2009

Insights for Improvement:
Advancing COPD Care Through Quality Measurement

An NCQA Insights for Improvement Publication
Chronic obstructive pulmonary disease (COPD) includes chronic bronchitis, emphysema, or both.

Acknowledgements

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On behalf of the National Committee for Quality Assurance (NCQA), I am pleased to introduce our new Insights for Improvement publication series.

NCQA has spent nearly two decades assessing and reporting on the quality of America’s health care. Our philosophy for improving care is simple: measurement, transparency and accountability lead to improvement in health care quality. It draws heavily on the axiom that sunlight is the best disinfectant.

Accordingly, we have developed this publication in order to provide substantial insight into NCQA’s development of quality measures in key areas of care. By giving you the complete rationale, data sources and research that went into the development of measures of health care quality, we hope not only to shed light upon the development of quality measures but also to build on what we’ve accomplished so far and catalyze further improvement still.

Our first title in this series is Advancing COPD Care Through Quality Measurement. I began my career in health care as a respiratory therapist, so this subject—COPD, or chronic obstructive pulmonary disease—holds a special personal significance to me. I’ve seen firsthand the toll that emphysema, chronic bronchitis and other diseases that comprise COPD can take on patients and their families. Timely diagnosis and appropriate treatment can make all the difference to patients in terms of their quality of life.

COPD doesn’t just take a toll on those who live with it; it is a serious public health issue. COPD is the fourth most common cause of death in the U.S. Treatment costs total in excess of $40 billion a year, and untold billions more are lost in indirect costs due to absence from work, lost productivity and comorbidities.

Accordingly, NCQA has developed three measures for COPD care in order to assess quality. We report the results of these measures through a number of channels, including our annual State of Health Care Quality report and our online Quality Compass® database of health plan performance.

NCQA also offers a variety of other resources that encourage transparency and promote better decision making. We urge everyone involved in COPD care—health plans, physicians, nurses, pharmacists, respiratory therapists, case managers and other health care practitioners—to use all the resources available to them to identify gaps in care for
their organization and to develop strategies to improve the management of COPD. We encourage all purchasers and employers to help drive these improvements through careful evaluation and selection of health plans that actively engage in COPD prevention and quality improvement strategies.

All NCQA standards and quality measures are developed with the input of a broad array of health care experts. Many such experts were vital to the development of our measures to promote transparency and accountability in COPD care, and I offer my sincere thanks for their substantial contributions. I also wish to thank Boehringer Ingelheim for its support in developing this introductory Insights for Improvement publication and its abiding commitment to quality improvement in COPD care.

COPD measures are relatively new to the Healthcare Effectiveness Data and Information Set (HEDIS®); hence, we are just starting down the path to improving COPD care. I enthusiastically look forward to the day in the near future when I can share with you our progress down that road.

Margaret E. O'Kane
President, National Committee for Quality Assurance (NCQA)

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Taking on COPD: A major public health issue

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease associated with increasing breathing difficulties. This chronic condition can worsen over time, leading to serious disability and exacerbations—sudden episodes of serious illness—that require hospitalization. Patients can be heavy users of the health care system even in the early stages of the disease. COPD can be prevented, but once it develops, it cannot be cured. However, early diagnosis and management can slow disease progression and significantly reduce the risk of exacerbations and hospitalizations.

Although less well-known than other common fatal diseases such as heart disease, cancer and stroke, COPD is a significant and persistent public health issue.

- An estimated 24 million Americans may have COPD, but only half—12 million—have been diagnosed.
- COPD is the fourth-leading cause of death in the U.S. and the only major fatal illness for which there is still an increasing death rate. COPD is estimated to become the third-leading cause of death worldwide by 2020.
- In 2007, the total annual cost of COPD was an estimated $42.6 billion. These costs exceed those associated with heart failure and are more than double the costs for asthma. COPD is responsible for 636,000 hospitalizations and more than 15 million physician office visits each year.

While COPD is not curable, it is preventable, and several interventions have been shown to improve symptoms and quality of life and to reduce hospitalizations and health care costs.

In 2000, the Institute of Medicine (IOM) deemed COPD a priority disease for quality improvement efforts, noting that COPD contributes substantially to our national health care burden; the IOM strongly recommended immediate collaboration among health care organizations, practitioners, purchasers and consumers to develop strategies, goals and action plans to achieve significant improvements in COPD care. Given the tremendous public health threat posed by COPD and the gap between evidence-based guidelines and current clinical practice, NCQA developed three performance measures addressing COPD to encourage the consistent delivery of evidence-based care.
NCQA began collecting data on COPD care in 2006 with the introduction of *Use of Spirometry Testing in the Assessment and Diagnosis of Chronic Obstructive Pulmonary Disease* to the HEDIS measures that address the effectiveness of care. In 2008, data collection began on a second effectiveness of care measure, *Pharmacotherapy Management of COPD Exacerbation*. A third measure, *Relative Resource Use for People With COPD*, helps health plans track resource use and costs associated with COPD. This *Insights for Improvement* publication will focus on improving COPD care through the use of two effectiveness of care HEDIS measurements.

**NCQA has developed two performance measures addressing COPD to encourage the consistent delivery of evidence-based care.**

In light of the historical impact of other NCQA HEDIS measures, NCQA expects the COPD measures to help health plans and health care practitioners focus on improving diagnosis, management and prevention of COPD by following nationally recognized, evidence-based guidelines. In conjunction with other HEDIS measures that align with effective COPD prevention and management (e.g., *Medical Assistance With Smoking Cessation* and *Flu Shots for Older Adults*), NCQA can help health plans and practitioners drive improvements in COPD care on a number of levels.

The development and implementation of the HEDIS measures are part of an ongoing mission to improve quality. This mission is made possible by a sustained, concerted partnership between health plans, health care practitioners, patients, and public and private purchasers. NCQA is proud to be a driving force in support of that partnership.

This *Insights for Improvement* publication is the first of an ongoing series to increase awareness of current health care issues. Strategies to initiate and maintain improvements in COPD care are provided for primary care providers, pulmonary specialists and those involved in managed care, including clinical pharmacists, case managers and disease managers. Initiatives to support these quality improvement efforts are also described for purchasers, including employers and other business groups.

We begin this publication with a focus on COPD and examine the potential of the two effectiveness of care HEDIS measures to promote improvements in COPD care. We conclude by offering possible next steps for the development of a comprehensive and collaborative approach to improve COPD care.
NCQA’s Approach to Improving Quality

Since its founding in 1990, NCQA has sought to drive health care improvement through measurement, transparency and public reporting. Using well-defined improvement strategies, such as HEDIS performance measures, NCQA has helped to elevate the issue of health care quality within the national agenda for health care.

HEDIS performance measurement

A performance measure is a set of detailed specifications that define how to calculate a “rate” for a specific indicator of clinical quality. NCQA’s HEDIS is the most widely used set of performance measures in the U.S. HEDIS is central to NCQA’s approach to accountability and quality improvement. Health plans, physician practices and other health care organizations use HEDIS to recognize, reward and improve quality. Beyond its own use of HEDIS measures, NCQA has, both by itself and in partnership with others, such as the American Medical Association Physician Consortium for Performance Improvement, developed many of the ambulatory care measures that have been endorsed by the National Quality Forum, approved by the Ambulatory Quality Alliance and used in the Centers for Medicaid and Medicare Services Physician Quality Improvement Program. Annual reporting of HEDIS measures enables health plans to assess their performance, compare it to other health plans and guide quality improvement efforts.

The impact of the HEDIS health plan measurement is widespread. In 2008, 90 percent of health maintenance organization (HMO) plans and a growing percentage of preferred provider organization (PPO) plans reported HEDIS performance data to NCQA; as a result, 106 million Americans are enrolled in health plans that report data to NCQA. More than 800 HMOs and PPOs submitted HEDIS data in 2007 for HEDIS 2008 reporting.

Health plans accredited by NCQA must report selected HEDIS data to demonstrate their performance. However, HEDIS reporting can also be used outside the NCQA Accreditation process. To date, 32 states collect or require HEDIS performance data. Other programs, such as the Medicare Advantage program and the Federal Employees Health Benefits Program also require HEDIS.

HEDIS 2009 consists of 74 performance measures distributed across several domains, such as effectiveness of care, member satisfaction and health plan stability.

Two HEDIS COPD measures are in the Effectiveness of Care domain:

• Use of Spirometry Testing in the Assessment and Diagnosis of COPD
• Pharmacotherapy Management of COPD Exacerbation
Accreditation

NCQA Accreditation is a rigorous and comprehensive evaluation through which NCQA assesses the quality of the key systems and processes that define health plan service delivery. Through health plan accreditation, NCQA evaluates confidentiality, consumer protection, access, service and improvement activities.10

NCQA is the only health plan accreditor to require public reporting of clinical performance data. Health plans’ relative performance on HEDIS measures account for approximately 40% of their NCQA Accreditation score.10

NCQA Accreditation is the most widely recognized symbol of quality in the managed care industry. Three of every four health plan members are currently in an organization that has been reviewed by NCQA.8 Currently, NCQA Accreditation is used or recognized by 40 states (including the District of Columbia) and by the federal government as part of their health plan oversight and accountability processes.10 In July 2008, NCQA revised its accreditation program to bring all health plans—HMOs, point-of-service plans, PPOs and others—under a common set of standards that includes public reporting of HEDIS measures.10

The NCQA seal is a widely recognized symbol of quality. For purchasers and employers, the seal is a reliable indicator of a well-managed, high-quality organization.

For nearly 20 years, NCQA has played a central role in driving improvements in health care quality through health plan accountability. In 1991, NCQA rolled out its first accreditation program for managed care organizations (MCO). That program established standards for accountability of health plan structure, function and operations. Concurrently, NCQA nurtured the evolution of HEDIS, a transformational measurement approach underlying many of the greatest improvements in managed care quality in the past decade. Beginning in 1999, selected HEDIS measures were incorporated into the MCO accreditation process, adding accountability for health care performance to the NCQA Accreditation score. In 2008, this approach was extended to PPOs.
COPD Background

Characteristics of COPD

COPD is a chronic lung disease characterized by airway narrowing or airflow obstruction that is only partially reversible. This results in reduced exercise capacity and physical limitations. COPD also has a non-pulmonary component, including skeletal muscle wasting, that contributes to the severity and physical limitations of patients.¹

Patients with COPD sometimes experience episodes of serious exacerbations that require hospitalization. This sudden and severe worsening of symptoms contributes substantially to decreased quality of life, absenteeism from work and high health care costs.¹

The clinical picture of a patient with COPD is complicated by an increased risk of serious comorbid conditions, including excessive weight loss, hypertension, depression and respiratory infections.¹

The progressive nature of COPD results in worsening airflow limitation and other symptoms that can lead to major physical limitations and eventually disability and premature death.¹

In many patients, COPD is the result of chronic bronchitis, emphysema or a mixture of both diseases. These diseases cause a narrowing of the small airway passages, i.e., bronchoconstriction of the bronchioles. Loss of elastic recoil of the air sacs within the lung, the alveoli, can also occur. This can lead to hyperinflation, or air-trapping, in the lung. The end result is a reduction in oxygen and carbon dioxide exchange (Figure 1).¹²

Figure 1. Bronchoconstriction and loss of elastic recoil due to COPD can lead to hyperinflation of the lung.

