ACCP/ATS Pulmonary Measure Gap Task Force

Reva Winkler, MD, MPH
Senior Director, Performance Measures
National Quality Forum
1030 15th Street, NW, Suite 800
Washington, DC 20005

March 13, 2012

Dear Dr. Winkler,

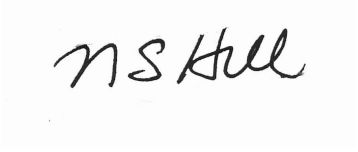
The American College of Chest Physicians (ACCP) and the American Thoracic Society (ATS) are two medical specialty societies whose members include in excess of 32,000 clinicians and scientists.

The ACCP and ATS appreciate the opportunity to provide a response to the National Quality Forum's request to identify areas in pulmonary medicine where measures do not exist, but if they did would improve the quality of care provided. As such, a task force comprised of ACCP and ATS representatives was convened to prepare a report for your consideration.

The members of the ACCP/ATS Pulmonary Measure Gap Task Force and the leadership of ACCP and ATS are privileged to partner with the NQF in this effort. Should you have any questions, please do not hesitate to contact us.

Sincerely,

Suhail Raoof, MBBS, FCCP
President, American College of Chest Physicians



Nicholas S. Hill, MD
President, American Thoracic Society.

ACCP/ATS Pulmonary Measure Gap Task Force

Measure Gap Areas in Pulmonary Medicine

March 13, 2012

Table of Contents

INTRODUCTION **2**

METHODOLOGY **2**

MEASURE GAP AREAS **4**

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) 4

Acute Exacerbations of COPD *4*

Pulmonary Rehabilitation for COPD Patients *6*

Risk and Comorbidities *7*

PALLIATIVE CARE AND DYSPNEA 8

ASTHMA 8

Treatment of Acute Asthma Exacerbations in the Emergency Department (ED)/Hospital Setting *8*

IDIOPATHIC PULMONARY FIBROSIS 10

IATROGENIC PNEUMOTHORAX WITH THORACENTESIS 11

APPENDIX A **12**

APPENDIX B **13**

APPENDIX C **14**

APPENDIX D **17**

REFERENCES **18**

Introduction

The assessment of the quality of care provided by medical practitioners is enhanced through the creation and implementation of performance measures. The National Quality Forum (NQF) has served as a major vehicle for the endorsement of these measures.

In response to the perceived measures gap in pulmonary medicine, in January 2012 the ACCP and ATS appointed a Pulmonary Measure Gap Task Force consisting of members from both societies (Appendix A). The ACCP/ATS Pulmonary Measure Gap Task Force subsequently met via teleconference in order to create a framework for the generation of several potential pulmonary performance measures to address the performance measures gap. The methodology and the results of this effort are provided below. Of note, this effort does not include critical care measure gaps, which are described in a separate report, or pediatric pulmonary gaps, which were outside this Task Force's scope. The ACCP/ATS Task Force endorses the critical care measure gaps identified in the Critical Care Societies Collaborative Critical Care Measure Gap Report,[1] which include:

- Management of sepsis
- Overuse of blood transfusions
- Ventilator-associated pneumonia
- Risk-adjusted intensive care unit (ICU) outcome
- Therapeutic hypothermia
- Daily chest radiographs in ICU patients
- Screening of acute lung injury/acute respiratory distress syndrome

The ACCP/ATS Pulmonary Measure Gap Task Force understands that the topics provided below only serve as a starting point for the generation of performance measures. The Task Force acknowledges the principles required by the NQF for performance measures: importance, scientific acceptability, usability, and feasibility, may not all be met by the proposed topics[2], must be fully realized in order to proceed with any recommendation for a performance measure in pulmonary medicine. The Task Force recognizes much additional work is required. Yet, we are confident meaningful, and widely accepted performance measures in the area of pulmonary medicine can be generated. The members of the ACCP/ATS Pulmonary Measure Gap Task Force are privileged to partner with the NQF in this effort.

Methodology

ACCP staff developed a spreadsheet of all existing pulmonary medicine performance measures using the National Quality Measures Clearinghouse (Appendix B).[3] ACCP staff categorized all of the measures by disease state and provided the following information about each measure:

- Measure Name
- Measure Description
- NQF Endorsement Status
- Description of national programs where existing performance measures are implemented
- Mapped to the national priorities that were identified by the Institute of Medicine, National Priority Partners, and National Strategy for Quality Improvement in Health Care.

This information was distributed to the ACCP Quality Improvement Committee (QIC), ACCP Airways, Chest Infections, Interventional Chest/Diagnostic Procedures, Pulmonary Physiology, Function, and Rehabilitation, Occupational and Environmental Health, Thoracic Oncology, and Transplant NetWorks with a request to review the existing performance measures in their area of expertise and respond with any potential measure gaps.

The spreadsheet and potential measure gaps were then presented to the ACCP/ATS Pulmonary Measure Gap Task Force prior to their first conference call. On their first teleconference, the Task Force reviewed the grid of measures, potential measure gaps submitted by the ACCP QIC and ACCP NetWorks and discussed each disease state that would be encountered in the pulmonary setting. Critical Care measure gaps were addressed in *Measure Gaps Areas in Critical Care Medicine* submitted on February 9, 2012 by the Critical Care Societies Collaborative. Furthermore, this group did not identify measure gap area in pediatric pulmonary care.

For each disease state, the Task Force discussed whether or not the existing performance measures omitted key factors related to the quality of care, or if the addition of a performance measure to an existing measure gap would improve the quality assessment for that particular disease state. When the ACCP/ATS Pulmonary Measure Gap Task Force identified a performance measure gap in a particular category, a Task Force member was assigned to provide rationale for the need of a performance measure(s) in this area and provide evidence for this rationale. Evidence included clinical guidelines, peer-reviewed manuscripts in the medical literature, and/or data from quality improvement initiatives (e.g., registry). A standardized form (Appendix C) was created to facilitate this process.

Once the ACCP/ATS Pulmonary Measure Gap Task Force members submitted the completed rationale, and evidence base for each of the measure gap areas was completed and submitted, this report was drafted. Members of the ACCP/ATS Pulmonary Measure Gap Task Force were then asked to complete a survey (Appendix D) that requested Task Force members to prioritize the identified gap areas by importance, as defined by the NQF.[2]

The Task Force identified performance measure gaps in the following pulmonary medicine areas and prioritized them as follows:

1. COPD
2. Ventilator Association Pneumonia and Mechanical Ventilation
3. Palliative Care and Dyspnea
4. Asthma
5. Interstitial Lung Disease
6. Iatrogenic Pneumothorax with Thoracentesis

The Task Force also identified areas where performance measure gaps may exist, however, could not find an evidence base to support the existence of a gap. Those areas were:

- Non-Cystic Fibrosis Bronchiectasis
- Chronic Bronchitis
- Pleural Disease

Once this report was approved and finalized by the members of the ACCP/ATS Pulmonary Measure Gap Task Force, the ACCP and ATS leadership reviewed and endorsed this report.

Measure Gap Areas

Chronic Obstructive Pulmonary Disease (COPD)

Acute Exacerbations of COPD

Chronic obstructive pulmonary disease (COPD) is now the nation's 3rd leading cause of death and exacerbations result in more than 500,000 annual hospital admissions. Healthcare costs for COPD are over $40 billion per year and expected to climb as the burden from COPD increases; a major contributing factor for healthcare costs for COPD is related to the evaluation and management of COPD exacerbations. Evidence-based guidelines strongly recommend use of inhaled short-acting bronchodilators, systemic corticosteroids, referral to pulmonary rehabilitation, review of discharge medications, and assisting patients with scheduling outpatient follow-up appointments in all patients hospitalized for COPD exacerbations.[4,5,6,7,8] Guidelines recommend some additional interventions in selected patients, including counseling and pharmacotherapy for smoking cessation (for current smokers), antibiotics (for those with changes in sputum production or dyspnea), and early use of non-invasive mechanical ventilation (bi-level ventilation for those with impending respiratory failure)

Prior research has identified deficiencies in the delivery of recommended care for acute exacerbations of COPD, highlighting opportunities to improve the quality of care in both ambulatory and inpatient settings. These studies demonstrate the underuse of guideline recommended treatments such as systemic corticosteroids, overuse of potentially ineffective therapies such as sputum testing in the absence of pneumonia, and the misuse of others, such as spirometry in acute presentations. The studies also show that the treatment and outcomes of patients hospitalized for exacerbations of COPD vary widely across hospitals. Yet despite enormous clinical and economic consequences of COPD, recognized gap sin the quality of care, and variation in quality across hospitals, no rigorous efforts have been made to develop, implement or evaluate strategies to speed the translation of guideline-recommended treatments into the routine clinical care of patients hospitalized for COPD.[4,5,6,7,8]

One example of potential quality measures (see following table) for the assessment of hospitalized acute exacerbations can be drawn from bundled care proposed by the COPD Outcomes-based Network for Clinical Effectiveness and Research Translation (CONCERT), an inter-disciplinary and multi-institutional team of investigators dedicated to improving the outcomes for patients with COPD through the development of effective methods to translate biomedical knowledge into routine practice.[8] This set has been vetted by its national group of stakeholder organizations and prioritized within a translational research agenda in acute and chronic COPD care. The COPD acute hospital exacerbation bundle has also been proposed to CMS as part of a measure gap analysis performed in late 2011.

