

Health & Productivity

MANAGEMENT

COPD

An Employer's Call to Action
The Clinical Approach
Helping Patients Cope

SPECIAL ISSUE - CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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His areas of interest include development of evidence-based clinical care delivery systems for acute and chronic care management, the use of predictive modeling and analysis of patterns of care to improve outcomes from healthcare delivery.

Dr. Nevins has more than 25 years experience improving healthcare delivery systems in the U.S. and other countries. While serving as Medical Director for National Health Enhancement Systems and as VP of Medical Affairs for HBO & Company and McKesson, he was responsible for clinical knowledge bases and shared responsibility for software design of demand and disease management programs.

He served on various committees of the Pan American Health Organization, World Health Organization, Caribbean Latin American Action, Americas' Healthnet, Center for Telemedicine Law, the InterAmerican Development Bank and URAC. He helped design, implement and enhance telecommunication and digital healthcare solutions in the U.S. and other countries.

He has served as Chief Medical Officer, Medical Director, Chief Information Officer and Chief Clinical Information Officer for several companies. He speaks nationally on healthcare trends, healthcare economics, telecommunications and digital solutions for healthcare. Dr. Nevins has authored chapters on telemedicine and medical call center software and technology.

Dr. Nevins graduated from the University of Oklahoma School of Medicine. Following an emergency medicine residency, he practiced emergency and family medicine for 22 years. He has been a diplomat of the American Board of Family Practice since 1978 and a Fellow of the American Academy of Family Physicians since 1981.

He was a Clinical Associate Instructor in Emergency Medicine and Family Practice for the University of Kansas School of Medicine. In 1988 he was the recipient of the first "Heartiest Five" award from the American Heart Association for excellence in teaching and practicing the principles of cardiovascular risk factor reduction.



A graduate of Temple University and Hahnemann Medical College in Philadelphia, **David G. Tinkelman, MD**, served his residency in pediatrics at the St. Christopher's Hospital for Children, also in Philadelphia. He then did his fellowship training program at National Jewish Health (formerly, National Jewish Medical and Research Center) in Denver, and successfully completed his board examinations in Pediatrics and in Allergy and Immunology.

Dr. Tinkelman was in private practice with the Atlanta Allergy Clinic for nearly 20 years and also was Clinical Professor in the Department of Pediatrics in the Section of Allergy and Immunology at the Medical College of Georgia. While in Atlanta he served as President of the Allergy and Immunology Society of Georgia and the American Lung Association of Atlanta. He then returned to Denver, as Vice President of Health Initiatives at National Jewish Health.

Dr. Tinkelman is a past president of the Joint Council of Asthma, Allergy and Immunology. He was previously Section Chairman of the Section of Allergy and Immunology of the Academy of Pediatrics and Chairman of the Asthma Guidelines Project for the Academy of Pediatrics. He was the editor of the *Journal of Asthma* from 1988 to 2009 and has served on the editorial boards of several other journals.

Dr. Tinkelman is author of more than 150 published scientific articles, scholarly reviews, and book chapters. In addition, he has been the co-editor of four textbooks related to pediatric allergic and asthmatic conditions, and has recently expanded his research to include socioeconomic and wellness issues in healthcare. While continuing in a senior management position at National Jewish, Dr. Tinkelman maintains his clinical interest by seeing patients in the Clinic at National Jewish. His professional goals are to meld the standards of academic excellence and optimal medical care with the goals of cost-effective healthcare delivery systems.

In addition to being Vice President of Health Initiatives at National Jewish Health, Dr. Tinkelman is academic title of Professor of Pediatrics at both National Jewish and the University of Colorado, Denver. His chief responsibilities include business development, wellness initiatives, growth of the clinical laboratory, professional education and institutional marketing. Over the past 14 years, he has created and served as Medical Director for the Asthma and COPD disease management programs, the smoking cessation program (Quit Line) and, most recently, a multi-media weight management program, FitLogix®.



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SPECIAL EDITION AT A GLANCE

While the U.S. and many other countries are in the throes of dealing with the consequences of a “global epidemic” of Type II diabetes and related obesity, and its growing impact on medical spending and workplace productivity, the next great epidemic is appearing on the horizon – **Chronic Obstructive Pulmonary Disease, or COPD.**



COPD is the fourth – soon to become the third – leading cause of mortality in the world, and the only one that is on the rise. In addition, it produces a huge total burden of illness that includes lost work time, diminished productivity at work, and increasing disability. The principal cause of this rising tidal wave is several generations of aging smokers and former smokers who will continue to present the nation with an increasing medical bill – and employers with even larger costs in lost time and workplace performance.

Just as the earlier epidemic of diabetes and obesity led IHPM to establish a Workplace Center for Metabolic Health to address its consequences in the workplace, so this new epidemic of smoking-related COPD has led us to create a new Workplace Center for Respiratory Health for a similar purpose.

This special issue of *Health & Productivity Management* is the first product of this Center – aimed at educating employers, providers and patients on the seriousness of COPD and showing them what they can do to mitigate the impact of this increasingly prevalent chronic disease. The special issue has been created under the leadership of IHPM's Chief Clinical Officer, Dr. Rick Nevins, working with Dr. David Tinkelman, Vice President of Health Initiatives at National Jewish Health and a pulmonary expert.

The three articles in this publication speak in turn to each of the critical parties in the prevention, diagnosis and management of COPD – the employer who bears the workplace burden of this serious and widespread chronic illness, the physician who needs to do much more to reduce the future incidence and total costs – human and financial – of the disease, and the patient – also the employee – who must either stop smoking or live with the long-term consequences of a debilitating and, ultimately, terminal illness. A final section provides a resource guide for education, assessment, and disease management. **IHPM**

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PRESIDENT & CEO

INSTITUTE FOR HEALTH AND PRODUCTIVITY MANAGEMENT



COPD

and the Employer

An Employer's Call to Action

By Rick Nevins, MD

Why the focus on COPD?

Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disease that is under-recognized, under-diagnosed, and under-treated in the U.S.¹ While approximately 24 million adults in the U.S.¹ have evidence of impaired lung function, only 12 million have been diagnosed with COPD.²

As the fourth leading cause of death in the U.S. in 2006 (after cardiovascular disease, cancer, and cerebrovascular disease), COPD represents a major burden to society, to the healthcare system² and to employers. ***And it is the only major fatal illness for which there is still an increasing death rate,³ which is rising so rapidly that COPD is expected to be the third leading cause of death globally by 2020.⁴***

Formerly considered a disease of elderly males, COPD is increasingly diagnosed in women³ and in people under the age of 65.⁵ It is a preventable and treatable disease that contributes to morbidity and mortality in the working-age population.⁶ About 70 percent of all Americans with COPD are younger than 65 years of age.⁵ From 1980 to 2000, COPD patients 25 to 64 years of age accounted for 47 percent of total physician office/hospital outpatient visits and 63 percent of emergency department visits.¹

These data are the foundation for both a business case and a clinical case for employers to become stakeholders in the battle against COPD. ***Employers are positioned to have a profound influence on prevention, early detection, management and burden of illness of COPD. This chapter is a Call to Action for them.***

What is COPD?

COPD is a preventable and treatable disease characterized by airflow limitation that is usually progressive and only partially reversible or not reversible at all.³ It includes emphysema and chronic bronchitis,⁷ and characteristic symptoms include excess sputum production and chronic, progressive shortness of breath and cough.³

Although most patients seek care to treat their breathlessness or cough,³ by the time this symptom develops the underlying disease has already progressed to a more difficult-to-treat phase. Symptoms of early-stage COPD – including chronic cough and excess sputum production – may be present for many years before the development of airflow limitation, yet these symptoms are often dismissed by patients as part of the aging process.³

How is COPD diagnosed?

COPD should be suspected in any adult over 40 years of age with a history of smoking for a period of time and any respiratory symptoms (cough, wheezing, shortness of breath with exertion or at rest). The physical examination may not be of much help in many cases until the disease has progressed.³ Sometimes a chest x-ray will show findings that could be from COPD.

The diagnosis of COPD is made with the use of a breathing test known as spirometry. Spirometry measures the amount of air blown out of the lungs (exhalation) over a period of time and may confirm a diagnosis of COPD, show how severe the COPD is,³ help the healthcare practitioner decide what medicines and other health instructions to use, and show how well the medicine and the other disease management components are working.

(See a sample COPD risk survey and more information on spirometry in the Resources Section of this publication.) A survey like this, combined with spirometry, is very useful for identifying COPD and its risks.

What causes COPD?

Cigarette smoking accounts for 80 percent to 90 percent of all cases of COPD⁸ and smoking cessation is the most effective way to slow its progression.³ Rare hereditary and congenital problems are rare causes of COPD cases.³

Environmental factors also can trigger COPD. Inhaled irritants such as smoke or air pollutants can cause the glands that line the airways to produce more mucus than normal, causing the lung walls to thicken and become inflamed.⁶

Because smoke and occupational air pollutants also are environmental risk factors for COPD,³ certain industries may place workers at greater risk. These may include utilities, office building services, textile milling, repair services, agriculture, construction, transportation, trucking, healthcare, and manufacturing of rubber, plastics and leather.⁹

What are the costs and burdens of COPD?

*Healthcare costs for an individual begin to rise before the diagnosis of COPD has been made. In the 2008 reporting of a U.S. study, total costs were higher by an average of \$1,182 per patient in the two years before the initial COPD diagnosis and \$2,489 in the 12 months just before the initial diagnosis.*¹⁰

In another study conducted in the U.S., adults with COPD were eleven times more likely to report fair or poor health, ten times more likely to report depression, and five-and-a-half times more likely to report poor sleep than persons without COPD.¹¹

As might be expected, general expenses for individuals with COPD are higher than average. Direct medical costs (such as facility charges, physician and other provider care, prescription medications), paid largely by insurance plans, accounted for nearly \$21 billion in 2004 while indirect costs (absenteeism, short-term and long-term disability and reduced workplace performance) added another \$16 billion.¹⁰ These costs for COPD are greater than for other respiratory diseases, including asthma and lung cancer, due in large part to hospitalization for COPD exacerbations. Moreover, despite the physical, emotional and financial impact of the disease, COPD is frequently unrecognized and untreated.^{11,12}

According to another study, nearly one-third of patients with COPD had at least one inpatient hospitalization lasting longer than one day, which was more than two-and-a-half times the number of hospitalizations for the control group without COPD.¹³ The length of stay for COPD patients also was significantly longer than for the control group without

COPD is the only major fatal illness for which there is still an increasing death rate.