The common symptoms of COPD are shortness of breath, increased mucus production and chronic cough; however, the hallmark feature of COPD is airway obstruction that is only partially reversible. The most reliable way to assess airway obstruction and confirm a diagnosis of COPD is spirometry. Spirometry is a simple, inexpensive lung function test that can be easily performed in a physician’s office.¹
Prevalence and mortality

About 24 million adults in the U.S. have evidence of impaired lung function consistent with COPD; half (12 million) have been diagnosed with COPD.5 The disease affects nearly twice as many women as it does men, and nearly 70 percent of patients are younger than 65 years of age (Figure 2).13 Among those 45 to 64 years of age, COPD is nearly as prevalent as asthma.13

Figure 2. COPD diagnosis trends by age (2005).13

Table 1. Percentage Change in U.S. Age-Adjusted Death Rates for Major Chronic Diseases, 1963–2005

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Percent Change 1963–2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease</td>
<td>-70%</td>
</tr>
<tr>
<td>Stroke</td>
<td>-73%</td>
</tr>
<tr>
<td>Other cardiovascular diseases</td>
<td>-43%</td>
</tr>
<tr>
<td>COPD and allied conditions</td>
<td>+162%</td>
</tr>
</tbody>
</table>

Risk factors

Cigarette smoking is the most common and best-documented risk factor for COPD. In the U.S., about 90 percent of COPD is attributable to smoking.14 However, epidemiologic studies demonstrate that some nonsmokers may also develop airflow obstruction characteristic of COPD.1 Environmental factors that may trigger COPD include indoor and outdoor air pollutants, occupational dusts and chemicals, environmental tobacco smoke and wood smoke. In developing countries, environmental exposure to pollutants is a more common cause of COPD.1

A patient’s risk of having COPD can also be influenced by genetically inherited traits: although rare, hereditary deficiency of alpha-1-antitrypsin is widely documented as substantially increasing one’s susceptibility to COPD. Additional risk factors include abnormal lung growth and development during gestation and childhood, and oxidative stress caused by an imbalance between oxidants and antioxidants.7 The most common risk factors for COPD in the U.S. are illustrated in Figure 3.

About 24 million Americans have evidence of impaired lung function consistent with COPD, but only 12 million have been diagnosed with COPD.

COPD is the only major fatal illness in which the age-adjusted mortality rate is increasing.1 The mortality rate of COPD and allied conditions has increased 162 percent from 1963 to 2005—more than any other major chronic disease in the U.S. (Table 1).3 Women have seen the greatest increase in the mortality rate.5
Comorbid conditions

Comorbidities are common in COPD. One study reported significantly higher rates of both respiratory and nonrespiratory comorbidities (such as cardiovascular diseases and muscle wasting) in individuals with COPD when compared with individuals without COPD. Conversely, COPD is a common comorbidity to other primary diseases: in 2002, the Healthcare Cost and Utilization Project reported that COPD was second only to hypertension as the most common comorbid condition seen among patients hospitalized for other reasons.

According to major treatment guidelines, these co-occurring illnesses often complicate COPD diagnosis and management. Asthma often coexists with COPD: a common challenge for physicians is to differentiate COPD from asthma when formulating an initial diagnosis.

The following is a list of common comorbidities.
• Asthma and other lung disease
• Hypertension, including pulmonary hypertension
• Cardiovascular conditions, including myocardial infarction, angina and heart failure
• Diabetes
• Depression
• Osteoporosis
• Respiratory infection
• Bone fractures
• Sleep disorders, including insomnia, nightmares and daytime sleepiness
• Excessive weight loss and muscle wasting
• Glaucoma
Diseases burden

COPD often sets up a cycle of physical, social and psychosocial consequences (Figure 4).1 In the early stages of the disease, dyspnea (shortness of breath) may occur during daily activities such as walking and climbing stairs; patients experiencing dyspnea may limit daily tasks at home and avoid social situations involving simple activities. Increasing inactivity reduces fitness levels and leads to worsening breathlessness, further inactivity and lack of fitness. This cycle often results in depression, adding another component to the worsening health status of individuals with COPD. The progression of COPD places a significant and increasing burden on patients, families, caregivers and employers.11

Figure 4. Physical, social and psychosocial consequences of COPD.

COPD → Dyspnea → Immobility → Depression → Social Isolation

Adapted from Global Strategy for the Diagnosis, Management and Prevention of COPD, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2007.1

Compared with healthy people of a similar age, physical limitation is more common in patients with COPD. A 2005 study that investigated physical activities of daily living found that patients with COPD spent significantly less time per day walking and more time sitting and lying down than healthy patients.19 A separate study found that adults with COPD were 11 times more likely to report fair or poor health, 10 times more likely to report depression and 5.5 times more likely to report poor sleep.20 Often, social, family and professional relationships become strained as individuals with severe COPD lose their ability and inclination to participate socially and become less capable of taking responsibilities at home and at work.11,21

The impact of COPD in younger individuals was revealed after analyzing employee claims data from 9 multistate companies: working-age Americans with COPD (mean age 52 years) have 2- to 3-fold greater health care utilization and are more than 4 times as likely to have a long-term disability claim than employees without COPD.16

Challenges in diagnosis

COPD is widely considered to be underdiagnosed in the U.S. About half of the 24 million adults with evidence of impaired lung function consistent with COPD have been diagnosed. The gap between individuals who have airflow limitation consistent with COPD and those who have been diagnosed with COPD is dramatically illustrated in Figure 5.4

The reasons for underdiagnosis are numerous. First, the physical symptoms of COPD, including shortness of breath, cough and mucus production, are not specific to COPD. Early symptoms may be minimal or thought to be a normal part of aging. Consequently, many people do not seek medical help until they have lost enough lung function to make them short of breath during daily activities.11 In these individuals, the initial COPD diagnosis often does not occur until the later stages of the disease.
Second, many patients and physicians still frequently and mistakenly believe that COPD is a condition of elderly men. This misconception leads to underdiagnosis, as younger individuals and women may not seek treatment, and physicians may not conduct recommended diagnostic testing.11

The misconception that COPD is a disease of elderly men has led to underdiagnosis in two segments of the population—younger individuals and women.

Misdiagnosis also contributes to the large number of undiagnosed COPD cases. Despite the availability of evidence-based guidelines, diagnostic confusion between COPD and asthma is common in the primary care setting.22

COPD and asthma are actually two separate diseases with marked differences in inflammation and other underlying factors. The airway narrowing in asthma is largely reversible. In COPD, it is only partially reversible. These two diseases also respond differently to steroids: while people with asthma typically respond well to steroids, patients with COPD have limited response to steroids. Accordingly, treatment guidelines for asthma include steroids, whereas guidelines for COPD recommend steroids only when exacerbations become an issue.1

* National Health and Nutrition Examination Survey.
A diagnosis must be confirmed with spirometry to identify the hallmark of COPD—airflow limitation that is partially reversible.

Despite its establishment as a pivotal diagnostic test that can help distinguish COPD from asthma, spirometry is underutilized. Reports indicate spirometry is performed in about one-third of the patients with newly diagnosed COPD.\textsuperscript{7,23} In some patients, spirometry has been shown to distinguish the airflow limitation characteristic of COPD even before the typical symptoms of the disease are present.\textsuperscript{1,11} Given the large segment of the population at risk for COPD due to smoking, spirometry may be a key to the early identification and diagnosis of patients with this serious lung disease.

Common characteristics of patients

The group most affected by COPD is not elderly men, as is commonly thought. In fact, COPD may be present in both men and women as early as age 40. This knowledge may help practitioners identify patients earlier so that appropriate treatment strategies can be implemented early.\textsuperscript{11} Patients identified with mild COPD may benefit the most from risk reduction interventions, which have been shown to slow the decline of lung function.\textsuperscript{24} Earlier diagnosis of COPD is also prudent because appropriate treatment of COPD symptoms can reduce the incidence of exacerbations, a common cause for hospitalization.\textsuperscript{11,25}

Below are the most common characteristics of patients diagnosed with COPD:\textsuperscript{11,13}

- A cigarette smoker who continues to smoke in the presence of moderate to severe disease
- More likely to be female than male
- Between the ages of 40 and 65 years
- As likely to be employed as unemployed
- Using health care services significantly more often than individuals of the same age who do not suffer from COPD
- Initially diagnosed during the later stages of the disease

Nearly 70 percent of patients with COPD are younger than 65 years of age and more than half are women.
Why COPD Matters

To patients
- Increased risk of death
- High risk of serious comorbidities
- Decreased quality of life as a result of poor health, reduced activity level, impaired sleep and depression
- More frequent hospitalization
- Higher health care costs
- Lost wages due to absenteeism

To physicians and other health professionals
- Increased physician visits
- Increased hospitalization due to exacerbations and comorbidities
- Increased mortality rates

To health plans
- Increased health care utilization, including
  - Hospitalization care (frequency and length of stay)
  - Emergency department admissions
  - Outpatient physician services
  - Prescription drugs
  - Home health care
  - Nursing home care

To employers and other purchasers
- Significantly increased rate of disability
- Lost productivity through absenteeism, sick leave and short-term disability
- Higher insurance costs
- Higher employee turnover
- Higher presenteeism (on-the-job productivity losses)
Evidence-Based Guidelines for COPD

Evidence-based clinical practice guidelines represent the expert consensus of clinicians on the expected elements of quality health care; recommendations are based on evidence from the published literature. NCQA’s HEDIS measures are designed with a simple premise in mind: to measure how often health care is delivered in accordance with such guidelines.

In 1998, the National Heart, Lung, and Blood Institute (NHLBI) and the World Health Organization (WHO) endorsed a panel of experts across multiple disciplines to establish guidelines for appropriate diagnostic and therapeutic interventions for patients with COPD. First published in 2001, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) is the most widely recognized guideline in the world, and just one of several important COPD evidence-based guidelines that influence quality improvement goals discussed in this Insights for Improvement publication.

Major guidelines for the prevention, diagnosis and management of COPD include the following information.

- The GOLD guideline, jointly developed by NHLBI and WHO
- Standards for the Diagnosis and Management of Patients with COPD, jointly developed by the American Thoracic Society and the European Respiratory Society
- Health Care Guideline: Chronic Obstructive Pulmonary Disease, developed by the Institute for Clinical Systems Improvement
- The Clinical Practice Guideline for the Management of Chronic Obstructive Pulmonary Disease, developed by the Veterans Health Administration of the Department of Veterans Affairs (VA) and the Department of Defense (DoD)

Although some differences exist between these major guidelines, many areas of consensus emerge. All four guidelines concur on the essential components of a COPD management plan. As expressed in the GOLD 2007 guideline, they include the following information.