Acute Care Practices to be Delivered at Admission	Evidence Grade
Controlled oxygen To achieve oxygen saturation of >90%; 88-92% among patients with	B

history of hypercarbia (PCO2 > 45)	
Arterial blood gas measurement In all hypoxic pts who have a history of hypercarbia or in patients for whom it is unknown	B
Inhaled short acting beta agonist All patients	A
Inhaled short acting anticholinergic All patients	B
Non-invasive mechanical ventilation For patients with acidosis (7.25 ≤ pH≤7.35) / Hypercapnia (PaCO2>45 mmHg); respiratory frequency > 25 breaths/minute but < 35 breaths/min. Moderate-to-severe dyspnea with use of accessory muscles and paradoxical abdominal motion; Contraindications: respiratory arrest, cardiovascular instability (hypotension, arrhythmias, myocardial infarction), somnolence / inability to follow commands, high aspiration risk	A
Systemic corticosteroids For all patients. Oral or intravenous administration acceptable. Lower doses (ie 40mg once daily of prednisone) preferred	A
Systemic antibiotics All patients requiring mechanical ventilation; Patients with increased sputum purulence and one other cardinal symptom	B /C
Chronic Care Practices to be Delivered Prior to Discharge	
Smoking cessation counseling For all patients who are active smokers. Recommend nicotine replacement therapy	A
Influenza and pneumococcal vaccination Administer in season if not contraindicated; Administer to those without vaccination in past 5 years	A/B
Assessment and training regarding Inhaler technique All patients	C
Assess need for home oxygen All patients	B
Prescribe preventive medication All patients; options include inhaled steroid, long-acting beta agonoist, tiotropium	B
Post-discharge coordination All patients. Components include medication reconciliation, scheduled follow-up visit within 4 weeks, referral to pulmonary rehabilitation (where available), structured communication with primary care physician regarding home oxygen and smoking cessation interventions initiated during the hospitalization	C

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to acute exacerbations of COPD as following:

- Controlled oxygen to achieve oxygen saturation of >90% generally and 88-92% among patients with history of hypercarbia ($PCO_2 > 45$) in acute COPD exacerbation
- Arterial blood gas measurement in all hypoxic pts who have a history of hypercarbia or in patients for whom it is unknown in acute hospitalized COPD exacerbation
- Inhaled short acting beta agonist in all patients in acute COPD exacerbation
- Inhaled short acting antichoinergics in all patients in acute COPD exacerbation
- Non-invasive mechanical ventilation for patients with acidosis ($7.25 < pH < 7.35$) associated with hypercapnia ($PaCO_2 > 45$ mmHg) in acute COPD exacerbation without contraindications (respiratory arrest, cardiovascular instability (hypotension, arrhythmias, myocardial infarction), somnolence / inability to follow commands, high aspiration risk)
- Systemic corticosteroids for all patients in acute COPD exacerbation; noting lower doses of oral corticosteroids preferred (ie 40mg once daily equivalence of prednisone)
- Systemic antibiotics for patients requiring mechanical ventilation or patients with increased sputum purulence and one other cardinal symptom (increased sputum volume or increased dyspnea).

Additionally the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to chronic care practices after acute exacerbations of COPD as following:

- Smoking cessation counseling for all patients who are active smokers.
- Recommend nicotine replacement therapy for smokers
- Influenza vaccination in season if not contraindicated and pneumococcal vaccination in those without vaccination in past 5 years
- Assessment and training regarding inhaler technique for all patients
- Post-hospitalized COPD discharge coordination to include medication reconciliation, scheduled follow-up visit within 4 weeks, referral to pulmonary rehabilitation (where available), structured communication with primary care physician regarding home oxygen and smoking cessation interventions initiated during the hospitalization

Given these recommendations for the focus of future measures, consideration must be given to the future measures' specification.

Pulmonary Rehabilitation for COPD Patients

Pulmonary rehabilitation has been inconsistently prescribed for patients with significant COPD because of many factors including lack of accessible programs, lack of insurance coverage and, until recently, lack of good quality studies demonstrating its benefit. Following the publication of the National Emphysema Treatment Trial results[9], CMS was approached by multiple medical societies advocating for coverage of pulmonary rehabilitation in COPD patients. Ultimately, Medicare coverage for pulmonary rehabilitation was implemented in 2010. A short summary of this road to reimbursement, which opened the door to many patients, can be found at the RT Magazine website.[10]

Based on the results of multiple, well-designed clinical trials, existing COPD guidelines recommend Pulmonary Rehabilitation for patients with symptomatic COPD[11,12]. The legislation supporting pulmonary rehabilitation outlines mandatory components for programs that include:

1. physician-prescribed exercise;
2. education or training;

3. psychosocial assessment;
4. outcome assessment.

However, no national 'tracking system' monitors individual programs so there is likely wide variation not only in components of systems but also in outcome measurements and in identification of appropriate patients. Thus a performance measure focused on pulmonary rehabilitation is likely to be of value both in assessing programs and improving consistency of care.

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to pulmonary rehabilitation for patients with significant COPD:

- For symptomatic patients, multidimensional pulmonary rehabilitation should be considered

Given this recommendation for the focus of future measures, consideration must be given to the future measure's specification.

Risk and Comorbidities

COPD guidelines currently highlight depression as a risk factor for increased utilization and symptom complexes in COPD as well as a psychosocial issue in care management that should be addressed by clinicians. The most recent version of the GOLD guidelines state, "symptoms of depression and/or anxiety merit specific enquiry in the clinical history because they are common in COPD and are associated with increased risk of exacerbations and poor health status." Yet currently GOLD contains no other specific recommendations to screen for depression in COPD or which screening assessment to use. A recent meta-analysis of eight studies showed that almost 25% of COPD patients have depressive symptoms, a rate more than twice that of controls.[13] Another review showed that depression is consistently identified as impairing the ability of patients to adhere to management strategies like pulmonary rehabilitation.[14]

Based on these data the United States Preventive Services Task Force (USPSTF) provides the following recommendation:

> The U.S. Preventive Services Task Force (USPSTF) recommends screening adults for depression in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up.
>
> *Rating*: B Recommendation.
>
> *Rationale*: The USPSTF found good evidence that screening improves the accurate identification of depressed patients in primary care settings and that treatment of depressed adults identified in primary care settings decreases clinical morbidity. Trials that have directly evaluated the effect of screening on clinical outcomes have shown mixed results. Small benefits have been observed in studies that simply feed back screening results to clinicians. Larger benefits have been observed in studies in which the communication of screening results is coordinated with effective follow-up and treatment. The USPSTF concluded the benefits of screening are likely to outweigh any potential harms.[15]

The USPSTF goes on to note that chronic disease is one of the risk factors for depression. Short, easy-to-administer, valid screening tests exist;[16] however, many barriers still exist with regards to the detection and diagnosis of depression along with its management.[17] There is recognition of the importance of this parameter in the updated COPD guidelines, but there is substantial variability in this aspect of disease, which can have a significant impact on patient outcomes.

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following area of focus for future performance measures related to screening for depression in patients that have COPD:

- Depression screening in patients with COPD.

Given this recommendation for the focus of future measures, consideration must be given to the future measure's specification.

Palliative Care and Dyspnea

Assessment and treatment of dyspnea as specific clinical management strategies, as well as the larger approach of palliative care, are widely applicable to many pulmonary conditions and most especially to those chronic progressive disorders that commonly result in extended symptom complexes or death. Although some preliminary measures were identified, gaps exist generally in application of quality metrics for palliative care and dyspnea and in the scope of particular measures. Recent studies in palliative care suggest benefits for patients with COPD, lung cancer, and others.

A number of recent guidelines and task forces have identified assessment of dyspnea as underdeveloped in clinical practice and suggest performance measures should be part of the approach to improving care across cardiopulmonary disorders that manifest this symptom.[18,19,20,21,22]

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to assessment of dyspnea and its related bother as following:

Dyspnea assessment should be used in all patients and settings anticipated to manifest breathing difficulty and should employ a patient self-reported measure of intensity

Assessment should include inquiry into the associated bother or distress experienced by the patient by the symptom

Inclusion of palliative care services should be offered to patients with chronic progressive pulmonary conditions

Given these recommendations for the focus of future measures, consideration must be given to the future measures' specification.

Asthma

Treatment of Acute Asthma Exacerbations in the Emergency Department (ED)/Hospital Setting

Asthma affects an estimated 25 million Americans.[23] Exacerbations among asthmatics are a frequent occurrence, and mild exacerbations can often be managed at home with the aid of action

plans emphasizing early symptom recognition and appropriate escalation of inhaled medications.[24] Nevertheless, more severe asthma exacerbations remain common, with 2 million emergency department visits and 500,000 hospitalizations attributed to asthma each year.[23]

In an effort to improve outcomes among patients requiring care in the acute setting, the NHLBI National Asthma and Education Program (NAEP) has established evidence-based guidelines for the treatment of acute asthma exacerbations.[24] Based on multiple studies demonstrating benefit, these guidelines recommend the use of short-acting bronchodilators, systemic corticosteroids, and serial assessments of lung function for all patients presenting to the acute care setting with an asthma exacerbation (see Table below). Furthermore, the guidelines place an emphasis on appropriate patient education prior to discharge, to include review of prescription medications and inhaler techniques, as well as the development of a clear asthma action plan and scheduled follow- up with a healthcare provider within 4 weeks.

Few studies evaluating adherence to guideline recommendations among patients with asthma exacerbations requiring acute care have been performed. However, the evidence that is available suggests that despite the NAEP guidelines,[24] discrepancies still exist between recommended and delivered care.[25,26] In a study of 4,000 patients presenting to the 63 emergency departments nationwide with an acute asthma exacerbation, substantial geographic variation existed in concordance with guideline measures.[25] Another prospective study of 200 inner-city adults hospitalized with an acute asthma exacerbation demonstrated significant underuse of guideline-recommended care, including underuse of peak flow meters and written action plans.[26] These discrepancies offer an opportunity to improve quality of care, in hopes of improving clinical outcomes and decreasing health care costs among this population of patients.

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to the treatment of adults presenting to the ED and/or hospitalized with an acute exacerbation of asthma:

Treatment for Asthma Exacerbations in the Acute Care Setting	**Evidence Grade**
Oxygen Therapy (ED) and Hospital: To achieve oxygen saturation ≥90%	Not graded
Inhaled Short-acting Beta-agonist (SABA) ED and Hospital: All Patients	A
Inhaled Ipratropium Bromide ED: Add to SABA in patients with severe exacerbations (FEV1 or PEF <40% predicted) Hospital: Not recommended	A A
Systemic Corticosteroids ED: All patients with moderate (FEV1 or PEF 40-69% predicted) to severe exacerbations (FEV1 or PEF <40% predicted); patients with mild exacerbations (FEV1 or PEF ≥ 70%) not responding to initial SABA; and those recently on oral systemic corticosteroids Hospital: All patients	A A
Serial Measurement of Lung Function ED: All patients: upon presentation and after 3 doses of SABA (60-90 minutes after presentation)	B

Patients with severe exacerbations (FEV1 or PEF<40% predicted): repeat assessment after first dose of SABA	
Preventive Measures at Discharge from ED or Hospital	
Prescription Medications ED: All patients given systemic steroids should receive course for 3-10 days, consider addition of inhaled corticosteroid Hospital: SABA and oral steroids to complete course of therapy, consider addition of inhaled corticosteroid	A/B A/B
Assessment and training about inhaler techniques ED and Hospital: All patients	B
Provide Asthma Discharge Plan ED and Hospital: All patients; components should include instructions for 1) use of prescribed medications and 2) escalating medications and when to seek medical attention if asthma symptoms worsen	B
Referral to Follow-Up Asthma Care within 4 weeks ED and Hospital: All patients	B
Influenza vaccination ED and Hospital: Administer in season if not contraindicated	B
Smoking Cessation Counseling ED and Hospital: All patients who are active smokers. Recommend nicotine replacement therapy	B

Given these recommendations for the focus of future measures, consideration must be given to the future measures' specification.