COPD.¹³ These increased utilization costs resulted in higher expenditures than congestive heart failure, atherosclerosis, stroke and psychiatric illnesses. Patients with COPD also were markedly more likely to have a hospitalization for any reason than their counterparts in another study.¹⁴

Patients with COPD in a 2004 study incurred nearly four times higher costs for facility services, professional services, and pharmacy charges than their counterparts without the disease (\$2,330 vs. \$651 per member per month).¹⁴

COPD can have a significant impact on both short- and long-term disability claims. Results of a claims analysis from Jan. 1, 2001 through March 31, 2004 showed that employees with COPD were more than three times as likely to submit a short-term disability claim, and more than six times as likely to submit a long-term disability claim.¹⁴

COPD patients also claimed twenty-three percent more total disability days than employees without COPD.¹⁵

COPD is a chronic progressive disease, which places a significant burden on patients, families and employers over time. The disease is often marked by serious exacerbations of illness in addition to deteriorating baseline symptoms, which contribute to decreased quality of life¹⁶, absenteeism from work¹⁷, reduced on-the-job productivity,¹⁸ and greater use of healthcare resources including hospitalizations.¹⁷

Pay for Performance

Employers, providers and health plans should consider utilizing Pay for Performance (P4P) programs for management of COPD. These kinds of reimbursement models can focus on establishing quality care criteria for performance standards, measuring performance outcomes and rewarding providers for reaching performance objectives.¹⁹ These programs are designed to reduce costs, improve outcomes and increase the value of care.¹⁹

Components of a P4P program can include documenting the use of spirometry, showing more cost-effective and appropriate use of maintenance and rescue medications, providing smoking cessation interventions, measuring resting O₂ saturation levels, administering pneumococcal and the latest influenza vaccines, and reducing the frequency of COPD exacerbations in the last year.¹⁹

What the employer can do in the battle against COPD

There are critical issues that can make or break the management of COPD. The employer should address the following issues with its provider network, pharmacy benefits management company and health plan to maximize the value and outcomes of COPD care:

- Smoking cessation programs and pharmacotherapy
- Maintenance and rescue medications

- COPD flare-ups (exacerbation)
- COPD and asthma
- Co-morbidities of COPD
- Pulmonary Rehabilitation

Proper use of maintenance and rescue prescription medication

Most patients get several medications to help control symptoms. There are two major categories of medications used in the management of almost all people with COPD.

Maintenance medicines

Maintenance medicines should be taken every day to keep symptoms under control and reduce or eliminate the need for rescue medications.⁸ Maintenance medicines will help make breathing easier. Maintenance medicines start to work gradually and their effects may last 4 to 24 hours.³ They are bronchodilators taken through an inhaler, nebulizer, pill or capsule or as combination medicines of long-acting bronchodilators and inhaled steroids.³

Maintenance medicines should be taken as prescribed even if the symptoms of COPD are totally controlled or stable, as well as when getting worse. The patient should follow an Action Plan previously created with their healthcare practitioner for the management of flare-ups.

(See the Resource Section of this publication for more information about an Action Plan.)

Rescue medicines

Rescue medicines are taken as needed to help with difficulty breathing when usual symptoms get suddenly worse. This kind of medication can quickly improve breathing for about four to six hours.³ Rescue medicines include bronchodilators that are taken through an inhaler.

Rescue medicines should not be used to prevent symptoms, but are designed to treat them. Needing to use rescue medicines every day usually indicates the need to contact the healthcare practitioner, who may make an adjustment in the maintenance medication.

The following scenarios happen often in the care of COPD:

1. The patient gets relief from their maintenance medication and then makes the assumption that the medication is no longer needed. The consequences of that decision can be a flare-up of symptoms requiring emergency department treatment or hospitalization, especially if rescue medication has not been prescribed for flare-ups.
2. The patient relies on the immediate improvement of symptoms from using a rescue medication and decides that the maintenance medicine is no longer needed or could be taken less often than prescribed. The conse-

Maintenance medicine should be taken every day to keep symptoms under control and reduce or eliminate the need for rescue medications.

quence is poor management of COPD symptoms that often results in urgent or emergency care.

(See the Resource Section of this publication for more information about Maintenance and Rescue Medications.)

Avoidance and management of flare-ups (exacerbations) and their costs

Privacy of individual participant personal health information can be maintained by using de-identified and aggregate data for reporting to any third party including the employer.

A flare-up or exacerbation occurs when some or all of COPD symptoms suddenly get worse.

Examples of flare-up symptoms include:²⁰

1. increased cough;
2. a cough with yellow or green mucus (with or without fever or chills);
3. increased amounts of sputum;
4. using more puffs of medicine from the rescue inhaler;
5. feeling that the medicine is not working as well as it should;
6. having a harder time breathing;
7. coughing up blood streaks; or
8. having sudden shortness of breath with or without chest pain.

Flare-ups have a variety of causes including:²¹

1. smoking or being around smoke,
2. infections such as colds or flu,
3. strong fumes such as car exhausts,
4. cleaning products, paint, and perfume,
5. air pollution, smog, weather changes, and very cold or very humid air.

The patient should follow an Action Plan previously created with their healthcare practitioner. The plan should include specific reasons to contact the practitioner, and contact information including phone numbers. (See the Resource Section of this publication for an example of an Action Plan.)

COPD exacerbations are significant events, often with slow recovery periods. Potentially contributing to a more rapid reduction in lung function over time, these events limit an individual's quality of life and overall prognosis.³

*Exacerbations should be managed quickly to avoid emergency room visits and inpatient hospitalizations.*³

(See the Resource Section of this publication for more information about Flare-Ups.)

