events* *A patient identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma, in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). Step 2: Determine denominator exclusions: a) Exclude patients who had any diagnosis of Emphysema, COPD, Chronic Bronchitis, Chronic Respiratory Conditions Due to Fumes/Vapors, Cystic Fibrosis or Acute Respiratory Failure any time during the patient's history through the end of the measurement year b) Exclude patients who had no asthma medications (controller or reliever) dispensed during the measurement year. Step 3: Determine numerator: a) For each patient, count the units of controller medications (see AMR-A) dispensed during the measurement year. When identifying medication units for the numerator, count each individual medication, defined as an amount lasting 30 days or less, as one medication unit. One medication unit equals one inhaler canister, one injection, or a 30-day or less supply of an oral medication. For example, two inhaler canisters of the same medication dispensed on the same day count as two medication units and only one dispensing event. Use the package size and units columns in the NDC list to determine the number of canisters or injections. Divide the dispensed amount by the package size to determine the number of canisters or injections dispensed. For example, if the package size for an inhaled medication is 10g and pharmacy data indicates the dispensed amount is 30 g, this indicates 3 inhaler canisters were dispensed. b) For each patient, count the units of reliever medications (see AMR-A) dispensed during the measurement year. c) For each patient, sum the units calculated in step a and step b to determine units of total asthma medications. d) For each patient, calculate the ratio of controller medications to total asthma medications using the following formula: Units of Controller Medications (Step a)/ Units of Total Asthma Medications (Step c) e) Sum the total number of patients who have a ratio of 0.50 or greater in step d.

	1800 Asthma Medication Ratio
	Step 4: Calculate the measure rate: the number of patients have a ratio of 0.50 or greater/Denominator No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0047: Asthma: Pharmacologic Therapy for Persistent Asthma 0548: Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT) 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0047 assesses whether a patient was prescribed controller medication at least once during the measurement year, while 1800 assesses the ratio of controller medications to controller plus reliever medications. There is no impact on interpretability or added burden of data collection because the focus of each measure is different. Also, both measures use value sets to identify asthma controller medications that do not conflict. 0548 is a health plan-level measure that assesses overutilization of rescue medication and need for additional therapeutic intervention. However, 0548 assesses it over a shorter time period (a 90-day period) compared to 1800 (over a measurement year). Also, 1800 assesses a ratio of controller to reliever medications in order to take into account the patients who have severe asthma and may need higher amounts of reliever medication, but still have their asthma under control due to taking daily controller medications. 5b.1 If competing, why superior or rationale for additive value:

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
Steward	Centers for Medicare & Medicaid Services
Description	The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD. CMS annually reports the measure for patients who are aged 65 or older, are enrolled in fee-for-service (FFS) Medicare, and hospitalized in non-federal hospitals.
Type	Outcome
Data Source	Administrative claims Data sources for the Medicare FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This data source contains claims data for FFS inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, as well as inpatient and outpatient physician claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This data source was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming et al., 1992). 3. The American Community Survey (2008-2012): The American Community Survey data is collected annually and an aggregated 5-years data was used to calculate the AHRQ SES composite index score. 4. Data sources for the all-payer testing: For our analyses to examine use in all-payer data, we

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	used all-payer data from California. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. We used the California Patient Discharge Data, a large, linked database of patient hospital admissions. In 2006, there were approximately 3 million adult discharges from more than 450 non-Federal acute care hospitals. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations and to evaluate rates of both readmission and mortality (via linking with California vital statistics records). Using all-payer data from California, we performed analyses to determine whether the COPD mortality measure can be applied to all adult patients, including not only FFS Medicare patients aged 65 or over, but also non-FFS Medicare patients aged 18-64 years at the time of admission. Reference: Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. No data collection instrument provided Attachment NQF_1893_S2b_Mortality_Data_Dictionary_v0.3_forCMS.xls
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 discharged from the hospital with either a principal discharge diagnosis of COPD or a principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of acute exacerbation of COPD.
Numerator Details	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. The measure counts deaths for any cause within 30 days of the date of admission of the index COPD hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients aged 65 or older in the Medicare Enrollment Database (EDB). Identifying deaths in the all-payer measure For the purposes of development of an all-payer measure, 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 or older or (2) patients aged 40 years or older. The cohort includes admissions for patients discharged from the hospital with either a principal discharge diagnosis of COPD (see codes below) OR a principal discharge 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. The measure is currently publicly reported by CMS for those patients aged 65 or older who are Medicare FFS beneficiaries admitted to non-federal hospitals. Additional details are provided in S.9 Denominator Details.

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
Denominator Details	To be included in the measure cohort used in public reporting, patients must meet the following inclusion criteria: 1. Principal discharge diagnosis of COPD or principal discharge diagnosis of respiratory failure with a secondary discharge diagnosis of COPD with exacerbation 2. Enrolled in Medicare fee-for-service (FFS) 3. Aged 65 or over 4. Not transferred from another acute care facility 5. Enrolled in Part A and Part B Medicare for the 12 months prior to the date of admission, and enrolled in Part A during the index admission. This measure can also be used for an all-payer population aged 40 years and older. We have explicitly tested the measure in both patients aged 40 years and older and those aged 65 years or older (see Testing Attachment for details). International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes used to define the cohort for each measure are: ICD-9-CM codes used to define COPD: 491.21 Obstructive chronic bronchitis with (acute) exacerbation 491.22 Obstructive chronic bronchitis with acute bronchitis 491.8 Other chronic bronchitis 491.9 Unspecified chronic bronchitis 492.8 Other emphysema 493.20 Chronic obstructive asthma, unspecified 493.21 Chronic obstructive asthma with status asthmaticus 493.22 Chronic obstructive asthma with (acute) exacerbation 496 Chronic airway obstruction, not elsewhere classified 518.81 Acute respiratory failure (Principal diagnosis when combined with a secondary diagnosis of COPD with exacerbation [491.21, 491.22, 493.21, or 493.22]) 518.82 Other pulmonary insufficiency, not elsewhere classified (Principal diagnosis when combined with a secondary diagnosis of COPD with exacerbation [491.21, 491.22, 493.21, or 493.22]) 518.84 Acute and chronic respiratory failure (Principal diagnosis when combined with a secondary diagnosis of COPD with exacerbation [491.21, 491.22, 493.21, or 493.22]) 799.1 Respiratory arrest (Principal diagnosis when combined with a secondary diagnosis of COPD with exacerbation [491.21, 491.22, 493.21, or 493.22]) ICD-9-CM codes used to define acute exacerbation of COPD: 491.21 Obstructive chronic bronchitis with (acute) exacerbation 491.22 Obstructive chronic bronchitis with acute bronchitis 493.21 Chronic obstructive asthma with status asthmaticus 493.22 Chronic obstructive asthma with (acute) exacerbation --- ICD-10-CM codes used to define COPD: J44.1 Chronic obstructive pulmonary disease with (acute) exacerbation J44.0 Chronic obstructive pulmonary disease with acute lower respiratory infection J41.8 Mixed simple and mucopurulent chronic bronchitis J42 Unspecified chronic bronchitis J43.9 Emphysema, unspecified

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	J44.9 Chronic obstructive pulmonary disease, unspecified J96.00 Acute respiratory failure, unspecified whether with hypoxia or hypercapnia J96.90 Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia J80 Acute respiratory distress syndrome J96.20 Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia R09.2 Respiratory arrest ICD-10-CM codes used to define acute exacerbation of COPD: J44.1 Chronic obstructive pulmonary disease with (acute) exacerbation J44.0 Chronic obstructive pulmonary disease with acute low respiratory infection An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table).
Exclusions	The mortality measures exclude index admissions for patients: 1. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data; 2. Enrolled in the Medicare hospice program any time in the 12 months prior to the index admission, including the first day of the index admission; or 3. Discharged against medical advice (AMA). For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.
Exclusion details	1. 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'. 2. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data. 3. Discharges against medical advice (AMA) are identified using the discharge disposition indicator. After all exclusions are applied, the measure randomly selects one index admission per patient per year for inclusion in the cohort so that each episode of care is mutually independent with the same probability of the outcome. For each patient, the probability of death increases with each subsequent admission, and therefore, the episodes of care are not mutually independent. Similarly, for the three year combined data, when index admissions occur during the transition between measure reporting periods (June and July of each year) and both are randomly selected for inclusion in the measure, the measure includes only the June admission. The July admissions are excluded to avoid assigning a single death to two admissions.
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 measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models data at the patient and hospital levels to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, the model adjusts the log-odds of mortality within 30 days of admission for age and selected clinical covariates. At the hospital level, the approach models the hospital-specific intercepts as arising from a normal distribution. The hospital

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	intercept represents the underlying risk of mortality at the hospital, after accounting for patient risk. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. 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 claims records extending 12 months prior to and including the index admission. For the measure currently implemented by CMS, these risk-adjusters are identified using both inpatient and outpatient Medicare FFS claims data. However, in the all-payer hospital discharge database measure, the risk-adjustment variables can be obtained only from inpatient claims in the prior 12 months and 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 (Pope et al., 2000). A file that contains a list of the ICD-9-CM codes and their groupings into CCs is attached in data field S.2b (Data Dictionary or Code Table). 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 index hospitalization, are included in the risk adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of care when they are only recorded in the index admission. The final set of risk adjustment variables is: Demographics Age-65 (years, continuous) for patients aged 65 or over cohorts; or Age (years, continuous) for patients aged 18 and over cohorts. Comorbidities Sleep apnea (ICD-9 codes 327.20, 327.21, 327.23, 327.27, 327.29, 780.51, 780.53, 780.57) History of mechanical ventilation (ICD-9 codes 93.90, 96.70, 96.71, 96.72) Respirator dependence/respiratory failure (CC 77-78) Cardio-respiratory failure or shock (CC 79) Congestive heart failure (CC 80) Coronary atherosclerosis or angina (CC 83-84) Specified arrhythmias and other heart rhythm disorders (CC 92-93) Vascular or circulatory disease (CC 104-106) Fibrosis of lung or other chronic lung disorders (CC 109) Asthma (CC 110) Pneumonia (CC 111-113) Pleural effusion/pneumothorax (CC 114) Other lung disorders (CC 115) Metastatic cancer or acute leukemia (CC 7) Lung, upper digestive tract, and other severe cancers (CC 8) Lymphatic, head and neck, brain, and other major cancers; breast, colorectal and other cancers and tumors; other respiratory and heart neoplasms (CC 9-11) Other digestive and urinary neoplasms (CC 12) Diabetes mellitus (DM) or DM complications (CC 15-20, 119-120) Protein-calorie malnutrition (CC 21)

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	Disorders of fluid/electrolyte/acid-base (CC 22-23) Other endocrine/metabolic/nutritional disorders (CC 24) Other gastrointestinal disorders (CC 36) Osteoarthritis of hip or knee (CC 40) Other musculoskeletal and connective tissue disorders (CC 43) Iron deficiency or other unspecified anemias and blood disease (CC 47) Dementia or other specified brain disorders (CC 49-50) Drug/alcohol abuse, without dependence (CC 53) Other psychiatric disorders (CC 60) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177-178) Mononeuropathy, other neurological conditions/injuries (CC 76) Hypertension and hypertensive disease (CC 90-91) Stroke (CC 95-96) Retinal disorders, except detachment and vascular retinopathies (CC 121) Other eye disorders (CC 124) Other ear, nose, throat and mouth disorders (CC 127) Renal failure (CC 131) Decubitus ulcer or chronic skin ulcer (CC 148-149) Other dermatological disorders (CC 153) Trauma (CC 154-156, 158-161) Vertebral fractures (CC 157) Major complications of medical care and trauma (CC 164) 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. Pope GC, et al. 2000. Principal Inpatient Diagnostic Cost Group Models for Medicare Risk Adjustment. Health Care Financing Review 21(3): 93-118. Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for COPD using hierarchical logistic regression models. In brief, the approach simultaneously models data at the patient and hospital levels to account for variance in patient outcomes within and between hospitals (Normand and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of index admission using age, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a mortality at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution 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

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	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 at a given hospital, multiplied by the national observed mortality rate. For each hospital, the numerator of the ratio 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 is the number of deaths expected based on 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 rates or better quality, and a higher ratio indicates higher-than-expected mortality rates or worse quality. The "predicted" number of deaths (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of mortality. The estimated hospital-specific intercept is added to the sum of the estimated regression coefficients multiplied by the patient characteristics. The results are transformed and summed over all patients attributed to a hospital to get a predicted value. The "expected" number of deaths (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the hospital-specific intercept. The results are transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period. This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed mortality rate. The hierarchical logistic regression models are described fully in the original methodology report (Grosso et al., 2011). Reference: Grosso L, Lindenauer P, Wang C, et al. Hospital-level 30-day Mortality Following Admission for an Acute Exacerbation of Chronic Obstructive Pulmonary Disease. 2011. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22(2): 206-226. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0701: Functional Capacity in COPD patients before and after Pulmonary Rehabilitation 0700: Health-related Quality of Life in COPD patients before and after Pulmonary Rehabilitation 0275: Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older A 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: We did not include in our list of related measures any non-outcome (for example, process) measures with the same target population as our measure. Our measure cohort was heavily vetted by clinical experts, a technical expert panel, and a public comment period. Additionally, the measure, with the specified cohort, has been publicly reported since December 2014. Because this is an outcome measure, clinical coherence of the cohort takes precedence over alignment with related non-outcome measures. Furthermore, non-outcome measures are limited due to broader patient exclusions. This is because they typically only include a specific subset of patients who are eligible for that measure (for example, patients who receive a specific medication or undergo a specific procedure).

	1893 Hospital 30-Day, all-cause, risk-standardized mortality rate (RSMR) following chronic obstructive pulmonary disease (COPD) hospitalization
	5b.1 If competing, why superior or rationale for additive value: N/A

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
Steward	University Hospitals Cleveland Medical Center
Description	This measure estimates the rate of emergency department visits for children ages 2 – 21 who are being managed for identifiable asthma. The measure is reported in visits per 100 child-years.
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records N/A No data collection instrument provided Attachment FINAL_CAPQuaM_ASTHMA_ICD9_and_ICD10.xlsx
Level	Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State
Setting	Ambulatory Care: Clinician Office/Clinic, Emergency Medical Services/Ambulance, Hospital/Acute Care Facility, Other, Pharmacy, Ambulatory Care: Urgent Care Claims data from all settings in New York State Medicaid data were tested.
Numerator Statement	The numerator uses the number of undesirable utilization outcomes (i.e., claims for ED visits or hospitalizations for asthma) experienced by children who are managed for identifiable asthma to estimate the number of emergency room visits
Numerator Details	Numerator Elements: Date and count of all emergency visits with a primary or secondary diagnosis of asthma. ED visits should be identified as a visit that is associated with: 1) At least one of the following CPT codes: 99281, 99282, 99283, 99284, 99285 OR 2) At least one of the following revenue codes 0450 Emergency Room 0451 Emergency Room: EM/EMTALA 0452 Emergency Room: ER/ Beyond EMTALA 0456 Emergency Room: Urgent care 0459 Emergency Room: Other emergency room 450 Emergency Room 451 Emergency Room: EM/EMTALA 452 Emergency Room: ER/ Beyond EMTALA 456 Emergency Room: Urgent care 459 Emergency Room: Other emergency room 0981 Professional fees (096x) Emergency room 981 Professional fees emergency room Inpatient Hospitalizations are identified as an encounter that is associated with: At least one of the following CPT codes: Hospitalization: CPT 99238 CPT 99232 CPT 99239 CPT 99233

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
	CPT 99221 CPT 99234 CPT 99222 CPT 99235 CPT 99223 CPT 99236 CPT 99356 CPT 99218 CPT 99357 CPT 99219 CPT 99231 CPT 99220 OR At least one of the following revenue codes 0110 0133 0111 0134 0112 0137 0113 0139 0114 0150 0117 0151 0119 0152 0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206 IDENTIFY count of discrete numerator events: For each individual in the denominator for the specified month, consider evidence of hospitalization that is on the same day or one day after an ED visit to represent one discrete event. Consecutive days of hospitalization are considered to represent one hospitalization. Data Sources Administrative Data (e.g., claims data) Paper Medical Record – only if needed for race ethnicity or ZIP code Race/ethnicity data and ZIP code data (If race/ethnicity data or ZIP code data are not present in administrative data set, they should be obtained from another source, such as the medical record). We performed a feasibility study alpha test by surveying more than a dozen hospitals that demonstrates that these data elements are generally available in the medical record. General data elements: - Age - Race and ethnicity - Insurance type (Medicaid, Private, Uninsured) - Benefit type among insured (HMO, PPO, FFS, Medicaid Primary Care Case Management Plan [PCCM], Other) - ZIP code or State and County of residence (and FIPS where available) Administrative data with billing and diagnosis codes:

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
	- Asthma-related visits to an emergency department, or hospitalization - Asthma medication prescriptions - Insurance benefit type - ZIP code or State and County of residence (and FIPS where available) - Race and ethnicity (from hospital administrative data or charts if not in administrative data from plan) If pharmacy data are not available the measure should be reported with notation that pharmacy data were not used for the assessment of eligibility. For eligibility purposes, asthma-related medicine refers to long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination) These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.
Denominator Statement	The denominator represents the person time experience among eligible children with identifiable asthma. Assessment of eligibility is determined for each child monthly. The total number of child months experienced is summed and divided by 1200 to achieve the units of 100 child years.
Denominator Details	The denominator seeks to identify children who have been managed with identifiable asthma. A descriptive definition for being managed for Identifiable asthma follows. Identifiable asthma needs to be identified in the assessment period for the specific reporting month being assessed. Specifications follow the descriptive definitions: a. Any prior hospitalization with asthma as primary or secondary diagnosis b. Other qualifying events after the fifth birthday (age is age at occurrence): i. One or more prior ambulatory visits with asthma as the primary diagnosis (this criterion implies an asthma ED visit in the reporting month), OR ii. Two or more ambulatory visits with asthma as a diagnosis, OR iii. One ambulatory visit with asthma as a diagnosis AND at least one asthma-related prescription, OR iv. Two or more ambulatory visits with a diagnosis of bronchitis c. Other qualifying events, any age: v. Three or more ambulatory visits with diagnosis of asthma or bronchitis, OR vi. Two or more ambulatory visits with a diagnosis of asthma and/or bronchitis AND one or more asthma- related prescriptions. For eligibility purposes, asthma-related medicine means long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination), and/or mast cell stabilizers. If pharmacy data are not available, the measure should be reported with notation that pharmacy data were not used for the assessment of eligibility. This avoids eliminating from the measure those facilities with no link to pharmacies. Our testing reveals that only a very small proportion of patients are excluded by not including pharmacy data to establish eligibility. For eligibility purposes, asthma-related medicine refers to long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination), and or mast cell stabilizers. In order to promote better harmonization, we start with the current HEDIS asthma medication list. From that list, in accordance with our expert panel recommendations we eliminate medications in the following 2 categories: leukotriene modifiers, short-acting inhaled beta-agonists. We further exclude

indacaterol, a recently approved long acting beta agonist that is indicated in the US only for teh treatmetn of COPD. As indicated elesewhere, COPD is an exclusion criterion for this measure. These specifications anticipate that NCQA will update the medication list from time to time and with the stated exclusions updated lists may be substituted for the list linked herein. The table used for testing is labeled Table AMR-A: Asthma Controller and Reliever Medications, and can be found at http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2015/HEDIS2015NDCLicense/HEDIS2015FinalNDCLists.aspx (last accessed September 12, 2015).

Denominator Elements:

The presence of identifiable asthma (see Table 1) is established each month from administrative data using the specified algorithm. (Appendix Figure 1 and this section's narrative)

All events in the administrative data should be associated with a date of service.

Eligibility should be obtained using the month by month algorithm described herein and illustrated in Figure1, which is a fundamental component of this description. The analysis should be conducted on a month by month basis as described herein:

. Within the group of children who meet the criteria for identifiable asthma, identify and maintain a unique patient identifier, age, and all stratification variables.

. Determine eligibility for each patient, as of the last day of the month prior to the reporting month.

For example, if the goal is to report for January 2011, first identify children with identifiable asthma (above), and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010.

Next, for February analyze all of calendar year 2010 AND January 2011. Continuous enrollment criterion requires that the child was enrolled in December

2010 and January 2011.

Repeat this progression monthly so that for December, one would identify children with identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that for December the child was enrolled in October 2011 and November 2011.

See Figure 1 in Appendix, which is incorporated into these specifications by reference.