Idiopathic Pulmonary Fibrosis

Idiopathic pulmonary fibrosis (IPF) is the most common form of restrictive lung disease in the United States. In a 2006 article, Raghu et al estimated the prevalence of this disease to range from 14 to 42.7 people per 100,000 and the incidence to range from 6.8 to 14 people per 100,000.[27] It is a rapidly progressive disease with few treatment options. In 2000, the American Thoracic Society (ATS), European Respiratory Society(ERS) and the American College of Chest Physicians (ACCP) published a consensus document on the diagnosis and management of IPF.[28] In the ensuing decade, a number of prospective studies were undertaken, and in 2011, an evidence-based updated guideline was issued jointly by the ATS, ERS, Japanese Respiratory Society, and the Latin American Thoracic Association.[29]

There are currently no performance measures targeting the diagnosis or management of IPF. Despite the studies that have been done in the past decade, the level of evidence remains moderate, at best, in most areas and, particularly, in treatment approaches other than lung transplantation. However, early diagnosis is important both for early referral for transplant and, for those patients who are not transplant candidates, for prognostic information and counseling.

While a number of cases may undergo lung biopsy for diagnosis, the authors state that a high resolution computed tomography study (HRCT) is critical for diagnosis and may avoid biopsy: "HRCT is an essential component of the diagnostic pathway in IPF." This is the case because a pattern termed usual interstitial pneumonia (UIP). They further state: "Several studies have

documented that the positive predictive value of a HRCT diagnosis of UIP is 90 to 100%." Thus, it is important that a HRCT scan be an early part of evaluation of the patient suspected of having IPF. The most certain way to diagnose IPF is using the clinical-radiological-pathological (CRP) systematic approach. However, this requires surgical lung biopsy. Since the Guidelines do not require surgical lung biopsy for diagnosis, it does not seem appropriate to include the CRP approach in a performance measure.[29]

A gap analysis has shown difference between community and academic physicians in terms of agreement about an IPF diagnosis,[30] but other studies of gaps in diagnosis or treatment have not been well documented. It is known that non-white patients and patients who are not treated in tertiary referral centers have poorer survival.[31,32] However, the reasons for this are not well studied. A performance measure focusing on diagnosis may serve to inform these issues and better identify other gaps in care.

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to the patient suspected of having IPF is proposed:

In patients suspected clinically of having a diagnosis of IPF, a HRCT scan should be performed based on current Guidelines.[30]

Given this recommendation for the focus of future measures, consideration must be given to the future measure's specification.

Iatrogenic Pneumothorax with Thoracentesis

Iatrogenic pneumothorax rates in hospitalized adults is captured in an existing quality measure (NQF #0346.) However, this measure excludes patients with a diagnosis of pleural effusion. Iatrogenic pneumothorax following thoracentesis for pleural effusion is a common occurrence (3-9%).[33,34] One third of patients with a pneumothorax after a thoracentesis require chest tube insertion.[35]

The medical literature supports a reduced incidence of iatrogenic pneumothorax in procedures performed under ultrasound guidance and done by an experienced provider.[36,37,38,39,40]

Based on the supporting evidence and rational described above the ACCP/ATS Task Force recommends the following areas of focus for future performance measures related to iatrogenic pneumothorax in patients treated with thoracentesis for a pleural effusion. This potential measure would include best practices known to reduce the incidence or iatrogenic pneumothorax and overall complication rates for thoracentesis. These would include the following evidence-based practices:

- Use of ultrasound guidance
- Performance or immediate supervision by a clinician experienced in the procedure.

Given these recommendation for the focus of future measures, consideration must be given to the future measures' specification.

Appendix A

ACCP/ATS Pulmonary Measure Gap Task Force 2011-2012 Roster

ACCP Task Force Members

Janet R. Maurer, MD, FCCP

Rahgu Sundaram, MBBS, FCCP
Central Alabama Veterans Health Care System

Michael Ezzie, MD
The Ohio State University Medical Center

ATS Task Force Members

Laura Cecere, MD
University of Washington
Division of Pulmonary and Critical Care

Richard Mularsk, MD, MSHS, MCR, FCCP
Kaiser Permanente Center for Health Research

Adrienne Prestridge, MD
Children's Memorial Hospital
Pediatric Pulmonology

Other ACCP/ATS Contributors

Jason Adler, MD, FCCP
Joe DiMaggio Children's Hospital

Michael H. Baumann, MD, MS, FCCP
University of Mississippi

Jo Ann Brooks, PhD, RN, FCCP
Clarian Health

Rubin I. Cohen, MD, FCCP
The Long Island Jewish Medical Center

John Howington, MD, FACS, FCCP
NorthShore University HealthSystem

Fernando Martinez, MD, MS
University of Michigan

COL Lisa K. Moores, MC, USA, FCCP
The Uniformed Services
University of the Health Sciences

Society Staff

Jeff Maitland
Senior Clinical Standards and Informatics Specialist
American College of Chest Physicians
jmaitland@chestnet.org

Joyce Bruno Reitzner, MBA, MIPH
Director, Healthcare Practice, Informatics, and Research
American College of Chest Physicians
jbruno@chestnet.org

Gary Ewart
Director, Government Relations
American Thoracic Society
gewart@thoracic.org

Appendix B																			
Measure details			**Endorse Status**	**Implementation**					**Mapping to National Priority**										
Measure Category	**Measure Name**	**Measure Description**	**NQF Endorsed**	**PQRS Measure**	**HEDIS**	**Hospital Compare**	**2013 Hospital VBP**		**Care coordination**	**Patient Safety**	**Appropriateness/overuse**	**Affordability of and access to care**	**Patient and family engagement**	**Promotion of best practices for health living**		**Developer**	**NQF Endorsed Date**		
PULMONARY																			
ASTHMA- 25 Measures			10	2		2	2	0	5	1		12	0	7	3				
Asthma	Asthma: percent of patients with documented self-management goals in the last 12 months	This measure is used to assess the percent of patients with documented self-management goals in the last 12 months.							1					1		HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: percent of patients with a severity assessment at last contact (visit or phone).	This measure is used to assess the percent of patients with a severity assessment at last contact (visit or phone).												1		HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: average number of symptom-free days in the previous two weeks.	This measure is used to assess the average number of symptom-free days in the previous two weeks among patients with asthma who report symptom-free days.												1		HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: percent of patients older than 5 years with moderate or severe persistent asthma who have established a "personal best" peak flow.	This measure is used to assess the percent of patients older than 5 years with a National Heart, Lung, and Blood Institute (NHLBI) classification of moderate or severe persistent asthma who have established a "personal best" peak flow through multiple measurements during a period of relative disease stability.												1		HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: percent of patients evaluated for environmental triggers other than environmental tobacco smoke (dust mites, cats, dogs, molds/fungi, cockroaches) either by history of exposure and/or by allergy testing.	This measure is used to assess the percent of patients evaluated for environmental triggers other than environmental tobacco smoke (dust mites, cats, dogs, molds/fungi, cockroaches) either by history of exposure and/or by allergy testing.													1	HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: percent of patients who have had a visit to an Emergency Department (ED)/Urgent Care office for asthma in the past six months.	This measure is used to assess the percent of patients who have had a visit to an Emergency Department (ED)/Urgent Care office for asthma in the past six months.										1				HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Diagnosis and management of asthma: percentage of patients with asthma who return to the emergency department (ED) for treatment of asthma within 30 days of last visit to the ED.	This measure is used to assess the percentage of patients with asthma who return to the emergency department (ED) for treatment of asthma within 30 days of last visit to the ED.										1				Institute for Clinical Systems Improvement			
Asthma	Asthma: percent of patients with a reported exposure to environmental tobacco smoke at last visit.	This measure is used to assess the percent of patients with a reported exposure to environmental tobacco smoke at the last visit.													1	HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: average number of lost workdays and/or school days in the past 30 days.	This measure is used to assess the average number of lost workdays and/or school days in the past 30 days among patients with asthma who have been queried about lost work or school days at last contact.							1					1		HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Asthma: percent of patients with persistent asthma at last contact who are on an anti-inflammatory medication.	This measure is used to assess the percent of patients with an underlying National Heart, Lung, and Blood Institute (NHLBI) classification of persistent asthma at last contact who are on anti-inflammatory medication.										1				HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma and Depression	Asthma: percent of patients with a documented screening for depression in the past 12 months	This measure is used to assess the percent of patients with a documented screening for depression in the past 12 months.								1						HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma and influenza immuniation	Asthma: percent of patients who have a record of influenza immunization in the past 12 months.	This measure is used to assess the percent of patients who have a record of influenza immunization in the past 12 months.													1	HRSA Health Disparities Collaboratives: Asthma Collaborative			
Asthma	Diagnosis and management of asthma: percentage of patients with asthma with education about asthma documented in the medical record.	This measure is used to assess the percentage of patients with asthma with education about asthma documented in the medical record.							1					1		Institute for Clinical Systems Improvement			
Asthma	Diagnosis and management of asthma: percentage of patients with asthma with spirometry or peak flow meter reading documented in the medical record at the last visit	This measure is used to assess the percentage of patients with asthma with spirometry or peak flow meter reading documented in the medical record at the last visit.										1				Institute for Clinical Systems Improvement			
Asthma	Asthma: percentage of members 5 to 56 years of age during the measurement year who were identified as having persistent asthma and who were appropriately prescribed medication during the measurement year.	This measure is used to assess the percentage of enrolled members 5 to 56 years of age during the measurement year who were identified as having persistent asthma and who were appropriately prescribed medication during the measurement year. This process measure evaluates whether members with persistent asthma are being prescribed medications that are acceptable as primary therapy for long-term asthma control. The list of acceptable medications is derived from the National Heart, Lung and Blood Institute's (NHLBI) National Asthma Education Prevention Program (NAEPP) guidelines.	1			1						1				National Committee for Quality Assurance	1-May-06		
Asthma	Diagnosis and management of asthma: percentage of children with uncontrolled asthma who are on inhaled corticosteroids medication.	This measure is used to assess the percentage of children with uncontrolled asthma who are on inhaled corticosteroids medication.										1				Institute for Clinical Systems Improvement			