Confusion between COPD and Asthma

COPD is often confused with asthma by both patients and physicians. *In a study published in 2006, 52 percent of patients with a study diagnosis of COPD were previously misdiagnosed with asthma.*²² This trend toward misdiagnosis has important implications for patient care, since the treatment guidelines for asthma and for COPD are different.³

Many individuals with COPD exhibit emphysema-like features, while others have symptoms more consistent with chronic bronchitis; most patients have both.⁷

Chronic bronchitis involves constant swelling and irritation of the airways in the lungs, resulting in an increased production of sputum.⁷ Airway obstruction results from swelling and excessive sputum inside the airways, which ultimately causes airway narrowing, preventing a normal flow of air into and out of the lungs.⁷

By contrast, emphysema involves the air sacs of the lung, which lose their elasticity or are destroyed, making complete exhalation difficult. The combination of trapped air in the lungs and the extra effort needed to breathe results in shortness of breath.⁷ (See the Resource Section of this publication for more information about Chronic Bronchitis and Emphysema.)

The other major chronic obstructive airway disease, asthma, is characterized by an underlying airway inflammation triggered by factors such as infection, cold air, exercise, pollen and other irritants.⁷ While asthma and COPD share common features, asthma symptoms are intermittent and resolve between episodes, whereas COPD is slowly progressive with only partially reversible airflow limitation.³

People may have COPD with or without wheezing.³ The two conditions can occur in the same individual at the same time³ with varying degree and can be treated separately. *The problem occurs when a person with COPD is diagnosed with asthma and treated for it while the COPD goes unrecognized and untreated.*²³ This contributes to the

overuse and misuse of inhalers for asthma, and also contributes to the progression of COPD. When this occurs and smoking cessation is not recommended by the physician the progression of the destruction associated with smoking continues.

Smoking Cessation

*Smoking cessation is the most effective intervention that has been shown to delay the onset of airflow limitation or reduce its progression.*³ COPD mortality trends generally track several decades behind smoking trends.³ The age at which someone started to smoke, total pack-years smoked, and current smoking status are predictive of COPD mortality.³

Smoking cessation activities may include prescription medications and behavioral choice modification.

Impact of Co-morbidities

A co-morbidity is a disease or medical condition that makes another disease or condition more likely to occur, more difficult to treat or more likely to develop complications.

*COPD can coexist with, and sometimes aggravate, comorbidities in the same patient.*³ Patients with COPD are at increased risk for numerous co-morbidities, including myocardial infarction (heart attack), angina, poor blood supply to heart muscles, heart failure, loss of heart rhythm, enlarged or thickened heart, reduced blood supply to the brain (stroke or pre-stroke), hypertension, osteoporosis, respiratory infection, asthma, bone fractures, depression, diabetes, sleep disorders including apnea (episodes of not breathing during sleep), anemia, excessive weight loss, muscle wasting and glaucoma.³ The presence of COPD may also increase the risk of lung cancer.³

It is important that healthcare practitioners identify and manage the co-morbidities of COPD, given the impact of these conditions on the management and prognosis of COPD itself.

Pulmonary Rehabilitation

A healthcare practitioner may prescribe pulmonary rehabilitation for people with COPD. This can include education, techniques for breathing exercises, medical and nursing management, exercise training, nutrition counseling, help with psychological and social needs, answers to questions on how and when to take medicines, and recommendations for healthy lifestyle changes.²⁴

Pulmonary rehabilitation can improve breathing, possibly reduce the need for some medicines as well as visits to healthcare practitioners and hospital stays, relieve stress and anxiety, increase the ability to do daily activities and exercise and improve quality of life for people with COPD.

*Pulmonary rehabilitation has been shown to improve patients' shortness of breath, exercise tolerance, and health status while reducing use of healthcare services.*²⁴

Where the Employer *Should Begin the Battle*

There is a great opportunity for improving access to treatment and promoting COPD awareness and care.

The first step is to determine the prevalence and severity of known cases of COPD, as well as risk profiles for developing COPD. This is best accomplished by combining a COPD risk survey completed by employees with spirometry testing for those employees whose survey indicated possible COPD or the risk of it.

These two screenings can be conducted by a service provider or vendor as directed by the employer or the health plan. Privacy of individual participant personal health information can be maintained by using de-identified and aggregate data for reporting to any third party including the employer.²⁵

The second step is to improve healthcare effectiveness and costs of COPD by encouraging compliance from network physicians and health plans in implementing and following established guidelines for the management of COPD, such as those of the U.S. National Heart, Lung, and Blood Institute, the World Health Organization's GOLD Guidelines for the appropriate diagnostic and therapeutic interventions for patients with COPD, and the National Committee for Quality Assurance (NCQA) HEDIS guidelines for COPD management.

The third step is to engage the employee and healthcare practitioners to focus on the critical areas in COPD management:

- Smoking cessation
- Maintenance and rescue medications
- COPD flare-ups (exacerbations)
- COPD and asthma
- Co-morbidities of COPD
- Pulmonary Rehabilitation

Summary

COPD is a progressive disease that is under-recognized, under-diagnosed and under-treated. COPD management clearly requires a team of experts with a focus on critical areas to maximize both clinical and business outcomes.

Employers are uniquely positioned as strategic stakeholders in this battle against COPD and should communicate with health plans, pharmacy benefits management companies and network healthcare practitioners about the need for a comprehensive, coordinated management approach to COPD. **HPM**