- Disease assessment and monitoring
- Risk factor reduction
- Management of stable COPD
- Management of exacerbations

Disease assessment and monitoring

A diagnosis of COPD should be considered in all individuals over age 40 who have any of the characteristic symptoms—shortness of breath, chronic cough or sputum production—or a history of exposure to risk factors. A detailed medical history including smoking history, complete physical examination and spirometry are recommended for initial diagnosis and assessment of disease severity. Additional tests may be useful in certain subgroups: chest X-ray may be used to see if another disease is causing the symptoms; arterial blood gas measurement is important to assess COPD severity in patients with advanced disease; and alpha-1-antitrypsin deficiency screening is useful in certain individuals who develop COPD at a young age (45 years or younger) and have a strong family history of COPD.1,18,27,28

Periodic monitoring and assessments, including spirometric evaluations, are recommended to determine the progression of the disease, the patient’s response to treatment, exacerbation history and comorbid conditions.1
**Spirometry.** Spirometry assesses lung capacity (forced vital capacity or FVC) and the ability to exchange air on inspiration and exhalation. A spirometer records the entire lung capacity, or the maximal forced exhalation against time (FEV₁ or forced expiratory volume in one second) after maximal inspiration. The test differs from peak flow readings, which record the greatest expiratory flow rate that can be sustained for 10 milliseconds following a full inspiration. While both tests can be used for the assessment of asthma, peak flow readings may not reliably identify the degree of airway obstruction in some patients with COPD.

In addition to diagnosis, spirometry is instrumental in evaluating disease severity and guiding treatment decisions.¹,¹⁸,²⁷,²⁸ Spirometric classifications of COPD severity have been divided into four stages: mild, moderate, severe and very severe, based on FEV₁ values measured after administration of a bronchodilator; FEV₁ values are expressed as percentage predicted by height, age and sex.¹ Among the elderly, spirometry values should be compared with age-adjusted normal values to avoid overdiagnosis of COPD. Table 2 shows COPD severity rating based on spirometry results.¹

### Table 2. COPD Severity Based on Spirometry¹

<table>
<thead>
<tr>
<th>Stage</th>
<th>FEV₁/FVC</th>
<th>FEV₁ Predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I: Mild</td>
<td>&lt;0.70</td>
<td>≥ 80% predicted</td>
</tr>
<tr>
<td>Stage II: Moderate</td>
<td>0.50 ≤ FEV₁ &lt; 0.70</td>
<td>50% ≤ FEV₁ &lt; 80% predicted</td>
</tr>
<tr>
<td>Stage III: Severe</td>
<td>FEV₁/FVC &lt; 0.70</td>
<td>30% ≤ FEV₁ &lt; 50% predicted</td>
</tr>
<tr>
<td>Stage IV: Very Severe</td>
<td>FEV₁/FVC &lt; 0.70</td>
<td>FEV₁ &lt; 30% predicted or FEV₁ &lt; 50% predicted plus chronic respiratory failure</td>
</tr>
</tbody>
</table>

FEV₁: forced expiratory volume in one second; FVC: forced vital capacity.

**Risk factor reduction**

Reducing exposure to risk factors is important to prevent the onset and progression of COPD. Primary risk factors include tobacco smoke, occupational dusts and chemicals, and indoor and outdoor air pollutants.

**Smoking cessation.** Simply stated, all of the guidelines have a single message for smokers who have COPD: Do what it takes to quit—starting now! Smoking cessation is the single most cost-effective intervention for slowing the progression of COPD and reducing risk of exacerbations—it is the only intervention known to prevent COPD.¹

**Management of stable COPD**

Although patients with COPD may experience episodes of exacerbations that can require hospitalization, COPD is typically a stable disease that slowly progresses over a period of years. As such, the step-up approach to medication is universally recommended: initially, a single bronchodilator is recommended to treat symptoms. Additional treatments may be required as the disease worsens.¹,¹⁸,²⁷,²⁸

General guideline recommendations for each stage of COPD management include pharmacologic and nonpharmacologic strategies (Table 3).

**Pharmacotherapy**

**Immunizations.** Annual influenza vaccines can reduce the risk of serious illness, exacerbation and death in patients diagnosed with COPD. All guidelines for COPD care recommend annual flu shots for elderly patients with COPD.¹ The guidelines also recommend regular pneumococcal vaccine to prevent pneumonia in this high-risk group.¹,¹⁸,²⁷,²⁸

**Medications.** While none of the existing medications have been found to halt the long-term decline in lung function associated with COPD, medications aimed at controlling symptoms have been shown to increase exercise capacity, improve health status and reduce exacerbations.¹
Inhaled bronchodilators are the cornerstone of COPD symptom management because of their capacity to alleviate symptoms, decrease exacerbations and, for a period of time, improve health status. Short-acting bronchodilators are recommended on an “as-needed” basis for rescue medication of acute symptoms. As the disease progresses and symptoms become more persistent, long-acting bronchodilators may be required. The choice of long-acting and short-acting bronchodilators may depend on individual response. Using a combination of bronchodilators, rather than increasing the dose of a single bronchodilator, can improve their therapeutic effectiveness and decrease the risk of side effects.

Three classes of bronchodilators are available: β2-agonist, anticholinergics and methylxanthines. Therapy with more than one class of bronchodilator may be required to achieve symptom control in some patients. Both β2-agonist and anticholinergics are available in short- and long-acting inhaled formulations. Methylxanthines such as theophylline are not the preferred choice due to the risk of toxicity.

All guidelines concur in the finding that the use of corticosteroids in patients with stable COPD is inconclusive, which is in contrast to their role in the treatment of asthma. GOLD recommends inhaled corticosteroids as an adjunct to regular bronchodilator therapy only in patients with severe COPD who have experienced repeated exacerbations (e.g., three events in three years). The other three major guidelines advise using inhaled corticosteroids in patients with COPD stage II or III severe.
with severe COPD who have had one exacerbation in the past year and whose symptoms persist after maximal bronchodilator therapy. The VA/DoD and GOLD guidelines report that glucocorticosteroids are most effective when combined with a long-acting bronchodilator.1,18,27,28

**Nonpharmacologic treatment**

*Education.* All guidelines recommend patient education at all stages of the disease. Health education has a vital role in several aspects of COPD management, including smoking cessation, compliance, and self-management skills. Specific topics are listed in Table 4. To improve and maintain self-management skills, ongoing health education may be useful for patients, family members and caregivers.

*Pulmonary rehabilitation.* Evidence is available supporting the benefits of pulmonary rehabilitation in selected patients who have moderate to severe COPD.1,30 The major COPD guidelines support pulmonary rehabilitation programs, which may include exercise training, education, and psychological and nutritional counseling. Rehabilitation improves a patient’s exercise endurance and reduces breathlessness during exertion. A self-management educational component has been found to reduce exacerbations and health care resource utilization.1,18,27,28

Table 4. Topics for Patient Education1-28

<table>
<thead>
<tr>
<th>Reduction of risk factors</th>
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</thead>
<tbody>
<tr>
<td>The nature of COPD</td>
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<tr>
<td>Instructions on use of inhalers and other treatments</td>
</tr>
<tr>
<td>Recognition and treatment of exacerbations and complications</td>
</tr>
<tr>
<td>Strategies for minimizing breathlessness</td>
</tr>
<tr>
<td>The importance of medication compliance</td>
</tr>
<tr>
<td>Skills for coping with chronic diseases</td>
</tr>
</tbody>
</table>

**Other therapies.** Oxygen therapy may be needed in patients with more severe disease, and surgery, such as bullectomy to remove small portions of the lung, may be required in carefully selected patients with very severe COPD.1

**Management of COPD exacerbation**

A COPD exacerbation is an acute event, characterized by a sudden worsening in the patient’s baseline symptoms (shortness of breath, cough or sputum production) beyond the normal day-to-day variation. The most common causes are pneumonia and other lung infections and air pollution.1

As in stable COPD, inhaled bronchodilators are a cornerstone of treatment for a COPD exacerbation. Short-term corticosteroid therapy may also be required. Whenever possible, inhaled corticosteroids are preferred.1 The guidelines concur that long-term use of oral or intravenous corticosteroids should be avoided due to an unfavorable risk-benefit ratio.1,18,27,28

Antibiotics are recommended when symptoms indicate a bacterial infection, and supplemental oxygen therapy may be required in severe cases.1
The evidence is clear: while COPD is not curable, it is preventable and treatable. Appropriate management can relieve symptoms, improve health status, decrease exacerbations and reduce hospitalizations. Nonetheless, an extensive review of the literature reveals several inconsistencies between evidence-based recommendations and current clinical practice.

Three fundamental areas of COPD management fall short of expected evidence-based recommendations.

• Continuity and coordination of care
• Patient-centered care and patient self-management
• Compliance with COPD guidelines

Addressing each of these major gaps in care has great potential for improving patient health status and easing the costs associated with this chronic disease.

**Continuity and coordination of care**

The IOM Committee on the Quality of Health Care in America identified a major reason why our health care system frequently fails to deliver its potential benefits, especially for chronic conditions such as COPD: the alarmingly routine failure of the health care system to translate the best scientific knowledge into treatment in the physician’s office.

The importance of continuity and coordination of care for patients with COPD cannot be underestimated. Because of the complexity of the disease and the high likelihood of comorbidities, an integrated disease management program is important to track the medical tests and treatments prescribed by the various health care practitioners involved in a patient’s care.

The following established elements of care distinguish COPD as a multidimensional disease—and one that may benefit from improved continuity and coordination of care.

• Educational programs for patients, family members and caregivers
• Step-up approach to pharmacologic treatment for stable COPD (See page 19 for description)
• Management of exacerbations
• Management of comorbid conditions
• Multidisciplinary programs for pulmonary rehabilitation, including exercise training and nutrition counseling
• Periodic monitoring and assessment

Evidence-based guidelines affirm that COPD is a multifaceted disease, and its management requires teamwork and information sharing among a wide spectrum of health care practitioners. Effective management involves communication and coordination among pulmonologists, primary care physicians, nurses, respiratory therapists, pharmacists, case managers and patients. Because family members and caregivers are often closely involved in patient care and medication compliance, it is important to include them in this continuum of care.

Our health care system frequently fails to deliver its potential benefits.
**Patient-centered care and patient self management**

As with other chronic diseases, the day-to-day management of COPD symptoms falls on patients and family members. However, the high health care utilization rate among patients with COPD suggests many are not adequately managing their symptoms. A national survey illustrates the need for additional training among patients with COPD: only one in four respondents with COPD believed they were well informed about their disease and its treatment.

It is the responsibility of physicians, case managers and other health care providers to ensure that patients are engaged in their treatment plan. Through patient-centered care—i.e., including a patient’s values, preferences, family situation, lifestyle and limitations in their treatment plan—health care professionals can engage patients in their own care and reduce unneeded and unwanted services. Patient self-management education is another element of care that is required to empower patients with the information and skills needed to carry out their disease management plan.