Appendix B

Asthma	Diagnosis and management of asthma: percentage of controlled asthma patients who are seen by a health care provider every one to six months.	This measure is used to assess the percentage of controlled asthma patients who are seen by a health care provider every one to six months.								1				Institute for Clinical Systems Improvement	
Asthma	Asthma assessment	Percentage of patients aged 5 through 40 years with a diagnosis of asthma who were evaluated during at least one office visit within 12 months for the frequency (numeric) of daytime and nocturnal asthma symptoms.	1	1										Physician Consortium for Performance Improvement	10-Aug-09
Asthma	Children's asthma care: percent of pediatric asthma in patients with documentation that they or their caregivers were given a written Home Management Plan of Care (HMPC) document.	This measure* is used to assess whether there is documentation in the medical record that a Home Management Plan of Care (HMPC) document was given to the pediatric asthma patient/caregiver.	1					1						Centers for Medicare & Medicaid Services/The Joint Commission	15-May-08
Asthma	Adult asthma: hospital admission rate	This measure is used to assess the number of admissions for asthma in adults per 100,000 population.	1											Agency for Healthcare Research and Quality	15-Nov-07
Asthma	Use of appropriate medications for people with asthma	Percentage of patients who were identified as having persistent asthma during the measurement year and the year prior to the measurement year and who were dispensed a prescription for either an inhaled corticosteroid or acceptable alternative medication during the measurement year	1		1					1				National Committee for Quality Assurance	10-Aug-09
Asthma	Asthma: pharmacologic therapy	Percentage of all patients with mild,moderate, or severe persistent asthma who were prescribed either the preferred long-term control medication (inhaled corticosteroid) or an acceptable alternative treatment	1	1						1				American Medical Association - Physician Consortium for Performance Improvement	8/10/2009
Asthma	Children's asthma care: percent of pediatric asthma in patients who received relievers during hospitalization.	This measure is used to assess the percent of pediatric patients admitted for inpatient treatment of asthma who received relievers during hospitalization.	1			1				1				The Joint Commission	9-Mar-07
Asthma	Children's asthma care: percent of pediatric asthma inpatients who received systemic corticosteroids during hospitalization.	This measure* is used to assess the percent of pediatric patients admitted for inpatient treatment of asthma who received systemic corticosteroids during hospitalization. *This is a Joint Commission only measure.	1			1				1				The Joint Commission	9-Mar-07
Asthma	Suboptimal Asthma Control (SAC) and Absence of Controller Therapy (ACT)	Rate 1: The percentage of patients with persistent asthma who were dispensed more than 5 canisters of short-acting beta2 agonist inhaler during the same three-month period. Rate 2: The percentage of patients with persistent asthma during the measurement year who were dispensed more than five canisters of short-acting beta2agonist inhalers over a 90-day period and who did not receive controller therapy during the same 90-day period. The full detailed measure specifications have also been submitted as a separate attachment.	1							1				National Committee for Quality Assurance	5-Aug-09
Asthma	Management plan for people with asthma	Percentage of patients for whom there is documentation that a written asthma management plan was provided either to the patient or the patient's caregiver OR, at a minimum, specific written instructions on under what conditions the patient's doctor should be contacted or the patient should go to the emergency room	1					1					1	IPRO	8/10/2009
BRONCHITIS- 3 measures			2	1	2	0	0	0	0	3	0	0	0		
Bronchitis	Outpatient drug utilization: summary of outpatient utilization of drug prescriptions, stratified by age, during the measurement year.	This measure summarizes data on outpatient utilization of drug prescriptions, stratified by age, during the measurement year. The following data are reported: -Total cost of prescriptions -Average cost of prescriptions per member per year (PMPY) -Total number of prescriptions -Average number of prescriptions PMPY			1					1				National Committee for Quality Assurance	
Bronchitis	Inappropriate antibiotic treatment for adults with acute bronchitis	Percentage of patients who were diagnosed with bronchitis and were dispensed an antibiotic on or within three days after the episode date	1	1						1				National Committee for Quality Assurance	8/10/2009
Bronchitis	Avoidance of antibiotic treatment in adults with acute bronchitis: percentage of adults 18 to 64 years of age with a diagnosis of acute bronchitis who were not dispensed an antibiotic prescription.	This measure is used to assess the percentage of adults 18 to 64 years of age with a diagnosis of acute bronchitis who were not* dispensed an antibiotic prescription on or three days after the Index Episode Start Date (IESD). This measure assesses whether antibiotics were inappropriately prescribed for healthy adults 18-64 years of age with bronchitis, and builds on an existing HEDIS measure that targets inappropriate antibiotic prescribing for children with upper respiratory infection (URI).	1		1					1				National Committee for Quality Assurance	8/1/2009
UPPER RESPIRATORY INFECTION- 4 measures			1	0	0	0	0	1	0	3	0	1	0		
URI	Appropriate treatment for children with upper respiratory infection (URI): percentage of children 3 months to 18 years of age who were given a diagnosis of URI and were not dispensed an antibiotic prescription.	This measure is used to assess the percentage of children 3 months to 18 years of age who were given a diagnosis of upper respiratory infection (URI) and were not* dispensed an antibiotic prescription on or three days after the Index Episode Start Date (IESD).	1							1				National Committee for Quality Assurance	9-Aug-10
Respiratory illiness	Diagnosis and treatment of respiratory illness in children and adults: percentage of encounters for cold symptoms (phone care and/or office visits) for which there is documentation of home treatment education.	This measure is used to assess the percentage of encounters for cold symptoms (phone care and/or office visits) for which there is documentation of home treatment education.						1				1		Institute for Clinical Systems Improvement	
Respiratory illiness	Diagnosis and treatment of respiratory illness in children and adults: percentage of patients with an office visit for cold symptoms who have had symptoms for less than seven days and who receive an antibiotic.	This measure is used to assess the percentage of patients with an office visit for cold symptoms who have had symptoms for less than seven days and who receive an antibiotic.								1				Institute for Clinical Systems Improvement	
Respiratory Illness	Diagnosis and treatment of respiratory illness in children and adults: percentage of patients with a diagnosis of pharyngitis who had strep screen testing	This measure is used to assess the percentage of patients with a diagnosis of pharyngitis who had strep screen testing.								1				http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=12299&string=asthma	
PNEUMONIA- 8 measures			8	0	0	2	1	5	4	5	0	0	1		

Pneumonia	Pneumonia (PN) 30-Day Mortality Rate	Hospital-specific, risk standardized, all-cause 30-day mortality (defined as death from any cause within 30 days after the index admission date) for patients discharged from the hospital with a principal diagnosis of pneumonia.	1											Agency for Healthcare Research and Quality		
Pneumonia	Pneumonia: percent of patients who were transferred or admitted to the intensive care unit (ICU) within 24 hours of hospital arrival, who had blood cultures performed within 24 hours prior to or 24 hours after hospital arrival.	This measure is used to assess the percent of pneumonia patients transferred or admitted to the intensive care unit (ICU) within 24 hours of hospital arrival, who had blood cultures performed within 24 hours prior to or 24 hours after hospital arrival.	1					1			1			Centers for Medicare & Medicaid Services/The Joint Commission	15-May-08	
Pneumonia	Pneumonia: median time from arrival at the hospital to the administration of the first dose of antibiotic at the hospital	This measure is used to assess the median time from arrival at the hospital to the administration of the first dose of antibiotic at the hospital for patients with pneumonia.	1					1			1			Joint Commission		
Pneumonia	Pneumonia: percent of patients who receive their first dose of antibiotics within 6 hours after arrival at the hospital	This measure is used to assess the percent of pneumonia patients who receive their first dose of antibiotics within 6 hours after arrival at the hospital.	1			1		1			1			Centers for Medicare & Medicaid Services/The Joint Commission		
Pneumonia	Blood cultures performed in the emergency department prior to initial antibiotic received in hospital	Percentage of pneumonia patients 18 years of age and older who have had blood cultures performed in the emergency department prior to initial antibiotic received in hospital	1				1	1			1			Centers for Medicare & Medicaid Services	3/9/2007	
Pneumonia- Smoking cessation	Pneumonia: percent of patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during hospital stay	This measure is used to assess the percent of pneumonia patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during the hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1			1		1			1			Centers for Medicare & Medicaid Services/The Joint Commission		
Pneumonia	Pneumonia: mortality rate.	This measure is used to assess mortality in discharges with principal diagnosis code of pneumonia. Pneumonia care occurs in an outpatient setting, and selection bias may be a problem for this indicator. In addition, 30-day mortality may be somewhat different than in-hospital mortality, leading to information bias. Risk adjustment for clinical factors is recommended.	1											Agency for Healthcare Research and Quality	9-Mar-07	
Pneumonia	Pneumonia (PN): hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization.	This measure* is a hospital-specific, risk-standardized, all-cause 30-day readmission (defined as readmission for any cause within 30 days from the date of discharge of the index admission) for patients discharged from the hospital with a principal discharge diagnosis of pneumonia.	1								1			Centers for Medicare & Medicaid Services	28-Oct-08	
PNEUMONIA / IMMUNIZATION- 9 measures			8	1	0	3	1	1	0	9	0	0	9			
Pneumonia - Immunization	Pneumonia Vaccination	Percentage of patients who ever received a pneumococcal vaccination	1							1			1	National Committee for Quality Assurance	8/10/2009	
Pneumonia - Immunization	Pneumonia Vaccination	Pneumonia patients, age 65 and older, who were screened for pneumococcal vaccine status and were administered the vaccine prior to discharge, if indicated.	1			1	1			1			1	National Committee for Quality Assurance	5/9/2007	
Pneumonia - Immunization	Pneumonia: percent of patients age 50 years and older, hospitalized during October, November, December, January, February, or March who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated	This measure is used to assess the percent of pneumonia patients age 50 years and older, hospitalized during October, November, December, January, February, or March who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated.	1			1				1			1	Centers for Medicare & Medicaid Services/The Joint Commission	9-Mar-07	
Pneumonia - Immunization	PCP prophylaxis	Percentage of patients aged 1 month or older who were prescribed Pneumocystis jiroveci pneumonia (PCP) prophylaxis.	1							1			1	National Committee for Quality Assurance	31-Jul-08	
Pneumonia - Immunization	Pneumonia: percent of patients aged 65 and older who were screened for pneumococcal vaccine status and were administered the vaccine prior to discharge, if indicated.	This measure is used to assess the percent of pneumonia patients, age 65 and older, who were screened for pneumococcal vaccine status and were administered the vaccine prior to discharge, if indicated.	1							1			1	Centers for Medicare & Medicaid Services/The Joint Commission	9-May-07	
Pneumonia - Immunization	Pneumonia vaccination status for older adults	Percentage of patients 65 years of age and older who ever received a pneumococcal vaccination	1	1						1			1	National Committee for Quality Assurance	10-Aug-09	
Pneumonia - Immunization	Pneumococcal vaccination	Percentage of patients with pneumonia, age 65 and older, who were screened for pneumococcal vaccine status and were vaccinated prior to discharge, if indicated.	1			1				1			1	Centers for Medicare & Medicaid Services/The Joint Commission		
Pneumonia - Immunization	Pneumococcal Polysaccharide Vaccine (PPV) Ever Received	Percentage of patients who have ever received Pneumoncoccal Polysaccharide Vaccine (PPV)	1							1			1	Centers for Medicare & Medicaid Services		
Pneumonia - Immunization	Nursing facility post acute care: percent of eligible and willing short-stay residents who were assessed and given pneumococcal vaccination	This measure is used to assess the percentage of eligible and willing short-stay (post-acute care) nursing home residents with an up-to-date pneumococcal vaccination.						1		1			1	Centers for Medicare & Medicaid Services		
COMMUNITY ACQUIRED BACTERIAL PNEUMONIA (CAP)			6	4	0	0	1	8	1	7	0	0	5			
Community Acquired Bacterial Pneumonia (CAP)	Bacterial pneumonia: hospital admission rate	This measure is used to assess the number of admissions for bacterial pneumonia per 100,000 population.	1											Agency for Healthcare Research and Quality	15-Nov-07	
Community Acquired Bacterial Pneumonia (CAP)	Community-acquired bacterial pneumonia: percentage of patients who were assessed for co-morbid conditions	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who were assessed for co-morbid conditions.						1		1				Physician Consortium for Performance Improvement		
Community Acquired Bacterial Pneumonia (CAP)	Community-acquired bacterial pneumonia: percentage of patients with hydration status assessed	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia for whom hydration status is assessed.								1			1	Physician Consortium for Performance Improvement		
Community Acquired Bacterial Pneumonia (CAP) and Immunization	Community-acquired bacterial pneumonia: percentage of patients who were assessed for pneumococcus immunization status	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who were assessed for pneumococcus immunization status.								1			1	Physician Consortium for Performance Improvement		