Codes used for definitions are specified in Appendix Table 1 and summarized herein:

Hospitalization:

CPT Codes: (Any)

CPT 99238 CPT 99232

CPT 99239 CPT 99233

CPT 99221 CPT 99234

CPT 99222 CPT 99235

CPT 99223 CPT 99236

CPT 99356 CPT 99218

CPT 99357 CPT 99219

CPT 99231 CPT 99220

Or Revenue Codes: (Any)

0110 0133

0111 0134

0112 0137

0113 0139

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
	0114 0150 0117 0151 0119 0152 0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206 Emergency Department Visits CPT Codes: (Any) CPT 99281 CPT 99284 CPT 99282 CPT 99285 CPT 99283 Or Revenue Codes: (Any) 0450 Emergency Room 0451 Emergency Room: EM/EMTALA 0452 Emergency Room: ER/Beyond EMTALA 0456 Emergency Room: Urgent Care 0459 Emergency Room: Other Emergency Room 0981 Professional Fees (096x) Emergency Room 981 Professional Fees emergency room Office Visits(Any) CPT 99201 CPT 99211 CPT 99202 CPT 99212 CPT 99203 CPT 99213 CPT 99204 CPT 99214 CPT 99205 CPT 99215 Diagnosis of Asthma ICD-9 Codes: All codes beginning with 493 Alternately, or entities that prefer to use AHRQ's Clinical Classifications Software, the asthma definition before exclusions is CCS class 128. Those using CCS should then apply the exclusions. Filled Prescriptions for Asthma-related Medications as specified in this section above. Please note Figure 1 and Table 1 in the attached Appendix are considered INTEGRAL to these specifications and are not optional. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
Exclusions	Children with concurrent or pre-existing: Chronic Obstructive Pulmonary Disease (COPD) diagnosis (ICD-9 Code: 496), Cystic Fibrosis diagnosis (ICD-9 code 277.0, 277.01. 277.02, 277.03, 277.09), or Emphysema diagnosis (ICD-9 code 492xx). These exclusion incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b. Children who have not been consecutively enrolled in the reporting plan for at least two months prior to the index reporting month and for the reporting month (a total of three consecutive months ending in the reporting month).
Exclusion details	See S.10 above. Also, for entities that use AHRQ's Clinical Classifications Software, apply the exclusion after identifying visits that satisfy CCS class 128. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.
Risk Adjustment	Other In order to allow for more granular comparisons this measure is specified to be stratified. Stratification for risk adjustment of this measure would not be justified by the literature. Although epidemiological findings support our stratification schema, n N/A
Stratification	Specifications for this measure requires stratification by age group and race/ethnicity. Several additional stratifications are optional but may be required by the accountability entity or reported by the reporting entity. These variables include rurality
Type Score	Rate/proportion better quality = lower score
Algorithm	Step 1: Measure person-time eligible for each patient and record by month. a. For each month in the reporting year, identify all children ages 2 – 21 years who meet the criteria for Identifiable asthma during the assessment period. The assessment period is defined as the year prior to the reporting year plus all months in the reporting year prior to the reporting month. Identify and maintain a unique patient identifier and all stratification variables. To illustrate: if the goal is to report for January 2011, first one would identify children with Identifiable asthma using the criteria, and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010, as well as January 2011. This total represents the number of person-months (child-months) for January. Next, for February: one would identify children with Identifiable asthma using the criteria, and analyze all of calendar year 2010 AND January 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011, as well as February 2011. This is the number of person-months (child-months) for February. Repeat this progression monthly so that for December, one would identify children with Identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in October 2011 and November 2011, as well as December 2011. This is the number of person-months (child-months) for December. b. Sum all months that are eligible from the reporting year. This sum is the denominator in people-months. Divide by 1200. This is denominator in 100 people-years. This is the denominator for the year. Step 2: Month by month, considering the definitions above, identify the number of discrete numerator events: a. Identify the number and date of ED visits with asthma as a primary or secondary diagnosis among those children who are eligible for that reporting month. b. Identify the number and date of inpatient hospitalizations with asthma as a primary or

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure
	secondary diagnosis among those children who are eligible for that reporting month. c. Identify the number of discrete numerator events. Consecutive days with inpatient hospital codes are considered one hospitalization. Hospitalizations on day of or day after ED visit are NOT considered discrete from the ED visit. d. Sum the number of numerator events across the year. e. Maintain stratification variables and unique identifiers. Step 3. Calculate rate as Numerator / Denominator. While this measure is specified for the year, it has also been validated to demonstrate seasonality using monthly rates. Step 4. Calculate stratification variables as specified in S.12. Step 5. Repeat by strata. Within age strata repeat by other specified strata. Perform other cross tabulations as requested by the accountability entity. Eliminate any strata with less than 40 person-months in any month's denominator OR less than 1000 person-months for the year. Appendix 1, Figure A.1 illustrates the calculation of person-time and is considered fundamental to this calculation algorithm. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Our definition of identifiable asthma is more inclusive than, for example, NCQA's persistent asthma construct. We use similar medication definitions as NCQA, except we exclude leukotriene inhibitors from asthma-related medications because our expert panel felt that these medications were used frequently for allergy patients and judged that the small gain in sensitivity of identifying children (considering all criteria) would be less than the loss in sensitivity and likelihood to include non-asthmatic children with allergies. Our specifications have been validated by an expert panel in the context of a peer reviewed process commissioned by AHRQ and CMS to advance the field and science of pediatric quality measurement beyond the state represented in pre-existing measures. The specification of a person-time denominator allows for the measure to have a shorter requirement for continuous enrollment than other measures with less risk of bias than previous measures. 5b.1 If competing, why superior or rationale for additive value:

	2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
Steward	University Hospitals Cleveland Medical Center
Description	This measure estimates the proportion of emergency department (ED) visits that meet criteria for the ED being the appropriate level of care, among all ED visits for identifiable asthma in children and adolescents.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records N/A No data collection instrument provided Attachment FINAL_CAPQuaM_ASTHMA_ICD9_and_ICD10-635802445620975487.xlsx
Level	Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State

	2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
Setting	Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility, Other Emergency Department
Numerator Statement	The numerator is the number of eligible asthma ED visits in the random sample that also satisfy at least one of the explicit criteria to indicate that the ED is an appropriate level of care. Distinct numerators are reported for children ages 2-5, 6-11, 12-18, and optionally, 19 - 21.
Numerator Details	Children and adolescents who have a qualifying ED visit associated with asthma as the first or second diagnosis; AND have at least one of the following: •Disposition of the ED visit was admission to the hospital •Documented physical findings consistent with respiratory distress, including any of the following: o Labored breathing (including moderate or severe increased work of breathing); o Retractions, grunting, and/or evidence of accessory muscle use; o Markedly decreased breath sounds; •Low oxygen (O2) saturation level (dichotomized, < 90% qualifies); •An arterial blood gas (ABG) was obtained in the emergency department; •The child had a consultation with a pulmonologist or asthma specialist that was ordered and provided in the ED; • There is clear documentation that prior to arrival in the ED any of the following occurred: o The child was referred to the ED after evaluation by the PCP or other clinician - note: assessment of breathing over the telephone is allowed by this criterion; o The child received two or more doses of inhaled rescue medications without sufficient clinical improvement. Note: parental report of this criterion is acceptable. Report may have been made at triage, to the nursing staff, or by the clinician during the chief complaint or history of present illness; o The child was assessed with an objective instrument such as a peak flow meter and was found to be in a pre-defined “red zone” of peak flow measurement as part of an asthma action or similar plan. Documentation is needed that the patient/family OR physician report or the chart documents ALL of the following - a written asthma action plan exists AND defines a “red zone” for which urgent assessment by a clinician is indicated; - An objective assessment was made and its result was in the pre-defined red zone These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.
Denominator Statement	The denominator represents a random sample of the patients in each age stratum who have visited the emergency department for asthma (as a first or second diagnosis) and meet the specified criteria for having identifiable asthma (Appendix Table 1). Separate numerators and denominators are reported for children age 2-5, 6-11, 12-18, and, optionally, 19-21 years. An overall rate across strata is not reported.
Denominator Details	Denominator Elements: The presence of identifiable asthma (see table 1) is established each month from administrative data using the specified algorithm. Descriptive definitions for being managed for identifiable asthma are as follows. Specifications follow the descriptive definitions. Identifiable asthma is present in any child who has: • Any prior hospitalization with asthma as primary or secondary diagnosis; or, • Other qualifying events, all ages: o Three or more ambulatory visits with diagnosis of asthma or bronchitis, OR

	2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
	o Two or more ambulatory visits with a diagnosis of asthma and/or bronchitis AND one or more asthma-related prescriptions • OR For children older than five who have an ED visit for asthma (as first or second diagnosis) in the reporting month and prior to the reporting month who have had: o One or more prior ambulatory visits with asthma as the primary diagnosis after the fifth birthday, OR o Two or more ambulatory visits after the fifth birthday with asthma as a diagnosis, OR o One ambulatory visit with asthma as a diagnosis AND at least one asthma-related prescription, both occurring after the fifth birthday OR o Two or more ambulatory visits with a diagnosis of bronchitis after the fifth birthday For eligibility purposes, asthma-related medicine means long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti- asthmatic combinations, methylxanthines (alone or in combination), and/or mast cell stabilizers. See below further regarding this specification. Note that leukotriene modifiers and short term beta agonists are excluded for the purpose of establishing identifiable asthma. Data from the year prior to the reporting year are used, as well as all months prior to the reporting month in the reporting year (see Appendix Figure 1). All events in the administrative data should be associated with a date of service. Eligibility should be obtained using the month by month algorithm described herein and illustrated in Figure1, which is a fundamental component of this description. The analysis should be conducted on a month by month basis as described herein: Within the group of children who meet the criteria for identifiable asthma, identify and maintain a unique patient identifier, age, and all stratification variables. Determine eligibility for each patient, as of the last day of the month prior to the reporting month. For example, if the goal is to report for January 2011, first identify children with identifiable asthma (above), and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010. Next, for February analyze all of calendar year 2010 AND January 2011. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011. Repeat this progression monthly so that for December, one would identify children with identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that for December the child was enrolled in October 2011 and November 2011. See Figure 1 in Appendix. Develop Denominator sample according to Appendix Figure 2 and consistent with the instructions in sections S.18 and S.20. Codes used for definitions are specified in Appendix Table 1 and summarized herein: Hospitalization: CPT Codes: (Any) CPT 99238 CPT 99232 CPT 99239 CPT 99233 CPT 99221 CPT 99234 CPT 99222 CPT 99235

	2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
	CPT 99223 CPT 99236 CPT 99356 CPT 99218 CPT 99357 CPT 99219 CPT 99231 CPT 99220 Or Revenue Codes: (Any) 0110 0133 0111 0134 0112 0137 0113 0139 0114 0150 0117 0151 0119 0152 0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206 Emergency Department Visits CPT Codes: (Any) CPT 99281 CPT 99284 CPT 99282 CPT 99285 CPT 99283 Or Revenue Codes: (Any) 0450 Emergency Room 0451 Emergency Room: EM/EMTALA 0452 Emergency Room: ER/Beyond EMTALA 0456 Emergency Room: Urgent Care 0459 Emergency Room: Other Emergency Room 0981 Professional Fees (096x) Emergency Room 981 Professional Fees emergency room Office Visits(Any) CPT 99201 CPT 99211 CPT 99202 CPT 99212 CPT 99203 CPT 99213 CPT 99204 CPT 99214 CPT 99205 CPT 99215 Diagnosis of Asthma

	2816 Appropriateness of Emergency Department Visits for Children and Adolescents with Identifiable Asthma: A PQMP Measure
	ICD-9 Codes: All codes beginning with 493 Please see the Excel spreadsheet on s.2.b. for detailed list of ICD9 codes and specified list of ICD 10 codes. Filled Prescriptions for Asthma-related Medications Use NCQA NDC list (ASM-C_DASM-C_final_2012, found by clicking through at (http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2012/HEDIS2012FinalNDCLists.aspx) Eliminate medications in the following2 categories: leukotriene modifiers, short-acting inhaled beta-2 agonists). May use equivalent updated lists when provided by NCQA. Please note Figures 1 and 2 and Table 1 in the attached Appendix are considered INTEGRAL to these specifications and are not optional.
Exclusions	ED visits that are already in the sample OR Children that fall outside of specified age range of 2-21 OR do not meet time enrollment criteria OR do not meet identifiable asthma prior to the ED visit, OR children with concurrent or pre-existing COPD, Cystic Fibrosis or Emphysema. Identifiable asthma is defined is section S.9. At the discretion of the accountability entity, the denominator may be restricted to children 2-18. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.
Exclusion details	Denominator Exclusions 1) Children with concurrent or pre-existing: a. Chronic Obstructive Pulmonary Disease (COPD) diagnosis (ICD-9 code: 496); b. Cystic Fibrosis diagnosis (ICD-9 code 277.0, 277.01. 277.02, 277.03,277.09) ; c. Emphysema diagnosis (ICD-9 code 492xx) 2) Children without identifiable asthma as defined in S.9 by the month before the ED visit 3) Outside of specified age range 4) Events occurring in patients who have not been enrolled in the reporting plan for at least two consecutive months before the index reporting month (a total of 3 consecutive months, including the reporting month).
Risk Adjustment	Stratification by risk category/subgroup The rate should be reported stratified by age and within age strata stratified and by each of the stratification variables. Additional cross tabulation may be requested by the accountability entity. Biological risk for asthma ED use has not been shown to be associated with the specified sub-stratifying variables, but social determinants of health are associated with asthma care and utilization. Therefore we specify the measure to be reported as BOTH a single value for each age group and stratified by key covariates (e.g. race/ethnicity, insurance status, urbanicity, and poverty of county of residence). Provided in response box S.15a
Stratification	Specifications for this measure requires stratification by age group. Several additional stratifications are optional but may be required by the accountability entity. These variables include race/ethnicity, rurality/urbanicity and county level of poverty
Type Score	Rate/proportion better quality = lower score
Algorithm	Step 1: Select starting cohort Identify the upper age limit to be used, either 18 or 21. The measure is specified from 2 to 21 years, with 19-21 year olds considered optional at the discretion of the accountability entity. Appendix Figures 1 and 2 and Appendix Table 1 provide an overview and guide for eligibility and

sample selection.

Step 2: Conduct analysis of administrative data using the specifications described in denominator description to identify children within the specified age range with identifiable asthma. The analysis should be conducted on a month by month basis as described herein:

Determine eligibility for each patient, as of the last day of the month prior to the reporting month. For example, if the goal is to report for January 2011, first identify children with identifiable asthma (above), and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010. Next, for February analyze all of calendar year 2010 AND January 2011. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011. Repeat this progression monthly so that for December, one would identify children with identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that for December the child was also enrolled in October 2011 and November 2011. Appendix Figure A.1.a describes and illustrates the month by month analysis.

Step 3: Identify ED Visits and hospitalizations for asthma in eligible children.

Considering only the children who were identified as eligible in the given month

according to Step 2, perform a month-by-month analysis to identify and log all ED visits with asthma as a primary or secondary diagnosis and all hospitalizations with asthma as a primary or secondary diagnosis for each reporting month, using specifications described in denominator and the codes described above and in table 1 of the Appendix. Maintain stratification data elements, age, and unique identifiers.

Step 4: Stratify by age and develop random samples.

Stratify by age group (use age at month of qualifying event):

- Age 2-5 years (second birthday to the day before the 6th birthday);
- Age 6-11 years (sixth birthday to the day before the 12th birthday);
- Age 12-18 years (twelfth birthday to the day before the 18th birthday); and
- Age 19-21 years (nineteenth birthday to the day before the 21st birthday).

For each age group develop a random sample of 500 events as described in the sampling section below and illustrated in Appendix Figure 2.

Appendix Figure 2 is necessary to guide sample development. Several key remarks may help Figure 2 to be more understandable:

Before sample selection can be randomized, eligibility needs to be determined based on 3 key factors:

- Identifiable asthma diagnosis AND
- Month by month time analysis AND
- Asthma emergency department (ED) visit OR Asthma hospitalization

After eligibility is determined, the randomized sample can fall into one of three groups only:

A. Asthma ED visit only OR

B. Asthma hospitalization on same day as ED visit OR

C. Asthma hospitalization only

A. Asthma ED visit only qualifies for (at least) denominator inclusion

B. Asthma hospitalization on same day as ED visit qualifies for denominator AND numerator inclusion

C. Asthma hospitalization only needs further investigation to determine denominator inclusion

- Do NOT include in denominator if sample was not hospitalized from an asthma ED visit OR
- Do NOT include if ED visit was already in the sample under any criteria AND

- Remaining: Do include in Denominator AND Numerator

Step 5: Collect stratification data elements from administrative data.

Collect the following data elements for all eligible children in each randomized sample. These data elements are used for reporting stratified results. Entities that are interested in assuring large samples for specific stratified analyses may choose to incorporate a further stratified sampling scheme and oversample to assure that there is a sample size of 100-500 per stratification category (e.g. race or ethnicity of interest). Such a sampling scheme must employ an appropriate weighting system (using the reciprocal of the likelihood for selection as a weight, c.f. Rao, P., 2000. Sampling Methodologies with Applications. New York: Chapman & Hall) to estimate overall performance. Alternatively, the stratified samples may be used only for reporting stratum specific performance comparison and not for estimating the overall performance. Approximate 95% confidence interval widths (assuming a rate of 50% appropriateness) are shown in the sampling specifications. We specify to oversample by 25% to account for potential loss in our event identifications.

Stratification data elements include:

- Race
- Ethnicity
- Insurance type (Public, Commercial, Uninsured)
- Benefit type (if insured): HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
- Zip code, state and county or equivalent area of parent/caregiver's residence. Record FIPS if available

Step 6: Categorize stratification variables as described in the stratification section S.12.

Step 7. Conduct Chart Audit (Medical Record Review) of GROUP A ED Visits.

Group A ED visits that have been selected for inclusion in the sample require a chart audit to assess eligibility for the numerator based on the explicit appropriateness criteria. They have already qualified for inclusion in the denominator. Eligibility for the numerator is established based on documentation of any of the following items. Review may be terminated once any qualification for the numerator is identified.

- Disposition of the child from the ED was to an inpatient hospital.
- Documented physical findings consistent with respiratory distress, including:
  - o Labored breathing with retractions and/or grunting; or
  - o Labored breathing with evidence of accessory muscle use; or,
  - o Markedly decreased breath sounds;
- Low O2 saturation level, defined as < 90%;
- An ABG obtained and reported;
- The child had a consultation with a pulmonologist or asthma specialist that was ordered and provided in the ED;
- Specific documentation that:
  - o The child was referred to the ED after evaluation by the PCP or other licensed clinician practitioner; OR
  - o The child received two or more doses of inhaled rescue medications without sufficient clinical improvement; OR
  - o The child was assessed with an objective instrument such as a peak flow meter and was found to be in a pre-defined "red zone" of peak flow measurement as part of a pre-specified asthma action or similar plan.

There is no specified order for review. Some institutions may prefer to record all reasons for

numerator qualification to support ongoing or planned improvement activities.

Note 1: Evidence for hospitalization above requires that the child was admitted to any hospital as an inpatient. This includes admission directly to a medical or pediatric ICU or inpatient floor or transfer directly to an inpatient facility. If a child is transferred to another hospital, confirmation that the child actually was admitted directly (i.e., was not first admitted to another ED prior to admission) is necessary prior to qualifying for the numerator. Such confirmation may include evidence from the administrative data review in Step 2. Other potential sources for this information include ED discharge summary, disposition on a flow, admit, or discharge form, or documentation by doctors, nurses, nurse practitioners or physician assistants.

Note 2: Evidence that the child was referred to the ED requires documentation of both of two requirements. The requirements are:

- The child/adolescent was referred by a clinician to come to the ED; and
- The child/adolescent was evaluated by the clinician prior to referral. Generally such evaluations will be in person. Assessment of respiratory distress by listening or speaking to the child/adolescent over the telephone is sufficient if such an examination is clearly documented. Report of this requirement being met by the child/adolescent or parent/caregiver is sufficient to meet this criterion. Report of contact from the referring physician can also fulfill this criterion. Nursing notes, triage notes and clinician notes, particularly history of present illness (HPI) are common sources for this data.

Note 3: Evidence of a parent or caregiver report that the child received two or more doses of an inhaled rescue medication with insufficient clinical improvement typically will be found in triage, nursing, clinician, or respiratory therapy notes. It may also be documented as a part of medication reconciliation during intake. It requires documentation:

- That multiple treatments of medication were provided by inhalation or injection prior to arrival in the ED;
- That the medication(s) provided were specifically rescue medications and are not a part of the of the child/adolescent's preventive or maintenance regimen; and,
- That the child continued to be in distress following the treatments (alternately that the child did not improve substantially).

Note 4: Parent / caregiver report that their child was in a pre-defined "red zone" of peak flow measurement includes documentation:

- That a pre-specified asthma plan (action plan) exists and defines a "red zone" based upon an objective respiratory measurement, such as a peak flow rate; and
- That the objective assessment was made prior to coming to the ED and that the results were in the pre-specified "red zone."

Note 5: Reports of the physical exam typically may be found on triage, nursing, physician, nurse practitioner, physician assistant, or respiratory therapist notes. Diverse language may be used to describe similar findings, for example:

- The term pulling may be used to describe retractions. Retractions may be described as nasal flaring (particularly in infants), or by location (see below);
- Increased work of breathing may be indicated or it may be described by physical findings such as the use of accessory muscles, such as sub or intercostal muscles, supraclavicular or suprasternal. "Mildly" increased work of breathing or "minimal" retractions do not meet these criteria.
- Labored breathing, significant increased work of breathing, respiratory distress (moderate or greater), difficulty breathing, poor air entry (or air exchange or air movement) may all describe findings that meet this criterion. Grunting indicates that the child or adolescent is generating clearly audible sounds with each breath concomitant with apparent increased work of breathing. These may be found in the general description or respiratory section of the physical exam.

• Markedly (or severely) reduced breath sounds and descriptions of poor air movement are typically a part of an auscultation during the pulmonary exam.

Note 6: Documented evidence of the percent oxygen (O2) saturation from a transcutaneous assessment can be located in a flow sheet, nursing, respiratory therapy, or physician/nurse practitioner/physical assistant note or may be recorded as part of the physical exam. The O2 saturation may be obtained initially at triage and is often assessed periodically during the visit. Any O2 saturation less than 90 satisfies the criteria.

Note 7: An ABG requires drawing of a blood specimen from an artery and is distinguished from a venous blood gas, which would not fulfill this criterion. This typically would be found in a laboratory results section of the record or commented as a finding in a clinician's note, such as a respiratory therapist, doctor, PA, NP, or RN. An ABG is typically comprised of at least a pO2, pCO2, and pH.

Note 8: Consultation with a pulmonary specialist or other asthma specialist requires both an order for such a physician consultation and evidence that the consultation occurred, including a note from the consultant specialist. Typically a consultation from a pulmonologist, pediatric pulmonologist, allergist, or pediatric allergist would fill this criterion.

Identify which ED visits meet at least one criterion for the Numerator.

Maintain stratification variables.

Step 8: Conduct Chart Audit (Medical Record Review) to Assess Eligibility of GROUP C Hospitalizations for Inclusion in Denominator.

Within each stratification group (as determined above), identify the asthma hospitalizations for which there were not associated ED visits (Group C) found in the administrative data. An asthma ED visit and asthma hospitalization are said to be associated on the basis of the administrative data review only if they occur on the same service data and at the same institutions and if the hospital discharge date is after the ED service date. Such hospitalizations should have been included in Group B. Other hospitalizations require a review of the medical record to determine if they were admitted or transferred directly from an ED visit that was not otherwise in the sample (i.e., was not identified via the administrative data analysis).

The chart audit/medical record review seeks evidence that the child was admitted to the hospital directly from the ED or transferred directly from another hospital's ED. Evidence may include an ED note (physician, nurse, physician assistant, nurse practitioner), flow, or face sheet that indicates the disposition of the ED visit was hospital admission.

It may also include a note from within the hospitalization (including the admission note or any physician, nurse, physician assistant, nurse practitioner note), flow sheet, face sheet, or discharge summary that indicates that the hospitalization came directly from (was admitted from or transferred directly from) an ED. In either case, the ED visit is only eligible for inclusion if the chart review specifies the date and institution of the ED visit sufficiently to assure that it can be uniquely identified and all duplication avoided. Others are excluded.