**Go to www.ihpm.org/respiratory-health.php
to obtain references for this Chapter**

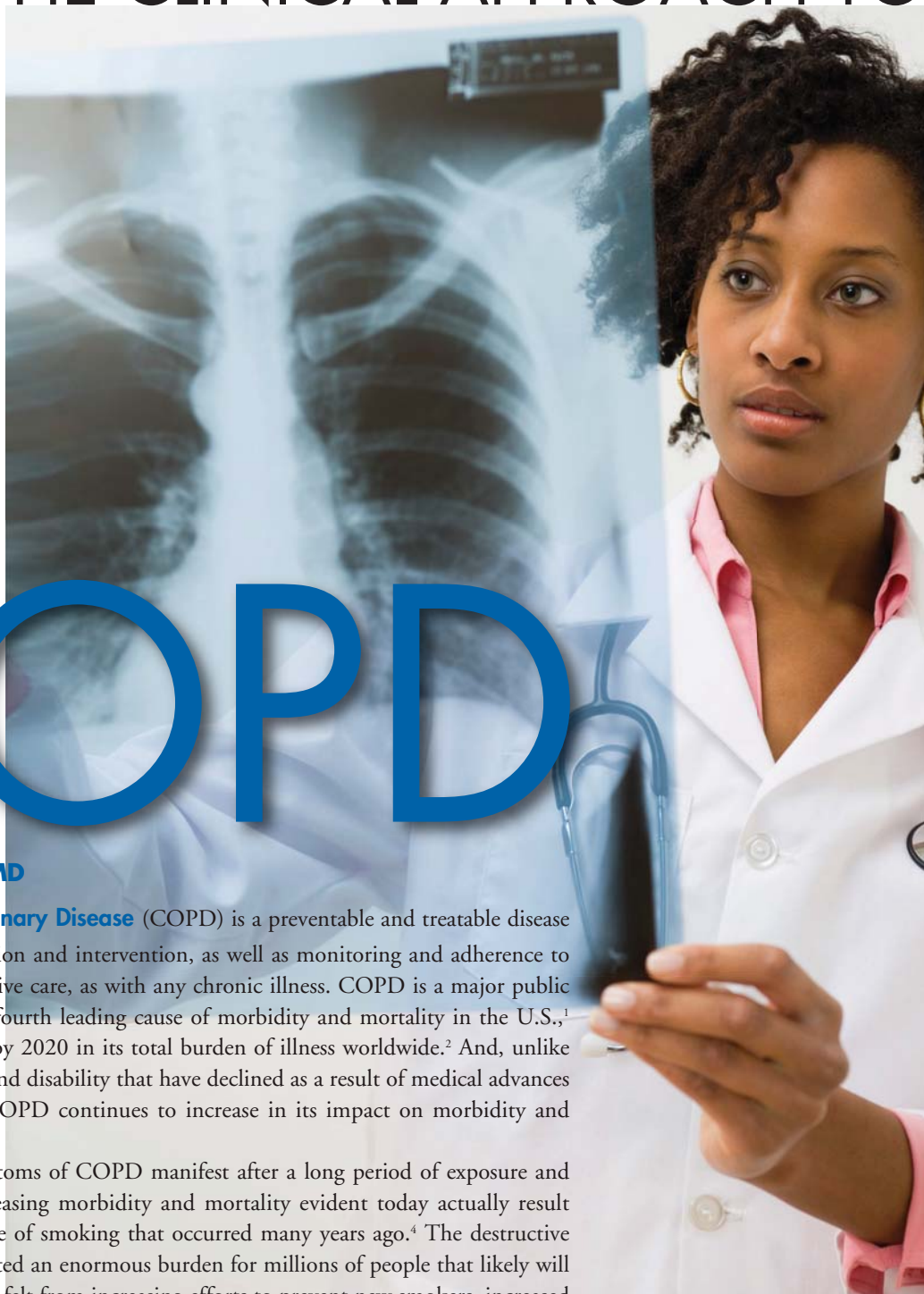
THE CLINICAL APPROACH TO

COPD

By David Tinkelman, MD

Chronic Obstructive Pulmonary Disease (COPD) is a preventable and treatable disease that requires early identification and intervention, as well as monitoring and adherence to the principles of comprehensive care, as with any chronic illness. COPD is a major public health problem today – the fourth leading cause of morbidity and mortality in the U.S.,¹ and projected to rank third by 2020 in its total burden of illness worldwide.² And, unlike other major causes of death and disability that have declined as a result of medical advances over the last few decades, COPD continues to increase in its impact on morbidity and mortality.³

Because the clinical symptoms of COPD manifest after a long period of exposure and airway destruction, the increasing morbidity and mortality evident today actually result from the increased prevalence of smoking that occurred many years ago.⁴ The destructive nature of the disease has created an enormous burden for millions of people that likely will continue² until the effects are felt from increasing efforts to prevent new smokers, increased success of smoking cessation efforts in those who have not yet reached significant levels of airway destruction, better treatment approaches, and the deaths of many who today are suffering the ravages of COPD from many years of tobacco exposure. Only then will COPD become like most other chronic disease states and experience reductions in both morbidity and mortality.



COPD usually presents with a history of coughing and dyspnea that has been slowly progressive over a period of years. Presentation to a clinician for care is often delayed by individuals until they no longer can tolerate some aspect of the disease, predominantly coughing or loss of functionality. Because its pathologic state varies, due to exposure and genetic factors, COPD is best conceived of as a clinical syndrome with a short list of possible symptoms. People usually present with any or all of the following:⁴

- Intermittent or persistent cough;
- Increased sputum production;
- Wheezing;
- Persistent or progressive dyspnea

Predominantly, those who present with these symptoms will have a history of exposure to risk factors – mostly, but not exclusively, smoking tobacco. The patient may not give an accurate history of the amount or duration of smoking tobacco, but it is usually more than 10 pack-years (the number of packs of cigarettes times the number of years smoked).⁵