Community Acquired Bacterial Pneumonia (CAP)	Community-acquired bacterial pneumonia: percentage of patients who had a documented rationale for level of care based on severity and safety of home care	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who had a documented rationale for level of care based on severity and safety of home care.						1					1	Physician Consortium for Performance Improvement	
Community Acquired Bacterial Pneumonia (CAP)	Community-acquired bacterial pneumonia: percentage of patients with a chest x-ray performed	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who had a chest x-ray performed.								1				Physician Consortium for Performance Improvement	
Community Acquired Bacterial Pneumonia (CAP)	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)	1	1			1			1				Physician Consortium for Performance Improvement	9-Mar-07
Community Acquired Bacterial Pneumonia (CAP) and smoking cessation	Community-acquired bacterial pneumonia: percentage of patients who were queried about smoking	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who were queried about smoking.						1					1	Physician Consortium for Performance Improvement	
Community Acquired Bacterial Pneumonia (CAP) and smoking cessation	Community-acquired bacterial pneumonia: percentage of patients who received a smoking cessation intervention	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia who received a smoking cessation intervention.						1					1	Physician Consortium for Performance Improvement	
Community Acquired Bacterial Pneumonia (CAP)	Pneumonia: percent of immunocompetent intensive care unit (ICU) patients with community-acquired pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines	This measure is used to assess the percent of immunocompetent intensive care unit (ICU) patients with community-acquired pneumonia (CAP) who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines.	1					1		1				Centers for Medicare & Medicaid Services, Joint Commission	9-Mar-07
Community Acquired Bacterial Pneumonia (CAP)	Vital Signs for Community-Acquired Bacterial Pneumonia	This measure is used to assess the percentage of patients aged greater than or equal to 18 years diagnosed with community-acquired bacterial pneumonia for whom vital signs (temperature, pulse, respiratory rate, and blood pressure) documented and reviewed.	1	1				1		1				Physician Consortium for Performance Improvement	1-May-07
Community Acquired Bacterial Pneumonia (CAP)	Assessment of Oxygen Saturation for Community Acquired Bacterial Pneumonia	Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with oxygen saturation documented and reviewed.	1	1				1						American College of Emergency Physicians/ National Committee for Quality Assurance/Physician Consortium for Performance Improvement	1-May-07
Community Acquired Bacterial Pneumonia (CAP)	Assessment of Mental Status for Community Acquired Bacterial Pneumonia	Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with mental status assessed.	1	1				1	1					American College of Emergency Physicians/ National Committee for Quality Assurance/Physician Consortium for Performance Improvement	1-May-07
VENTILATOR ASSOCIATED PNEUMONIA (VAP)- 3 measures			2	0	0	0	0	1	1	2	0	0	0		
Ventilator Associated Pneumonia (VAP)	Infection rate reduction: number of ventilator-associated pneumonia (VAP) infections per 1,000 ventilator days	This indicator expresses the number of ventilator-associated pneumonia (VAP) infections in a facility in a given month using a standardized ratio of number of VAP infections per 1000 ventilator days. This indicator is useful in facilities with a high number of ventilator days.												NQMC: http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=12124&strinq=VAP	
Ventilator Associated Pneumonia (VAP)	Ventilator Bundle	Percentage of intensive care unit patients on mechanical ventilation at time of survey for whom all four elements of the ventilator bundle are documented and in place. The ventilator bundle elements are: Head of bed (HOB) elevation 30 degrees or greater (unless medically contraindicated); noted on 2 different shifts within a 24 hour period, daily sedation interruption, and daily assessment of readiness to extubate; process includes interrupting sedation until patient follow commands and patient is assessed for discontinuation of mechanical ventilation; parameters of discontinuation include: resolution of reason for intubation; inspired oxygen content roughly 40%; assessment of patients ability to defend airway after extubation due to heavy sedation; minute ventilation les than equal to 15 liters/minute; and respiratory rate/tidal volume less than or equal to 105/min/L(RR/TV<105), SUD (peptic ulcer disease) prophylaxis, DVT (deep venous thrombosis) prophylaxis.	1					1	1	1					11/15/2007
Ventilator Associated Pneumonia (VAP)	Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients	Percentage of ICU and HRN patients who over a certain amount of days have ventilator-associated pneumonia.	1							1				NQF: http://www.qualityforum.org/Measures_List.aspx?keyword=ventilator+associated+pneumonia&from=header	1/1/2004
CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)- 17 measures			8	2	1	0	0	17	0	14	3	0	8		
COPD	Chronic obstructive pulmonary disease (COPD): percentage of members 40 years of age and older with a new diagnosis or newly active COPD who received appropriate spirometry testing to confirm the diagnosis	This measure is used to assess the percentage of health plan members 40 years of age and older with a new diagnosis or newly active chronic obstructive pulmonary disease (COPD) who received appropriate spirometry testing to confirm the diagnosis.	1		1			1		1	1			National Committee for Quality Assurance	

COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD and FEV1 less than 40% of predicted value who have oxygen saturation assessed at least annually.	This measure is used to assess the percentage of patients with COPD with oxygen saturation assessed at least annually.	1					1		1			Physician Consortium for Performance Improvement	1-May-06
COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who were assessed for COPD symptoms at least annually	This measure is used to assess the percentage of patients who were assessed for chronic obstructive pulmonary disease (COPD) symptoms at least annually.						1		1			Physician Consortium for Performance Improvement	
COPD	COPD: Pulmonary rehabilitation: exercise training recommended	This measure is used to assess the percentage of patients for whom exercise training was recommended.						1		1	1	1	Physician Consortium for Performance Improvement	
COPD and smoking cessation	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD identified as smokers who received a smoking cessation intervention at least annually	This measure is used to assess the percentage of smokers who received a smoking cessation intervention at least annually.						1				1	Physician Consortium for Performance Improvement	
COPD and smoking cessation	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who were queried about smoking at least annually	This measure is used to assess the percentage of patients who were queried about smoking at least annually.						1				1	Physician Consortium for Performance Improvement	
COPD and immunization	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who received a pneumococcus immunization	This measure is used to assess the percentage of patients who received a pneumococcus immunization.						1		1		1	Physician Consortium for Performance Improvement	
COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who were assessed for pneumococcus immunization status	This measure is used to assess the percentage of patients who were assessed for pneumococcus immunization status.						1		1		1	Physician Consortium for Performance Improvement	
COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who received influenza immunization during current flu season	This measure is used to assess the percentage of patients who received influenza immunization during current flu season.						1		1		1	Physician Consortium for Performance Improvement	
COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD who were recommended to receive an influenza immunization annually	This measure is used to assess the percentage of patients who were recommended to receive an influenza immunization annually.						1		1		1	Physician Consortium for Performance Improvement	
COPD	Chronic obstructive pulmonary disease (COPD): hospital admission rate.	This measure is used to assess the number of admissions for chronic obstructive pulmonary disease (COPD) per 100,000 population. As a Prevention Quality Indicator (PQI), COPD is not a measure of hospital quality, but rather one measure of outpatient and other health care. This indicator has unclear construct validity, because it has not been validated except as part of a set of indicators. Providers may reduce admission rates without actually improving quality by shifting care to an outpatient setting. Some COPD care takes place in emergency rooms, so combining inpatient and emergency room data may give a more accurate picture.	1										Agency for Healthcare Research and Quality	
COPD	COPD: spirometry evaluation	This measure is used to assess the percentage of patients who had a spirometry evaluation results documented at least annually.	1	1				1		1	1		Physician Consortium for Performance Improvement	1-May-06
COPD	COPD: inhaled bronchodilator therapy	This measure is used to assess the percentage of patients aged 18 years and older with a diagnosis of COPD who have an FEV1/FVC less than 70% and have symptoms who were prescribed an inhaled bronchodilator.	1	1				1		1			Physician Consortium for Performance Improvement	1-May-06
COPD	COPD: inhaled bronchodilator therapy	Percentage of patients aged 18 years and older with a diagnosis of COPD and who have an FEV1/FVC less than 70% and have symptoms who were prescribed an inhaled bronchodilator.	1					1		1			Physician Consortium for Performance Improvement	1-May-06
COPD and smoking cessation	Chronic obstructive pulmonary disease (COPD): percentage of patients with COPD whose physician inquired about smoking cessation (if patient a smoker) at every visit	This measure is used to assess the percentage of patients with chronic obstructive pulmonary disease (COPD) whose physician inquired about smoking cessation (if patient a smoker) at every visit.						1				1		
COPD	Pharmacotherapy management of chronic obstructive pulmonary disease (COPD) exacerbation: percentage of COPD exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event.	This measure is used to assess the percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or emergency department (ED) encounter between January 1 to November 30 of the measurement year and who were dispensed a bronchodilator within 30 days of the event.	1					1		1			National Committee for Quality Assurance	5-Aug-09
COPD	Pharmacotherapy management of chronic obstructive pulmonary disease (COPD) exacerbation: percentage of COPD exacerbations for members 40 years of age and older who had an acute inpatient discharge or ED encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event.	This measure is used to assess the percentage of chronic obstructive pulmonary disease (COPD) exacerbations for members 40 years of age and older who had an acute inpatient discharge or emergency department (ED) encounter between January 1 to November 30 of the measurement year and who were dispensed a systemic corticosteroid within 14 days of the event.	1					1		1			National Committee for Quality Assurance	5-Aug-09
COPD	Chronic obstructive pulmonary disease (COPD): percentage of patients aged 18 years and older with a diagnosis of COPD and an oxygen saturation less than or equal to 88% or a PaO2 less than or equal to 55 mm Hg who prescribed long term oxygen therapy.	This measure is used to assess the percentage of patients who received long term oxygen therapy.						1		1			American Medical Association on behalf of the Physician Consortium for Performance Improvement® - Medical Specialty Society	
PNEUMOTHORAX- 4 measures			3	0	0	0	0	0	0	2	2	0	0	