For example if an ED visit was identified in Group A and the resulting hospitalization appeared in Group C (either because of a different service date or different institution), the Group A ED visit would be included and the Group C hospitalization excluded as a duplicate (even though there was a preceding ED visit). If the child is uniquely included in the sample for that month and there is clear evidence that the admission came directly from an ED (e.g., was not transferred from another hospital after having been admitted from the ED) this measure can be satisfied. De-duplication requires the elimination of any duplications that remain in the sample, considering the unit of analysis to be the ED visit. In other words, all ED visits must be included only once. Further, an ED visit identified via the hospitalization that also was a transfer from another ED visit already in the sample should have been removed as a duplicate. Similarly all hospitalizations lacking sufficient document that the child was admitted or transferred directly from an ED visit or lacking sufficient detail to allow confirmation that the ED visit referred to in the notes is not already in the sample

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	elsewhere (e.g., from Group A) should have been removed. Those Group C hospitalizations that can be identified as resulting from a unique (unduplicated) ED visit are included in BOTH the numerator and the denominator. Step 9: Calculate and report the measure. a) For each age stratum, count the number of events in the sample that qualify for the denominator (ND). b) For each age stratum, count the number of events in the sample and in the denominator that qualify for the numerator (NN). c) For each stratum, calculate the percent of appropriate ED visits as Percent Appropriate = 100 * (NN / ND). Report to one decimal place. Step 10: Report each stratification category listed below, that have an N of at least 50. a) Race and ethnicity b) Insurance type (Public/Medicaid, Private/Commercial, None, other) c) Benefit type: HMO vs PPO vs FFS vs PCCM vs other d) Urban Influence Code or UIC. e) Level of poverty in the county of residence. Step 11. Calculate and report 95% confidence intervals (using binomial distribution for each stratum) for each age specific stratum and for all of the Step 9 stratifications. a) Calculate the standard error as the square root of each proportion by [1-the same proportion] divided by the number in the denominator. b) Multiply the standard error by 1.96. c) Subtract that value from the measured proportion. Report the greater of 0 and that number as the lower bound of the 95% confidence interval. d) Add the product from b to the measured proportion. Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval. e) To report as percent, multiply by 100. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	2852 Optimal Asthma Control
Steward	MN Community Measurement
Description	The percentage of pediatric (5-17 years of age) and adult (18-50 years of age) patients who had a diagnosis of asthma and whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following: • Asthma well-controlled as defined by the most recent asthma control tool result available during the measurement period • Patient not at elevated risk of exacerbation as defined by less than two emergency department visits and/or hospitalizations due to asthma in the last 12 months

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Type	Composite
Data Source	Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Paper Medical Records An excel template with formatted columns for data fields is provided. Please refer to the attached data dictionary for data field definitions. All data is uploaded in electronic format (.csv file) to a HIPAA secure, encrypted and password protected data portal. 1. Asthma Control Test (ACT) and Childhood Asthma Control Test (C-ACT) MNCM has secured permission for use of the ACT and C-ACT from GlaxoSmithKline for providers participating in quality measurement reporting to MNCM, under the following conditions: • you will administer the instrument in a paper format only; • permissible uses include only clinical care and quality measurement activities not related to research or publication; • you may not modify the instrument or combine it with other instruments without prior written approval; • the questions of the instrument must appear verbatim, in order, and together as they are presented and not divided on separate pages; • for the ACT: the following trademark and copyright information must appear on the bottom of each page of the instrument and on all copies of the instrument; “Copyright 2002 by QualityMetric Incorporated. Asthma Control Test is a trademark of QualityMetric Incorporated.” • for the C-ACT: the following acknowledgment be made as to the source and authorization for use of this material: “Copyright GSK. Used with permission.” • you must utilize the instrument in its entirety; • you agree to utilize only the most current version of the instrument as provided on MNCM’s Resource page. • you agree to display the GSK logo as part of the instrument; Of note, it IS permissible to record item responses and scores in an electronic health record, it IS NOT permissible to administer the instrument electronically to patients; i.e. kiosk, mobile device, patient portal. 2. Asthma Control Questionnaire (ACQ) The ACQ is a copyrighted instrument available in various formats from the developer. Please visit the website http://www.qoltech.co.uk/acq.html for more information. 3. Asthma Therapy Assessment Questionnaire (ATAQ) The ATAQ is copyrighted by Merck & Co., Inc, and available free of charge by going to: http://merckengage.qualitysolutionnavigator.com/ and navigating to the asthma resources. The Asthma Therapy Assessment Questionnaire (ATAQ) Adult should be used for patients 18 years and older. The Asthma Therapy Assessment Questionnaire (ATAQ) Pediatric should be used for patients 5 – 17 years old. Available at measure-specific web page URL identified in S.1
Level	Clinician: Group/Practice
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	The number of patients in the denominator whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following: • Asthma well-controlled as defined by the most recent asthma control tool result during the measurement period:

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	-Asthma Control Test (ACT) greater than or equal to 20 (patients 12 years of age and older) -Childhood Asthma Control Test (C-ACT) greater than or equal to 20 (patients 11 years of age and younger) -Asthma Control Questionnaire (ACQ) less than or equal to 0.75 (patients 17 years of age and older) -Asthma Therapy Assessment Questionnaire (ATAQ) equal to 0 – Pediatric (5 to 17 years of age) or Adult (18 years of age and older). AND • Patient not at elevated risk of exacerbation as defined by less than two patient reported emergency department visits and/or hospitalizations due to asthma in the last 12 months"
Numerator Details	Asthma control test date Enter the date of the most recent asthma control test on or prior to 06/30/2015. Leave BLANK if an asthma control test was never performed. • Do NOT enter any test date that occurred after 06/30/2015. A date after the measurement period will create an ERROR upon submission. • Enter the date of the visit, telephone call, e-visit or other contact during which the asthma control test was administered (e.g., a test administered to the patient via phone). • Test from another provider is acceptable (not required) if documented in the reporting clinic's record and is more recent than the reporting clinic's test. • The following are approved, valid asthma control tests and must be giving according to validated age ranges. Age should be calculated as the date the asthma control test was administered. Tests other than the ones listed below will not be accepted. o ACT (Asthma Control Test); valid for patients 12 and older. o CACT (Child-Asthma Control Test); valid for patients 11 and younger. o ACQ (Asthma Control Questionnaire); valid for patients 17 and older. o ATAQ (Asthma Therapy and Assessment Questionnaire); valid for patients 5 to 50. Asthma control test name Enter a code to indicate the most recent asthma control test (on or prior to 06/30/2015) given to the patient using the codes below. This test name should correspond to the test given on the date in Column U. Leave BLANK if an asthma control test was never performed. Leave BLANK if the wrong test was administered to the patient at the visit (e.g., a 12-year-old patient received the C-ACT instead of the ACT). 1 = Asthma Control Test (ACT) 2 = Child-Asthma Control Test (C-ACT) 3 = Asthma Control Questionnaire (ACQ) 4 = Asthma Therapy Assessment Questionnaire (ATAQ) • The test used will be validated using the patient's date of birth and the date the test was given. Asthma control test score Enter the score of the most recent asthma control test (on or prior to 06/30/2015). The score should correspond to the test date listed in Column U and to the test name listed in Column V.

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	Leave BLANK if no control tests exist. Leave BLANK if the wrong test was administered to the patient (e.g., a 12-year-old patient received the C-ACT instead of the ACT). • If the test score is blank or not complete, look for an earlier completed asthma control test completed within the measurement period. Update Column U and Column V to reflect the new test date and name. • Do NOT submit partial or incomplete scores. If there is not a test in the record with a complete score, leave Columns U, V and W blank. Date of patient reported hospitalizations and emergency department visits Enter the most recent date within the measurement period that the patient is asked about any hospitalizations and emergency department visits. Leave BLANK if the patient was not asked about hospitalizations and emergency department visits. A date is necessary for rate calculation. Do NOT leave blank unless there is no data. • This date must be associated with the patient-reported emergency department and hospitalizations columns during the past 12 months (Columns Y and Z). Do NOT enter any visit that occurred after 06/30/2015. A date after the measurement period will create an ERROR upon submission. Number of emergency department visits due to asthma that did NOT result in a hospitalization in the past 12 months (from date of visit) Enter a numeric value for the number of emergency department (ED) visits due to asthma as stated by the patient (e.g. 0, 1, 2, etc.). Do NOT include urgent care visits. Leave BLANK if the patient was not asked about emergency department visits or there is no data. 0 = Patient reports "0" or had no ED visits 1= Patient reports "1" ED visits 2= Patient reports "2" ED visits; etc. A value is necessary for rate calculation. Do NOT leave blank unless there is no data. Enter the value collected and recorded asked and documented on or prior to 06/30/2015. Do NOT enter a number recorded prior to 07/01/2014. • The patient should respond with a number of visits for the prior 12 months regardless of when the visit occurs – if the visit occurs in September of 2014, the previous 12 months would be September 2013 to August 2014. If the visit occurs in January 2015, the previous 12 months would be January 2014 to December 2014. • Do NOT search for actual emergency department visits in your record system. This value must reflect what the patient reported when asked. • If using an EMR, consider building a field to capture this data. If using paper, check the progress notes and other documentation from the most recent visit looking backwards. • To be included in the numerator, the total number of BOTH emergency department visits AND inpatient hospitalizations due to asthma must equal ZERO or ONE. Number of inpatient hospitalizations due to asthma during the past 12 months (from date of visit) Enter a numeric value for the number of emergency department visits due to asthma as stated by the patient (e.g. 0, 1, 2, etc.). Leave BLANK if patient was not asked about hospitalizations or there is no data

	2852 Optimal Asthma Control
	0 = Patient reports “0” or had no hospitalizations 1= Patient reports “1” hospitalization 2= Patient reports “2” hospitalizations; etc. A value is necessary for rate calculation. Do NOT leave blank unless there is no data. Enter the value collected and recorded and documented on or prior to 06/30/2015. Do NOT enter a number recorded prior to 07/01/2014. • Enter the patient reported number of inpatient hospitalizations due to asthma. The patient should respond with a number of visits for the prior 12 months regardless of when the visit occurs – if the visit occurs in September of 2014, the previous 12 months would be September 2013 to August 2014. If the visit occurs in January 2015, the previous 12 months would be January 2014 to December 2014. • Do NOT search for actual hospitalizations in your record system. This value must reflect what the patient reported when asked. • If using an EMR, consider building a field to capture this data. If using paper, check the progress notes and other documentation from the most recent visit looking backwards. • To be included in the numerator, the total number of BOTH emergency department visits AND inpatient hospitalizations due to asthma must equal ZERO or ONE."
Denominator Statement	Patients aged 5 - 50 years at the start of the measurement period who were seen for asthma by an eligible provider in an eligible specialty face-to-face visit at least 2 times during the current or prior year measurement periods AND who were seen for any reason at least once during the measurement period.
Denominator Details	Patients who meet each of the following criteria are included in the population: • Patient was age 5 to 50 years at the start of the measurement period (date of birth was on or between 07/01/1964 to 07/01/2009). o Age 5 to 17 years at the start of the measurement period (date of birth was on or between 07/01/1997 to 07/01/2009). o Age 18 to 50 years at the start of the measurement period (date of birth was one or between 07/01/1964 to 06/30/1997). • Patient was seen by an eligible provider in an eligible specialty face-to-face visit at least two times during the last two measurement periods (07/01/2013 to 06/30/2015) with visits coded with an asthma ICD-9 code (in any position, not only primary). Use this date of service range when querying the practice management or EMR system to allow a count of the visits. • Patient was seen by an eligible provider in an eligible specialty face-to-face visit at least one time during the measurement period (07/01/2014 to 06/30/2015) for any reason. This may or may not include a face-to-face visit with an asthma ICD-9 code. • Diagnosis of asthma; ICD-9 diagnosis codes include: 493.00 to 493.12, 493.81 to 493.92. Eligible specialties: Family Practice, General Practice, Internal Medicine, Pediatrics, Allergy/Immunology, and Pulmonology. Eligible providers: Medical Doctor (MD), Doctor of Osteopathy (DO), Physician Assistant (PA), Advanced Practice Registered Nurses (APRN).
Exclusions	Valid exclusions include patients who are nursing home residents, in hospice or palliative care, have died or who have COPD, emphysema, cystic fibrosis or acute respiratory failure.
Exclusion details	Patient was a permanent nursing home resident during the measurement period. Patient was in hospice or palliative care at any time during the measurement period.

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	Patient died prior to the end of the measurement period. Documentation that diagnosis was coded in error. Patient has COPD (codes 491.2, 493.2x, 496, 506.4) Patient has emphysema (codes 492, 506.4, 518.1, 518.2) Patient has cystic fibrosis (code 277.0) Patient has acute respiratory failure (code 518.81)
Risk Adjustment	Statistical risk model Risk adjustment model is estimated using a logistic model implemented in the SAS Procedure Glimmix that accounts for the measure´s non-continuous (binary) nature. The dependent variable is Optimal Asthma Control. Risk factor variables include patient age, gender, insurance product, patient´s zip code, race/ethnicity and preferred language. Available in attached Excel or csv file at S.2b
Stratification	Patient age group (children 5-17 years, adults 18-50 years) Patient gender Patient 5 digit zip code, primary residence Race and ethnicity code or codes (up to 5) as defined in the MNCM REL Data Field Specifications and Codes Country of origin as defined in the MNCM REL Data Field Specifications and Codes Primary language as defined in the MNCM REL Data Field Specifications and Codes Insurance coverage code as defined in the MNCM Insurance Coverage Data Field Specifications and Codes
Type Score	Rate/proportion better quality = higher score
Algorithm	"The measure is calculated by submitting a file of individual patient values through a HIPAA secure data portal. Programming within the data portal determines if each patient is a numerator case and then a rate is calculated for each clinic site. 1)Is the patient's DOB within the allowable time frame? Yes>>Continue No>>Patient not included in denominator 2)Has the patient had two office visits coded with an asthma diagnosis during the current and year prior to the measurement period? Yes>>Continue No>>Patient not included in denominator 3) Has the patient had one office visit for any reason during the measurement period? Yes>> Patient included in denominator, continue No>> Patient not included in denominator 4) Did the patient have an asthma control test within the measurement period? Yes>> Continue No>> Patient not included in numerator 5) Is the asthma control test tool used acceptable for the patient's age? Yes>> Continue No>> Patient not included in numerator 6) Is the value of the control test equivalent to ""in control""? Yes>> Continue No>> Patient not included in numerator

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	7) During the measurement period, was the patient asked about any hospitalizations or emergency department visits due to asthma in the 12 months prior? Yes>>Continue No>> Patient not included in numerator 8) Was the sum of patient reported emergency department visits and hospitalizations due to asthma in the prior 12 months equal to 0 or 1? Yes>> Patient included in numerator No>> Patient not included in numerator Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: N/A 5a.1 Are specs completely harmonized? N/A 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	2856 Pharmacotherapy Management of COPD Exacerbation
Steward	National Committee for Quality Assurance
Description	This measure assesses the percentage of COPD exacerbations for patients 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 (or there was evidence of an active prescription) within 14 days of the event 2. Dispensed a bronchodilator (or there was evidence of an active prescription) within 30 days of the event Note: The eligible population for this measure is based on acute inpatient discharges and ED visits, not on patients. It is possible for the denominator to include multiple events for the same individual.
Type	Process
Data Source	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment XXXX_PCE_Value_Sets.xlsx
Level	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic
Numerator Statement	Numerator 1 (Systemic Corticosteroids): The number of patients dispensed a prescription for systemic corticosteroid on or 14 days after the Episode Date*. Count systemic corticosteroids that are active on the relevant date. Numerator 2 (Bronchodilator): The number of patients dispensed a prescription for a bronchodilator on or 30 days after the Episode Date*. Count bronchodilators that are active

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	on the relevant date. *The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD.
Numerator Details	Follow the steps below to identify numerator compliance. Numerator 1 (Systemic Corticosteroid): Identify the number of patients dispensed a prescription for systemic corticosteroid (refer to PCE-C: Systemic Corticosteroids) on or 14 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count systemic corticosteroids that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Numerator 2 (Bronchodilator): Identify the number of patients dispensed a prescription for bronchodilator (refer to PCE-D: Bronchodilators) on or 30 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count bronchodilators that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. PCE-C: Systemic Corticosteroids: Glucocorticoids: betamethasone, dexamethasone, hydrocortisone, methylprednisolone, prednisolone, prednisone, triamcinolone PCE-D: Bronchodilators: Anticholinergic agents: albuterol-ipratropium, aclidinium-bromide, ipratropium, tiotropium, Umeclidinium Beta 2-agonists: albuterol, arformoterol, budesonide-formoterol, fluticasone-salmeterol, fluticasone-vilanterol, formoterol, Indacaterol, levalbuterol, Mometasone-formoterol, metaproterenol, Olodaterol hydrochloride, pirbuterol, salmeterol, Umeclidinium-vilanterol Methlyxanthines: aminophylline, dyphylline, dyphylline-guaifenesin, guaifenesin-theophylline, theophylline See corresponding Excel file for value sets referenced above.
Denominator Statement	All patients age 40 years or older as of January 1 of the measurement year with a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a principal diagnosis of COPD.
Denominator Details	The eligible population for this measure is based on acute inpatient discharges and ED visits, not on patients. It is possible for the denominator to include multiple events for the same individual. The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify all patients who had either of the following during the Intake Period (an 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year): 1) An ED visit (ED Value Set) with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission.

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	2) An acute inpatient discharge with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay Step 2: Identify all COPD Episode Dates (the date of service for any acute inpatient discharge or ED claim/encounter during the intake period with a principal diagnosis of COPD). For each patient in Step 1, identify all acute inpatient discharges and ED Visits. See corresponding Excel file for value sets referenced above.
Exclusions	1) Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. 2) Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. 3) Exclude episode dates when the patient had an ED visit for any diagnosis within 14 days after the Episode date.
Exclusion details	1) Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. Organizations may identify "transfers" using their own methods and then confirm the acute or nonacute inpatient care setting using codes in the Inpatient Stay Value Set. 2) Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. To identify readmissions to an acute or nonacute inpatient care setting: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Identify the admission date for the stay 3) Exclude episode dates when the patient had an ED visit (ED value set) for any diagnosis within 14 days after the episode date. See corresponding Excel file for value sets referenced above.
Risk Adjustment	Statistical risk model N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. The denominator for this measure is based on acute inpatient discharges and ED visits, not patients. The measure calculation is detailed in the steps listed below: Step 1: identify the eligible population. A. Identify all patients who had either of the following during the Intake Period (an 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year): 1) An ED visit (ED Value Set) with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges:

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	a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay B. Identify all COPD Episode Dates (the date of service for any acute inpatient discharge or ED claim/encounter during the intake period with a principal diagnosis of COPD). For each patient in Step 1, identify all acute inpatient discharges and ED Visits. Step 2: determine denominator exclusions. A. Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. Organizations may identify "transfers" using their own methods and then confirm the acute or nonacute inpatient care setting using codes in the Inpatient Stay Value Set. B. Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. To identify readmissions to an acute or nonacute inpatient care setting: 1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) 2. Identify the admission date for the stay 3. Exclude episode dates when the patient had an ED visit (ED value set) for any diagnosis within 14 days after the episode date. Step 3: determine the numerator. Numerator 1 (Systemic Corticosteroid): Identify the number of patients dispensed a prescription for systemic corticosteroid (refer to PCE-C: Systemic Corticosteroids) on or 14 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count systemic corticosteroids that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Numerator 2 (Bronchodilator): Identify the number of patients dispensed a prescription for bronchodilator (refer to PCE-D: Bronchodilators) on or 30 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count bronchodilators that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Step 4: calculate two rates. A. Number of patients dispensed a prescription for systemic corticosteroid on or 14 days after the Episode Date/Denominator B. Number of patients dispensed a prescription for bronchodilator on or 30 days after the Episode Date /Denominator No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0577: Use of Spirometry Testing in the Assessment and Diagnosis of COPD 0091: COPD: Spirometry Evaluation 0102: COPD: inhaled bronchodilator therapy

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	5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0091 and 0577 are measures assessing spirometry testing in COPD patients. There is no impact on interpretability or added burden of data collection because the focus of our proposed measure is different. 0102 is a physician-level measure and the focus of our proposed measure is different. Our measure focuses exclusively on patients who were hospitalized or had an ED visit for a COPD exacerbation and received timely recommended treatment (systemic corticosteroids and bronchodilators) while 0102 focuses on managing COPD and allows receipt of a bronchodilator at least once during the measurement year. 5b.1 If competing, why superior or rationale for additive value: N/A

Appendix F: Related and Competing Measures

Comparison of NQF #0334 and NQF #0702

	0334 PICU Severity-adjusted Length of Stay	0702 Intensive Care Unit (ICU) Length-of-Stay (LOS)
Steward	Virtual PICU Systems, LLC	Philip R. Lee Institute for Health Policy Studies
Description	The number of days between PICU admission and PICU discharge.	For all eligible patients =18 years old admitted to the intensive care unit (ICU), total duration of time spent in the ICU until time of discharge from the ICU; both observed and risk-adjusted LOS reported with the predicted LOS measured using the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS).
Type	Outcome	Outcome
Data Source	Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry No mandatory data source or collection instrument for PICU community. Potential resources include PICU-specific databases or the VPS database (myvps.org). Available at measure-specific web page URL identified in S.1 No data dictionary	Paper Medical Records ICU Outcomes Data Collection Instrument Available in attached appendix at A.1 Attachment ICU Outcomes Data Dictionary.pdf
Level	Facility	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Time Window	Submitted quarterly for all discharges during that time period	Not-applicable; anyone with an ICU admission meeting eligibility criteria below is in the numerator.
Numerator Statement	Number of PICU days, PICU days = Number of days between PICU admission and PICU discharge.(For all eligible patients admitted to the ICU, the time at discharge from ICU minus the time of ICU admission (first recorded vital sign on ICU flow sheet)	For all eligible patients admitted to the ICU, the time at discharge from ICU (either death or physical departure from the unit) minus the time of admission (first recorded vital sign on ICU flow sheet). The measure is risk-adjusted, please see S.18.
Numerator Details	All patients < 18 years of age Numerator is the average (mean) observed LOS with the observed LOS (if the observed LOS exceeded 30 days, then the LOS was reduced to 30 days).	Eligible patients include those with an ICU stay of at least 4 hours and =18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Denominator	The denominator is the average (mean) predicted length of stay	Total number of eligible patients who are discharged (including