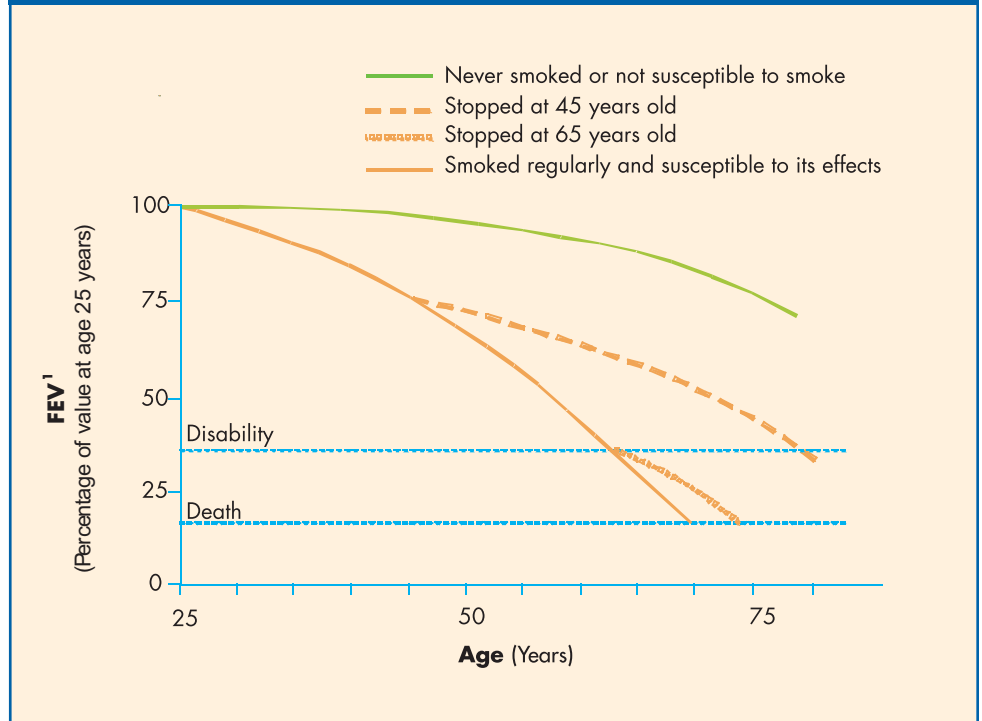
In some cases, the smoking may have ceased many years before presentation to the physician with symptoms, but still was of significant duration. Patients are often able to clearly describe the slowly progressive appearance of the disease's effects, although denial of symptoms is not uncommon. A good history is a critical element in suspecting and making the diagnosis of COPD.^{4,5}

Patients may deny their symptoms for various reasons, yet see their physicians on a regular basis for routine care. Consequently, the physician office is the most important place **to prevent, make an early diagnosis of, or manage the symptoms of COPD.**

PREVENTION

Smoking is recognized as the most important risk factor for COPD.^{4,6} Its toxic effects cause progressive and irreversible destruction of the airways. Smoking cessation has been recognized as the most effective way to stem the continued,

Figure 1: Age-Related Decline in Lung Function Improves After Smoking Cessation



accelerated destruction of the airways and allow the individual to resume the normal age-related rate of decline in lung function.^{4,7}

Figure 1 shows that smoking accelerates the normal decline in FEV1 that is part of the aging process.⁷ This accelerated rate of decline results directly from the destructive nature of the chemicals in tobacco smoke.

As demonstrated in Figure 1, when an individual stops smoking there is no improvement in lung function, but there is a return to the rate of decline associated with the normal aging process.⁷ Smoking cessation is the single best measure for preventing COPD or slowing its progression.

Can a Physician Prevent COPD?

Once someone presents to the office with complaints related to loss of lung function, it is too late to go back. Prevention should start with each office visit. The earlier a smoking cessation intervention starts, the less airway destruction and subsequent loss of functionality occurs. Each day that smoking cessation is delayed, the destruction continues and the irreversible changes follow.

In 2008, the Public Health Service published its most recent guidelines for the prevention and control of tobacco addiction. These guidelines review all the harmful effects of tobacco exposure and the relevant approaches to mitigate

tobacco's health effects. The key recommendations for the healthcare provider are as follows:⁸

- **Tobacco dependence is a chronic disease that requires multiple interventions and attempts to overcome.**
Physicians should not lose sight of the fact that nicotine is an addictive chemical and that it may take many attempts to break this addiction. Patience and support are key elements of success.
- **Clinicians should consistently attempt to identify, document and treat every tobacco user.**
Physicians should not assume that asking once will identify all smokers. Asking at each visit is important to improve the chances of identifying smokers and intervening earlier.
- **Individual, group and telephonic counseling are effective and enhanced by medications.**
Numerous studies have shown that the combination of these strategies is far better than a single approach.
- **If an individual is unwilling to quit at the present time, use motivational treatment to encourage future attempts.**
Encouragement by the physician is a very powerful factor in motivating individuals to stop smoking.

Benefits of Smoking Cessation

There are many benefits from smoking cessation. These start almost as soon as the individual stops smoking and accrue over time. Sharing this information with your patients is another tool to motivate them to begin the cessation process. The following, directly from the American Cancer Society web site, are changes that have been documented to occur over time once smoking ceases.⁹

- **20 minutes** after you quit, your blood pressure has already decreased, your pulse rate has dropped and the blood temperature of your hands and feet has increased.
- **12 hours** after quitting, the level of carbon monoxide in your blood drops as the oxygen increases to the normal level of a non-smoker. Between 2 to 12 weeks, your circulation improves, and your lung function increases.
- **Within the first 9 months**, you will find that you no longer suffer from shortness of breath, while coughing and sinus congestion will rapidly improve.
- **After a year**, your risk of coronary heart disease already is just half that of a smoker!
- **After 10 years**, the risk of lung cancer death drops by half, and your risk of cancers of the mouth, throat, esophagus, bladder, cervix, and pancreas also decreases sharply.
- **In 5 to 15 years**, you will have no higher risk of stroke than that of people who have never smoked.
- **By 15 years**, your chance of coronary heart disease will be virtually the same as that of people who have never smoked.