Pneumothorax	Iatrogenic pneumothorax (area-level): rate per 100,000 population	This measure is used to assess the number of cases of iatrogenic pneumothorax per 100,000 population.											NQMC: http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=12719&string=Pneumothorax	
Pneumothorax	Iatrogenic pneumothorax in non-neonates: rate per 1,000 eligible admissions.	This measure is used to assess the number of patients with an iatrogenic pneumothorax per 1,000 eligible admissions.	1							1	1		NQMC: http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=8835&string=pneumothorax	5/15/2008
Pneumothorax	Iatrogenic pneumothorax (provider-level): rate per 1,000 discharges	This measure is used to assess the number of cases of iatrogenic pneumothorax per 1,000 discharges.	1							1			NQMC: http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?doc_id=12718&string=Pneumothorax	5/15/2008
Pneumothorax	Iatrogenic Pneumothorax (PSI 6) (risk adjusted)	Percent of medical and surgical discharges, 18 years and older, with ICD-9-CM code of iatrogenic pneumothorax in any secondary diagnosis field.	1								1			
IMMUNIZATION / INFLUENZA- 8 measures			8	0	0	1	1	8	1	8	2	0	8		
Influenza	Influenza Vaccination	Percentage of patients who received an influenza vaccination.	1					1		1	1		1 Physician Consortium for Performance Improvement	1-May-06
Influenza	Influenza Immunization Received for Current Flu Season	Percent of patients who received influenza immunization for the current flu season from this home health agency.	1					1		1			1 Centers for Medicare & Medicaid Services	31-Mar-09
Influenza	Flu shots for Adults Ages 50-64	Percentage of patients age 50-64 who report having received an influenza vaccination during the past influenza vaccination season	1					1		1	1		1 National Committee for Quality Assurance	10-Aug-09
Influenza	Flu Shot for Older Adults	Percentage of patients age 65 and over who received an influenza vaccination from September through December of the year	1					1		1			1 National Committee for Quality Assurance	10-Aug-09
Influenza	Influenza vaccination	Percentage of patients who received an influenza vaccination	1			1	1	1		1			1 American Medical Association - Physician Consortium for Performance Improvement	10-Aug-09
Influenza	Influenza Vaccination of Nursing Home/ Skilled Nursing Facility Residents	This measure is used to assess the percentage of eligible and willing long-stay (chronic care) nursing home residents who were vaccinated for influenza during the flu season (October 1 through March 31)	1					1		1			1 Centers for Medicare & Medicaid Services	31-Jul-08
Influenza	Influenza vaccination for all nursing home residents	Percentage of nursing home residents who are screened for eligibility for influenza vaccine status and are either not eligible, or are eligible and receive the vaccine.	1					1		1			1	
Influenza	Influenza Vaccination Coverage among Healthcare Personnel	Percentage of healthcare personnel (HCP) who receive the influenza vaccination.	1					1	1	1			1 Centers for Medicare & Medicaid Services	31-Jul-08
DYSPNEA- 1 measure			1	0	0	0	0	1	0	1	0	0	0		
Dyspnea	Home health care: percentage of patients with improvement in dyspnea.	This measure is used to assess the percentage of home health care patients whose dyspnea improved compared to a prior assessment. The measure identifies the patient's level of shortness of breath.	1					1		1			Center for Health Services Research, University of Colorado, under contract to Centers for Medicare and Medicaid Services	31-Mar-09
DYSPNEA- Cancer Care- 6 measures			0	0	0	0	0	6	0	6	0	1	0		
Dyspnea	Cancer - dyspnea: percentage of patients who reported new or worsening dyspnea for whom there was documentation of cause or of investigation of at least one of the following: hypoxia, anemia, bronchospasm or chronic obstructive pulmonary disease, pleural effusion, tumor obstruction of bronchi or the trachea, pneumonia, or pulmonary embolism.	This measure is used to assess the percentage of patients who reported new or worsening dyspnea for whom there was documentation of cause or of investigation of at least one of the following: hypoxia, anemia, bronchospasm or chronic obstructive pulmonary disease, pleural effusion, tumor obstruction of bronchi or the trachea, pneumonia, or pulmonary embolism.						1		1				RAND Corporation	
Dyspnea	Cancer - dyspnea: percentage of patients in the hospital treated for dyspnea who had an assessment within 24 hours that the treatment was effective in relieving dyspnea or that a change in treatment for dyspnea was made.	This measure is used to assess the percentage of patients in the hospital treated for dyspnea who had an assessment within 24 hours that the treatment was effective in relieving dyspnea or that a change in treatment for dyspnea was made.						1		1				RAND Corporation	
Dyspnea	Cancer - dyspnea: percentage of patients with a malignant pleural effusion who underwent thoracentesis for whom there was a repeat assessment of dyspnea within one week.	This measure is used to assess the percentage of patients with a malignant pleural effusion who underwent thoracentesis for whom there was a repeat assessment of dyspnea within one week.						1		1				RAND Corporation	
Dyspnea	Cancer - dyspnea: percentage of inpatients with primary lung cancer or advanced cancer with dyspnea on admission who were offered symptomatic management or treatment directed at an underlying cause within 24 hours.	This measure is used to assess the percentage of inpatients with primary lung cancer or advanced cancer with dyspnea on admission who were offered symptomatic management or treatment directed at an underlying cause within 24 hours.						1		1				RAND Corporation	

Appendix B

Dyspnea	Cancer - dyspnea: percentage of outpatients with primary lung cancer or advanced cancer who reported new or worsening dyspnea who were offered symptomatic management or treatment directed at an underlying cause within one month.	This measure is used to assess the percentage of outpatients with primary lung cancer or advanced cancer who reported new or worsening dyspnea who were offered symptomatic management or treatment directed at an underlying cause within one month.						1		1		1		RAND Corporation		
Dyspnea	Cancer - dyspnea: percentage of patients with dyspnea and a malignant pleural effusion who were offered thoracentesis within one month of the initial diagnosis of the effusion, or other treatment (e.g., diuresis) that resulted in a reduction in the effusion or symptomatic dyspnea.	This measure is used to assess the percentage of patients with dyspnea and a malignant pleural effusion who were offered thoracentesis within one month of the initial diagnosis of the effusion, or other treatment (e.g., diuresis) that resulted in a reduction in the effusion or symptomatic dyspnea.						1		1				RAND Corporation		
Postoperative Repiratory Failure- 1 measure			1	0	0	0	0	0	0	1	0	0	0			
Postoperative Repiratory Failure	Postoperative Repiratory Failure (PSI 11)	Number of adult patients with postoperative respiratory failure per eligible elective admissions.	1							1				Agency for Healthcare Research and Quality		
Pulmonary/Critical Care Oncology																
CANCER CARE								8	0	8	0	2	1			
Cancer Care	Recording of Clinical Stage for Lung Cancer and Esophageal Cancer Resection	Percentage of all surgical patients aged 18 years and older undergoing treatment procedures for lung or esophageal cancer that had clinical TNM staging provided prior to surgery.	1	1				1		1				Society of Thoracic Surgeons		
Cancer Care	Risk-Adjusted Morbidity after Lobectomy for Lung Cancer	Percentage of patients undergoing elective lobectomy for lung cancer that have a prolonged length of stay (>14 days)	1					1		1				Society of Thoracic Surgeons		
Cancer Care	Pulmonary Function Tests before Major Anatomic Lung Resection	Percentage of thoracic surgical patients, >/= 18 years of age who underwent at least one pulmonary function test no more than 12 months prior to a major lung resection.	1					1		1				Society of Thoracic Surgeons		
Cancer Care	Recording of Performance Status (Zubrod, Karnofsky, WHO or ECOG Performance Status) Prior to Lung or Esophageal Cancer Resection	Percentage of patients undergoing resection of a lung or esophageal cancer who had their performance status recorded within two weeks of the surgery date.	1					1		1			1	Society of Thoracic Surgeons		
Cancer Care	Oncology: percentage of patients, regardless of age, with a diagnosis of pancreatic or lung cancer who receive 3D conformal radiation therapy with documentation in medical record that radiation dose limits to normal tissues were established prior to the initiation of a course of 3D conformal radiation for a minimum of two tissues.	This measure is used to assess the percentage of patients, regardless of age, with a diagnosis of pancreatic or lung cancer who receive 3D conformal radiation therapy with documentation in medical record that radiation dose limits to normal tissues were established prior to the initiation of a course of 3D conformal radiation for a minimum of two tissues.	1					1		1				American Society for Therapeutic Radiology and Oncology - Medical Specialty Society, American Society of Clinical Oncology - Medical Specialty Society, Physician Consortium for Performance Improvement® - Clinical Specialty Collaboration	31-Jul-08	
Cancer Care	Cancer - information and care planning: percentage of patients with advanced cancer who are admitted to the ICU and survive 48 hours for whom the patient's preferences for care or an attempt to identify them was documented in the medical record within 48 hours of ICU admission.	This measure is used to assess the percentage of patients with advanced cancer who are admitted to the intensive care unit (ICU) and survive 48 hours for whom the patient's preferences for care or an attempt to identify them was documented in the medical record within 48 hours of ICU admission.						1		1		1		RAND Corporation		
Cancer Care	Cancer - information and care planning: percentage of patients with advanced cancer who are mechanically ventilated in the ICU for whom the patient's preference for mechanical ventilation or why this information was unavailable was documented in the medical record within 48 hours of admission to the ICU.	This measure is used to assess the percentage of patients with advanced cancer who are mechanically ventilated in the intensive care unit (ICU) for whom the patient's preference for mechanical ventilation or why this information was unavailable was documented in the medical record within 48 hours of admission to the ICU.						1		1		1		RAND Corporation Institute for Clinical and Evaluative Sciences		
Cancer Care	Proportion admitted to the ICU in the last 30 days of life	Percentage of patients who died from cancer admitted to the ICU in the last 30 days of life	1					1		1						
EMERGENCY - PULMONARY- 1 measure			1	0	0	0	0	0	0	0	1	0	0			
Emergency	Confirmation of Endotracheal Tube Placement	Any time an endotracheal tube is placed into an airway in the Emergency Department or an endotracheal tube is placed by an outside provider and that patient arrives already intubated (EMS or hospital transfer) or when an airway is placed after patient arrives to the ED there should be some method attempted to confirm ETT placement.	1								1			Cleveland Clinic		
Pulmonary- Critical Care																
Mechanical Ventilation- CRITICAL CARE- 1 measure			0	0	0	0	0	1	0	1	0	0	0			
Mechanical Ventilation	Anesthesiology and critical care: percentage of ICU patients aged 18 years and older who receive mechanical ventilation and who had an order on the first ventilator day for head of bed elevation (30-45 degrees).	This measure is used to assess the percentage of intensive care unit (ICU) patients aged 18 years and older who receive mechanical ventilation and who had an order on the first ventilator day for head of bed elevation (30-45 degrees).						1		1				American Society of Anesthesiologists, Physician Consortium for Performance Improvement		
MISCELLANEOUS																
TOBACCO DEPENDENCE- 15 Measures			11	1	0	5	5	15	0	15	0	15	15			