Statement	using the adjustment model.	deaths and transfers)
Denominator Details	The denominator is the average (mean) predicted length of stay using the adjustment model.	Eligible patients include those with an ICU stay of at least 4 hours and =18 years of age whose primary reason for admission does not include trauma, burns, or immediately post-coronary artery bypass graft surgery (CABG), as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.
Exclusions	Patients => 18 years of age	<18 years of age at time of ICU admission, ICU readmission, <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, transfers from another acute care hospital.
Exclusion Details	Patient age > 18 years and patients not eligible for PRISM measurement	<18 years of age at time of ICU admission (with time of ICU admission abstracted preferably from ICU vital signs flowsheet), ICU readmission (i.e. not the patient's first ICU admission during the current hospitalization), <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care, patient transfers from another acute care hospital (i.e. patients whose physical site immediately prior to the index ICU admission was an acute care unit at an outside hospital).
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 of charge) - Algorithms must receive ongoing validation and recalibration The PRISM 3 model meets these criteria. VPS has updated the original PRISM LOS model by adding more predictors and re-estimating the coefficients. We developed the	Statistical risk model Risk-adjustment variables include: age, heart rate >=150, SBP <=90, chronic renal, acute renal, GIB, cardiac arrhythmia, intracranial mass effect, mechanical ventilation, received CPR, cancer, cerebrovascular incident, cirrhosis, coma, medical admission or status post nonelective surgery, zero factor status (no risk factors other than age), and full code status (no restrictions on therapies or interventions at the time of ICU admission). The LOS risk-adjustment model is based on the Intensive Care Outcomes Model - Length-of-Stay (ICOMLOS) with candidate interactions among variables and variable coefficients customized for the population of interest. Provided in response box S.15a

	linear regression model for LOS on the training dataset (based on admissions between Q2 2009 and Q1 2013, n=275,013), and independently confirmed the performance of the resulting model on the validation dataset (based on admissions between Q2 2013 and Q1 2014, n=73,705). A few patients having long ICU stays can disproportionately influence LOS models. We used a 30-day truncation: if any patient had an observed LOS exceeding 30 days, the LOS was reduced to 30 days. Among 348,718 PICU admissions, less than 2% of PICU stays were longer than 30 days. Since the latest model release is intended to be a refresh of the PRISM III LOS model, we used predictors that are included in PRISM III Risk of Mortality (ROM) and did not include interaction terms or site level predictors. The LOS (in days) is predicted from the following terms at the patient-level: (1) PRISM3 Score (2) Neonatal (less than 1 month) patient, (3) Infant (1 month to 1 year) patient, (4) Post-operative patient, (5) Admission of patient from Inpatient Unit, (6) Previous ICU admission, (7) Patient with an oncology diagnosis, (8) Patient with an acute overdose, (9) Patient with acute diabetes, (10) Patient with an operative cardiac disease, (11) Patient with pneumonia, (12) Patient with non-head trauma, (13) Patient associated with an acute problem, and (14) Patient on mechanical ventilation. References [1]. Pollack MM. Recalibration of the Length of Stay (LOS) Algorithm: 2006. Personal Communication. 2006. [2] VPS Webpage. VPS New PRISM 3 LOS Model. 2015. https://s3.amazonaws.com/vpspublic/PRISM+LOS+brochure.pdf	
Stratification	Risk-adjustment measure, not stratification.	Not-applicable

Type Score	Ratio better quality = lower score	Rate/proportion better quality = lower score
Algorithm	The standardized length of stay ratio (SLOSR) is created by dividing the average (mean) observed physical length of stay (truncated at 30 days) by the average (mean) predicted length of stay. Cases must meet PRISM 3 inclusion criteria to receive a PRISM 3 length of stay prediction. Numerator is the average (mean) observed LOS with the observed LOS = observed LOS exceeding 30 days, the LOS was reduced to 30 days. The denominator is the average (mean) predicted length of stay using the adjustment model. Risk adjustment/severity of illness addressed using PRISM 3 methodology. https://s3.amazonaws.com/vpspublic/PRISM+LOS+brochure.pdf. Available at measure-specific web page URL identified in S.1	The hospital's mean observed ICU LOS and and mean risk-adjusted LOS are calculated using the abstracted data. For each hospital, the model produces a median and 95% confidence interval for the standardized LOS ratio (SLOSR), which is the mean observed LOS divided by the mean predicted LOS. No diagram provided
Submission items	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A	5.1 Identified measures: 0703: Intensive Care: In-hospital mortality rate 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: This measure is completely harmonized with measure 0703 Intensive Care: In-hospital mortality rate. 5b.1 If competing, why superior or rationale for additive value:

Comparison of NQF #0468 and NQF #0231

	0468 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization	0231 Pneumonia Mortality Rate (IQI #20)
Steward	Centers for Medicare & Medicaid Services (CMS)	Agency for Healthcare Research and Quality
Description	The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the date of admission for the index admission, discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary diagnosis of pneumonia (including aspiration pneumonia) coded as present on admission (POA). CMS annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or patients hospitalized in Veterans Health Administration (VA) facilities. Please note this measure has been substantially updated since the last submission; as described in S.3., the cohort has been expanded. Throughout this application we refer to this measure as version 9.2.	In-hospital deaths per 1,000 hospital discharges with pneumonia as a principal diagnosis for patients ages 18 years and older. Excludes obstetric discharges and transfers to another hospital. [NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]
Type	Outcome	Outcome
Data Source	Administrative claims Data sources for the Medicare FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This data source contains claims data for FFS inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, as well as inpatient and outpatient physician claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This data source was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient vital status (Fleming et al., 1992). 3. The American Community Survey (2008-2012): The American Community Survey data is collected annually and an aggregated 5-years data was used to calculate the AHRQ SES composite index score.	Administrative claims HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD. URL Attachment IQI_Regression_Coefficients-_Code_Tables_and_Value_Sets.xlsx

	4. Data sources for the all-payer update: For our analyses to examine use in all-payer data, we used all-payer data from California in addition to CMS data for Medicare FFS patients aged 65 years or over (65+) in California hospitals. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. We used the California Patient Discharge Data, a large, linked database of patient hospital admissions. In 2009, there were 3,193,904 adult discharges from 446 non-Federal acute care hospitals. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations and to evaluate rates of both readmission and mortality (via linking with California vital statistics records). Using all-payer data from California as well as CMS Medicare FFS data for California hospitals, we performed analyses to determine whether the pneumonia mortality measure can be applied to all adult patients, including not only FFS Medicare patients aged 65 or over, but also non-FFS Medicare patients aged 18-64 years at the time of admission. Reference: Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. No data collection instrument provided Attachment NQF_0468_S2b_Mortality_Data_Dictionary_v0.5_forCMS-635856833973209589.xls	
Level	Facility	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Time Window	Numerator time window: We define the time period for death from any cause within 30 days from the date of admission for the index pneumonia hospitalization. Denominator time window: This original measure was developed with 12 months of data. The re-speci	The time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period.
Numerator Statement	The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the index	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

	admission date for patients 18 and older discharged from the hospital with a principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA and no secondary discharge diagnosis of severe sepsis.	
Numerator Details	The measure counts deaths for any cause within 30 days of the date of admission of the index pneumonia hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients 65 years or over in the Medicare Enrollment Database (EDB). Identifying deaths in the all-payer measure For the purposes of development of an all-payer measure, 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).	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or over or (2) patients aged 18 years or older. We have specifically tested the measure in both age groups. The cohort includes admissions for patients aged 18 years and older discharged from the hospital with principal discharge diagnosis of pneumonia, including aspiration pneumonia or a principal discharge diagnosis of sepsis (not severe sepsis) with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA but no secondary discharge diagnosis of severe sepsis; and with a complete claims history for the 12 months prior to admission. The measure will be publicly reported by CMS for those patients 65 years or older who are Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals. Additional details are provided in S.9 Denominator Details.	Discharges, for patients ages 18 years and older, with a principal ICD-9-CM diagnosis code for pneumonia.
Denominator Details	To be included in the measure cohort used in public reporting, patients must meet the following inclusion criteria: 1. Principal discharge diagnosis of pneumonia, including aspiration	ICD-9-CM Pneumonia diagnosis codes: 00322 SALMONELLA PNEUMONIA 0212 PULMONARY TULAREMIA

	pneumonia; or Principal discharge diagnosis of sepsis (not including severe sepsis), with a secondary discharge diagnosis of pneumonia (including aspiration pneumonia) coded as POA but no secondary discharge diagnosis of severe sepsis. 2. Enrolled in Medicare fee-for-service (FFS) 3. Aged 65 or over 4. Not transferred from another acute care facility 5. Enrolled in Part A and Part B Medicare for the 12 months prior to the date of admission, and enrolled in Part A during the index admission. This measure can also be used for an all-payer population aged 18 years and older. We have explicitly tested the measure in both patients aged 18 years and older, and those aged 65 years or over (see Testing Attachment for details). International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes used to define the cohort for each measure are: ICD-9 codes that define patients with pneumonia: 480.0 Pneumonia due to adenovirus 480.1 Pneumonia due to respiratory syncytial virus 480.2 Pneumonia due to parainfluenza virus 480.3 Pneumonia due to SARS-associated coronavirus 480.8 Pneumonia due to other virus not elsewhere classified 480.9 Viral pneumonia, unspecified 481 Pneumococcal pneumonia 482.0 Pneumonia due to Klebsiella pneumoniae 482.1 Pneumonia due to Pseudomonas 482.2 Pneumonia due to Hemophilus influenzae 482.30 Pneumonia due to Streptococcus, unspecified 482.31 Pneumonia due to Streptococcus, group A 482.32 Pneumonia due to Streptococcus, group B 482.39 Pneumonia due to other Streptococcus 482.40 Pneumonia due to Staphylococcus, unspecified	0391 PULMONARY ACTINOMYCOSIS 0521 VARICELLA PNEUMONITIS 0551 POSTMEASLES PNEUMONIA 0730 ORNITHOSIS PNEUMONIA 1124 CANDIDIASIS OF LUNG 1140 PRIMARY COCCIDIOIDOMYCOS 1144 CHRONIC PULMON COCCIDIOIDOMYCOSIS 1145 UNSPEC PULMON COCCIDIOIDOMYCOSIS 11505 HISTOPLASM CAPS PNEUMON 11515 HISTOPLASM DUB PNEUMONIA 11595 HISTOPLASMOSIS PNEUMONIA 1304 TOXOPLASMA PNEUMONITIS 1363 PNEUMOCYSTOSIS 4800 ADENOVIRAL PNEUMONIA 4801 RESP SYNCYT VIRAL PNEUM 4802 PARINFLUENZA VIRAL PNEUM 4803 PNEUMONIA DUE TO SARS 4808 VIRAL PNEUMONIA NEC 4809 VIRAL PNEUMONIA NOS 481 PNEUMOCOCCAL PNEUMONIA 4820 K. PNEUMONIAE PNEUMONIA 4821 PSEUDOMONAL PNEUMONIA 4822 H.INFLUENZAE PNEUMONIA 48230 STREP PNEUMONIA UNSPEC 48231 GRP A STREP PNEUMONIA 48232 GRP B STREP PNEUMONIA 48239 OTH STREP PNEUMONIA 4824 STAPHYLOCOCCAL PNEUMONIA 48240 STAPH PNEUMONIA UNSP 48241 METH SUS PNEUM D/T STAPH 48242 METH RES PNEU D/T STAPH 48249 STAPH PNEUMON OTH 48281 ANAEROBIC PNEUMONIA

	482.41 Methicillin susceptible pneumonia due to Staphylococcus aureus 482.42 Methicillin resistant pneumonia due to Staphylococcus aureus 482.49 Other Staphylococcus pneumonia 482.81 Pneumonia due to anaerobes 482.82 Pneumonia due to escherichia coli 482.83 Pneumonia due to other gram-negative bacteria 482.84 Pneumonia due to Legionnaires' disease 482.89 Pneumonia due to other specified bacteria 482.9 Bacterial pneumonia, unspecified 483.0 Pneumonia due to mycoplasma pneumoniae 483.1 Pneumonia due to chlamydia 483.8 Pneumonia due to other specified organism 485 Bronchopneumonia, organism unspecified 486 Pneumonia, organism unspecified 487.0 Influenza with pneumonia 488.11 Influenza due to identified 2009 H1N1 influenza virus with pneumonia ICD-9 codes that define patients with aspiration pneumonia: 507.0 Pneumonitis due to inhalation of food or vomitus ICD-9 codes that define patients with sepsis (not including severe sepsis [995.92 or 785.52]) (Cohort requires principal discharge diagnosis of sepsis combined with a secondary discharge diagnosis of pneumonia or aspiration pneumonia coded as POA but no secondary discharge diagnosis of severe sepsis): 038.0 Streptococcal septicemia 038.10 Staphylococcal septicemia, unspecified 038.11 Methicillin susceptible Staphylococcus aureus septicemia 038.12 Methicillin resistant Staphylococcus aureus septicemia 038.19 Other staphylococcal septicemia 038.2 Pneumococcal septicemia [Streptococcus pneumoniae septicemia] 038.3 Septicemia due to anaerobes	48282 E COLI PNEUMONIA 48283 OTH GRAM NEG PNEUMONIA 48284 LEGIONNAIRES DX 48289 BACT PNEUMONIA NEC 4829 BACTERIAL PNEUMONIA NOS 4830 MYCOPLASMA PNEUMONIA 4831 CHLAMYDIA PNEUMONIA 4838 OTH SPEC ORG PNEUMONIA 4841 PNEUM W CYTOMEG INCL DIS 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 4870 INFLUENZA WITH PNEUMONIA 48801 INFLUENZA D/T IDENTIFIED AVIAN INFLUENZA VIRUS 48811 INFLUENZA D/T IDENTIFIED 2009 H1N1 INFLUENZA VIRUS W/PNEUMONIA 48881 NOVEL INFLUENZA W/PNEUMONIA

	038.40 Septicemia due to gram-negative organism, unspecified 038.41 Septicemia due to hemophilus influenzae [H. influenzae] 038.42 Septicemia due to escherichia coli [E. coli] 038.43 Septicemia due to pseudomonas 038.44 Septicemia due to serratia 038.49 Other septicemia due to gram-negative organisms 038.8 Other specified septicemias 038.9 Unspecified septicemia 995.91 Sepsis ---------- ICD-10 codes that define patients with pneumonia: J12.0 Adenoviral pneumonia J12.1 Respiratory syncytial virus pneumonia J12.2 Parainfluenza virus pneumonia J12.81 Pneumonia due to SARS-associated coronavirus J12.89 Other viral pneumonia J12.9 Viral pneumonia, unspecified J13 Pneumonia due to Streptococcus pneumoniae J18.1 Lobar pneumonia, unspecified organism J15.0 Pneumonia due to Klebsiella pneumoniae J15.1 Pneumonia due to Pseudomonas J14 Pneumonia due to Hemophilus influenzae J15.4 Pneumonia due to other streptococci J15.3 Pneumonia due to streptococcus, group B J15.20 Pneumonia due to staphylococcus, unspecified J15.211 Pneumonia due to Methicillin susceptible staphylococcus J15.212 Pneumonia due to Methicillin resistant staphylococcus J15.29 Pneumonia due to other staphylococcus J15.8 Pneumonia due to other specified bacteria J15.5 Pneumonia due to Escherichia coli J15.6 Pneumonia due to other aerobic Gram-negative bacteria A48.1 Legionnaires' disease	

	J15.8 Pneumonia due to other specified bacteria J15.9 Unspecified bacterial pneumonia J15.7 Pneumonia due to Mycoplasma pneumoniae J16.0 Chlamydial pneumonia J16.8 Pneumonia due to other specified infectious organisms J18.0 Bronchopneumonia, unspecified organism J18.9 Pneumonia, unspecified organism J11.00 Influenza due to unidentified influenza virus with unspecified type of pneumonia J12.9 Viral pneumonia, unspecified J10.08 Influenza due to other identified influenza virus ICD-10 codes that define patients with aspiration pneumonia: J69.0 Pneumonitis due to inhalation of food and vomit ICD-10 codes that define patients with sepsis (not including severe sepsis [ICD-9 995.92 or 785.52]) (Cohort requires principal discharge diagnosis of sepsis combined with a secondary discharge diagnosis of pneumonia or aspiration pneumonia coded as POA but no secondary discharge diagnosis of severe sepsis): A40.9 Streptococcal sepsis, unspecified A41.2 Sepsis due to unspecified staphylococcus A41.01 Sepsis due to Methicillin susceptible Staphylococcus A41.02 Sepsis due to Methicillin resistant Staphylococcus A41.1 Sepsis due to other specified staphylococcus A40.3 Sepsis due to Streptococcus pneumoniae A41.4 Sepsis due to anaerobes A41.50 Gram-negative sepsis, unspecified A41.3 Sepsis due to Hemophilus influenzae A41.51 Sepsis due to Escherichia coli [E. coli] A41.52 Sepsis due to Pseudomonas A41.53 Sepsis due to Serratia A41.59 Other Gram-negative sepsis A41.89 Other specified sepsis A41.9 Sepsis, unspecified organism An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data	

	Dictionary or Code Table).	
Exclusions	The mortality measures exclude index admissions for patients: 1. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility; 2. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data; 3. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission, including the first day of the index admission; or 4. Discharged against medical advice (AMA). For patients with more than one admission for a given condition in a given year, only one index admission for that condition is randomly selected for inclusion in the cohort.	Exclude cases: • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)
Exclusion Details	1. The discharge disposition indicator is used to identify patients alive at discharge. Transfers 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. Patient length of stay and condition is identified from the admission claim. 2. 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'. 3. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice enrollment data. 4. Discharges against medical advice (AMA) are identified using the discharge disposition indicator. After all exclusions are applied, the measure randomly selects one index admission per patient per year for inclusion in the cohort so that each episode of care is mutually independent with the same probability of the outcome. For each patient, the probability of death increases with each subsequent admission, and therefore, the episodes of care are not mutually independent. Also, for the three year combined data, when index admissions occur during the transition between measure reporting periods (June and July of each	Exclude cases: • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

	year) and both are randomly selected for inclusion in the measure, the measure includes only the June admission. The July admissions are excluded to avoid assigning a single death to two admissions.	
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 measure employs a hierarchical logistic regression model to create a hospital-level 30-day RSMR. In brief, the approach simultaneously models data at the patient and hospital levels to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, the model adjusts the log-odds of mortality within 30 days of admission for age, sex, and selected clinical covariates. At the hospital level, the approach models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of death at the hospital, after accounting for patient risk. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. 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, sex, and indicators of comorbidity and disease severity. For each patient, covariates are obtained from claims records extending 12 months prior to and including the index admission. For the measure currently implemented by CMS, these risk-adjusters are identified using both inpatient and outpatient Medicare FFS claims data. However, in the all-payer hospital discharge database measure, the risk-adjustment variables can be obtained only from inpatient claims in the prior 12 months and 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 (Pope et al., 2000). A file that	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'

	contains a list of the ICD-9-CM codes and their groupings into CCs is attached in data field S.2b (Data Dictionary or Code Table). 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 index hospitalization, are included in the risk adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of care when they are only recorded in the index admission. The final set of risk adjustment variables is: Demographics Male Age-65 (years, continuous) for patients aged 65 or over cohorts; or Age (years, continuous) for patients aged 18 and over cohorts. Comorbidities History of Percutaneous Transluminal Coronary Angioplasty (PTCA) (ICD-9 codes V45.82, 00.66, 36.06, 36.07) History of Coronary Artery Bypass Graft (CABG) (ICD-9 codes V45.81, 36.10–36.16) Congestive heart failure (CC 80) Acute myocardial infarction (CC 81) Other acute/subacute forms of ischemic heart disease (CC 82) Coronary atherosclerosis or angina (CC 83-84) Cardio-respiratory failure or shock (CC 78-79) Hypertension (CC 89, 91) Stroke (CC 95-96) Cerebrovascular disease (CC 97-99, 103) Renal failure (CC 131) Chronic obstructive pulmonary disease (COPD) (CC 108) Pneumonia (CC 111-114) Protein-calorie malnutrition (CC 21) Dementia or other specified brain disorders (CC 49-50) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177-178) Vascular disease and complications (CC 104-105) Metastatic cancer, acute leukemia and other severe cancers (CC 7-8)	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 For additional information on the method, please access the Empirical Methods document: http://www.qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI_Empirical_Methods_03-31-14.pdf The Empirical Methods are also attached as "supplemental materials". Available in attached Excel or csv file at S.2b

	Trauma in last year (CC 154-156, 158-162) Major psychiatric disorders (CC 54-56) Chronic liver disease (CC 25-27) Severe hematological disorders (CC 44) Iron deficiency or other unspecified anemias and blood disease (CC 47) Depression (CC 58) Parkinson's or Huntington's diseases (CC 73) Seizure disorders and convulsions (CC 74) Fibrosis of lung or other chronic lung disorders (CC 109) Asthma (CC 110) Vertebral fractures (CC 157) Septicemia/sepsis (CC 2) Respirator dependence/tracheostomy (CC 77) Disorders of fluid/electrolyte/acid-base (CC 23) Delirium and encephalopathy (CC 48) Decubitus ulcer of skin (CC 148) 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. Pope GC, et al. 2000. Principal Inpatient Diagnostic Cost Group Models for Medicare Risk Adjustment. Health Care Financing Review 21(3): 93-118. Available in attached Excel or csv file at S.2b	
Stratification	N/A	Not applicable
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score

Algorithm	The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for pneumonia using hierarchical logistic regression models. In brief, the approach simultaneously models data at the patient and hospital levels to account for variance in patient outcomes within and between hospitals (Normand and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of index admission using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a mortality at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution 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 at a given hospital, multiplied by the national observed mortality rate. For each hospital, the numerator of the ratio 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 is the number of deaths expected based on 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 rates or better quality, and a higher ratio indicates higher-than-expected mortality rates or worse quality. The "predicted" number of deaths (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of mortality. The estimated hospital-specific intercept is added to the sum of the estimated regression coefficients multiplied by the patient characteristics. The results are transformed and summed over all patients attributed to a hospital to get a predicted value. The "expected" number of deaths (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the	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

	hospital-specific intercept. The results are transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period. This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed readmission rate. The hierarchical logistic regression models are described fully in the original methodology report (Krumholz et al., 2005). References: Krumholz H, Normand S, Galusha D, et al. Risk-Adjustment Models for AMI and HF 30-Day Mortality Methodology. 2005. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22(2): 206-226. No diagram provided	
Submission items	5.1 Identified measures: 0708: Proportion of Patients with Pneumonia that have a Potentially Avoidable Complication (during the episode time window) 0231: Pneumonia Mortality Rate (IQI #20) 0506: Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following p 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The pneumonia mortality measure cohort, version 9.0, is harmonized with the hospital-level, risk-standardized payment associated with a 30-day episode of care for pneumonia cohort. Version 9.2 of the pneumonia mortality measure cohort is, however, not harmonized with the pneumonia payment measure cohort. There is intention to harmonize the pneumonia mortality and payment measure cohorts in the future. We did not include in our list of related measures any non-outcome (for example, process) measures with the same target population as our measure. Because this is an outcome measure, clinical coherence of the cohort takes precedence over alignment with related non-outcome measures. Furthermore, non-outcome measures are limited due to broader patient	5.1 Identified measures: 0468: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: AHRQ and CMS engaged in a harmonization process when both measures were submitted for endorsement. In-hospital mortality and 30-day mortality measures are complementary and provide alternative perspectives on hospital performance. In-hospital mortality measures may be calculated by the hospital in real time without the need to link to vital records or other sources of mortality data.