THREE EASY STEPS: Ask, Advise and Refer

The easiest and most effective way for a physician to play a part in the prevention process is to “Ask, Advise and Refer.”⁸ Ask at every visit – only one time is not enough. Make it part of your vital signs and document the answers.⁸

- **Ask** if your patient smokes. Ask the right questions and listen carefully to the responses. What can you ask?
 - **Have you smoked in the last 30 days?**
 - Some people only smoke on the weekends or not daily and do not think of themselves as smokers
 - Some people try to stop smoking before they see their physician and then think of themselves as not smoking
 - **Did you ever smoke?** If the response is “yes, but not now” ask:
 - When did you quit?
 - How long did you smoke?
 - How much did you smoke?

The destruction does not reverse. Is this person on their way to loss of functionality and COPD symptoms? Although prevention may be too late, appropriate intervention can be instituted.

- **Advise** the patient to quit. This is a critical role for the physician.⁸ Studies have shown that when a physician advises their patient to stop smoking, the chances of that person actually stopping goes up dramatically.¹⁰ This should be done in a positive, supportive way. Be an advocate, not an annoyance. Remember that smoking is an addiction and your patient may have already tried unsuccessfully to stop smoking. Breaking an addiction is not easy.
- **Refer** to the Quitline: 1-800-QUIT-NOW (www.quitline.com) or 1-877-2NO-FUME (3863) in Spanish. All states have telephonic tobacco cessation programs. However, for financial reasons some of these programs are only available to certain limited populations. Try to find resources to help your patient stop smoking. If the Quitline in your state provides pharmacotherapy, this will enhance the smoking cessation effort significantly.⁸ If this is not the case, suggest some type of pharmacotherapy, such as over-the-counter nicotine replacement therapy products or one of the prescription agents. By discussing pharmacotherapy, it is more likely that your patient will get a product and will succeed.
The earlier you detect that your patient is a smoker, the earlier you can start suggesting smoking cessation efforts. This is the most effective way to prevent COPD. Your questions may mean the difference between a more functional life

and a horrible death for your patient. Approach your smoking patient as someone who has a relapsing chronic disease and not purely as someone who has made a lifestyle choice. Smokers often make many attempts to stop smoking before they are successful.¹¹ Therefore, it may be necessary to repeatedly encourage and support smoking cessation efforts.

EARLY DIAGNOSIS OF COPD

While 24 million people have evidence of impaired lung function, only 12 million have been diagnosed with COPD.¹ The earlier the diagnosis is made, the better chance the physician will have to advocate a smoking cessation program and institute appropriate therapy. Unfortunately, delay in diagnosing COPD appears common, although the magnitude of this problem has not been well measured.

The often-cited statistic is that 50 percent of COPD is undiagnosed. The term undiagnosed actually comprises both those who do not have any diagnosis but have COPD (under-diagnosed) and those who have COPD but the wrong diagnosis (misdiagnosis). But there are limited data to support this figure. We know that about 85 percent of all cases of COPD are cigarette-smoking related,⁶ yet physicians fail to ask the important questions about smoking and do not suspect COPD in otherwise healthy-appearing individuals.

A few years ago, we reported on both the degree of under-diagnosis and misdiagnosis as they related to COPD. The studies were conducted in two large urban primary care practices in Aberdeen, Scotland and Denver, Colorado.^{12, 13} In the first study, spirometry testing both before and after administration of a bronchodilator was performed among 818 smokers aged 40 years and over, none of whom had a diagnosis of COPD when they entered the study.¹² Using a lack of reversibility into the normal range as the criterion for defining COPD, 155 (18.9 percent) were found to have the diagnosis of COPD.¹²

In addition, we found that by using the GOLD severity criteria, the obstruction was mild for 57.4 percent, moderate in 36.8 percent, and severe in 5.8 percent. From this fairly large group of at-risk individuals, we suggested that in a more generalized population of at-risk smokers over the age of 40, 10 to 20 percent may have undiagnosed COPD, and a substantial proportion of these already have moderate to severe disease.

The second study addressed the other essential part of the undiagnosed population – the misdiagnosed.¹³ People over the age of 40 frequently present with coughing, wheezing and possible dyspnea, and the most common diagnosis for them is asthma.

During the course of their office visit these patients often are not even asked if they smoke. Available evidence suggests that failure to appropriately diagnose obstructive lung disease

is a significant clinical problem. An estimated 75 percent of Europeans and 63 percent of Americans¹⁴ with COPD are undiagnosed¹⁵

Many population-based studies of COPD's prevalence do not use post-bronchodilator spirometry values to identify obstruction and, therefore, often miss the diagnosis. Those studies that do use post-bronchodilator values often exclude persons with a prior diagnosis of asthma as being definitive, or define obstructive disease in a manner that favors the diagnosis of asthma or of COPD from the beginning. It seems clear that misdiagnosis occurs with some frequency.¹⁶

In the second study we performed, we compared spirometry-based study diagnoses with prior diagnoses in a sample of patients with prior evidence of obstructive lung disease in order to assess the prevalence of misdiagnosis and the characteristics of patients with an inappropriate diagnostic label.¹³ Here, we enrolled persons aged 40 years or older with self-reported prior diagnoses or medications consistent with obstructive lung disease, which we took as evidence that the physician recognized an obstructive disease was present.¹³ Participants underwent pre- and post-bronchodilator spirometry. In this study, diagnosis of COPD was defined as a post-bronchodilator FEV₁/FVC <0.70, the standard from the GOLD guidelines for at least mild disease.¹³