								1	1	1	1		
Tobacco Screening and Cessation	(1) Smoking and tobacco use cessation: percentage of members 18 years and older who were current smokers or tobacco users and who discussed or were provided cessation methods or strategies during the measurement year. (2) Smoking and tobacco use cessation: percentage of members 18 years of age and older who were current smokers or tobacco users who were recommended cessation medications during the measurement year. (3) Smoking and tobacco use cessation: percentage of members 18 years of age and older who were current smokers or tobacco users who received advice to quit during the measurement year.	Percentage of members 18 years of age and older who were current smokers or tobacco users who received advice to quit during the measurement year.	1									National Committee for Quality Assurance	10-Aug-09
Tobacco Screening and Cessation	Smoking: percent of eligible spinal cord injury and disorders (SCI&D) patients using tobacco who have been offered a referral to a tobacco cessation specialty program within the past year.	This measure is used to assess the percent of eligible spinal cord injury and disorders (SCI&D) patients using tobacco who have been offered a referral to a tobacco cessation specialty program within the past year.						1	1	1	1	Veterans Health Administration	
Tobacco Screening and Cessation	Tobacco cessation: percent of patients using tobacco who have been offered a referral to smoking cessation specialty program to assist with cessation within the past year.	This measure is used to assess the percent of patients using tobacco who have been offered a referral to smoking cessation specialty program to assist with cessation within the past year.						1	1	1	1	Veterans Health Administration	
Tobacco Screening and Cessation	Preventive care and screening: percentage of patients who were queried about tobacco use one or more times during the two-year measurement period.	This measure is used to assess the percentage of patients aged greater than or equal to 18 years who were queried about tobacco use one or more times during the two-year measurement period.	1					1	1	1	1	Physician Consortium for Performance Improvement®	10-Aug-09
Tobacco Screening and Cessation	Chronic stable coronary artery disease (CAD): percentage of patients queried one or more times about cigarette smoking	This measure is used to assess the percentage of patients with chronic stable coronary artery disease (CAD) who were queried one or more times about cigarette smoking.						1	1	1	1	American College of Cardiology, American Heart Association, Physician Consortium for Performance Improvement	
Tobacco Screening and Cessation	Chronic stable coronary artery disease (CAD): percentage of patients identified as cigarette smokers who received a smoking cessation intervention	This measure is used to assess the percentage of patients with chronic stable coronary artery disease (CAD) who are identified as cigarette smokers who received a smoking cessation intervention.						1	1	1	1	American College of Cardiology, American Heart Association, Physician Consortium for Performance Improvement	
Tobacco Screening and Cessation	Tobacco use prevention and cessation for infants, children and adolescents: percentage of patients' charts showing either that there is no tobacco use/exposure or (if a user) that the current use was documented at the most recent clinician visit.	This measure assesses the percentage of patients' charts showing either that there is no tobacco use/exposure or (if a user) that the current use was documented at the most recent clinician visit.	1					1	1	1	1	Institute for Clinical Systems Improvement	
Tobacco Screening and Cessation	Measure pair: a. Tobacco Use Assessment, b. Tobacco Cessation Intervention	Percentage of patients who were queried about tobacco use one or more times during the two-year measurement period. Percentage of patients identified as tobacco users who received cessation intervention during the two-year measurement period.	1	1				1	1	1	1	Physician Consortium for Performance Improvement	
Tobacco Screening and Cessation	Smoking cessation counseling for acute myocardial infarction	This measure is used to assess the percent of acute myocardial infarction (AMI) patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during the hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1		1	1		1	1	1	1	Centers for Medicare & Medicaid Services/The Joint Commission	
Tobacco Screening and Cessation	Adult smoking cessation advice/ counseling for HF	This measure is used to assess the percent of heart failure patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during hospital stay. For purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1		1	1		1	1	1	1	Centers for Medicare & Medicaid Services/The Joint Commission	
Tobacco Screening and Cessation	Smoking cessation counseling for pneumonia	This measure is used to assess the percent of pneumonia patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during the hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1		1	1		1	1	1	1		
Tobacco Screening and Cessation	Smoking cessation counseling for pneumonia	This measure is used to assess the percent of pneumonia patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during the hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1		1	1		1	1	1	1		
Tobacco Screening and Cessation	Heart failure: percent of patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during hospital stay	This measure is used to assess the percent of heart failure patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during hospital stay. For purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.	1		1	1		1	1	1	1		
Tobacco Screening and Cessation	Measure pair - a. Tobacco use prevention for infants, children and adolescents, b. Tobacco use cessation for infants, children and adolescents	Percentage of patients' charts showing either that there is no tobacco use/exposure or (if a user) that the current use was documented at the most recent clinic visit Percentage of patients with documented tobacco use or exposure at the latest visit who also have documentation that their cessation interest was assessed or that they received advice to quit	1					1	1	1	1	Institute for Clinical Systems Improvement	8/10/2009

Tobacco Screening and Cessation	Smoking Cessation, Medical assistance: a. Advising Smokers to Quit, b. Discussing Smoking Cessation Medications, c. Discussing Smoking Cessation Strategies	Percentage of patients who received advice to quit smoking Percentage of patients whose practitioner recommended or discussed smoking cessation medications	1	1	1	1	1	National Committee for Quality Assurance	8/10/2009

Appendix C

Support for a Measure Gap Area

Section 1: Criteria for Measure Gap Area Selection

Desired characteristics that support the identification of measure gap area	
Gaps and Variations in Care	Documented evidence of deviation (or observed patterns of deviation) in care from established norms or standards of care. Gaps in care may be manifested by underuse, overuse, or misuse of health services.
Evidence Base	One or more national, widely-accepted clinical guidelines OR One or more documented quality improvement (QI) initiatives or research projects that have demonstrated improvement in the quality of care (based on measures of access, processes, outcomes or the patient experience of care)
High Impact	High prevalence of the clinical problem or condition, significant burden of illness, high cost, or nationally identified clinical priority area (eg, Institute of Medicine, National Priority Partners) OR
	A measure topic that does not address a high prevalence condition or national priority, but should be a high impact area within a specialty area or medical domain.

National Priorities	
These national priority areas that have been identified by the Institute of Medicine, National Priority Partners, and National Strategy for Quality Improvement in Health Care. Potential topics should feasibly foster measure development in these domains.	
Care Coordination	Improve coordination of care among a patient's multiple providers and during entire episodes of illness addressing one of the following domains: healthcare "home" (ie, a source of usual care selected by the patient, integration of care across the community and longitudinally), proactive plan of care and follow-up, communication, integrated electronic information systems
Patient Safety	• Reduce healthcare associated infections, including surgical site infection, catheter associated blood stream infections, catheter associated urinary tract infections, ventilator associated pneumonia. • Reduce surgical mishaps: wrong site surgery, foreign objects retained after surgery, air embolism • Reduce adverse drug events • Reduce preventable complications: pressure ulcers, falls, blood product injury
Appropriateness/ Overuse	Address at least one of nine targeted areas: • Inappropriate medication use • Unnecessary laboratory tests • Inappropriate maternity care interventions • Inappropriate diagnostic procedures

	• Inappropriate procedures • Unnecessary consultations • Preventable emergency department visits and hospitalizations • Inappropriate non-palliative services at end of life • Potentially harmful preventive services with no benefit
Patient and Family Engagement	Health care should give each individual patient and family an active role in their care. Care should adapt readily to individual and family circumstances, as well as differing cultures, languages, disabilities, health literacy levels, and social backgrounds. Requires shared power and responsibility in decision-making and care management. It also requires giving the patient access to understandable information and decision support tools that help patients manage their health and navigate the health care delivery system. Examples include: ▪ assuring integration of patients' feedback on their preferences, desired outcomes, and experiences, ▪ integrating patient-generated data in EHRs, ▪ finding additional ways to involve patients and families in managing their care effectively.
Affordability of care	▪ Reduce redundant and harmful care, (by reducing health care-acquired conditions); ▪ Establish common measures to assess the cost impact of new programs and new payment systems on families, employers, and the public sector, along with how well these programs support innovation and effective care; ▪ Build measurement of cost and resource use—along with patient experience and outcomes— ▪ Reduce waste from undue administrative burdens; ▪ Make health care costs and quality more transparent to consumers and providers
Promotion of Best Practices for to foster population health	The broad goal of promoting better health and healthy behaviors such as: ▪ not using tobacco or ▪ fostering healthy environments that make it easier to exercise and ▪ access to healthy foods. ▪ adoption of clinical preventive services for children and adults.
Quality Improvement Collaboratives	Measures that can be used in quality improvement collaboratives that can accelerate the spread of measures use.