	exclusions. This is because they typically only include a specific subset of patients who are eligible for that measure (for example, patients who receive a specific medication or undergo a specific procedure). Lastly, this measure and the NQF Inpatient Pneumonia Mortality (AHRQ) Measure #0231 are complementary rather than competing measures. Although they both assess mortality for patients admitted to acute care hospitals with a principal discharge diagnosis of pneumonia, the specified outcomes are different. This measure assesses 30-day mortality while #0231 assesses inpatient mortality. Assessment of 30-day and inpatient mortality outcomes have distinct advantages and uses which make them complementary as opposed to competing. For example the 30-day period provides a broader perspective on hospital care and utilizes standard time period to examine hospital performance to avoid bias by differences in length of stay among hospitals. However, in some settings it may not be feasible to capture post-discharge mortality making the inpatient measure more useable. We have previously consulted with AHRQ to examine harmonization of complementary measures of mortality for patients with AMI and stroke. We have found that the measures are harmonized to the extent possible given that small differences in cohort inclusion and exclusion criteria are warranted on the basis of the use of different outcomes. However, this current measure has been modified from the last endorsed version to include patients with a principal discharge diagnosis of sepsis and a secondary discharge diagnosis of pneumonia that is present on admission. The cohort was also expanded to include patients with a principal discharge diagnosis of aspiration pneumonia. Thus the current measure cohort is no longer harmonized with measure #0231. 5b.1 If competing, why superior or rationale for additive value: N/A	

Comparison of NQF #2794 and NQF #2852

	2794 Rate of Emergency Department Visit Use for Children Managed for Identifiable Asthma: A PQMP Measure	2852 Optimal Asthma Control
Steward	University Hospitals Cleveland Medical Center	Minnesota Community Measurement
Description	This measure estimates the rate of emergency department visits for children ages 2 – 21 who are being managed for identifiable asthma. The measure is reported in visits per 100 child-years.	The percentage of pediatric (5-17 years of age) and adult (18-50 years of age) patients who had a diagnosis of asthma and whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following: • Asthma well-controlled as defined by the most recent asthma control tool result available during the measurement period • Patient not at elevated risk of exacerbation as defined by less than two emergency department visits and/or hospitalizations due to asthma in the last 12 months
Type	Outcome	Composite
Data Source	Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records N/A No data collection instrument provided Attachment FINAL_CAPQuaM_ASTHMA_ICD9_and_ICD10.xlsx	Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Paper Medical Records An excel template with formatted columns for data fields is provided. Please refer to the attached data dictionary for data field definitions. All data is uploaded in electronic format (.csv file) to a HIPAA secure, encrypted and password protected data portal. 1. Asthma Control Test (ACT) and Childhood Asthma Control Test (C-ACT)

		MNCM has secured permission for use of the ACT and C-ACT from GlaxoSmithKline for providers participating in quality measurement reporting to MNCM, under the following conditions: • you will administer the instrument in a paper format only; • permissible uses include only clinical care and quality measurement activities not related to research or publication; • you may not modify the instrument or combine it with other instruments without prior written approval; • the questions of the instrument must appear verbatim, in order, and together as they are presented and not divided on separate pages; • for the ACT: the following trademark and copyright information must appear on the bottom of each page of the instrument and on all copies of the instrument; “Copyright 2002 by QualityMetric Incorporated. Asthma Control Test is a trademark of QualityMetric Incorporated.” • for the C-ACT: the following acknowledgment be made as to the source and authorization for use of this material: “Copyright GSK. Used with permission.” • you must utilize the instrument in its entirety; • you agree to utilize only the most current version of the instrument as provided on MNCM’s Resource page. • you agree to display the GSK logo as

		part of the instrument; Of note, it IS permissible to record item responses and scores in an electronic health record, it IS NOT permissible to administer the instrument electronically to patients; i.e. kiosk, mobile device, patient portal. 2. Asthma Control Questionnaire (ACQ) The ACQ is a copyrighted instrument available in various formats from the developer. Please visit the website http://www.qoltech.co.uk/acq.html for more information. 3. Asthma Therapy Assessment Questionnaire (ATAQ) The ATAQ is copyrighted by Merck & Co., Inc, and available free of charge by going to: http://merckengage.qualitysolutionnavigator.com/ and navigating to the asthma resources. The Asthma Therapy Assessment Questionnaire (ATAQ) Adult should be used for patients 18 years and older. The Asthma Therapy Assessment Questionnaire (ATAQ) Pediatric should be used for patients 5 – 17 years old. Available at measure-specific web page URL identified in S.1
Level	Population: Community, Population: County or City, Health Plan, Integrated Delivery System, Population: National, Population: Regional, Population: State	Clinician: Group/Practice
Setting	Ambulatory Care: Clinician Office/Clinic, Emergency Medical Services/Ambulance, Hospital/Acute Care Facility, Other, Pharmacy, Ambulatory Care: Urgent Care Claims data from all settings in New York	Ambulatory Care: Clinician Office/Clinic

	State Medicaid data were tested.	
Time Window	This data requires 2 years of data, the reporting year and the 12 month period before the reporting year. (See Appendix 1, Figure 1)	1 year
Numerator Statement	The numerator uses the number of undesirable utilization outcomes (i.e., claims for ED visits or hospitalizations for asthma) experienced by children who are managed for identifiable asthma to estimate the number of emergency room visits	The number of patients in the denominator whose asthma was optimally controlled during the measurement period as defined by achieving BOTH of the following: • Asthma well-controlled as defined by the most recent asthma control tool result during the measurement period: -Asthma Control Test (ACT) greater than or equal to 20 (patients 12 years of age and older) -Childhood Asthma Control Test (C-ACT) greater than or equal to 20 (patients 11 years of age and younger) -Asthma Control Questionnaire (ACQ) less than or equal to 0.75 (patients 17 years of age and older) -Asthma Therapy Assessment Questionnaire (ATAQ) equal to 0 – Pediatric (5 to 17 years of age) or Adult (18 years of age and older). AND • Patient not at elevated risk of exacerbation as defined by less than two patient reported emergency department visits and/or hospitalizations due to asthma in the last 12 months
Numerator Details	Numerator Elements: Date and count of all emergency visits with a primary or secondary diagnosis of asthma. ED visits should be identified as a visit that is associated with: 1) At least one of the following CPT codes: 99281, 99282, 99283, 99284, 99285 OR	Asthma control test date Enter the date of the most recent asthma control test on or prior to 06/30/2015. Leave BLANK if an asthma control test

	2) At least one of the following revenue codes 0450 Emergency Room 0451 Emergency Room: EM/EMTALA 0452 Emergency Room: ER/ Beyond EMTALA 0456 Emergency Room: Urgent care 0459 Emergency Room: Other emergency room 450 Emergency Room 451 Emergency Room: EM/EMTALA 452 Emergency Room: ER/ Beyond EMTALA 456 Emergency Room: Urgent care 459 Emergency Room: Other emergency room 0981 Professional fees (096x) Emergency room 981 Professional fees emergency room Inpatient Hospitalizations are identified as an encounter that is associated with: At least one of the following CPT codes: Hospitalization: CPT 99238 CPT 99232 CPT 99239 CPT 99233 CPT 99221 CPT 99234 CPT 99222 CPT 99235 CPT 99223 CPT 99236 CPT 99356 CPT 99218 CPT 99357 CPT 99219 CPT 99231 CPT 99220 OR At least one of the following revenue codes 0110 0133 0111 0134 0112 0137 0113 0139 0114 0150 0117 0151 0119 0152	was never performed. • Do NOT enter any test date that occurred after 06/30/2015. A date after the measurement period will create an ERROR upon submission. • Enter the date of the visit, telephone call, e-visit or other contact during which the asthma control test was administered (e.g., a test administered to the patient via phone). • Test from another provider is acceptable (not required) if documented in the reporting clinic's record and is more recent than the reporting clinic's test. • The following are approved, valid asthma control tests and must be giving according to validated age ranges. Age should be calculated as the date the asthma control test was administered. Tests other than the ones listed below will not be accepted. o ACT (Asthma Control Test); valid for patients 12 and older. o CACT (Child-Asthma Control Test); valid for patients 11 and younger. o ACQ (Asthma Control Questionnaire); valid for patients 17 and older. o ATAQ (Asthma Therapy and Assessment Questionnaire); valid for patients 5 to 50. Asthma control test name Enter a code to indicate the most recent asthma control test (on or prior to 06/30/2015) given to the patient using the codes below. This test name should correspond to the test given on

	0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206 IDENTIFY count of discrete numerator events: For each individual in the denominator for the specified month, consider evidence of hospitalization that is on the same day or one day after an ED visit to represent one discrete event. Consecutive days of hospitalization are considered to represent one hospitalization. Data Sources Administrative Data (e.g., claims data) Paper Medical Record – only if needed for race ethnicity or ZIP code Race/ethnicity data and ZIP code data (If race/ethnicity data or ZIP code data are not present in administrative data set, they should be obtained from another source, such as the medical record). We performed a feasibility study alpha test by surveying more than a dozen hospitals that demonstrates that these data elements are generally available in the medical record. General data elements: - Age - Race and ethnicity - Insurance type (Medicaid, Private, Uninsured) - Benefit type among insured (HMO, PPO, FFS, Medicaid Primary Care Case Management Plan [PCCM], Other) - ZIP code or State and County of residence (and FIPS where available) Administrative data with billing and diagnosis codes: - Asthma-related visits to an emergency department, or hospitalization - Asthma medication prescriptions - Insurance benefit type - ZIP code or State and County of residence (and FIPS where available) - Race and ethnicity (from hospital administrative data or charts if not in administrative data	the date in Column U. Leave BLANK if an asthma control test was never performed. Leave BLANK if the wrong test was administered to the patient at the visit (e.g., a 12-year-old patient received the C-ACT instead of the ACT). 1 = Asthma Control Test (ACT) 2 = Child-Asthma Control Test (C-ACT) 3 = Asthma Control Questionnaire (ACQ) 4 = Asthma Therapy Assessment Questionnaire (ATAQ) • The test used will be validated using the patient's date of birth and the date the test was given. Asthma control test score Enter the score of the most recent asthma control test (on or prior to 06/30/2015). The score should correspond to the test date listed in Column U and to the test name listed in Column V. Leave BLANK if no control tests exist. Leave BLANK if the wrong test was administered to the patient (e.g., a 12-year-old patient received the C-ACT instead of the ACT). • If the test score is blank or not complete, look for an earlier completed asthma control test completed within the measurement period. Update Column U and Column V to reflect the new test date and name. • Do NOT submit partial or incomplete scores. If there is not a test in the record with a complete score, leave

	from plan) If pharmacy data are not available the measure should be reported with notation that pharmacy data were not used for the assessment of eligibility. For eligibility purposes, asthma-related medicine refers to long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination) These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.	Columns U, V and W blank. Date of patient reported hospitalizations and emergency department visits Enter the most recent date within the measurement period that the patient is asked about any hospitalizations and emergency department visits. Leave BLANK if the patient was not asked about hospitalizations and emergency department visits. A date is necessary for rate calculation. Do NOT leave blank unless there is no data. • This date must be associated with the patient-reported emergency department and hospitalizations columns during the past 12 months (Columns Y and Z). Do NOT enter any visit that occurred after 06/30/2015. A date after the measurement period will create an ERROR upon submission. Number of emergency department visits due to asthma that did NOT result in a hospitalization in the past 12 months (from date of visit) Enter a numeric value for the number of emergency department (ED) visits due to asthma as stated by the patient (e.g. 0, 1, 2, etc.). Do NOT include urgent care visits. Leave BLANK if the patient was not asked about emergency department visits or there is no data. 0 = Patient reports “0” or had no ED visits

		1= Patient reports “1” ED visits 2= Patient reports “2” ED visits; etc. A value is necessary for rate calculation. Do NOT leave blank unless there is no data. Enter the value collected and recorded asked and documented on or prior to 06/30/2015. Do NOT enter a number recorded prior to 07/01/2014. • The patient should respond with a number of visits for the prior 12 months regardless of when the visit occurs – if the visit occurs in September of 2014, the previous 12 months would be September 2013 to August 2014. If the visit occurs in January 2015, the previous 12 months would be January 2014 to December 2014. • Do NOT search for actual emergency department visits in your record system. This value must reflect what the patient reported when asked. • If using an EMR, consider building a field to capture this data. If using paper, check the progress notes and other documentation from the most recent visit looking backwards. • To be included in the numerator, the total number of BOTH emergency department visits AND inpatient hospitalizations due to asthma must equal ZERO or ONE. Number of inpatient hospitalizations due to asthma during the past 12 months (from date of visit) Enter a numeric value for the number of emergency department visits due to

		asthma as stated by the patient (e.g. 0, 1, 2, etc.). Leave BLANK if patient was not asked about hospitalizations or there is no data 0 = Patient reports “0” or had no hospitalizations 1= Patient reports “1” hospitalization 2= Patient reports “2” hospitalizations; etc. A value is necessary for rate calculation. Do NOT leave blank unless there is no data. Enter the value collected and recorded and documented on or prior to 06/30/2015. Do NOT enter a number recorded prior to 07/01/2014. • Enter the patient reported number of inpatient hospitalizations due to asthma. The patient should respond with a number of visits for the prior 12 months regardless of when the visit occurs – if the visit occurs in September of 2014, the previous 12 months would be September 2013 to August 2014. If the visit occurs in January 2015, the previous 12 months would be January 2014 to December 2014. • Do NOT search for actual hospitalizations in your record system. This value must reflect what the patient reported when asked. • If using an EMR, consider building a field to capture this data. If using paper, check the progress notes and other documentation from the most recent visit looking backwards. • To be included in the numerator, the

		total number of BOTH emergency department visits AND inpatient hospitalizations due to asthma must equal ZERO or ONE.
Denominator Statement	The denominator represents the person time experience among eligible children with identifiable asthma. Assessment of eligibility is determined for each child monthly. The total number of child months experienced is summed and divided by 1200 to achieve the units of 100 child years.	Patients aged 5 - 50 years at the start of the measurement period who were seen for asthma by an eligible provider in an eligible specialty face-to-face visit at least 2 times during the current or prior year measurement periods AND who were seen for any reason at least once during the measurement period.
Denominator Details	The denominator seeks to identify children who have been managed with identifiable asthma. A descriptive definition for being managed for Identifiable asthma follows. Identifiable asthma needs to be identified in the assessment period for the specific reporting month being assessed. Specifications follow the descriptive definitions: a. Any prior hospitalization with asthma as primary or secondary diagnosis b. Other qualifying events after the fifth birthday (age is age at occurrence): i. One or more prior ambulatory visits with asthma as the primary diagnosis (this criterion implies an asthma ED visit in the reporting month), OR ii. Two or more ambulatory visits with asthma as a diagnosis, OR iii. One ambulatory visit with asthma as a diagnosis AND at least one asthma-related prescription, OR iv. Two or more ambulatory visits with a diagnosis of bronchitis c. Other qualifying events, any age: v. Three or more ambulatory visits with diagnosis of asthma or bronchitis, OR vi. Two or more ambulatory visits with a diagnosis of asthma and/or bronchitis AND one or more asthma- related prescriptions. For eligibility purposes, asthma-related medicine means long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination), and/or mast cell stabilizers. If pharmacy data are not available, the measure should be reported with notation that pharmacy data were not used for the assessment of eligibility. This avoids eliminating from the measure those	Patients who meet each of the following criteria are included in the population: • Patient was age 5 to 50 years at the start of the measurement period (date of birth was on or between 07/01/1964 to 07/01/2009). o Age 5 to 17 years at the start of the measurement period (date of birth was on or between 07/01/1997 to 07/01/2009). o Age 18 to 50 years at the start of the measurement period (date of birth was one or between 07/01/1964 to 06/30/1997). • Patient was seen by an eligible provider in an eligible specialty face-to-face visit at least two times during the last two measurement periods (07/01/2013 to 06/30/2015) with visits coded with an asthma ICD-9 code (in any position, not only primary). Use this date of service range when

	facilities with no link to pharmacies. Our testing reveals that only a very small proportion of patients are excluded by not including pharmacy data to establish eligibility. For eligibility purposes, asthma-related medicine refers to long-acting beta-agonist (alone or in combination) or inhaled corticosteroid (alone or in combination), anti-asthmatic combinations, methylxanthines (alone or in combination), and or mast cell stabilizers. In order to promote better harmonization, we start with the current HEDIS asthma medication list. From that list, in accordance with our expert panel recommendations we eliminate medications in the following 2 categories: leukotriene modifiers, short-acting inhaled beta-agonists. We further exclude indacaterol, a recently approved long acting beta agonist that is indicated in the US only for teh treatmetn of COPD. As indicated elesewhere, COPD is an exclusion criterion for this measure. These specifications anticipate that NCQA will update the medication list from time to time and with the stated exclusions updated lists may be substituted for the list linked herein. The table used for testing is labeled Table AMR-A: Asthma Controller and Reliever Medications, and can be found at http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2015/HEDIS2015NDCLicense/HEDIS2015FinalNDCLists.aspx (last accessed September 12, 2015). Denominator Elements: The presence of identifiable asthma (see Table 1) is established each month from administrative data using the specified algorithm. (Appendix Figure 1 and this section's narrative) All events in the administrative data should be associated with a date of service. Eligibility should be obtained using the month by month algorithm described herein and illustrated in Figure1, which is a fundamental component of this description. The analysis should be conducted on a month by month basis as described herein: . Within the group of children who meet the criteria for identifiable asthma, identify and maintain a unique patient identifier, age, and all stratification variables. . Determine eligibility for each patient, as of the last day of the month prior to the reporting month. For example, if the goal is to report for January 2011, first identify children with identifiable asthma (above), and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010. Next, for February analyze all of calendar year 2010 AND January 2011. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011. Repeat this progression monthly so that for December, one would identify children with identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that for December the child was enrolled in October 2011 and November 2011. See Figure 1 in Appendix, which is incorporated into these specifications by reference.	querying the practice management or EMR system to allow a count of the visits. • Patient was seen by an eligible provider in an eligible specialty face-to-face visit at least one time during the measurement period (07/01/2014 to 06/30/2015) for any reason. This may or may not include a face-to-face visit with an asthma ICD-9 code. • Diagnosis of asthma; ICD-9 diagnosis codes include: 493.00 to 493.12, 493.81 to 493.92. Eligible specialties: Family Practice, General Practice, Internal Medicine, Pediatrics, Allergy/Immunology, and Pulmonology. Eligible providers: Medical Doctor (MD), Doctor of Osteopathy (DO), Physician Assistant (PA), Advanced Practice Registered Nurses (APRN).