Health plans have a pivotal role in improving patient-centered care and self-management skills. They can support the development of patient-centered care initiatives, aid health care practitioner efforts to educate patients in prevention and treatment, and directly engage patients in risk reduction and self-management skills.

Initiatives to improve patient-centered care should identify treatment preferences for medications and nonpharmacologic treatments for COPD, recognize family and caregiver support and troubleshoot barriers to effective care. The self-management component of care may include workshops and medications for smoking cessation, proper use of inhalers and recognizing and treating exacerbations. One study confirmed the importance of improving self-management skills: adding a self-management program to usual care for COPD reduced both exacerbations and hospitalization rate.

Working together, health plans and health care professionals can advance patient-centered care to ensure that patients are both willing and able to address their action plan and achieve optimal health outcomes.

**Compliance with COPD guidelines**

Major gaps have been identified between evidence-based guidelines and their use in clinical practice. Based on a review of the literature and HEDIS COPD measures results, NCQA has discovered several inconsistencies in specific elements of diagnosis and care, including the use of spirometry for diagnosis and underuse of bronchodilators in the management of COPD exacerbations. Underlying these irregularities in treatment patterns appears to be a lack of awareness of the well-established clinical practice guidelines among the primary care physicians—the primary providers of COPD care. In a survey of physicians, only 54 percent of primary care physicians were aware of professional guidelines for COPD management versus 94 percent of pulmonologists. Among those physicians aware of published COPD guidelines, only 5 percent of generalists and 23 percent of pulmonologists could identify the landmark international GOLD guideline.

Evidence suggests that many primary care physicians are not aware of recognized evidence-based COPD guidelines.

A study in the journal Preventive Medicine concluded that although primary care providers manage patients with asthma using asthma guidelines, a great proportion of patients with COPD are undertreated, primarily in the early stages of the disease. The study confirmed the need for better implementation of COPD guidelines by primary care providers and for diagnosis of COPD in its early stages. With a direct line of communication to health care organizations, practices and practitioners, health plans can be a major force to drive this quality improvement need.
The following sections describe specific gaps in care where current clinical practices frequently do not line up with evidence-based recommendations. Each topic is an important element of COPD care that warrants attention. Two of these areas, spirometry for diagnosis of COPD and management of COPD exacerbations, are the focus of HEDIS measures addressing the quality of care in patients with COPD.

**Spirometry for diagnosis**

Despite the universal recommendation for spirometry testing in the diagnosis of COPD from the major guidelines, spirometry is underutilized. In a U.S. study of nearly 198,000 patients 40 years and older who were newly diagnosed with COPD, spirometry was performed in only one third of the diagnoses; fewer than 1 in 6 newly diagnosed patients received spirometry within 90 days of onset of an acute exacerbation.

HEDIS data collected for the initial COPD measure (Use of Spirometry Testing in the Assessment and Diagnosis of COPD) also showed low spirometry use. During 2005, national average spirometry use rates were 34.8 percent for commercial plans, 26.5 percent for Medicaid plans and 26.3 percent for Medicare plans. Two years later, spirometry use changed very little, increasing 0.9 percentage points for commercial plans, 1.9 percentage points for Medicaid plans and 0.9 percentage point for Medicare plans. These data reinforce the quality gap in the diagnosis of COPD and the urgent need for improvement.

The guidelines unanimously recommend spirometry for diagnosis of COPD in patients suspected of having COPD. It is the best standardized and most objective measurement of airflow limitation available. In contrast, the benefits of community-based screening for COPD using spirometry is unclear. As a result, the U.S. Preventive Services Task Force does not recommend spirometry-based screening in healthy adults who have no respiratory symptoms. However, this task force asserts that spirometry is indicated as a diagnostic test for individuals who present to clinicians with dyspnea, chronic cough, increased sputum production or wheezing.

Proper treatment is associated with reduced health care utilization; managed care plans with a significant number of at-risk members or Medicare members may garner long-term benefits from accurate disease diagnosis and subsequent treatment interventions that can reduce the risk of costly exacerbations.

**Spirometry is a simple, inexpensive and reliable test to confirm a diagnosis of COPD and classify its severity.**

Spirometry is relatively simple and affordable. Office spirometers cost less than $800, and the test takes just a few minutes to complete. With the majority of patients initially presenting and being treated in the primary care setting, ensuring access to spirometers and a staff properly trained in the use of spirometry can be an important step toward improving COPD management.

**Smoking cessation**

About one out of every four adults and high school students in the U.S. smoke, and more than 90 percent of COPD deaths are attributed to smoking. Accordingly, all major COPD guidelines cite smoking cessation as a primary intervention at all stages of the disease: it is the single most effective way to reduce the risk of developing COPD.

Still, the message to stop smoking does not always get delivered. Since NCQA began measuring smoking cessation advice rates in 1997, smoking cessation interventions have shown persistent but modest increases in reported levels of counseling to quit smoking among members of both commercial and Medicaid plans. Nonetheless, about one in four smokers surveyed who visited a doctor in the past year reported that they did not receive advice to quit from their physician.
Figure 6 shows the performance trend for commercial plans since 2004. There is a demonstrated need for improved strategies to decrease tobacco use, both at the patient level to help individual smokers quit and at the population level to reduce smoking rates nationwide.

Advice from a health care practitioner—a physician, nurse, case manager, dentist or pharmacist—is repeatedly found to be one of the most effective individual interventions; studies show that discussing smoking cessation with a health care practitioner significantly increases quit rates compared with self-initiated strategies.

Figure 6. Smoking cessation discussions, commercial plans, 2004–2007.

Given that today’s smoking trend determines tomorrow’s COPD burden, a renewed focus on smoking cessation is clearly in order. And while many health plans have shown great strides in improving the quit rate for smokers, we still have a long way to go.

**Smoking cessation is the single most effective way to reduce risk and slow the progression of COPD.**

NCQA has complemented the health plan measures that drive smoking cessation interventions by including smoking cessation counseling measures in some of its physician recognition programs, including the Diabetes Recognition Program and the Heart/Stroke Recognition Program. These recognition programs encourage physicians to assess and report their performance on measures within the specified area of care; physicians who demonstrate a high level of performance in these programs are identified in the Recognized Physician Directory available at NCQA’s Web site. Because smoking is the major risk factor for COPD, NCQA’s efforts to promote smoking cessation interventions at the health plan and physician levels are also expected to drive COPD prevention and improvement.

**Immunizations**

Influenza and pneumonia are among the most prevalent comorbidities for patients with COPD. According to GOLD 2007, influenza-related morbidity and mortality can be reduced by about 50 percent with influenza immunizations.

Despite the proven effectiveness of flu shots in older adults, many do not receive this critical immunization on a yearly basis. And since one third of Americans aged 50 to 64 have one or more chronic medical conditions that put them at increased risk for serious complications, encouraging immunization among this population may be beneficial. In 2007, fewer than half of adults aged 50 to 64 received flu shots, according to NCQA’s State of Health Care Quality report. The statistics for Medicare patients are more encouraging: nearly 70 percent of adults 65 years and older received this potentially lifesaving immunization in 2006—but this also means that nearly 30 percent did not. Improving yearly influenza vaccine delivery can potentially reduce flu-related hospitalizations, and in patients with COPD who already have compromised lung function, this can be among the simplest cost-saving strategies.

A study of more than 95,000 veterans with COPD revealed that only 1 in 6 received pneumococcal immunization. The study also confirmed that patients with COPD have a substantially elevated risk of pneumonia-related hospitalizations; notably, pneumococcal vaccination was found to significantly reduce that risk.
Reporting for the HEDIS pneumonia vaccine measure revealed that pneumococcal vaccines are not administered regularly to elderly adults, and there has been little improvement since 2006. However, ensuring pneumococcal immunization in patients with COPD may be one of the simplest interventions to make a major difference in outcomes.

**Bronchodilators and steroids in stable COPD**

Many physicians and patients frequently and mistakenly believe that COPD is an untreatable condition. However, while COPD is not curable, it is preventable, and effective management has been shown to improve symptoms and quality of life as well as reduce hospitalizations and health care costs.1,31

Despite availability of effective pharmacologic therapies for symptomatic COPD, not all physicians appear to follow recommended guidelines. Results from a large survey of primary care physicians and pulmonologists showed that these health care professionals do not prescribe treatments for all of their patients who have COPD. This information shows a potential level of uncertainty among health care professionals for effective COPD treatment.33 The data also indicate both overuse of certain medications, such as theophylline and systemic corticosteroids in stable COPD, and underprescription of first-line medications, including anticholinergic bronchodilators.33,38

The extensive evidence supporting pharmacotherapy for the symptomatic management of COPD has resulted in nearly identical treatment recommendations among the major evidence-based guidelines: Bronchodilators are the foundation in the step-up approach to treatment. They are used to expand the airways of the lung on an “as-needed” basis. As the disease progresses, regular bronchodilator therapy is recommended, with some patients requiring a combination of long- and short-acting bronchodilators to maintain symptom control. The addition of inhaled corticosteroid treatment is only recommended in patients with severe or very severe COPD after repeated exacerbations—and only when necessary.1,18,27,28

**Management of COPD exacerbation**

Suboptimal treatment of exacerbations, a leading cause of hospitalization in patients with COPD, is a major concern. Even with the evidence cited in the guidelines, treatment recommendations are not consistently followed, resulting in overuse and misuse of some medications and underuse of others. A large study among 360 U.S. hospitals with nearly 70,000 patients hospitalized for COPD exacerbations showed that only 1 in 3 patients received recommended care according to established guidelines. Nearly half of the patients received at least one nonrecommended care element: about one in four patients received theophylline for bronchodilation, and one in seven received an unnecessary sputum examination.39

A large study of nearly 70,000 patients hospitalized for COPD exacerbations found that only 1 in 3 patients received recommended care according to established guidelines.
The inconsistencies of COPD management are thought to reflect a lack of knowledge of COPD guidelines or confusion with asthma treatment guidelines. Regardless of the reason, the consequence of suboptimal treatment of COPD is clear: cost of care rises with minimal benefit or, in some cases, detrimental effects to patients.

NCQA developed the HEDIS measure *Pharmacotherapy Management of COPD Exacerbation*, which focuses on the appropriate use of bronchodilators and steroids during an acute exacerbation requiring hospitalization. While still in the early stages of implementation, this measure is intended to provide a benchmark of current clinical practice and to propel the consistent use of evidence-based treatments for this common and costly consequence of COPD.

**Closing the gaps: Comprehensive COPD programs**

Comprehensive COPD disease management programs are designed to address the constellation of physical and emotional symptoms that characterize COPD; the overall goal is to improve both patient and financial outcomes. A COPD management program follows established clinical practice guideline recommendations and employs an integrated approach to delivery of care: the program typically features a team of health care practitioners, including physicians, respiratory therapists, nurses and case managers, and emphasizes patient education and self-management skills. Patient education typically includes language and reading-level appropriate literature, toll-free access to recorded educational messages, Internet sites for information on COPD treatment and coping skills and workshops to practice self-management skills. Patient-centered care is addressed through regular phone support by a case manager or home visits to troubleshoot barriers to care.