Section 2: Information required for preliminary review *(section 2 should not exceed four pages)*

Measure gap topic area: *Provide information on the aspect of care that this measure gap area would address.*
Existing relevant quality measures *(if any)*
Documentation of gap and/or variation in care: *Provide evidence (including citations to source) that demonstrate a quality gap or room for improvement in the measure topic area*

Evidence base to support measure the need for measure development: *Provide a list of applicable guidelines including a description of the guideline development methodology or rating scheme for the strength of the evidence/ recommendation. If a QI initiative, provide evidence (including citations to source) that demonstrate improvement in the quality of care.*
Potential impact of topic area: I*nclude data regarding prevalence, burden of illness (estimates of morbidity and mortality), cost, or national identification as clinical priority area*

Appendix D

Pulmonary Measure Gap Survey Results

Please rate the priority of the following measure gap area from 1 (lowest priority) to 5 (highest priority).							
Main Area	**Subcategory**	**1-Low Priority**	**2**	**3**	**4**	**5-High Priority**	**Rating Average**
Asthma		0	1	1	1	2	3.80
Interstitial Lung Disease		1	0	2	2	0	3.00
Palliative Care & Dyspnea		0	0	0	3	2	4.40
COPD		0	0	0	1	4	4.80
	Risk & Co-morbidities	0	2	0	2	1	3.4
	Documentation Of Co-morbidities in COPD	0	1	2	1	1	3.4
	Documentation of Risk for COPD Exacerbation	1	0	1	3	0	3.2
	COPD Acute Exacerbation Care	0	0	0	3	1	4.25
	Pulmonary Rehabilitation for COPD Patients	0	1	0	3	1	3.8
Iatrongenic Pneumothorax with Thoracentesis		0	1	3	1	0	3.0
Ventilator Associated Pneumonia and Mechanical Ventilation		0	0	0	2	3	4.6

References

[1] Critical Care Societies Collaborative. (2012). Measure Gap Areas in Critical Care Medicine [White paper].

[2] http://www.qualityforum.org/docs/measure_evaluation_criteria.aspx.

[3] http://qualitymeasures.ahrq.gov/

[4] Mularski RA, Asch SM, Shrank WH, et al. The quality of obstructive lung disease care for adults in the United States as measured by adherence to recommended processes. Chest. 2006;130(6):1844-1850.

[5] Bratzler DW, Oehlert WH, McAdams LM, et al. Management of acute exacerbations of chronic obstructive pulmonary disease in the elderly: physician practices in the community hospital setting. J Okla State Med Assoc. 2004;97(6):227-232.

[6] Lindenauer PK, Pekow P, Gao S, et al. Quality of care for patients hospitalized for acute exacerbations of chronic obstructive pulmonary disease. Ann. Intern. Med. 2006;144(12):894-903.

[7] Heffner JE, Mularski RA, Calverley PMA. COPD performance measures: missing opportunities for improving care. Chest. 2010;137(5):1181-1189.

[8] Mularski RA, McBurnie MA, Lindenauer P, Lee T, Vollmer W, Au D, Carson S, Krishnan JA on behalf of the CONCERT Investigator Consortium. Comparative effectiveness research in chronic obstructive pulmonary disease. Comparative Effectiveness Research. Jan 2012; 1(1):71-82.

[9] Ries AL, Make BJ, Lee SM, Krasna MJ, Bartels M, Crouch R, Fishman AP; National Emphysema Treatment Trial Group. Chest 2005; 128:3799-809.

[10] Garvey C. Putting the Pieces together. RT:For decisionmakers in respiratory care. January 2010. http://www.rtmagazine.com/issues/articles/2010-01_01.asp Accessed 12/7/2011.

[11] Qaseem A, Wilt TJ, Weinberger SE, Hanania NA, Criner G, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update for the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and the European Respiratory Society. Ann Intern Med 2011; 155:179-91.

[12] Guidelines: GOLD 2011 Summary. http://www.goldcopd.org/uploads/users/files/GOLD2011_Summary.pdf

[13] Zhang MW, Ho RC, Cheung MW, Fu E, Mak A. Prevalence of depressive symptoms in patients with chronic obstructive pulmonary disease: a systemic review, meta-analysis and meta-regression. Gen Hosp Psychiatry 2011; 33:217-33.

[14] Keating A, Lee A, Holland AE. What prevents people with chronic obstructive pulmonary disease from attending pulmonary rehabilitation? A systematic review. Chron Respir Dis 2011;8:89-99.

[15] U.S. Preventative Services Task Force. Screening for depression: recommendations and rationale. http://www.uspreventiveservicestaskforce.org/3rduspstf/depression/depressrr.htm Accessed 12/07/2011.

[16] Whooley MA, Avins AL, Miranda J, Browner WS. Case-finding instruments for depression: Two questions are as good as many. *J Gen Intern Med* 1997;12:439-45.

[17] Mechanic D. Barriers to help-seeking, detection, and adequate treatment for anxiety and mood disorders: implications for health care policy. J Clin Psychiatry 2007; 68:S2:20-6.

[18] Marciniuk DD, Goodridge D, Hernandez P, Rocker G, Balter M, Bailey P, Ford G, Bourbeau J,. O'Donnell DE, Maltais F, Mularski RA, Cave AJ, Mayers I, Kennedy V, Oliver TK, Brown C. Managing dyspnea in patients with advanced chronic obstructive pulmonary disease: A Canadian Thoracic Society clinical practice guideline. Canadian Respiratory Journal 2011; 18(2):69-78. PMID 21499589

[19] Mularski RA, Campbell ML, Asch SM, Reeve BB, Basch E, Maxwell TL, Cuny J, Clauser SB, Snyder CF, Seow H, Wu, AW, Dy S. A review of quality of care evaluation for the palliation of dyspnea. American Journal of Respiratory and Critical Care Medicine Mar 2010;181:534-38. PMID 20056904

[20] . Mahler DA, Selecky PA, Harrod CG, Benditt JO, Carrieri-Kohlman V, Curtis JR, Manning HL, Mularski RA, Varkey B, Campbell M, Carter ER, Chiong JR, Ely EW, Hansen-Flaschen J, O'Donnell DE, Waller A. American College of Chest Physicians Consensus Statement on the management of dyspnea in patients with advanced lung or heart disease Chest 2010; 137(3):674-91. PMID 20202949

[21] ATS End-of-Life Care Task Force. (Lanken PN, Terry PB, Delisser HM, Fahy B, Hansen-Flaschen J, Heffner J, Lemaire F, Levy M, Mularski RA, Osborne ML, Prendergast TJ, Rocker G, Sibbald W, Wilfond B, Yankaskas J.). An Official American Thoracic Society Clinical Policy Statement: Palliative care for patients with respiratory diseases and critical illnesses. American Journal of Respiratory and Critical Care Medicine 2008 Apr 15; 177:912-927. PMID 18390964

[22] Lorenz KA, Lynn J, Dy SM, Shugarman LM, Wilkinson AP, Mularski RA, Morton SA, Hughes RG, Hilton LK, Maglione M, Rhodes SL, Rolon C, Sun VC, Shekelle PG. Evidence for improving palliative care at the end of life: A systematic review. Annals of Internal Medicine 2008 Jan 15; 148(2):147-59. PMID 18195339

[23] Centers for Disease Control. National Center for Health Statistics. Asthma prevalence, health care use and mortality: United States, 2003-2005 [Accessed February 4, 2012]. Available from: http://www.cdc.gov/nchs/data/hestat/asthma03-05/asthma03-05.htm

[24] US Department of Health and Human Services, National Institute of Health, National Heart, Lung and Blood Institute. Expert Panel Report 3: guidelines for the diagnosis and management of asthma [Accessed February 4, 2012]. Available at: http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm

[25] Tsai C, Sullivan AF, Gordon JA, et al. Quality of care for acute asthma in 63 US emergency departments. *J Allergy Clin Immunol* 2009; 123:354-61

[26] Halm EA, Wisnivesky JP, and Leventhal H. Quality and access to care among a cohort of inner-city adults with asthma. *Chest* 2005;128;1943-1950.

[27] Raghu G, Weycker D, Edelsberg J, et al. Incidence and prevalence of idiopathic pulmonary fibrosis. Am J Respir Crit Care Med 2006; 174:810-816.

[28] American Thoracic Society; European Respiratory Society. Idiiopathic pulmonary fibrosis: diagnosis and treatment: international consensus statement. Am J Respir Crit Care Med 2000; 161:646-664.

[29] An Official ATS/ERS/JRS/ALAT Statement: Idiopathic pulmonary fibrosis: evidence-based guidelines for diagnosis and management. Am J Respir Crit Care Med 2011; 183:788-824.

[30] Flaherty KR, Andreiz A-C, King TE, et al. Idiopathic interstitial pneumonia: Do community and academic physicians agree on diagnosis? Am J Respir Crit Care Med 2007; 175:1054-1060.

[31] Lamas DJ, Kawut SM, Bagiellas E, et al. Delayed access and survival in idiopathic pulmonary fibrosis: a cohort study. Am J Respir Crit Care Med 2011; 184:842-47.

[32] Lederer DJ, Arcasoy SM, Barr RG, et al. Racial and ethnic disparities in idiopathic pulmonary fibrosis: a UNOS/OPTN database analysis. Am J Transplant 2006; 6:2436-2442.

[33] Gordon CE, Feller-Kopman D, Balk EM, Smetana GW. Pneumothorax following thoracentesis: a systematic review and meta-analysis. Arch Intern Med. 2010 Feb 22;170(4):332-9.

[34] Sassoon CS, Light RW, O'Hara VS, Moritz TE. Iatrogenic pneumothorax: etiology and morbidity. Results of a Department of Veterans Affairs Cooperative Study.Respiration. 1992;59(4):215-20.

[35] Zhan C, Smith M, Stryer D. Accidental iatrogenic pneumothorax in hospitalized patients. Med Care. 2006 Feb;44(2):182-6.

[36] Gordon CE, Feller-Kopman D, Balk EM, Smetana GW. Pneumothorax following thoracentesis: a systematic review and meta-analysis. Arch Intern Med. 2010 Feb 22;170(4):332-9

[37] Daniels CE, Ryu JH. Improving the safety of thoracentesis. Curr Opin Pulm Med. 2011 Jul;17(4):232-6.

[38] Celik B, Sahin E, Nadir A, Kaptanoglu M. Iatrogenic pneumothorax: etiology, incidence and risk factors. Thorac Cardiovasc Surg. 2009 Aug;57(5):286-90. Epub 2009 Jul 23..

[39] Duncan DR, Morgenthaler TI, Ryu JH, Daniels CE. Reducing iatrogenic risk in thoracentesis: establishing best practice via experiential training in a zero-risk environment. Chest. 2009 May;135(5):1315-20. Epub 2008 Nov 18.

[40] Heidecker J, Huggins JT, Sahn SA, Doelken P. Pathophysiology of pneumothorax following ultrasound-guided thoracentesis. Chest. 2006 Oct;130(4):1173-84.