	Codes used for definitions are specified in Appendix Table 1 and summarized herein: Hospitalization: CPT Codes: (Any) CPT 99238 CPT 99232 CPT 99239 CPT 99233 CPT 99221 CPT 99234 CPT 99222 CPT 99235 CPT 99223 CPT 99236 CPT 99356 CPT 99218 CPT 99357 CPT 99219 CPT 99231 CPT 99220 Or Revenue Codes: (Any) 0110 0133 0111 0134 0112 0137 0113 0139 0114 0150 0117 0151 0119 0152 0120 0153 0121 0154 0122 0157 0123 0159 0124 0200 0127 0201 0129 0202 0130 0203 0131 0204 0132 0206 Emergency Department Visits CPT Codes: (Any)	

	CPT 99281 CPT 99284 CPT 99282 CPT 99285 CPT 99283 Or Revenue Codes: (Any) 0450 Emergency Room 0451 Emergency Room: EM/EMTALA 0452 Emergency Room: ER/Beyond EMTALA 0456 Emergency Room: Urgent Care 0459 Emergency Room: Other Emergency Room 0981 Professional Fees (096x) Emergency Room 981 Professional Fees emergency room Office Visits(Any) CPT 99201 CPT 99211 CPT 99202 CPT 99212 CPT 99203 CPT 99213 CPT 99204 CPT 99214 CPT 99205 CPT 99215 Diagnosis of Asthma ICD-9 Codes: All codes beginning with 493 Alternately, or entities that prefer to use AHRQ's Clinical Classifications Software, the asthma definition before exclusions is CCS class 128. Those using CCS should then apply the exclusions. Filled Prescriptions for Asthma-related Medications as specified in this section above. Please note Figure 1 and Table 1 in the attached Appendix are considered INTEGRAL to these specifications and are not optional. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.	
Exclusions	Children with concurrent or pre-existing: Chronic Obstructive Pulmonary Disease (COPD) diagnosis (ICD-9 Code: 496), Cystic Fibrosis diagnosis (ICD-9 code 277.0, 277.01. 277.02, 277.03, 277.09), or Emphysema diagnosis (ICD-9 code 492xx). These exclusion incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b. Children who have not been consecutively enrolled in the reporting plan for at least two months prior to the index reporting month and for the reporting month (a total of three consecutive months ending	Valid exclusions include patients who are nursing home residents, in hospice or palliative care, have died or who have COPD, emphysema, cystic fibrosis or acute respiratory failure.

	in the reporting month).	
Exclusion Details	See S.10 above. Also, for entities that use AHRQ's Clinical Classifications Software, apply the exclusion after identifying visits that satisfy CCS class 128. These details incorporate ICD-9 codes only. For the specified ICD-10 codes and a detailed listing of ICD 9 codes see attached spreadsheet in S2.b.	Patient was a permanent nursing home resident during the measurement period. Patient was in hospice or palliative care at any time during the measurement period. Patient died prior to the end of the measurement period. Documentation that diagnosis was coded in error. Patient has COPD (codes 491.2, 493.2x, 496, 506.4) Patient has emphysema (codes 492, 506.4, 518.1, 518.2) Patient has cystic fibrosis (code 277.0) Patient has acute respiratory failure (code 518.81)
Risk Adjustment	Other In order to allow for more granular comparisons this measure is specified to be stratified. Stratification for risk adjustment of this measure would not be justified by the literature. Although epidemiological findings support our stratification schema, n N/A	Statistical risk model Risk adjustment model is estimated using a logistic model implemented in the SAS Procedure Glimmix that accounts for the measure´s non-continuous (binary) nature. The dependent variable is Optimal Asthma Control. Risk factor variables include patient age, gender, insurance product, patient´s zip code, race/ethnicity and preferred language. Risk Model is available in attached Excel or csv file at S.2b
Stratificati	Specifications for this measure requires stratification by age group and race/ethnicity. Several	Patient age group (children 5-17 years,

on	additional stratifications are optional but may be required by the accountability entity or reported by the reporting entity. These variables include rurality	adults 18-50 years) Patient gender Patient 5 digit zip code, primary residence Race and ethnicity code or codes (up to 5) as defined in the MNCM REL Data Field Specifications and Codes Country of origin as defined in the MNCM REL Data Field Specifications and Codes Primary language as defined in the MNCM REL Data Field Specifications and Codes Insurance coverage code as defined in the MNCM Insurance Coverage Data Field Specifications and Codes
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = higher score
Algorithm	Step 1: Measure person-time eligible for each patient and record by month. a. For each month in the reporting year, identify all children ages 2 – 21 years who meet the criteria for Identifiable asthma during the assessment period. The assessment period is defined as the year prior to the reporting year plus all months in the reporting year prior to the reporting month. Identify and maintain a unique patient identifier and all stratification variables. To illustrate: if the goal is to report for January 2011, first one would identify children with Identifiable asthma using the criteria, and analyze all of calendar year 2010 when doing so. Continuous enrollment criterion requires that the child was enrolled in November and December of 2010, as well as January 2011. This total represents the number of person-months (child-months) for January. Next, for February: one would identify children with Identifiable asthma using the criteria, and analyze all of calendar year 2010 AND January 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in December 2010 and January 2011, as well as February 2011. This is the number of person-months (child-months) for February. Repeat this progression monthly so that for December, one would identify children with Identifiable asthma and analyze all of calendar year 2010 AND January through November 2011 when doing so. Continuous enrollment criterion requires that the child was enrolled in October 2011 and November 2011, as well as December 2011. This is the number of person-months (child-months) for December. b. Sum all months that are eligible from the reporting year. This sum is the denominator in	"The measure is calculated by submitting a file of individual patient values through a HIPAA secure data portal. Programming within the data portal determines if each patient is a numerator case and then a rate is calculated for each clinic site. 1)Is the patient's DOB within the allowable time frame? Yes>>Continue No>>Patient not included in denominator 2)Has the patient had two office visits coded with an asthma diagnosis during the current and year prior to the measurement period?

	people-months. Divide by 1200. This is denominator in 100 people-years. This is the denominator for the year. Step 2: Month by month, considering the definitions above, identify the number of discrete numerator events: a. Identify the number and date of ED visits with asthma as a primary or secondary diagnosis among those children who are eligible for that reporting month. b. Identify the number and date of inpatient hospitalizations with asthma as a primary or secondary diagnosis among those children who are eligible for that reporting month. c. Identify the number of discrete numerator events. Consecutive days with inpatient hospital codes are considered one hospitalization. Hospitalizations on day of or day after ED visit are NOT considered discrete from the ED visit. d. Sum the number of numerator events across the year. e. Maintain stratification variables and unique identifiers. Step 3. Calculate rate as Numerator / Denominator. While this measure is specified for the year, it has also been validated to demonstrate seasonality using monthly rates. Step 4. Calculate stratification variables as specified in S.12. Step 5. Repeat by strata. Within age strata repeat by other specified strata. Perform other cross tabulations as requested by the accountability entity. Eliminate any strata with less than 40 person-months in any month's denominator OR less than 1000 person-months for the year. Appendix 1, Figure A.1 illustrates the calculation of person-time and is considered fundamental to this calculation algorithm. Available in attached appendix at A.1	Yes>>Continue No>>Patient not included in denominator 3) Has the patient had one office visit for any reason during the measurement period? Yes>> Patient included in denominator, continue No>> Patient not included in denominator 4) Did the patient have an asthma control test within the measurement period? Yes>> Continue No>> Patient not included in numerator 5) Is the asthma control test tool used acceptable for the patient's age? Yes>> Continue No>> Patient not included in numerator 6) Is the value of the control test equivalent to ""in control""? Yes>> Continue No>> Patient not included in numerator 7) During the measurement period, was the patient asked about any hospitalizations or emergency department visits due to asthma in the 12 months prior? Yes>>Continue No>> Patient not included in numerator 8) Was the sum of patient reported emergency department visits and

		hospitalizations due to asthma in the prior 12 months equal to 0 or 1? Yes>> Patient included in numerator No>> Patient not included in numerator" Available in attached appendix at A.1
Submission items	5.1 Identified measures: 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Our definition of identifiable asthma is more inclusive than, for example, NCQA's persistent asthma construct. We use similar medication definitions as NCQA, except we exclude leukotriene inhibitors from asthma-related medications because our expert panel felt that these medications were used frequently for allergy patients and judged that the small gain in sensitivity of identifying children (considering all criteria) would be less than the loss in sensitivity and likelihood to include non-asthmatic children with allergies. Our specifications have been validated by an expert panel in the context of a peer reviewed process commissioned by AHRQ and CMS to advance the field and science of pediatric quality measurement beyond the state represented in pre-existing measures. The specification of a person-time denominator allows for the measure to have a shorter requirement for continuous enrollment than other measures with less risk of bias than previous measures. 5b.1 If competing, why superior or rationale for additive value:	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

Comparison of NQF #0047 and NQF #1799 and NQF #1800

	0047 Asthma: Pharmacologic Therapy for Persistent Asthma	1799 Medication Management for People with Asthma	1800 Asthma Medication Ratio
Steward	The American Academy of Asthma Allergy and Immunology	National Committee for Quality Assurance	National Committee for Quality Assurance
Description	Percentage of patients aged 5 years and older 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	The percentage of patients 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 patients who remained on an asthma controller medication for at least 50% of their treatment period. 2. The percentage of patients who remained on an asthma controller medication for at least 75% of their treatment period.	The percentage of patients 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	Process	Process
Data Source	Administrative claims, Electronic Clinical Data, Paper Medical Records, Electronic Clinical Data: Registry Not Applicable Attachment Asthma_Pharma_NQF_0047_ICD-10_code_definitions.xlsx	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 1799_MMA_Value_Sets.xlsx	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 1800_AMR_Value_Sets.xlsx
Level	Clinician: Group/Practice, Clinician: Individual	Health Plan, Integrated Delivery System	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic	Ambulatory Care: Clinician Office/Clinic	Ambulatory Care: Clinician Office/Clinic
Time Window	Once during the measurement period	Numerator: 12 month period (the measurement year) Denominator: 24 month period (the	Numerator: 12 month period (the measurement year) Denominator: 24 month period (the

		measurement year and the year prior) Exclusions: lookback through the patient's history through the last day of the measurement year	measurement year and the year prior) Exclusions: lookback through the patient's history through the last day of the measurement year
Numerator Statement	Patients who were prescribed long-term control medication	Numerator 1 (Medication Adherence 50%): The number of patients who achieved a PDC* of at least 50% for their asthma controller medications during the measurement year. A higher rate is better. Numerator 2 (Medication Adherence 75%): The number of patients who achieved a PDC* of at least 75% for their asthma controller medications during the measurement year. A higher rate is better. *PDC is the proportion of days covered by at least one asthma controller medication prescription, divided by the number of days in the treatment period. The treatment period is the period of time beginning on the earliest prescription dispensing date for any asthma controller medication during the measurement year through the last day of the measurement year.	The number of patients who had a ratio of controller medications to total asthma medications of 0.50 or greater during the measurement year.
Numerator Details	Patients who were prescribed long-term control medication Definition: 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, asthma biologic agents, leukotriene modifiers) Prescribed: May include prescription given to	Follow the steps below to identify numerator compliance. Step 1: Identify the Index Prescription Start Date*. The Index Prescription Start Date is the earliest dispensing event for any asthma controller medication (refer to MMA-B Asthma Controller Medications) during the measurement year. Step 2: To determine the treatment period, calculate the number of days beginning on the Index Prescription Start Date through the end of the measurement year. Step 3: Count the days covered by at least one prescription for an asthma controller	Follow the steps below to identify numerator compliance. Step 1: For each patient, count the units of controller medications (see AMR-A) dispensed during the measurement year. When identifying medication units for the numerator, count each individual medication, defined as an amount lasting 30 days or less, as one medication unit. One medication unit equals one inhaler canister, one injection, or a 30-day or less supply of an oral medication. For example, two inhaler canisters of the same medication dispensed on the same day count as two medication

	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. Table 1: Preferred Asthma Control Medication - Inhaled Corticosteroids beclomethasone budesonide ciclesonide flunisolide fluticasone mometasone Table 2: Alternative Long-term Control Medications Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; fluticasone-vilanterol; mometasone-formoterol Asthma biologic agents: mepolizumab; omalizumab Leukotriene modifiers: montelukast; zafirlukast; zileuton For Claims: Report CPT Category II code: Performance Met: Inhaled corticosteroids prescribed (4140F) OR Performance Met: Alternative long-term control medication prescribed (4144F) OR Patient Performance Exclusion: Documentation of patient reason(s) for not	medication (refer to MMA-B Asthma Controller Medications) during the treatment period. To ensure that days supply that extends beyond the measurement year is not counted, subtract any days supply that extends beyond the end of the of the measurement year (e.g., December 31). Step 4: Calculate the patient's Proportion of Days Covered using the following equation. Round (using the .5 rule) to two decimal places. (Total Days Covered by a Controller Medication in the Treatment Period (Step 3) /Total Days in Treatment Period (Step 2)) Numerator 1 (Medication Adherence 50%): Sum the number of patients whose Proportion of Days Covered is > or =50% for their treatment period. Numerator 2 (Medication Adherence 75%): Sum the number of patients whose Proportion of Days Covered is > or =75% for their treatment period MMA-B: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone, Leukotriene modifiers: montelukast, zafirlukast, zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline, dyphylline,	units and only one dispensing event. Use the package size and units columns in the NDC list to determine the number of canisters or injections. Divide the dispensed amount by the package size to determine the number of canisters or injections dispensed. For example, if the package size for an inhaled medication is 10g and pharmacy data indicates the dispensed amount is 30 g, this indicates 3 inhaler canisters were dispensed. Step 2: For each patient, count the units of reliever medications (see AMR-A) dispensed during the measurement year. Step 3: For each patient, sum the units calculated in step 1 and step 2 to determine units of total asthma medications. Step 4: For each patient, calculate the ratio of controller medications to total asthma medications using the following formula: Units of Controller Medications (Step 1)/ Units of Total Asthma Medications (Step 3) Step 5: Sum the total number of patients who have a ratio of 0.50 or greater in step 4. AMR-A: Asthma Controller and Reliever Medications Asthma Controller Medications: -Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline -Antibody inhibitors: omalizumab -Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; mometasone-formoterol -Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone -Leukotriene modifiers: montelukast;

	prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason) (4140F with 2P) OR Performance Not Met: Inhaled corticosteroids or alternative long-term control medication not prescribed, reason not otherwise specified (4140F with 8P)	theophylline	zafirlukast; zileuton -Mast cell stabilizers: cromolyn -Methylxanthines: aminophylline; dyphylline; theophylline. Asthma Reliever Medications: -Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; pirbuterol.
Denominator Statement	All patients aged 5 years and older with a diagnosis of persistent asthma	All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year: • At least one emergency department visit with asthma as the principal diagnosis • At least one acute inpatient claim/encounter with asthma as the principal diagnosis • At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits. • At least four asthma medication dispensing events	All patients 5–64 years of age as of December 31 of the measurement year who have persistent asthma by meeting at least one of the following criteria during both the measurement year and the year prior to the measurement year: • At least one emergency department visit with asthma as the principal diagnosis • At least one acute inpatient claim/encounter with asthma as the principal diagnosis • At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits. • At least four asthma medication dispensing events
Denominator Details	All patients aged 5 years and older with a diagnosis of persistent asthma Denominator Instructions: Documentation of persistent asthma must be present. One method of identifying persistent asthma is, at a minimum, more than twice a week but not daily use of short-acting bronchodilators for mild-persistent asthma, daily use for moderate persistent asthma; and several	The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify patients 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.	The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify patients 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.

	times a day for severe persistent asthma. Denominator Criteria (Eligible Cases): Patients aged = 5 years on date of encounter AND Diagnosis for asthma (ICD-10-CM): J45.30, J45.31, J45.32, J45.40, J45.41, J45.42, J45.50, J45.51, J45.52, J45.901, J45.902, J45.909, J45.990, J45.991, J45.998 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Persistent Asthma (mild, moderate or severe): 1038F **Note: If ICD-10 CM codes J45.30-J45.52 are used to identify the denominator, CPT II code for 1038F is not required; these ICD-10 CM codes capture “persistent asthma”.	• At least one ED visit (refer to codes in ED Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least one acute inpatient claim/encounter (refer to codes in Acute Inpatient Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least four outpatient visits (refer to codes in Outpatient Value Set) or observation visits (refer to codes in Observation Value Set) on different dates of service, with any diagnosis of asthma (refer to codes in Asthma Value Set) AND at least two asthma medication dispensing events (see MMA-A). Visit type need not be the same for the four visits. • At least four asthma medication dispensing events (see MMA-A) Step 2: A patient identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (refer to codes in Asthma Value Set), in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). See attached value set Excel document for the following value sets: - ED Value Set - Asthma Value Set - Acute Inpatient Value Set - Outpatient Value Set	• At least one ED visit (refer to codes in ED Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least one acute inpatient claim/encounter (refer to codes in Acute Inpatient Value Set) with asthma as the principal diagnosis (refer to codes in Asthma Value Set). • At least four outpatient visits (refer to codes in Outpatient Value Set) or observation visits (refer to codes in Observation Value Set) on different dates of service, with any diagnosis of asthma (refer to codes in Asthma Value Set) AND at least two asthma medication dispensing events (see MMA-A). Visit type need not be the same for the four visits. • At least four asthma medication dispensing events (see MMA-A) Step 2: A patient identified as having persistent asthma because of at least four asthma medication dispensing events, where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma (refer to codes in Asthma Value Set), in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). See attached value set Excel document for the following value sets: - ED Value Set - Asthma Value Set - Acute Inpatient Value Set - Outpatient Value Set

		- Observation Value Set MMA-A: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; Mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; metaproterenol; pirbuterol	- Observation Value Set MMA-A: Asthma Medications Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; Mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; metaproterenol; pirbuterol
Exclusions	Denominator Exceptions: Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason) The AAAAI follows PCPI exception methodology and PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when patients who are included in the initial patient or eligible population for a measure do not meet the denominator criteria specific to the intervention required by the numerator. Exclusions are absolute and apply to all patients and therefore are not part of clinical judgment within a measure. For this measure, exceptions may include	1) Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31): -COPD -Emphysema -Obstructive Chronic Bronchitis -Chronic Respiratory Conditions Due To Fumes/Vapors -Cystic Fibrosis -Acute Respiratory Failure 2) Exclude any patients who had no asthma controller medications dispensed during the measurement year.	Exclude patients who had any of the following diagnoses any time during the patient's history through the end of the measurement year (e.g., December 31): -COPD -Emphysema -Obstructive Chronic Bronchitis -Chronic Respiratory Conditions Due To Fumes/Vapors -Cystic Fibrosis -Acute Respiratory Failure Exclude any patients who had no asthma medications (controller or reliever) dispensed during the measurement year.

	patient reason(s) (eg, patient declined). Although this methodology does not require the external reporting of more detailed exception data, the AAAAI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. In further accordance with PCPI exception methodology, the AAAAI advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement.		
Exclusion Details	For Claims: Report CPT Category II code with modifier: 4140F-2P: Documentation of patient reason(s) for not prescribing inhaled corticosteroids or alternative long-term control medication (eg, patient declined, other patient reason)	1) Exclude patients who had any diagnosis of Emphysema (refer to codes in Emphysema Value Set or Other Emphysema Value Set), COPD (refer to codes in COPD Value Set), Chronic Bronchitis (refer to codes in Obstructive Chronic Bronchitis Value Set), Chronic Respiratory Conditions Due To Fumes/Vapors (refer to codes in Chronic Respiratory Conditions Due to Fumes/Vapors Value Set), Cystic Fibrosis (refer to codes in Cystic Fibrosis Value Set) or Acute Respiratory Failure (refer to codes in Acute Respiratory Failure Value Set) any time during the patient's history through the end of the measurement year (e.g., December 31). 2) Exclude any patients who had no asthma controller medications (see MMA-B) dispensed during the measurement year. See attached value set Excel document for the following value sets: - Emphysema Value Set – Other Emphysema Value Set – COPD Value Set	1) Exclude patients who had any diagnosis of Emphysema (refer to codes in Emphysema Value Set or Other Emphysema Value Set), COPD (refer to codes in COPD Value Set), Chronic Bronchitis (refer to codes in Obstructive Chronic Bronchitis Value Set), Chronic Respiratory Conditions Due To Fumes/Vapors (refer to codes in Chronic Respiratory Conditions Due to Fumes/Vapors Value Set), Cystic Fibrosis (refer to codes in Cystic Fibrosis Value Set) or Acute Respiratory Failure (refer to codes in Acute Respiratory Failure Value Set) any time during the patient's history through the end of the measurement year (e.g., December 31). 2) Exclude any patients who had no asthma medications (controller or reliever) (see AMR-A) dispensed during the measurement year. See attached value set Excel document for the following value sets: - Emphysema Value Set – Other Emphysema Value Set

		– Obstructive Chronic Bronchitis Value Set – Chronic Respiratory Conditions Due to Fumes/Vapors Value Set – Cystic Fibrosis Value Set – Acute Respiratory Failure Value Set MMA-B: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin, guaifenesin-theophylline Antibody inhibitor: omalizumab Inhaled steroid combinations: budesonide-formoterol, fluticasone-salmeterol, mometasone-formoterol Inhaled corticosteroids: beclomethasone, budesonide, ciclesonide, flunisolide, fluticasone CFC free, mometasone Leukotriene modifiers: montelukast, zafirlukast, zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline, dyphylline, theophylline	– COPD Value Set – Obstructive Chronic Bronchitis Value Set – Chronic Respiratory Conditions Due to Fumes/Vapors Value Set – Cystic Fibrosis Value Set – Acute Respiratory Failure Value Set AMR-A: Asthma Controller and Reliever Medications: Asthma Controller Medications: Antiasthmatic combinations: dyphylline-guaifenesin; guaifenesin-theophylline Antibody inhibitors: omalizumab Inhaled steroid combinations: budesonide-formoterol; fluticasone-salmeterol; mometasone-formoterol Inhaled corticosteroids: beclomethasone; budesonide; ciclesonide; flunisolide; fluticasone CFC free; mometasone; Leukotriene modifiers: montelukast; zafirlukast; zileuton Mast cell stabilizers: cromolyn Methylxanthines: aminophylline; dyphylline; theophylline. Asthma Reliever Medications: Short-acting, inhaled beta-2 Agonists: albuterol; levalbuterol; pirbuterol.
Risk Adjustment	No risk adjustment or risk stratification	No risk adjustment or risk stratification N/A	No risk adjustment or risk stratification N/A
Stratification		Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the patient's age as of the end of the Measurement Year (e.g., December 31). 1) 5–11 years 2) 12–18 years	Four age stratifications and a total rate are reported for this measure. Age for each stratum is based on the patient's age as of the end of the Measurement Year (e.g., December 31). 1) 5–11 years 2) 12–18 years

		3) 19-50 years 4) 51-64 years 5) Total (5-	3) 19-50 years 4) 51-64 years 5) Total (5-
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher 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. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. –Although exception cases are removed from the denominator population for the performance calculation, the number of patients with valid	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. 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 the eligible population: Identify patients 5–64 years of age as of December 31 of the measurement year 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 year: a) At least one ED visit with asthma as the principal diagnosis; or b) At least one acute inpatient claim/encounter with asthma as the principal diagnosis; or c) At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits; or d) At least four asthma medication dispensing events*	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. This measure determines the percentage of patients with persistent asthma who had a ratio of controller medications to total asthma medications of 0.50 or greater based on information available from the published NDC codes. The measure calculation is detailed in the steps listed below: Step 1: Determine the eligible population: Identify patients 5–64 years of age as of December 31 of the measurement year 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 year: a) At least one ED visit with asthma as the principal diagnosis; or b) At least one acute inpatient claim/encounter with asthma as the principal diagnosis; or c) At least four outpatient visits or observation visits on different dates of service, with any diagnosis of asthma AND at least two asthma medication dispensing events. Visit type need not be the same for the four visits; or d) At least four asthma medication