Several studies have shown that comprehensive disease management of COPD can make a difference. One study reported significant reductions in health care utilization after implementing a self-management program featuring education and phone and in-person support by a case manager. Self-management education includes information on healthy living, techniques for preventing and controlling symptoms, and a detailed plan of action for COPD exacerbations.

All patients had advanced COPD with at least one hospitalization in the prior year. Patients were randomly assigned to the self-management program or a standard course of care. Health care utilization was recorded in both groups through the next 12 months. Compared with the usual care group, patients in the self-management program had significantly fewer exacerbations, hospital admissions, emergency department visits and physician visits over the same time period (Figure 7).

**Figure 7. Reductions in health care resource utilization after implementing comprehensive self-management program in patients with COPD.**

Another study demonstrated significant improvements in resource utilization among patients who had mild, moderate or severe COPD. The comprehensive program emphasized ongoing patient support and education for self-management. The program included home visits to assess the patients’ understanding of the treatment plan and barriers to effective care.
After one year, a dramatic decrease was seen in work-loss days, with COPD-related absenteeism reduced to one fourth of the previous year’s figure. Utilization of health care resources was also significantly reduced; overall hospitalizations, emergency room visits and unscheduled physician visits were each reduced by more than 50 percent. The greatest impact was seen among patients who had moderate and severe COPD (Figure 8).31

These and other studies show promise: adhering to evidence-based guidelines can help address the burden of COPD.31,32,40 The next section of this publication illustrates why we need to take immediate action with COPD. The impact of the current clinical practice on patients, employers and the health care system is described.

Resources are listed at the end of this publication to assist in your efforts to close the gaps in COPD care.

Figure 8. Outcomes from a one-year COPD management program in moderate (a) and severe (b) disease.31

a. Moderate COPD

b. Severe COPD
Deficiencies in COPD care and current practices incompatible with clinical guidelines pervade the continuum of care for COPD from diagnosis to management. Not all smokers are advised to quit. Not all older adults receive flu shots or pneumonia vaccinations. Medications are inappropriately and inconsistently prescribed. And spirometry is rarely used to diagnose the disease. The need to improve the quality of COPD is clear: its prevalence and the high cost the condition extracts in both financial and human terms is too substantial to ignore.

An early step in developing quality performance metrics is to document the magnitude of the health care problem to key stakeholders, including patients, health care practitioners, employers and other purchasers and health plans. This approach helps identify all who can assist in bringing about change and potentially identifies levers of change. The impact of COPD at each level of the health care system is highlighted in this section.

**Impact on patients**

The limitations imposed by the symptoms of COPD set in motion a spiral of decline. Breathing difficulties lead to inactivity and deconditioning, which in turn lead to further inactivity and decline in quality of life.1,41

More than 86 percent of survey participants who had COPD considered themselves to be in fair or poor health. They spent about 16 days a year in bed as a result of their COPD; the disease restricted their activities for a similar period of time.42 In a separate survey of more than 1,000 adults diagnosed with COPD, nearly all reported shortness of breath on most days, and most reported severe activity limitation and inability to work because of COPD. One in four patients reported being hospitalized for a COPD-related event within the past year. Half visited an emergency department for a respiratory event.33

**Impact on employers and purchasers (public and private)**

Data from NHANES III put the number of working-age Americans with COPD at approximately one in five; nearly half of these individuals have moderate to severe disease.43 The symptoms and consequences of this chronic disease impacts the daily operations of employers through lost work (average of 4.6 days during a six-month period), high benefit payments and lower work performance.11

*Lost productivity*. “Presenteeism” occurs when people come to work sick, injured or stressed, and are less productive than healthy employees. In *Confronting COPD in America*, a large-scale survey conducted in 2000 among patients with diagnosed and undiagnosed* COPD, 34 percent reported that their symptoms kept them from working. Nearly 18 percent reported that their condition limited the kind or amount of work they can do (presenteeism).44

One in five cases of diminished general health and depression is due to obstructive lung disease.20 Depression alone can result in an average of 5.6 hours of unproductive time versus 1.5 hours per week in nondepressed employees.45

*One in three patients with COPD reported that their symptoms kept them from working.*

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* 9 percent of the survey did not have physician-diagnosed COPD but reported chronic bronchitis, defined as persistent coughing and phlegm production for the last two years or longer.
**Disability.** COPD can have a significant impact on both short- and long-term disability claims. Employees with COPD are more than twice as likely to submit a short-term disability claim and more than four times as likely to submit a long-term disability claim as employees without COPD. In an analysis of disability claims from nine multistate companies, employees with COPD were disabled for an average of two weeks longer than patients without COPD.\(^{16}\)

**Indirect costs.** Patients who have more COPD-related claims also incur higher indirect costs, which includes costs due to inability to work, poor work performance and replacement workers. In one study indirect costs resulting from inability to work were on average $3,000 higher for patients with COPD than for their counterparts without COPD.\(^{26}\)

A 1999 study of six large U.S. employers found COPD to be the sixth most costly physical health condition for employers. COPD was present in about 3 percent of the 375,000 employees studied and cost employers an average of $65.08 per eligible employee—similar to employer costs for acute myocardial infarction or chronic treatment of bipolar disorders. Nearly 45 percent of this cost was attributed to absenteeism and short-term disability.\(^{26}\)

**Impact on health care utilization and cost**

**Health care utilization.** Patients with COPD voraciously consume health care resources. About 636,000 hospitalizations due to COPD were recorded in 2004.\(^5\) COPD was ranked among the top 10 diagnoses for hospital discharge admitted through the emergency department in 2002.\(^{17}\) In addition, the NHLBI reported that COPD was responsible for more than 15.4 million physician office visits in 2003.\(^5\)

According to a 2005 claims-based study with more than 18,000 patients with COPD and 18,000 control patients, health care utilization was 2 to 3 times higher for those with COPD. This included hospitalizations, emergency department admissions and outpatient encounters. Both the frequency and the length of stay were longer for patients with COPD.\(^{46}\) Similar results were found in another study of health claims data for approximately 3.4 million covered individuals of 17 multistate companies (see Figure 9).\(^{47}\)

**Figure 9. Health care utilization for patients with COPD vs. controls (40 to 63 years of age ).**\(^{47}\)

A 2005 U.S. managed care study of health claims (1999 through 2001) from more than 400,000 eligible patients with COPD found that patients of all ages were 23 times more likely than their counterparts without COPD to sustain costly respiratory-related hospitalizations (11.8 percent vs. 0.5 percent). In addition, patients with COPD were three times more likely to be hospitalized for any reason (42 percent) than their non-COPD counterparts (13 percent).\(^2\)
In 2007, the total costs associated with treating COPD were $42.6 billion, exceeding those of other respiratory diseases, including asthma.

Health care costs. The economic impact of COPD on health care resources is considerable, and the total costs associated with this disease continue to grow. In 2007 the total costs associated with treating COPD were $42.6 billion, exceeding those of other respiratory diseases, including asthma. Direct medical costs, including hospital care, physician services, prescription drugs, home health care and nursing care were $26.7 billion, as shown in Figure 10. Hospitalization was the cost driver, accounting for $11.3 billion. Indirect costs totaled $15.9 billion due to lost productivity.5

Figure 10. Direct cost of COPD, U.S., 2007.5

Inpatient costs are largely driven by exacerbations of COPD that lead to hospitalizations as well as unscheduled physician and emergency department visits.2 The high likelihood of multiple comorbid conditions in patients with COPD also adds to inpatient costs. In a one-year retrospective study, longer average stays and higher excess expenditures were associated with patients with COPD who had concurrent congestive heart failure, atherosclerosis, stroke and psychiatric illnesses.46

The annual direct cost of health care utilization has been estimated at $4,120 per patient with COPD. Unscheduled care visits, including inpatient stay and unscheduled physician visits, accounted for 78% of this total.44

COPD can more than double some medical care expenses. In one retrospective multistate study, the average outpatient costs for patients with COPD were more than double that for non-COPD patients ($5,870 vs. $2,433).47

Overall per patient monthly health care charges were more than 3.5 times higher for patients with COPD than for patients without COPD.

A study found younger patients with COPD (under age 64) have disproportionately higher charges for facility services, professional services and pharmacy charges compared with age- and gender-matched controls; in addition, younger patients have increased hospitalization rates, longer length of stay and increased total health care charges.2 Table 5 shows the total per-patient monthly health care charges for patients with COPD compared with patients who do not have COPD in a managed care database; overall per patient monthly health care charges were more than 3.5 times higher for patients with COPD than for patients without COPD. For patients 45 to 54 years of age who had COPD, these charges were nearly 6.5 times higher than for control patients without COPD.2
Table 5. Total Per-Patient Monthly Health Care Charges: COPD vs. Non-COPD Patients

<table>
<thead>
<tr>
<th>Age group</th>
<th>COPD$^a$</th>
<th>Controls</th>
<th>Ratio of charges</th>
</tr>
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<tr>
<td>45–54</td>
<td>$2556</td>
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<td>75–84</td>
<td>$2276</td>
<td>$717</td>
<td>3.17</td>
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<tr>
<td>85+</td>
<td>$1984</td>
<td>$756</td>
<td>2.62</td>
</tr>
<tr>
<td>All</td>
<td>$2330</td>
<td>$651</td>
<td>3.58</td>
</tr>
</tbody>
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$^a$ Excludes persons with tuberculosis, lung cancer or asthma as a primary diagnosis.
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Leading the challenge

The heavy toll COPD exacts from patients, employers and the health care system makes clear the need for change. The documented gaps in care—and the success stories when care is delivered in accordance with medical evidence—demonstrate the opportunities. To begin the process, NCQA chose two areas with the greatest potential to impact the personal and health care burden attributed to COPD through two HEDIS measures.

• Use of Spirometry Testing in the Assessment and Diagnosis of COPD
• Pharmacotherapy Management of COPD Exacerbation
NCQA recognizes that everyone involved in COPD care management—health plans, public and private purchasers, employers, health care practitioners and patients—have a role to play in improving the quality of COPD care. The HEDIS COPD measures provide a valuable means to achieve improvement and a baseline to establish quality improvement benchmarks.

**HEDIS measure life cycle**

All HEDIS performance measures, regardless of the level for which they are developed (health plan, physician's office or other entity) are established and maintained through a highly refined, systematic process. Figure 11 shows the life cycle of a HEDIS measure. The process is somewhat different for the physician level measures used in NCQA Recognition programs and other programs, but follows the same general principles.

**Measure selection.** The search for quality improvement measures begins with an extensive review of the literature to determine the evidence base and the clinical logic for quality care strategies. NCQA focuses on selecting elements of care that are both important and objectively measurable. The range of possible measures is vetted against three HEDIS measure criteria: measures must be relevant, scientifically sound and feasible. After review by a Measurement Advisory Panel (MAP) and other advisory panels, priority areas of care are identified. The MAP is composed of leading researchers and clinicians as well as other stakeholders."

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**Figure 11. Life cycle of a HEDIS measure.**

![Life cycle of a HEDIS measure diagram](image-url)
Measure development. The scientific and clinical practice aspects of performance measure development is led by the MAP and overseen by NCQA’s Committee on Performance Measurement (CPM) and the NCQA Board. Both the Board and the CPM include representation from purchasers, consumers, health plans, health care providers and policy makers.\(^8\)

With the support of several technical advisory groups and recommendations from the MAP, NCQA staff draft an initial measure work-up (or rationale document), then perform field-testing to assess a measure’s feasibility and scientific soundness. After final measure specifications are developed, the CPM determines whether a measure should move to the public comment phase; the CPM also determines if a measure should move forward as a first-year measure and later, as an ongoing HEDIS measure.\(^8,10\)

Public comment. All new measures or changes to existing measures are put forward for public comment for 30 days. Once the public has provided input, the final measure specifications are presented to the CPM for approval as a first-year measure.\(^8\)

First year of reporting. During the first year of reporting, organizations collect and report on the measure; however, NCQA publicly reports only national HEDIS averages. This process allows health plans and health care practitioners time to prepare and develop quality improvement strategies. It also guarantees that a measure can be reasonably collected, reported and audited before it is used for public accountability or accreditation.\(^8\)

Public reporting. Public reporting is an essential element of the NCQA strategy for health care transparency and accountability. Public reporting of HEDIS data makes comparisons between health plans possible, enabling public and private purchasers to select the highest performing health plans.\(^8\)

Attributes of a desirable HEDIS measure\(^8\)

- **Relevance**—measures must be meaningful, have a high health impact, have a high financial impact, be cost-effective, encourage activities that use resources efficiently to maximize health, have a wide variation across systems, be controllable and have substantial room for improvement.

- **Scientific soundness**—measures must have strong clinical evidence, be reproducible, valid, accurate and appropriate in terms of stratifying by age or other variables for risk adjustment. The accuracy, reproducibility and validity should not be affected by different data sources.

- **Feasibility**—measures must have clear and precise specifications for data sources and methods of data collection and reporting, must not impose an inappropriate burden on the health care system and must not violate accepted standards of member confidentiality. The required data must be available, and measures must not be susceptible to manipulation that would be undetectable in an audit.
NCQA reports HEDIS results and offers quality improvement tools through a number of public forums accessible to patients, health plans, health care professionals and public/private purchasers. Available tools include the following.

- **Quality Compass®**—an online database that reports on health plan performance in specific categories measured by HEDIS

- **State of Health Care Quality**—a free annual report that monitors and reports on performance trends over time

- **Quality Dividend Calculator™**—a free online tool that uses HEDIS health plan data and employer demographics to assess health plan value

- **America’s Best Health Plans**—a joint effort of NCQA and U.S. News & World Report, ranks more than 500 health plans to help purchasers make informed choices. *America’s Best Health Plans* annually publishes the top 50 commercial plans using HEDIS data, with similar lists for the top 25 Medicaid and Medicare plans each year.

- **Recognized Physician Directory**—a free online search tool to find physicians who have met important standards of care and have been recognized by NCQA. Current programs include diabetes, heart-stroke, back pain and office practice systems use.

**Evaluation.** NCQA continually monitors performance of the HEDIS measures. Statistical analyses, audit results and public comments play a role in the development of the next generation of HEDIS measures or the retirement of measures that have served their purpose. Every measure is reevaluated at least every three years and more frequently if there are substantial changes in the evidence base.

**Retirement.** A HEDIS measure may be retired for several reasons.

- If its improvement potential is no longer commensurate with the cost of data collection and reporting
- If it loses its meaningfulness, i.e., desirable attributes are no longer highly rated
- If it no longer produces useful information because of changes in science or health care delivery

Quality Dividend Calculator is a trademark of the National Committee for Quality Assurance (NCQA).
**HEDIS health plan COPD measures**

As a first step in evaluating the potential of COPD performance measures, NCQA identified a “logic model” through an extensive review of the literature. NCQA uses clinical logic—a systematic, comprehensive description of what is known about a disease and its management—in selecting and developing performance measures. NCQA explored the following elements when developing a clinical logic for COPD.

- Risk factors
- Biological features and outcomes
- Diagnostic studies
- Outcomes
- Description of evidence sources and quality (e.g., randomized clinical trials, peer-reviewed journal)

The clinical logic model for COPD illustrated the complexities of COPD treatment and the potential areas for performance measurement. Field-test results from Medicare, Medicaid and commercial health plans confirmed the gaps in quality COPD care in two areas: use of spirometry in diagnosis of COPD and the use of bronchodilators and steroids during COPD exacerbations.

Two effectiveness of care COPD measures ultimately were adopted as HEDIS performance measures.

- **Use of Spirometry Testing in the Assessment and Diagnosis of COPD**
- **Pharmacotherapy Management of COPD Exacerbation**

These measures complement others that apply to a broader population of patients, such as smoking cessation measures and influenza and pneumococcal immunization measures. The HEDIS COPD measures reflect aspects of care that are both measurable and actionable. The measures rank high in clinical and financial importance, potential for clinical improvement and logistical feasibility of data collection.

A description of these two HEDIS COPD measures, including numerator and denominator, are in Table 6.
### Use of Spirometry Testing in the Assessment and Diagnosis of COPD

- **Description**: The percentage of enrolled members 40 years and older with a new diagnosis of COPD who received appropriate spirometry testing to confirm COPD diagnosis (incident cases will be identified using a clean claim period).
- **Numerator**: At least one claim/encounter for spirometry testing 730 days (2 years) before to 180 days after the Index Episode Start Date.
- **Denominator**: All members 42 years and older with a new diagnosis of COPD.
- **Age Range**: 42 years and older.
- **Data Source**: Administrative data.

**Note**: The age for the eligible population is 42 years. The age in the description differs from the age in the specification because the description includes the two-year look-back period for the negative diagnosis history. Members who had a COPD diagnosis during the 2 years prior to the episode date are excluded (i.e., negative diagnosis history).

### Pharmacotherapy Management of COPD

#### Exacerbation – Use ofBronchodilators

- **Description**: Percentage of enrolled members 40 years and older who were hospitalized and discharged (between January 1-November 30 of the measurement year) with a primary diagnosis of COPD and who were dispensed a bronchodilator within 30 days of the event. COPD exacerbation as identified by claims will be an inpatient/ED (emergency department) visit with a primary diagnosis of COPD.
- **Numerator**: Members who were dispensed bronchodilator on or 30 days after the Episode Date.
- **Denominator**: Members 40 years and older who had a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a primary diagnosis of COPD.
- **Age Range**: 40 years and older.
- **Data Source**: Administrative data.

**Exclude** episode dates on which the member was transferred to an acute or nonacute care facility for any diagnosis. Exclude episode dates on which the member was readmitted to an acute or nonacute care facility for any diagnosis within 7 days of discharge. Exclude ED Episode dates on which the member was admitted to an acute or nonacute care facility for any diagnosis within 7 days of the ED visit.

#### Exacerbation – Use of Systemic Corticosteroid

- **Description**: Percentage of enrolled members 40 years and older who were hospitalized and discharged with a primary diagnosis of COPD and who were dispensed a systemic corticosteroid within 14 days of the event. COPD exacerbation as identified by claims will be an inpatient/ED visit with a primary diagnosis of COPD.
- **Numerator**: Members who were dispensed systemic corticosteroids on or 14 days after the Episode Date.
- **Denominator**: Members who had a COPD exacerbation as indicated by an acute inpatient discharge or ED encounter with a primary diagnosis of COPD.
- **Age Range**: 40 years and older.
- **Data Source**: Administrative data.

**Same as above.**

Note: This table represents a high-level summary of the measures. See HEDIS 2009 for detailed specifications, including codes, medications and algorithms.
How Are HEDIS Health Plan Performance Measures Used?

The HEDIS health plan measurement set was designed for a number of uses and users. HEDIS is one component of a larger process that includes accreditation standards that assess the quality and performance of health plans.\textsuperscript{8,10}

**By private and public purchasers such as employers, Medicare and Medicaid to**

- Compare health plans
- Help direct health plan selection
- Support contracting and performance target-setting initiatives that are largely price-dependent
- Determine which health plans perform well on areas of concern (e.g., chicken pox immunization or effective treatment of depression) that may impact cost or productivity
- Help select health plan by observing how well a health plan performs on a specific set of measures within a chronic condition (e.g., asthma, diabetes or heart disease)

**By health plans to**

- Monitor success of improvement efforts
- Compare results with other health plans to identify performance gaps
- Set realistic targets for improvement
- Monitor healthcare resource allocation

**By state and federal regulators to**

- Oversee health plan performance
- Streamline oversight processes
- Direct quality improvement allocation

**By physicians and health care providers to**

- Use as a benchmark for evidence-based disease management
- Determine which health plans to participate in (using America’s Best Health Plans)
- Ensure that patients are receiving the highest quality care from their physicians and health plan
Where are we now?

The HEDIS measure *Use of Spirometry Testing in the Assessment and Diagnosis of COPD* has reached the public reporting stage. Health plan results for this measure are reported in the Quality Compass database. The year 2008 was the first year of data collection for the measure, *Pharmacotherapy Management of COPD Exacerbation*.

**Use of Spirometry.** The current HEDIS results confirm the initial field-test results: many patients with COPD exacerbation do not receive the medication they need, and spirometry is underutilized, contributing to underdiagnosis and misdiagnosis. An intensive effort is needed at all levels of health care to spur the change toward better COPD care.

Table 7 shows the low spirometry use among health plans of all types. It is apparent that much needs to be done in the quality improvement arena before COPD care follows the same improvement trajectory that has been observed in other clinical areas such as beta-blocker use after myocardial infarction (MI). Many factors influence HEDIS measure results. Variations in health plan capability to promote evidence-based practice, variations in health care professional capability to deliver services, and variations in patient populations all have an effect on health plan performance. Wide variation is evident in the 2006 HEDIS results, which show relatively low national averages of spirometry use but nearly a 20-point variation between the 10th and 90th percentiles for commercial, Medicare and Medicaid plans; these percentiles denote the upper and lower rates used in calculating the national averages. Notably, however, no health plan achieved a rate as high as 50 percent for spirometry use. Clearly, there is significant room for improvement among all health plans; health plans and health care practitioners should trouble-shoot reasons why the spirometry use rate is low and provide systems or programs to promote spirometry for identification and confirmation of COPD.

**Pharmacotherapy in COPD exacerbations.** The *Pharmacotherapy Management of COPD Exacerbation* measure is currently in its first year of implementation. As mentioned in the description of the HEDIS measure development cycle, before data for measures are publicly reported, measures undergo first-year analysis to evaluate whether they can be reasonably collected, reported and audited at the national level. Based on this analysis, the measures are eligible for public reporting status for the following year.