	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. No diagram provided	*A patient identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma, in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). Step 2: Determine denominator exclusions: a) Exclude patients who had any diagnosis of Emphysema, COPD, Chronic Bronchitis, Chronic Respiratory Conditions Due to Fumes/Vapors, Cystic Fibrosis or Acute Respiratory Failure any time during the patient's history through the end of the measurement year b) Exclude patients who had no asthma controller medications dispensed during the measurement year. Step 3: Determine numerator: a) Identify the Index Prescription Start Date. The Index Prescription Start Date is the earliest dispensing event for any asthma controller medication during the measurement year. b) To determine the treatment period, calculate the number of days beginning on the Index Prescription Start Date through the end of the measurement year. c) Count the days covered by at least one prescription for an asthma controller medication during the treatment period. To ensure that days supply that extends beyond the measurement year is not counted, subtract any days supply that extends	dispensing events* *A patient identified as having persistent asthma because of at least four asthma medication dispensing events where leukotriene modifiers or antibody inhibitors were the sole asthma medication dispensed in that year, must also have at least one diagnosis of asthma, in any setting, in the same year as the leukotriene modifier or antibody inhibitor (i.e., measurement year or year prior to the measurement year). Step 2: Determine denominator exclusions: a) Exclude patients who had any diagnosis of Emphysema, COPD, Chronic Bronchitis, Chronic Respiratory Conditions Due to Fumes/Vapors, Cystic Fibrosis or Acute Respiratory Failure any time during the patient's history through the end of the measurement year b) Exclude patients who had no asthma medications (controller or reliever) dispensed during the measurement year. Step 3: Determine numerator: a) For each patient, count the units of controller medications (see AMR-A) dispensed during the measurement year. When identifying medication units for the numerator, count each individual medication, defined as an amount lasting 30 days or less, as one medication unit. One medication unit equals one inhaler canister, one injection, or a 30-day or less supply of an oral medication. For example, two inhaler canisters of the same medication dispensed on the same day count as two medication units and only one dispensing event. Use the package size and units columns in the NDC

		beyond the end of the of the measurement year (e.g., December 31). d) Calculate the patient's Proportion of Days Covered using the following equation. Round (using the .5 rule) to two decimal places: (Total Days Covered by a Controller Medication in the Treatment Period/Total Days in Treatment Period) e) Calculate Numerator 1: Sum the number of patients whose Proportion of Days Covered is > or =50% for their treatment period. f) Calculate Numerator 2: Sum the number of patients whose Proportion of Days Covered is > or =75% for their treatment period Step 4: Calculate two rates: a) Number of patients whose PDC is > or =50% for their treatment period/Denominator b) Number of patients whose PDC is > or =75% for their treatment period/Denominator No diagram provided	list to determine the number of canisters or injections. Divide the dispensed amount by the package size to determine the number of canisters or injections dispensed. For example, if the package size for an inhaled medication is 10g and pharmacy data indicates the dispensed amount is 30 g, this indicates 3 inhaler canisters were dispensed. b) For each patient, count the units of reliever medications (see AMR-A) dispensed during the measurement year. c) For each patient, sum the units calculated in step a and step b to determine units of total asthma medications. d) For each patient, calculate the ratio of controller medications to total asthma medications using the following formula: Units of Controller Medications (Step a)/ Units of Total Asthma Medications (Step c) e) Sum the total number of patients who have a ratio of 0.50 or greater in step d. Step 4: Calculate the measure rate: the number of patients have a ratio of 0.50 or greater/Denominator No diagram provided
Submission items	5.1 Identified measures: 1799: Medication Management for People with Asthma 1800: Asthma Medication Ratio 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measures 0047 is similar to NQF measure 1800 (Asthma Medication Ratio) and measure 1799 (Medication Management for People with Asthma) in regards to the denominator	5.1 Identified measures: 0047: Asthma: Pharmacologic Therapy for Persistent Asthma 0548: Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT) 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0047 is a physician-level measure that assesses whether a patient was prescribed medication at least once during the measurement year,	5.1 Identified measures: 0047: Asthma: Pharmacologic Therapy for Persistent Asthma 0548: Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT) 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0047 assesses whether a patient was prescribed controller medication at least once during the measurement year, while 1800 assesses the

	population of patients with persistent asthma. However, the denominators differ with respect to the method by which patients with persistent asthma are identified. For measures 1800 and 1799, persistent asthma is defined from administrative data, while for measure 0047, persistent asthma is defined based on clinical information. Additionally, the denominator for measure 0047 been updated to include asthma patients aged 65 and older, an important population that is not reached by measures 1800 and 1799. The numerator for measure 0047 is similar to the numerator in measure 1799, except that inhaled corticosteroids and alternative controllers are reported separately as well as together. The separate reporting rates required by measure 0047 for inhaled corticosteroids and for alternative long-term control medications will be useful for clinicians to assess and manage the use of the preferred vs. alternative long-term control medications for their patients. The numerator of measure 0047 has also been updated to include current and appropriate alternative long-term control medications. While the inhaled corticosteroids in measure 0047 and 1799 are well harmonized, the alternative long-term controllers differ. Measure 1799 includes nedocromil, methylxanthines and cromolyn, all medications that were reviewed by the AAAAI's measure stewardship committee and removed. 5b.1 If competing, why superior or rationale for additive value:	while our measure assesses patient adherence to asthma controller medications throughout the measurement year. 0548 is a health plan-level measure that assesses two rates of poor asthma control that indicate over-utilization of rescue medication and need for additional therapeutic intervention; meanwhile our measure assesses patient adherence to asthma controller medications during the measurement year. There is no impact on interpretability or added burden of data collection because the focus of each measure is different and the data for each measure is collected from different data sources by different entities. 5b.1 If competing, why superior or rationale for additive value:	ratio of controller medications to controller plus reliever medications. There is no impact on interpretability or added burden of data collection because the focus of each measure is different. Also, both measures use value sets to identify asthma controller medications that do not conflict. 0548 is a health plan-level measure that assesses overutilization of rescue medication and need for additional therapeutic intervention. However, 0548 assesses it over a shorter time period (a 90-day period) compared to 1800 (over a measurement year). Also, 1800 assesses a ratio of controller to reliever medications in order to take into account the patients who have severe asthma and may need higher amounts of reliever medication, but still have their asthma under control due to taking daily controller medications. 5b.1 If competing, why superior or rationale for additive value:

Comparison of NQF #0728 and NQF#0283

	0728 Asthma Admission Rate (PDI 14)	0283 Asthma in Younger Adults Admission Rate (PQI 15)
Steward	Agency for Healthcare Research and Quality	Agency for Healthcare Research and Quality
Description	Admissions with a principal diagnosis of asthma per 100,000 population, ages 2 through 17 years. Excludes cases with a diagnosis code for cystic fibrosis and anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.	Admissions for a principal diagnosis of asthma per 1,000 population, ages 18 to 39 years. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.
Type	Outcome	Outcome
Data Source	Administrative claims All analyses were completed using data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), 2007-2011.HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, private data organizations, and the Federal government to create a national information resource of encounter-level health care data. The HCUP SID contain the universe of the inpatient discharge abstracts in participating States, translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass about 97 percent of all U.S. community hospital discharges (in 2011, 46 states participated for a total of more than 38.5 million hospital discharges with approximately 5 million pediatric (including births) hospital discharges). As defined by the American Hospital Association, community hospitals are all non-Federal, short-term, general or other specialty hospitals, excluding hospital units of institutions. Veterans hospitals and other Federal facilities are excluded. General and speciality children's hospitals are included in the hospital universe. Taken from the Uniform Bill-04 (UB-04), the SID data elements include ICD-9-CM coded principal and secondary diagnoses and procedures, additional detailed clinical and service information based on revenue codes, admission and discharge status, patient demographics, expected payment source (Medicare, Medicaid, private insurance as well as the uninsured), total charges and length of stay (www.hcup-us.ahrq.gov) HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization	Administrative claims. While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM or ICD-10-CM/PCS coded administrative billing/claims/discharge dataset. Available at measure-specific web page URL identified in S.1

	Project (HCUP). 2007-2011. Agency for Healthcare Research and Quality, Rockville, MD. www.ahrq.gov/sidoverview.jsp (AHRQ QI Software Version 4.5, www.qualityindicators.ahrq.gov) Available at measure-specific web page URL identified in S.1 Attachment Asthma_Admission_Rate_-_Pediatric_Quality_Indicators_PDI_14-635296211157546484.xlsx	
Level	Population: County or City, Population: National, Population: Regional, Population: State	Population: County or City
Setting	Hospital/Acute Care Facility	All community based care
Time Window	Time window can be determined by user, but is generally 1 year.	Users may specify a time period; but the time period is generally one year. Note that the reference population rates and signal variance parameters assume a one-year time period.
Numerator Statement	Discharges, for patients ages 2 through 17 years, with a principal ICD-9-CM diagnosis code for asthma.	Discharges, for patients ages 18 through 39 years, with a principal ICD-9-CM or ICD-10-CM/PCS diagnosis code for asthma. [NOTE: By definition, discharges with a principal diagnosis of asthma are precluded from an assignment of MDC 14 by grouper software. Thus, obstetric discharges should not be considered in the PQI rate, though the AHRQ QI software does not explicitly exclude obstetric cases.]"
Numerator Details	ICD-9-CM Asthma diagnosis codes: 49300 EXTRINSIC ASTHMA NOS 49301 EXT ASTHMA W STATUS ASTH 49302 EXT ASTHMA W(ACUTE) EXAC 49310 INTRINSIC ASTHMA NOS 49311 INT ASTHMA W STATUS ASTH 49312 INT ASTHMA W (AC) EXAC 49320 CHRONIC OBST ASTHMA NOS 49321 CH OB ASTHMA W STAT ASTH 49322 CH OBST ASTH W (AC) EXAC 49381 EXERCSE IND BRONCHOSPASM 49382 COUGH VARIANT ASTHMA 49390 ASTHMA NOS 49391 ASTHMA W STATUS ASTHMAT	Please see attached excel file in S.2b. for Version 6.0 specifications. Prevention Quality Indicators technical specifications and appendices also available online at http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx). Note: The URL link currently provides Version 5.0 specifications. Version 6.0 specifications will be released publicly March 2016.

	49392 ASTHMA NOS W (AC) EXAC Exclude cases: • with any-listed ICD-9-CM diagnosis codes for cystic fibrosis and anomalies of the respiratory system • transfer from a hospital (different facility) • transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) • transfer from another health care facility • MDC 14 (pregnancy, childbirth, and puerperium) • with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), principal diagnosis (DX1=missing), or county (PSTCO=missing) ICD-9-CM Cystic fibrosis and anomalies of the respiratory system diagnosis codes: 27700 CYSTIC FIBROS W/O ILEUS 27701 CYSTIC FIBROSIS W ILEUS 27702 CYSTIC FIBROS W PUL MAN 27703 CYSTIC FIBROSIS W GI MAN 27709 CYSTIC FIBROSIS NEC 51661 NEUROEND CELL HYPRPL INF 51662 PULM INTERSTITL GLYCOGEN 51663 SURFACTANT MUTATION LUNG 51664 ALV CAP DYSP W VN MISALN 51669 OTH INTRST LUNG DIS CHLD 74721 ANOMALIES OF AORTIC ARCH 7483 LARYNGOTRACH ANOMALY NEC 7484 CONGENITAL CYSTIC LUNG 7485 AGENESIS OF LUNG 74860 LUNG ANOMALY NOS 74861 CONGEN BRONCHIECTASIS 74869 LUNG ANOMALY NEC 7488 RESPIRATORY ANOMALY NEC 7489 RESPIRATORY ANOMALY NOS 7503 CONG ESOPH FISTULA/ATRES	

	7593 SITUS INVERSUS 7707 PERINATAL CHR RESP DIS See Pediatric Quality Indicators Appendices: Appendix J – Admission Codes for Transfers. See Pediatric Quality Indicators technical specifications and appendices for additional details (available at http://www.qualityindicators.ahrq.gov/Modules/PDI_TechSpec.aspx) and in the supporting information.	
Denominator Statement	Population ages 2 through 17 years in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.	Population ages 18 through 39 years in metropolitan area or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.
Denominator Details	The term “metropolitan area” (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software. See AHRQ QI website or supplemental information for 2013 Population File Denominator report for calculation of population estimates embedded within AHRQ QI software programs. http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V45/AHRQ%20QI%20Population%20File%20V4.5.pdf NOTE: The denominator can be specified with the asthmatic population only. Payers have also specified annual disease-specific population denominators based on all-claims data for beneficiaries, restricting the denominator to those beneficiaries who have an indication of asthma in a previous outpatient or inpatient visit. Annual asthma-specific population denominators would need to be weighted by months of beneficiary enrollment. Reliability testing currently underway for application of the measure to other populations, such as patients in physician practices.	The term “metropolitan area” (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs) and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software. See AHRQ QI website for 2014 Population File Denominator report for calculation of population estimates embedded within AHRQ QI software programs. http://www.qualityindicators.ahrq.gov/Downloads/Software/SAS/V50/AHRQ_QI_Population_File_V50.pdf
Exclusions	Not applicable	Not applicable

Exclusion Details	Not applicable	Not applicable
Risk Adjustment	Statistical risk model The predicted value for each case is computed using a hierarchical model (logistic regression with area random effect) and covariates for gender and age (in age groups). The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the year 2010 (combined), a database consisting of 44 states and approximately 5 million pediatric discharges (, and the U.S. Census data by county. 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., area). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Additional information on methodology can be found in the Empirical Methods document on the AHRQ Quality Indicator website (www.qualityindicators.ahrq.gov) and in the supplemental information. The specific covariates for this measure are as follow:age and sex: 2-4 Males 5-9 Males 10-14 Males 15-17 Males 2-4 Females 5-9 Females 10-14 Females 15-17 Females The risk adjustment coefficient table can be found in the supplemental materials and at the following link: http://www.qualityindicators.ahrq.gov/Downloads/Modules/PDI/V45/Parameter_Estimates_PDI_45.pdf Available in attached Excel or csv file at S.2b	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 5-year age groups). An option model is available that includes percent of households under the federal poverty level as well. Because we cannot individually observe the age and gender of each person in a counties population, we use the age and gender distribution of the county to estimate the number of “cases” in each age*gender group. The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Data (SID) for the year 2013 (combined), a database consisting of 40 states and the U.S. Census data by county. 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., area). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Additional information on methodology can be found in the Empirical Methods document on the AHRQ Quality Indicator website (www.qualityindicators.ahrq.gov) and in the attached supplemental information. The specific covariates for this measure are as follows: PARAMETER LABEL SEX Female AGE Male, Age 18-24 AGE Male, Age 25-29 AGE Male, Age 30-34 AGE Male, Age 35-39 AGE Female, Age 18-24 AGE Female, Age 25-29

		AGE Female, Age 30-34 AGE Female, Age 35-39 POVCAT Poverty Decile 2 POVCAT Poverty Decile 3 POVCAT Poverty Decile 4 POVCAT Poverty Decile 5 POVCAT Poverty Decile 6 POVCAT Poverty Decile 7 POVCAT Poverty Decile 8 POVCAT Poverty Decile 9 POVCAT Poverty Decile 10 (Highest percent poverty)1 1Deciles are based on the percentage of households under the federal poverty level (FPL). Source: http://qualityindicators.ahrq.gov/Modules/pqi_resources.aspx Parameter estimates with and without SES covariates (POVCAT) are included with the Technical Specifications. Please note Version 6.0 will be released publicly March 2016." Available in attached Excel or csv file at S.2b
Stratification	Not applicable	Not applicable
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	The observed rate is the number of discharges flagged with the outcome of interest divided by the number of persons in the population at risk. The predicted rate is estimated for each person based on a logistic regression model. The expected rate is the average predicted rate for the unit of	The observed rate of each PQI is simply the number of individuals living in a county admitted to the hospital for the condition of interest divided by the census population estimate for the area (for PQI 15 ages 18-39). The expected rate is a comparative rate that

	interest (i.e. the county of residence). The risk-adjusted rate is calculated using the indirect method as observed rate divided by expected rate multiplied by the reference population rate. The performance score is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. For additional information, please see supporing information in the Quality Indicator Empirical Methods. Information is also available on the AHRQ Quality Indicator website: www.qualityindicators.ahrq.gov No diagram provided	incorporates information about a reference population that is not part of the user's input dataset – what rate would be observed if the expected performance observed in the reference population and estimated with risk adjustment regression models, were applied to the mix of patients with demographic distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. The expected rate is estimated for each county using logistic regression. The risk-adjusted rate is a comparative rate that also incorporates information about a reference population that is not part of the input dataset – what rate would be observed if the performance observed in the user's dataset were applied to a mix of patients with demographics distributed like the reference population. The risk adjusted rate is calculated using the indirect method as observed rate divided by expected rate multiplied by the reference population rate. The smoothed rate is the weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the reference population; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the variance of the estimated rate from the input dataset is large compared with the hospital-to-hospital variance estimated from the reference population. Thus, the smoothed rate is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. In practice, the smoothed rate brings rates toward the mean, and tends to do this more so for outliers (such as rural counties). For additional information, please see supporting information in the Quality Indicator Empirical Methods attached in the supplemental files.

Submission items	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: Not applicable	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: Not applicable

Comparison of NQF #0577 and NQF#0091

	0577 Use of Spirometry Testing in the Assessment and Diagnosis of COPD	0091 COPD: Spirometry Evaluation
Steward	National Committee for Quality Assurance	American Thoracic Society
Description	The percentage of patients 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.	Percentage of patients aged 18 years and older with a diagnosis of COPD who had spirometry results documented
Type	Process	Process
Data Source	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment 0577_SPR_Value_Sets.xlsx	Administrative claims, Electronic Clinical Data: Registry Not Applicable No data dictionary
Level	Health Plan, Integrated Delivery System	Clinician: Group/Practice, Clinician: Team
Setting	Ambulatory Care: Clinician Office/Clinic	Ambulatory Care: Clinician Office/Clinic
Time Window	Numerator: A two and a half year period that begins 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. Denominator: A 12 month period that begins 6 months prior to the beginning of the	Once per reporting period
Numerator Statement	At least one claim/encounter for spirometry during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD.	Patients with documented spirometry results in the medical record (FEV1 and FEV1/FVC)
Numerator Details	Follow the steps below to identify numerator compliance. Identify the number of patients who had at least one claim/encounter for spirometry (Spirometry Value Set) during the	Numerator Quality-Data Coding Options for Reporting Satisfactorily Numerator Instructions: Look for most recent documentation of

	730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient) during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD. - For an outpatient claim/encounter, the Index Episode Start Date is the date of service. - For an acute inpatient claim/encounter, the Index Episode Start Date is the date of discharge. - For a transfer or readmission, the Index Episode Start Date is the discharge date of the original admission. See corresponding Excel file for value sets referenced above.	spirometry evaluation results in the medical record; do not limit the search to the reporting period. To submit the numerator option for spirometry results documented and reviewed, report the following: Performance Met: CPT II 3023F: Spirometry results documented and reviewed OR Spirometry Results not Documented for Medical, Patient, or System Reasons Append a modifier (1P, 2P or 3P) to CPT Category II code 3023F to report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion: 3023F with 1P: Documentation of medical reason(s) for not documenting and reviewing spirometry results OR Patient Performance Exclusion: 3023F with 2P: Documentation of patient reason(s) for not documenting and reviewing spirometry results OR System Performance Exclusion: 3023F with 3P: Documentation of system reason(s) for not documenting and reviewing spirometry results OR Spirometry Results not Documented, Reason not Otherwise Specified Append a reporting modifier (8P) to CPT Category II code 3023F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified. Performance Not Met: 3023F with 8P: Spirometry results not documented and reviewed, reason not otherwise specified
Denominator Statement	All patients age 42 years or older as of December 31 of the measurement year, who had a new diagnosis of COPD or newly active COPD during the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year.	All patients aged 18 years and older with a diagnosis of COPD

Denominator Details	The eligible population for the denominator is defined by following the series of steps below: Step 1: Determine the Index Episode Start Date. Identify all patients who had any of the following during the intake period (the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year): 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. If the patient had more than one eligible visit, include only the first visit. Step 2: Test for negative diagnosis history. Exclude patients who had any of the following during the 731-day period prior to the Index Episode Start Date. 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set)	All Patients aged >= 18 years on date of encounter AND Diagnosis for COPD ICD-9-CM [for use before 9/30/2014]: 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 493.20, 493.21, 493.22, 496 ICD-10-CM [for use after 10/1/2014]: J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 (Please see listing below for ICD-9/ICD-10 code definitions) AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 _____ ICD-9/ICD-10 code definitions ICD-9-CM [for use before 9/30/2014]: 491.0 – Simple chronic bronchitis 491.1 – Mucopurulent chronic bronchitis 491.20 – Obstructive chronic bronchitis without exacerbation 491.21 – Obstructive chronic bronchitis with (acute) exacerbation 491.22 – Obstructive chronic bronchitis with acute bronchitis 491.8 – Other chronic bronchitis 491.9 – Unspecified chronic bronchitis 492.0 – Emphysematous bleb 492.8 – Other emphysema 493.20 – Chronic obstructive asthma, unspecified 493.21 – Chronic obstructive asthma with status asthmaticus 493.22 – Chronic obstructive asthma with (acute) exacerbation 496 – Chronic airway obstruction, not elsewhere classified ICD-10-CM [for use after 10/1/2014]: J41.0 – Simple chronic bronchitis J41.1 – Mucopurulent chronic bronchitis J41.8 – Mixed simple and mucopurulent chronic bronchitis

	b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. For an acute inpatient Index Episode Start Date, use the Index Episode Start Date of admission to determine the 731-day period. See corresponding Excel file for value sets referenced above.	J42 – Unspecified chronic bronchitis J43.0 – Unilateral pulmonary emphysema [MacLeod's syndrome] J43.1 – Panlobular emphysema J43.2 – Centrilobular emphysema J43.8 – Other emphysema J43.9 – Emphysema, unspecified J44.0 – Chronic obstructive pulmonary disease with acute lower respiratory infection J44.1 – Chronic obstructive pulmonary disease with (acute) exacerbation J44.9 – Chronic obstructive pulmonary disease, unspecified
Exclusions	N/A	Documentation of medical reason(s) for not documenting and reviewing spirometry results Documentation of patient reason(s) for not documenting and reviewing spirometry results Documentation of system reason(s) for not documenting and reviewing spirometry results
Exclusion Details	N/A	ATS continues to use the PCPI exception methodology that uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure: medical, patient and system reasons. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would meet the denominator criteria. Exceptions are not absolute, and the application of exceptions is based on clinical judgment, individual patient characteristics, or patient preferences. 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 this measure, exceptions include medical reason(s), patient reason(s) or system reason(s) for not documenting spirometry results. Although this

		methodology does not require the external reporting of more detailed exception data, the ATS recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The ATS also conducts systematic review and analysis of exceptions data to identify practice patterns and opportunities for quality improvement. For Claims: Documentation of medical, patient, or system reason(s) for not documenting and reviewing spirometry results. Append a modifier (1P, 2P or 3P) to CPT Category II code 3023F to report documented circumstances that appropriately exclude patients from the denominator. 3023F with 1P: Documentation of medical reason(s) for not documenting and reviewing spirometry results 3023F with 2P: Documentation of patient reason(s) for not documenting and reviewing spirometry results 3023F with 3P: Documentation of system reason(s) for not documenting and reviewing spirometry results
Risk Adjustment	No risk adjustment or risk stratification N/A	No risk adjustment or risk stratification No risk adjustment or risk stratification.
Stratification	N/A	We encourage the results of this measure to be stratified by race, ethnicity, primary language, and administrative sex.
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	The measure calculation is detailed in the steps listed below: Step 1: Determine the eligible population. A. Determine the Index Episode Start Date. Identify all patients who had any of the following during the intake period (the 6 months prior to the beginning of the measurement year through the 6 months before the end of the measurement year): 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission.	1. Start with Denominator 2. Check Patient Age: a. If the Age is greater than or equal to 18 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing. b. If the Age is greater than or equal to 18 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Diagnosis. 3. Check Patient Diagnosis: a. If Diagnosis of COPD as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.