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td><strong>Commercial</strong></td>
<td>34.8%</td>
<td>36.1%</td>
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</tr>
<tr>
<td><strong>Medicare</strong></td>
<td>26.3%</td>
<td>26.2%</td>
<td>27.2%</td>
</tr>
<tr>
<td><strong>Medicaid</strong></td>
<td>26.5%</td>
<td>27.3%</td>
<td>28.4%</td>
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</table>
Potential impact of quality measures

We have reason to be hopeful of seeing improvements in the quality of care provided to patients with COPD. The success story of beta-blocker use is an informative example: substantial evidence showed significant benefits of beta-blocker therapy after an acute MI; however, when NCQA began measuring this life-saving treatment, fewer than two out of three patients were receiving appropriate treatment. Finally, after 11 years of measurement and reporting, the use of beta-blockers at hospital discharge has become nearly universal: nearly every health plan that reported on its performance had beta-blocker treatment rates of 90 percent or higher (see Figure 12). This single improvement has prolonged and improved the lives of between 4,400 and 5,600 people over the last six years and improved the health of tens of thousands of Americans.48

Like the beta-blocker story, high-quality evidence substantiates the use of specific treatments to ease the debilitating symptoms and burden associated with COPD. And like the beta-blocker story, consistency in treatment requires the focused efforts of health plans and practitioners.49

Our goal is to achieve consistency in COPD management at a much faster rate than that seen with beta-blockers. This goal is a major challenge given the baseline rates for the HEDIS COPD measures; however, with team work and immediate action, we can accelerate the change so that early on, we will realize the benefits of better COPD care.

Potential for COPD measures. Evidence-based care has substantial potential to reduce the impact of COPD. Given the high personal, financial and social burdens of COPD and the major gaps identified in evidence-based diagnosis and treatment, we urge all involved in COPD care to take action toward improving COPD care.

Improving use of spirometry for COPD diagnosis is anticipated to address the key issue resulting from underdiagnosis: undertreatment of patients with COPD. About 24 million Americans have lung function abnormalities consistent with COPD, but only 12 million have been diagnosed.5 Undoubtedly, this measure has enormous potential.

Improving treatment of patients who have COPD exacerbations is expected to directly address the undertreatment issue. With COPD exacerbations as a driving force for hospitalizations and a key factor in the more than $42 billion annual cost of COPD, this measure is long overdue.5
How can health plans improve their performance results?

Often, improvements in quality are the result of concerted efforts of many stakeholders to identify causes of missed opportunities for care and identify systematic ways to ensure that proper care is achieved for every patient. In response to performance measures, health care protocols have been refined, health plans have supported health fairs and patient education, doctors have learned new ways to practice and patients have become more engaged in their care. To improve consistency in treating acute MI with beta-blocker therapy, health plans implemented the following initiatives.

- Integrated beta-blockers into protocols used by case managers
- Sent patients information on risk-reducing interventions
- Sent reminder letters to physicians when a patient with an MI did not receive a beta-blocker
- Offered financial incentives to hospitals to improve the consistency of beta-blocker delivery after an MI

Health plans have found that success in improving HEDIS performance often requires the active participation of health plan staff members from key program areas: quality management, medical management, disease management, pharmacy, provider relations, and sales and marketing. Success in achieving high performance results reflects positively on the entire health plan and offers a marketing advantage.

Addressing the gaps in COPD care identified by the two HEDIS COPD measures is an important beginning to improving care of patients with COPD. Health plans will need the support of all areas of health care to make consistent care a reality. The next section entitled “Where Do We Go From Here?” provides specific ideas for achieving quality improvements at each level of health care.

Often, improvements in quality are the result of concerted efforts of many stakeholders to identify causes of missed opportunities for care and identify systematic ways to ensure that care is completed on time for every patient.
Insights for Improvement: Advancing COPD Care Through Quality Measurement

Where Do We Go From Here?

Now is the time to take concrete steps to improve COPD care. We have a sufficient knowledge base, which grows every day. Innovative health plans, physicians and others have developed tools and resources for COPD care. A program for quality improvement through HEDIS measurement is in place. Given the major impact of COPD on our health care system and the documented gaps in both quality and cost of care, improving COPD care should be a national priority.

Engaging everyone involved in the continuum of care for a patient with COPD is key: employers, health plans, physicians, the entire care team—all, including the patient, play a role in preventing COPD progression and improving quality of life through better care. Better care leads to fewer days spent in the hospital, fewer days in the emergency room and fewer days off work. Better care leads to a better life.

While the measurement of health plan quality over the past two decades has yielded many performance success stories, the story of COPD care is still in its early chapters. There is plenty of room for improvement. Big changes are possible, but require focused attention and teamwork to devote the resources and effort necessary to improve COPD care. Some strategies for doing so are highlighted, and other innovations are likely to emerge.

Health plans

Health plans are an important accountable entity for driving HEDIS quality measurement. As such, they often take the lead in setting quality priorities in the ambulatory setting. Through the use of claims and survey data, health plans can assess current clinical practices and subsequently provide up-to-date information and resources to health care practitioners and practices delivering COPD care. Health plans are poised to work collaboratively with physicians to improve the quality of COPD care; health plans are also instrumental in communicating with patients to increase COPD awareness and improve self-management skills. Specific approaches include the following.

**Patient support**
- Educating and engaging patients on COPD awareness and prevention, importance of risk reduction and self-management skills
- Offering smoking cessation benefits and programs to all covered beneficiaries, but in particular, reaching out to patients with respiratory illnesses
- Identifying and partnering with community resources and social service agencies to offer support for beneficiaries with COPD and to develop community-wide prevention strategies

**Health care practitioner support**
- Educating health care practitioners on COPD guidelines and HEDIS expectations
- Ensuring the reimbursement policy provides coverage of office-based spirometry and other services necessary for effective COPD prevention, diagnosis and management
- Ensuring access to spirometers and offering staff training on use of spirometers
- Providing tools and resources to support efforts to educate patients on smoking cessation and self management
• Offering health management or other personalized strategies to support coordinated care for individuals diagnosed with COPD

• Providing strategies and resources to support patient-centered care

Quality assessment and improvement

• Using the HEDIS COPD measures to assess performance of the health plan and all physicians involved in COPD care; providing feedback to health care practitioners and practices

• Implementing evidence-based interventions/protocols

• Using claims data and survey information to support improved continuity of care for individuals with chronic illness, including COPD

• Developing initiatives aimed at recognizing and rewarding quality

Physicians and other health care professionals

Physicians, group practices and integrated delivery systems have a front-line opportunity to improve patient care in COPD. As with other chronic diseases, effective prevention and management of COPD necessitates the following.

• A collaboration of physicians with specialists and other health care professionals

• Open lines of communication between groups for coordination of care

• Mechanisms to identify and track patients and those at risk

• Effective tools for educating and engaging patients in their treatment plan

What steps can health plans take today?

• Educate patients about the risk factors for COPD, signs and symptoms and the need for early diagnosis and treatment

• Educate physicians about the need to follow current evidence-based COPD guidelines and the importance of spirometry

• Develop strategies to engage patients in prevention and self-management skills

• Assess local capacity to deliver recommended services (e.g., spirometry equipment)

• Develop local partnerships with various organizations throughout the community to foster quality

• Promote systems coordination for more efficient operations

• Offer preventive interventions and seek ways to engage patients

• Align reimbursement and incentives through recognition and rewards (e.g., physician recognition programs)

• Provide current HEDIS results to physicians and health care practices

• Develop and implement internal quality improvement measures
Health care professional actions that promote evidence-based treatment for COPD include the following.

- Developing and implementing practice-wide protocols for risk factor screening including tobacco use and COPD risk
- Developing and implementing protocols for ongoing patient counseling regarding
  - Smoking cessation
  - Immunization for high-risk patients
  - Self-management skills
  - COPD education
- Training staff to support key objectives such as patient counseling for self-management skills and proper use of spirometers
- Setting up office automation or patient registries to identify, manage and follow-up at-risk and COPD patients
- Equipping the practice with necessary screening tools and informing the staff about corresponding billing procedures
- Referring appropriate patients to pulmonary rehabilitation and pulmonologists
- Developing health care delivery excellence through strategic physician/specialist networking and partnerships
  - Participating in quality reward and recognition programs for high-quality COPD care across the treatment spectrum

**What advice should health care practitioners give to patients?**

- If you smoke, stop now
- Be involved in your own care! Ask your physician questions and tell him/her your concerns—do it early and often
- If your physician prescribes a treatment plan, stick to it. Don’t undermine your treatment plan by failing to take your medications or by taking too much medication. If you have concerns about your treatment plan, talk to your physician before making a change.
- Join local support and advocacy groups

**What steps can physicians and other health care professionals take today?**

- Attend workshops, seminars and other educational programs that focus on evidence-based guidelines
- Develop office systems and infrastructure (i.e., registries) to promote disease prevention and wellness; use workflow tools (e.g., electronic medical records)
- Ensure capability to deliver or refer for appropriate care (e.g., spirometry)
- Use established services and community resources to support preventive and wellness programs
Employers and Purchasers

Employers and other public and private purchasers have a stake in quality care for COPD as the entities that bear the cost of insurance coverage and lost employee productivity. Employers and purchasers also have a role to play in engaging other stakeholders in the COPD quality improvement challenge.

Employer actions may include the following.

- Assessing quality measures and improvements, effectiveness of chronic disease management, and prevention and wellness services before selecting a health plan.

What steps can employers and public or private purchasers take today?

- Align benefits with best practices or evidence-based guidelines for prevention and treatment of COPD
  - Use of spirometry in early diagnosis
  - Appropriate use of pharmacotherapy during COPD exacerbations
  - Smoking cessation programs
- Evaluate health plan options based on reliable comparative ratings from
  - NCQA Health Plan Report Cards for new and existing health plans
  - Quality Dividend Calculator
  - Quality Compass
  - America’s Best Health Plans
- Take steps to offer a health fair that includes lung health screening

• Providing benefits for risk assessment, early identification and management of COPD, which include the following
  - Incentives for employees to take advantage of employer- or health plan-provided tools such as health risk assessments, smoking cessation workshops or health management programs
  - Worksite support to engage employees in wellness and risk assessment activities
  - Decision-support tools to assist employees in comparing health plans and physicians based on quality, outcomes and cost
NCQA’s role

NCQA offers programs and tools to support continuous improvements in quality and accountability. HEDIS performance measures at the health plan, physician, behavioral health care organization, or disease management organization level can be used to set goals, identify baseline performance and take action on quality improvement at nearly all levels of the health care system.

NCQA’s Health Plan Accreditation program can help distinguish those health plans that excel at both engaging members in wellness and prevention and partnering with physicians so that quality care and service are delivered consistently. NCQA standards also examine how well organizations use available information sources to identify and manage members with chronic illnesses or complex conditions. NCQA encourages health plans to take actions to recognize and reward stakeholders who adopt strategies to systematically and effectively improve the quality of care among patients with COPD.

At the physician level, NCQA Physician Recognition programs encourage improvements in care management consistent with COPD care management. Smoking status assessment and cessation counseling is already incorporated in the diabetes, heart/stroke and back pain physician recognition programs. These programs have growing promise to promote best practice delivery of care through public policy support, which makes the programs more valuable to physicians. For example, the American Board of Family Medicine recently announced a policy to allow board-certified physicians to use the Diabetes Physician Recognition program and the Heart/Stroke Physician Recognition program to satisfy certain maintenance of certification requirements. The Recognized Physician Directory on NCQA’s Web site (www.ncqa.org) identifies NCQA-recognized physicians to consumers and patients.

Lastly, NCQA recognizes that employers and other purchasers have a critical role to play in purchasing the most effective health plan and health management strategies. Performance information is a key element in high-quality purchasing strategies. Through selective purchase of high performers, employers can prompt a change in health care quality.
Conclusion

Why is COPD the only major disease with an increasing mortality rate? How can unrecognized and undiagnosed cases of COPD be reduced? What must be done to decrease the COPD exacerbation rate, hospitalization rate, and associated costs? How can we help patients with COPD live better, longer lives?

The answers to these questions lie in the current gaps in care and the need for consistent delivery of care in line with evidence-based guidelines. Advancing COPD education—among both patients and health care professionals—is key to addressing the current problems in COPD care.

In addition, we now have a mechanism in place to translate sound, evidence-based management for COPD into better practices at the delivery level. This includes three HEDIS measures for COPD that can drive improvements in evidence-based care through accountability and transparency. However, a critical element in the quality improvement process for COPD remains: Leadership to initiate, nurture and sustain these quality improvements throughout the health care system.

The vital role of all groups involved in COPD care cannot be underestimated. It will take all stakeholders—health plans, purchasers, employers, physicians, nurses, respiratory therapists, case managers and other health care practitioners—working together to drive improvements in COPD care.

Accelerating the change to quality care is our top priority and a major opportunity for all involved in COPD care. Strategies to improve the consistent use of guideline recommendations must be developed; initiatives to emphasize continuity and coordination of care must be implemented; and programs to encourage and sustain patient-centered care management and self-management skills must be supported. Given the impact of COPD in the U.S. and the documented gaps in both quality and cost of care, improving COPD care should be a national health care priority.

The U.S. health care system is moving toward a strategy of rewarding quality of care rather than quantity, and of preventing complications rather than treating them only when they occur. We are moving toward chronic care management that is safe for patients, based on the best available scientific evidence, and takes into consideration individual preferences, needs and values. NCQA’s performance improvement stories demonstrate many significant inroads in quality care. Those improvements in quality care translate into lives saved, illnesses avoided and costs reduced.

The COPD story shows that we still have a clear and immediate need for improvement. We have challenges ahead of us, but with the combined efforts of everyone involved in COPD care, we can make the changes that will create a positive impact throughout the health care system. We call on all stakeholders to support quality improvements in COPD care. We urge everyone to use the HEDIS measurement results to promote accountability and drive the long-awaited improvements in COPD care.
Resources

The following resources provide COPD information that may be useful for purchasers, health care practitioners, health plans and employers. Resources for patient education materials are also included.

Clinical Practice Guidelines

American College of Physicians (ACP)
The ACP released an updated guideline on diagnosis and management of COPD in November 2007.
www.annals.org/cgi/reprint/147/9/633.pdf

American Thoracic Society/European Respiratory Society (ATS/ERS)
The most recent ATS/ERS clinical practice guideline is Standards for the Diagnosis and Management of Patients with COPD.
www.thoracic.org/sections/copd/resources/copddoc.pdf

Global Initiative for Chronic Obstructive Lung Disease (GOLD)
A collaboration between the NHLBI, the National Institutes of Health and the WHO, GOLD works to raise awareness of COPD through worldwide events and supports development of an evidence-based guideline for COPD management.
www.goldcopd.com/guidelinesresources.asp

Institute for Clinical Systems Improvement (ICSI)
A Minnesota-based organization dedicated to developing evidence-based clinical practice guidelines and working with physicians on quality improvement.
www.icsi.org/guidelines_and_more/gl_os_prot/respiratory/chronic_obstructive_pulmonary_disease/chronic_obstructive_pulmonary_disease__guideline_.html

Veterans Affairs/Department of Defense (VA/DoD)
The VA, in collaboration with the DoD, has developed COPD guidelines titled Management of Outpatient Chronic Obstructive Pulmonary Disease (COPD) in Primary Care.
www.oqp.med.va.gov/cpg/COPD/COPD_CPG/GOL.htm

Health Care Professional Resources

American Academy of Family Physicians (AAFP)
Includes information about practice management, policy and advocacy, news, clinical care and other important information related to COPD.
www.aafp.org/online/en/home.html

American Association for Respiratory Care (AARC)
A professional membership association for respiratory care professionals and allied health specialists interested in cardiopulmonary care. www.aarc.org

American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR)
AACVPR is dedicated to the professional development of its members through information, networking and educational opportunities. Its mission is the improvement in the quality of life for patients and their families. www.aacvpr.org

American College of Chest Physicians (ACCP)
Founded in 1935, ACCP is the leading resource for the improvement in cardiopulmonary health and critical care worldwide. www.chestnet.org

American Lung Association® (ALA)
The oldest voluntary health organization in the U.S., ALA fights lung disease in all its forms, with special emphasis on asthma, tobacco control and environmental health. www.lungusa.org
American Medical Association (AMA)
The American Medical Association Physician Consortium for Performance Improvement has developed measure sets to support physicians in assessing and improving their performance caring for patients with COPD. The measure sets include tools such as flow sheets to improve processes and documentation of care. www.ama-assn.org/ama1/pub/upload/mm/370/copdmini102706.pdf

American Thoracic Society (ATS)
Helps prevent and fight respiratory disease through research, education, patient care and advocacy, including physician and patient information about COPD. www.thoracic.org

Pulmonary Education and Research Foundation (PERF)
A non-profit foundation dedicated to providing help for patients with COPD through education, research and information. www.perf2ndwind.org

World Health Organization (WHO)—COPD
Education and information about the worldwide epidemic of COPD. www.who.int/respiratory/copd/en

Patient Education

American Lung Association® (ALA)
The site contains information and resources on COPD, including a fact sheet for patients. www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=23050

MedlinePlus®
Comprehensive health information from the world’s largest medical library, the U.S. National Library of Medicine. The site offers links to multiple resources and patient tutorials on management, rehabilitation and support for COPD. www.nlm.nih.gov/medlineplus/copdchronicobstructivepulmonarydisease.html

National Heart, Lung, and Blood Institute (NHLBI)

National Institutes of Health (NIH)
SeniorHealth—COPD
This site makes aging-related health information easily accessible for family members and friends seeking reliable, easy-to-understand online health information. It was developed by the National Institute on Aging (NIA) and the U.S. National Library of Medicine (NLM), both part of the NIH. http://nihseniorhealth.gov/copd/toc.html

pulmonologychannel®
Developed and monitored by board-certified physicians, pulmonologychannel provides comprehensive, trustworthy information about conditions that affect the lungs and breathing, such as asthma, bronchitis and COPD. www.pulmonologychannel.com/copd/index.shtml

WebMD®—COPD
Offers patients credible and in-depth medical news, features, reference materials and online community programs about COPD. www.webmd.com/hw/lung_disease/hw32561.asp

Patient Support and Advocacy

COPD-Alert
A non-profit, Web-based support and advocacy group for patients with COPD, caregivers and medical professionals. Provides information about clinical trials, available medications, new therapies, equipment and disease management. www.copd-alert.com
COPD Foundation
A non-profit organization that strives to create and support programs that will improve the lives of people affected by COPD.
www.copdfoundation.org.foundation/aboutus.htm

COPD International
A U.S. non-profit organization that provides information and interactive support for patients with COPD, caregivers and families.
www.copd-international.com

COPD-Support, Inc.
Provides lists and programs for patients with COPD, caregivers and medical personnel interested in pulmonary medicine and COPD.
www.copd-support1.com

International COPD Coalition (ICC)
A non-profit organization composed of COPD patient organizations around the world, working together to improve the health and access to care of patients with COPD.
www.internationalcopd.org

Employers
The Kaiser Family Foundation
A non-profit private operating foundation focusing on the major health care issues facing the U.S., with a growing role in global health. The foundation also serves as a nonpartisan source of facts, information and analysis for policymakers, the media, the health care community and the public. www.kff.org

American College of Occupational and Environmental Medicine (ACOEM)
The nation’s largest medical society dedicated to promoting the health of workers through preventive medicine, clinical care, research and education
www.acoem.org

COPD Statistics
National Center for Health Statistics (NCHS)
The Centers for Disease Control and Prevention (CDC), through the National Center for Health Statistics, maintain data and information about prevalence and trends in COPD.
www.cdc.gov/nchs/fastats/copd.htm

National Heart, Lung, and Blood Institute (NHLBI)
Publishes information on the progress being made in the fight against COPD in Morbidity & Mortality: 2007 Chart Book on Cardiovascular, Lung, and Blood Diseases.
www.nhlbi.nih.gov/resources/docs/07-chtbk.pdf

Quality Improvement Information and Services
Agency for Healthcare Research and Quality (AHRQ)
AHRQ supports health services research that will improve the quality, safety, efficiency and effectiveness of health care for all Americans.
www.ahrq.gov

Alliance for Health Reform
A non-partisan, non-profit group that provides a source of information that explores the roots of the nation’s health care problems and the trade-offs posed by competing proposals for change.
www.allhealth.org/issues.asp?wi=13

Institute of Medicine (IOM)
The institute provides unbiased, evidence-based and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector in society and the public at large. Additionally, the IOM publishes a variety of quality improvement publications, including Crossing the Quality Chasm: A New Health System for the 21st Century.
www.iom.edu/CMS/8089.aspx
National Committee for Quality Assurance (NCQA)
A private, 501(c)(3) not-for-profit organization dedicated to improving health care quality. Since its founding in 1990, NCQA has been a central figure in driving improvement throughout the health care system, helping to elevate the issue of health care quality to the top of the national agenda. www.ncqa.org

The Commonwealth Fund
A private foundation that supports independent research on health care issues and makes grants to improve health care practice and policy. www.cmwf.org/topics/topics.htm?attrib_id=11997

The State of Health Care Quality
An annual report produced by NCQA to monitor and report on performance trends over time, track variations in patterns of care and provide recommendations for future quality improvement. www.ncqa.org/tabid/543/Default.aspx

U.S. News & World Report
Publishes annual rankings of America’s best health plans and best hospitals. www.usnews.com

General COPD Information and Services

Centers for Disease Control and Prevention (CDC)—COPD
Information on environmental hazards and health effects in relation to COPD. www.cdc.gov/nceh/airpollution/copd

COPD Events

World COPD Day
An annual event organized by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) to improve awareness and care of COPD around the world. www.goldcopd.org/WCDIndex.asp
References


Insights for Improvement:
Advancing COPD Care Through Quality Measurement

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