	2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. If the patient had more than one eligible visit, include only the first visit. B. Test for negative diagnosis history. Exclude patients who had any of the following during the 731-day period prior to the Index Episode Start Date. 1) An outpatient visit (Outpatient Value Set), an observation visit (Observation Value Set), or an ED visit (ED Value Set) with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with any diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay. For an acute inpatient Index Episode Start Date, use the Index Episode Start Date of admission to determine the 731-day period. Step 2: determine the numerator. Identify the number of patients who had at least one claim/encounter for spirometry (Spirometry Value Set) during the 730 days (2 years) prior to the Index Episode Start Date through 180 days (6 months) after the Index Episode Start Date. The Index Episode Start Date is the earliest date of service for an eligible visit (outpatient, ED or acute inpatient)	b. If Diagnosis of COPD as Listed in the Denominator equals Yes, proceed to check Encounter Performed. 4. Check Encounter Performed: a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Encounter as Listed in the Denominator equals Yes, include in the Eligible population. 5. Denominator Population: a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 patients in the sample calculation. 6. Start Numerator 7. Check Spirometry Results Documented and Reviewed: a. If Spirometry Results Documented and Reviewed equals Yes, include in Reporting Met and Performance Met. b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 patients in Sample Calculation. c. If Spirometry Results Documented and Reviewed equals No, proceed to Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results. 8. Check Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 patient in the Sample Calculation. c. If Documentation of Medical Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results.

	during the 6 months prior to the beginning of the measurement year through 6 months after the beginning of the measurement year with any diagnosis of COPD. - For an outpatient claim/encounter, the Index Episode Start Date is the date of service. - For an acute inpatient claim/encounter, the Index Episode Start Date is the date of discharge. - For a transfer or readmission, the Index Episode Start Date is the discharge date of the original admission. Step 3: calculate the rate: Numerator/Denominator. No diagram provided	9. Check Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 patients in the Sample Calculation. c. If Documentation of Patient Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results. 10. Check Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results: a. If Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b3 equals 0 patients in the Sample Calculation. c. If Documentation of System Reason(s) for Not Documenting and Reviewing Spirometry Results equals No, proceed to Spirometry Results Not Documented and Reviewed, Reason Not Specified. 11. Check Spirometry Results Not Documented and Reviewed, Reason Not Specified: a. If Spirometry Results Not Documented and Reviewed, Reason Not Specified equals Yes, include in Reporting Met and Performance Not Met. b. Reporting Met and Performance Not Met letter is represented in the Reporting Met in the Sample Calculation listed at the end of document. Letter c equals 2 patients in the Sample Calculation.

		c. If Spirometry Results Not Documented and Reviewed, Reason Not Specified equals No, include in Reporting Not Met. 12. Check Reporting Not Met a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from the reporting numerator in sample calculation. Please see Measure Flow in Appendix A.1 for 'Sample Calculation' referenced above. Available in attached appendix at A.1
Submission items	5.1 Identified measures: 0091: COPD: Spirometry Evaluation 0102: COPD: inhaled bronchodilator therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: NQF 0102 focuses on medication management for stable COPD or following an exacerbation, while our measure focuses on appropriate spirometry testing to confirm a new COPD diagnosis. There is no impact on interpretability or added burden of data collection because the focus of our measure is different. NQF 0091 is a physician-level measure that uses administrative claims or medical record data. There is no impact on interpretability or added burden of data collection because the data for our measure is collected from different data sources by different entities and the focus of our measure is different (0091 focuses on whether patients with a COPD diagnosis, not specifically a new diagnosis, had spirometry testing performed at least once during the measurement year, while 0577 specifies that patients with a new COPD diagnosis receive spirometry testing within 6 months following diagnosis). 5b.1 If competing, why superior or rationale for additive value: N/A	5.1 Identified measures: 0577: Use of Spirometry Testing in the Assessment and Diagnosis of COPD 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: These measures have distinct differences in their denominators and numerators. First, our measure is broader in denominator population, being for all patients age 18 years and older with a diagnosis of COPD, while 0577 is for patients age 40 years and older with a new diagnosis of COPD. Our measure is more consistent with COPD guidelines, which do not state an age to start using a spirometry evaluation; rather, spirometry should be used to assess all adults with COPD, not just adults with a new diagnosis of COPD. Second, our measure's numerator is more flexible than 0577, allowing a spirometry evaluation anytime during the measurement period, rather than 0577's requirement that spirometry be performed within 6 months of a new diagnosis of COPD. Our measure numerator is also specific to spirometry results, requiring both the FEV1/FVC values. 5b.1 If competing, why superior or rationale for additive value: N/A

Comparison of NQF #0102 and NQF#2856

	0102 COPD: inhaled bronchodilator therapy	2856 Pharmacotherapy Management of COPD Exacerbation
Steward	American Thoracic Society	National Committee for Quality Assurance
Description	Percentage of patients aged 18 years or older, with a diagnosis of COPD (FEV1/FVC < 70%) who have an FEV1 < 60% predicted and have symptoms who were prescribed a long-acting inhaled bronchodilator	This measure assesses the percentage of COPD exacerbations for patients 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 (or there was evidence of an active prescription) within 14 days of the event 2. Dispensed a bronchodilator (or there was evidence of an active prescription) within 30 days of the event Note: The eligible population for this measure is based on acute inpatient discharges and ED visits, not on patients. It is possible for the denominator to include multiple events for the same individual.
Type	Process	Process
Data Source	Administrative claims, Electronic Clinical Data: Registry Not Applicable No data dictionary	Administrative claims This measure is based on administrative claims collected in the course of providing care to health plan members. NCQA collects the Healthcare Effectiveness Data and Information Set (HEDIS) data for this measure directly from Health Management Organizations and Preferred Provider Organizations via NCQA's online data submission system. No data collection instrument provided Attachment XXXX_PCE_Value_Sets.xlsx
Level	Clinician: Group/Practice, Clinician: Team	Health Plan, Integrated Delivery System
Setting	Ambulatory Care: Clinician Office/Clinic	Ambulatory Care: Clinician Office/Clinic
Time Window	Once per reporting period	Numerator: a 12-month period that begins on January 1 and ends on December 30 of the measurement year. Denominator: an 11-month period that begins on January 1 and ends on November 30 of the measurement year.
Numerator Statement	Patients who were prescribed a long-acting inhaled bronchodilator	Numerator 1 (Systemic Corticosteroids): The number of patients dispensed a prescription for systemic corticosteroid on or 14 days

		after the Episode Date*. Count systemic corticosteroids that are active on the relevant date. Numerator 2 (Bronchodilator): The number of patients dispensed a prescription for a bronchodilator on or 30 days after the Episode Date*. Count bronchodilators that are active on the relevant date. *The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD.
Numerator Details	Definition: 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. NUMERATOR NOTE: The correct combination of numerator code(s) must be reported on the claim form in order to properly report this measure. The "correct combination" of codes may require the submission of multiple numerator codes. Numerator Quality-Data Coding Options for Reporting Satisfactorily: Patient Prescribed Long-acting Inhaled Bronchodilator Therapy (One CPT II code & one quality-data code [4025F & G8924] are required on the claim form to submit this numerator option) Performance Met: CPT II 4025F: Long-acting inhaled bronchodilator prescribed (NOTE: pending edited CPT II code) AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing) (NOTE: CMS approved edited G-code for 2017 PQRS year) OR Patient not Documented to have Long-acting Inhaled Bronchodilator Prescribed for Medical, Patient, or System Reasons (One CPT II code & one quality-data code [4025F-xP & G8924] are required on the claim form to submit this numerator option) Append a modifier (1P, 2P or 3P) to CPT Category II code 4025F to	Follow the steps below to identify numerator compliance. Numerator 1 (Systemic Corticosteroid): Identify the number of patients dispensed a prescription for systemic corticosteroid (refer to PCE-C: Systemic Corticosteroids) on or 14 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count systemic corticosteroids that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Numerator 2 (Bronchodilator): Identify the number of patients dispensed a prescription for bronchodilator (refer to PCE-D: Bronchodilators) on or 30 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count bronchodilators that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. PCE-C: Systemic Corticosteroids:

	report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion, Patient Performance Exclusion, or System Performance Exclusion: 4025F with 1P: Documentation of medical reason(s) for not prescribing an inhaled bronchodilator (e.g., contraindication due to comorbidities) 4025F with 2P: Documentation of patient reason(s) for not prescribing an inhaled bronchodilator 4025F with 3P: Documentation of system reason(s) for not prescribing an inhaled bronchodilator (e.g., not covered by insurance) AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing) OR If patient is not eligible for this measure because spirometry results demonstrate FEV1/FVC >= 70% or FEV1 >= 60% predicted or patient does not have COPD symptoms, report: Spirometry Results Demonstrate FEV1/FVC >= 70% or FEV1 >= 60% or Patient does not have COPD symptoms (One quality-data code [G8925 or G8926] is required on the claim form to submit this numerator option) Other Performance Exclusion: G8925: Spirometry test results demonstrate FEV1/FVC >= 70% or FEV1 >= 60% predicted or patient does not have COPD symptoms OR Spirometry Test not Performed or Documented Other Performance Exclusion: G8926: Spirometry test not performed or documented, reason not given OR Patient not Documented to have Long-acting Inhaled Bronchodilator Prescribed, Reason not Otherwise Specified	Glucocorticoids: betamethasone, dexamethasone, hydrocortisone, methylprednisolone, prednisolone, prednisone, triamcinolone PCE-D: Bronchodilators: Anticholinergic agents: albuterol-ipratropium, aclidinium-bromide, ipratropium, tiotropium, Umeclidinium Beta 2-agonists: albuterol, arformoterol, budesonide-formoterol, fluticasone-salmeterol, fluticasone-vilanterol, formoterol, Indacaterol, levalbuterol, Mometasone-formoterol, metaproterenol, Olodaterol hydrochloride, pirbuterol, salmeterol, Umeclidinium-vilanterol Methlyxanthines: aminophylline, dyphylline, dyphylline-guaifenesin, guaifenesin-theophylline, theophylline See corresponding Excel file for value sets referenced above.

	(One CPT II code & one quality-data code [4025F-8P & G8924] are required on the claim form to submit this numerator option) Append a reporting modifier (8P) to CPT Category II code 4025F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified. Performance Not Met: 4025F with 8P: Long-acting inhaled bronchodilator not prescribed, reason not otherwise specified AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (eg, dyspnea, cough/sputum, wheezing)	
Denominator Statement	All patients aged 18 years and older with a diagnosis of COPD, who have FEV1/FVC < 70%, FEV1 <60% predicted and have symptoms (eg, dyspnea, cough/sputum, wheezing)	All patients age 40 years or older as of January 1 of the measurement year with a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a principal diagnosis of COPD.
Denominator Details	All Patients aged >= 18 years on date of encounter AND Diagnosis for COPD ICD-9-CM [for use before 9/30/2014]: 491.0, 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.0, 492.8, 493.20, 493.21, 493.22, 496 ICD-10-CM [for use after 10/1/2014]: J41.0, J41.1, J41.8, J42, J43.0, J43.1, J43.2, J43.8, J43.9, J44.0, J44.1, J44.9 (Please see listing below for ICD-9/ICD-10 code definitions) AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 _____ ICD-9/ICD-10 code definitions ICD-9-CM [for use before 9/30/2014]: 491.0 – Simple chronic bronchitis 491.1 – Mucopurulent chronic bronchitis	The eligible population for this measure is based on acute inpatient discharges and ED visits, not on patients. It is possible for the denominator to include multiple events for the same individual. The eligible population for the denominator is defined by following the series of steps below: Step 1: Identify all patients who had either of the following during the Intake Period (an 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year): 1) An ED visit (ED Value Set) with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay

	491.20 – Obstructive chronic bronchitis without exacerbation 491.21 – Obstructive chronic bronchitis with (acute) exacerbation 491.22 – Obstructive chronic bronchitis with acute bronchitis 491.8 – Other chronic bronchitis 491.9 – Unspecified chronic bronchitis 492.0 – Emphysematous bleb 492.8 – Other emphysema 493.20 – Chronic obstructive asthma, unspecified 493.21 – Chronic obstructive asthma with status asthmaticus 493.22 – Chronic obstructive asthma with (acute) exacerbation 496 – Chronic airway obstruction, not elsewhere classified ICD-10-CM [for use after 10/1/2014]: J41.0 – Simple chronic bronchitis J41.1 – Mucopurulent chronic bronchitis J41.8 – Mixed simple and mucopurulent chronic bronchitis J42 – Unspecified chronic bronchitis J43.0 – Unilateral pulmonary emphysema [MacLeod's syndrome] J43.1 – Panlobular emphysema J43.2 – Centrilobular emphysema J43.8 – Other emphysema J43.9 – Emphysema, unspecified J44.0 – Chronic obstructive pulmonary disease with acute lower respiratory infection J44.1 – Chronic obstructive pulmonary disease with (acute) exacerbation J44.9 – Chronic obstructive pulmonary disease, unspecified	Value Set) c. Identify the discharge date for the stay Step 2: Identify all COPD Episode Dates (the date of service for any acute inpatient discharge or ED claim/encounter during the intake period with a principal diagnosis of COPD). For each patient in Step 1, identify all acute inpatient discharges and ED Visits. See corresponding Excel file for value sets referenced above.
Exclusions	ATS continues to use the PCPI exception methodology that uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure: medical, patient and system reasons. Exceptions are used to remove patients from the denominator of a performance measure when a patient does not receive a therapy or service AND that therapy or service would not be appropriate due to specific reasons; otherwise, the patient would	1) Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. 2) Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. 3) Exclude episode dates when the patient had an ED visit for any diagnosis within 14 days after the Episode date.

	meet the denominator criteria. Exceptions are not absolute, and the application of exceptions is based on clinical judgment, individual patient characteristics, or patient preferences. 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 this measure, exceptions include medical reason(s), patient reason(s) or system reason(s) for not prescribing long-acting inhaled bronchodilators. Although this methodology does not require the external reporting of more detailed exception data, the ATS recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness.	
Exclusion Details	For Claims: Patient not Documented to have Long-acting Inhaled Bronchodilator Prescribed for Medical, Patient, or System Reasons (One CPT II code & one quality-data code [4025F-xP & G8924] are required on the claim form to submit this numerator option) Append a modifier (1P, 2P or 3P) to CPT Category II code 4025F to report documented circumstances that appropriately exclude patients from the denominator. Medical Performance Exclusion, Patient Performance Exclusion, or System Performance Exclusion: 4025F with 1P: Documentation of medical reason(s) for not prescribing a long-acting inhaled bronchodilator, e.g., contraindicated due to comorbidities OR 4025F with 2P: Documentation of patient reason(s) for not prescribing a long-acting inhaled bronchodilator OR 4025F with 3P: Documentation of system reason(s) for not prescribing a long-acting inhaled bronchodilator, e.g., not covered by insurance	1) Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. Organizations may identify "transfers" using their own methods and then confirm the acute or nonacute inpatient care setting using codes in the Inpatient Stay Value Set. 2) Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. To identify readmissions to an acute or nonacute inpatient care setting: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Identify the admission date for the stay 3) Exclude episode dates when the patient had an ED visit (ED value set) for any diagnosis within 14 days after the episode date. See corresponding Excel file for value sets referenced above.

	AND G8924: Spirometry test results demonstrate FEV1/FVC < 70%, FEV1 < 60% predicted and patient has COPD symptoms (e.g., dyspnea, cough/sputum, wheezing) NOTE: CMS approved edited G-code for 2017 PQRS year and edited CPT II code is pending	
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification.	Statistical risk model N/A
Stratification	We encourage the results of this measure to be stratified by race, ethnicity, primary language, and administrative sex.	N/A
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	NOTE: This sequence of steps has not been edited to reflect updated CPT II or G-codes. It will be edited once all updated CPT II or G-codes are finalized. 1. Start with Denominator 2. Check Patient Age: a. If the Age is greater than or equal to 18 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing. b. If the Age is greater than or equal to 18 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Diagnosis. 3. Check Patient Diagnosis: a. If Diagnosis of COPD as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Diagnosis of COPD as Listed in the Denominator equals Yes, proceed to check Encounter Performed. 4. Check Encounter Performed: a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing. b. If Encounter as Listed in the Denominator equals Yes, include in the Eligible population. 5. Denominator Population: a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the	Refer to items S.6 (Numerator details), S.9 (Denominator details), S.11 (Denominator exclusions details) and S.2b (Data Dictionary) for tables. The denominator for this measure is based on acute inpatient discharges and ED visits, not patients. The measure calculation is detailed in the steps listed below: Step 1: identify the eligible population. A. Identify all patients who had either of the following during the Intake Period (an 11-month period that begins on January 1 of the measurement year and ends on November 30 of the measurement year): 1) An ED visit (ED Value Set) with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). Do not include ED visits that result in an inpatient admission. 2) An acute inpatient discharge with a primary diagnosis of COPD (COPD Value Set), emphysema (Emphysema Value Set) or chronic bronchitis (Chronic Bronchitis Value Set). To identify acute inpatient discharges: a. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) b. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set) c. Identify the discharge date for the stay

	Sample Calculation listed at the end of this document. Letter d equals 8 patients in the sample calculation. 6. Start Numerator 7. Check Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1<60% Predicted and Patient has COPD Symptoms: a. If Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Met. b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 patients in Sample Calculation. c. If Patient Prescribed Inhaled Bronchodilator Therapy AND Results of FEV1 <60% Predicted and Patient has COPD symptoms equals No, proceed to check Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator Therapy AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms. 8. Check Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 patient in the Sample Calculation. c. If Documentation of Medical Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms.	B. Identify all COPD Episode Dates (the date of service for any acute inpatient discharge or ED claim/encounter during the intake period with a principal diagnosis of COPD). For each patient in Step 1, identify all acute inpatient discharges and ED Visits. Step 2: determine denominator exclusions. A. Exclude episode dates when the patient was transferred directly to an acute or nonacute inpatient care setting for any diagnosis. Organizations may identify "transfers" using their own methods and then confirm the acute or nonacute inpatient care setting using codes in the Inpatient Stay Value Set. B. Exclude episode dates when the patient was readmitted to an acute or nonacute inpatient care setting for any diagnosis within 14 days after the episode date. To identify readmissions to an acute or nonacute inpatient care setting: 1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) 2. Identify the admission date for the stay 3. Exclude episode dates when the patient had an ED visit (ED value set) for any diagnosis within 14 days after the episode date. Step 3: determine the numerator. Numerator 1 (Systemic Corticosteroid): Identify the number of patients dispensed a prescription for systemic corticosteroid (refer to PCE-C: Systemic Corticosteroids) on or 14 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count systemic corticosteroids that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Numerator 2 (Bronchodilator): Identify the number of patients dispensed a prescription for bronchodilator (refer to PCE-D:

	9. Check Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 patients in the Sample Calculation. c. If Documentation of Patient Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms. 10. Check Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms: a. If Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b3 equals 0 patients in the Sample Calculation. c. If Documentation of System Reason(s) for Not Prescribing Inhaled Bronchodilator AND Spirometry Results of FEV1 <60% Predicted and Patient has COPD Symptoms equals No, proceed to check Spirometry Results FEV1 = 60% Predicted OR Does not have COPD Symptoms. 11. Check Spirometry Results FEV1 = 60% Predicted OR does not have COPD Symptoms: a. If Spirometry Results FEV1 = 60% Predicted OR Does not have COPD Symptoms equals Yes, include in Reporting Met and	Bronchodilators) on or 30 days after the Episode Date. -The Episode Date is the date of service for any acute inpatient discharge or ED claim/encounter during the 11-month intake period with a principal diagnosis of COPD. -Count bronchodilators that are active on the relevant date. An active prescription is considered active if the "days supply" indicated on the date the patient filled the prescription is the number of days or more between that date and the relevant date. For an acute inpatient encounter, the relevant date is the date of admission. For an ED claim/encounter, the relevant date is the date of service. Step 4: calculate two rates. A. Number of patients dispensed a prescription for systemic corticosteroid on or 14 days after the Episode Date/Denominator B. Number of patients dispensed a prescription for bronchodilator on or 30 days after the Episode Date /Denominator No diagram provided

	Performance Exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b4 equals 0 patients in the Sample Calculation. c. If Spirometry Results FEV1 = 60% Predicted OR Does not have COPD symptoms equals NO, proceed to check Spirometry Test Not Performed to Documented, Reason not Given. 12. Check Spirometry Test Not Performed to Documented, Reason Not Given: a. If Spirometry Test Not Performed to Documented, Reason Not Given equals Yes, include in reporting met and performance exclusion. b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b5 equals 0 patients in the Sample Calculation. c. If Spirometry Test Not Performed to Documented, Reason Not Given equals No, proceed to check Inhaled Bronchodilator not Prescribed, Reason Not Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms. 13. Check Inhaled Bronchodilator not Prescribed, Reason Not Specified AND Results of FEV1 = 60% Predicted and Patient has COPD Symptoms: a. If Inhaled Bronchodilator not Prescribed, Reason not Otherwise Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms equals Yes, include in Reporting Met and Performance Not Met. b. Reporting Met and Performance Not Met letter is represented in the Reporting Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 patients in the Sample Calculation. c. If Inhaled Bronchodilator not Prescribed, Reason not Otherwise Specified AND results of FEV1 = 60% Predicted and Patient has COPD Symptoms equals No, proceed to check Reporting Not Met. 14. Check Reporting Not Met	

	a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from reporting numerator in the sample calculation. Please see Measure Flow in Appendix A.1 for 'Sample Calculation' referenced above. Available in attached appendix at A.1	
Submission items	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: N/A COMMENT ON 5a.1 - N/A is not a selection. For this reason, we select yes. There are no competing measures to harmonize.	5.1 Identified measures: 0577: Use of Spirometry Testing in the Assessment and Diagnosis of COPD 0091: COPD: Spirometry Evaluation 0102: COPD: inhaled bronchodilator therapy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: 0091 and 0577 are measures assessing spirometry testing in COPD patients. There is no impact on interpretability or added burden of data collection because the focus of our proposed measure is different. 0102 is a physician-level measure and the focus of our proposed measure is different. Our measure focuses exclusively on patients who were hospitalized or had an ED visit for a COPD exacerbation and received timely recommended treatment (systemic corticosteroids and bronchodilators) while 0102 focuses on managing COPD and allows receipt of a bronchodilator at least once during the measurement year. 5b.1 If competing, why superior or rationale for additive value: N/A

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