In this population of 597 patients, 235 (39.4 percent) presented with a study diagnosis of COPD (mostly chronic bronchitis and emphysema). Among subjects with a spirometry-based study diagnosis of COPD, 121 (51.5 percent) reported a prior diagnosis of asthma without concurrent COPD diagnosis, 89 (37.9 percent) reported a prior diagnosis of COPD, and 25 (10.6 percent) reported no prior diagnosis of obstructive lung disease at all.¹³

It was clear from this fairly large population of individuals followed in large primary care practices that, despite the availability of consensus guideline diagnostic recommendations, diagnostic confusion between COPD and asthma is a frequent event. The lack of suspicion of COPD and the lack of the use of spirometry in the office setting both, undoubtedly, lead to a substantial lack of awareness of the differences between the two conditions.

It is not hard to imagine why both under-diagnosis and misdiagnosis occur with such frequency in the busy primary care setting. Spirometry is often limited by availability of equipment, time constraints, and difficulty in interpretation. Even a good history and excellent physical examination cannot clearly define the degree of airflow limitation and possible response to a bronchodilator, the hallmarks for differentiating asthma from COPD. Thus, the diagnosis is often made on clinical grounds alone, which can lead to a diagnostic bias toward asthma. A history of wheezing and even a history of

having difficulty breathing followed by some improvement cannot differentiate these two obstructive disease states.

It is now established that the combination of under-diagnosis and misdiagnosis represents a significant problem related to COPD, which is magnified in women.^{17,18} Studies indicate that it is less likely for a woman to receive spirometry, and that when a woman presents with similar symptoms as a man, she is less likely to receive a correct diagnosis of COPD.^{17,18} With the targeting of women for cigarette advertising beginning decades ago, this failure to make an early diagnosis only further adds to the reasons that COPD-related mortality rates for women have increased steeply in the past several years.⁴

Early consideration of a possible diagnosis of COPD has to be a priority for all smokers. Early and aggressive attempts to stop smoking are the most successful way for these patients to preserve lung function. Using the well-known Fletcher-Peto diagram in Figure 1, one can see that the higher on the FEV¹ curve stopping smoking occurs, the better the opportunity for lung preservation.⁷

Early diagnosis makes it easier for the physician to have specific discussions with the patient about the dangers of smoking, which are more effective than general “stop smoking” advice. Previous work has demonstrated that smokers who receive physiological evidence, such as spirometry and exhaled carbon monoxide levels, in addition to basic smoking education, are more than twice as likely to quit.

Finally, earlier diagnosis allows for earlier and appropriate pharmacologic interventions, which can reduce the burden of COPD. Providing such therapy can alleviate existing symptoms and prevent future exacerbations, both leading to an improved quality of life. In our study, more than 40 percent of those who had never received a diagnosis of COPD had obstruction rated as moderate or severe by GOLD criteria.

These individuals were not receiving the benefit of appropriate pharmacologic therapy. Undiagnosed airflow obstruction is associated with impaired health and functional status,¹⁹ and the earlier a diagnosis can be made, the greater the likelihood of improving the quality of life of your patients.

For all of the above reasons, it is appropriate that:

1. All cigarette-smokers should be considered to be at risk of developing COPD;
2. Recognizing that physiologic changes occur well before symptoms begin, all persons over the age of 35 who are at risk because of smoking, family history, occupational exposure, air pollution, frequent lung infections, or socioeconomic status should have screening spirometry performed – not only to identify potential obstruction, but also to determine if reversibility to normal is possible.

OUTPATIENT MANAGEMENT OF COPD

Once the diagnosis of COPD is made, it is important to initiate management strategies to achieve the goals stated in both the GOLD and ATS guidelines, which are to prevent progression of the disease, relieve symptoms, improve the general health status (including exercise tolerance), prevent exacerbations, reduce mortality and minimize side effects.^{4,5} The outcomes for all interventions should be to maximize the quality of life for the patient and reduce the effects of the existing or preventable morbidity of this progressive disease.

The physician always should keep in mind that COPD is a systemic disease that has the potential to affect multiple organ systems at the same time.⁴ Too often, the focus is only on the presenting symptoms of coughing and dyspnea, and other co-morbid symptoms such as depression, cardiovascular disease and osteoporosis are overlooked.⁴

As the GOLD guidelines suggest, there are four components to the management of COPD.⁴ These are:

1. Assess and monitor the disease
2. Reduce risk factors
3. Manage stable COPD through:
 - Education
 - Pharmacologic therapy
 - Non-pharmacologic therapy
4. Manage exacerbations.

The following sections, based almost entirely on the GOLD and ATS guidelines, primarily deal with the outpatient management of stable COPD through pharmacologic and non-pharmacologic approaches. One of the first aspects of management is to assess the severity of the patient’s illness from both physiologic and functional points of view. One of the key initial elements is to assess the severity of the disease by measuring the degree of airway obstruction after the administration of a bronchodilator. The following shows the commonly accepted severity levels for COPD with respect to the findings from spirometry.^{4,5}

Stage I, Mild disease, have a ratio of FEV¹/FVC \leq 70 percent and an FEV¹ of \geq 80 percent of predicted.

Stage II, Moderate disease, have a ratio of FEV¹/FVC \leq 70 percent and the FEV¹ is between 50 to 80 percent of predicted.

Stage III, Severe disease, have a ratio of FEV¹/FVC \leq 70 percent and the FEV¹ is between 30 to 50 percent of predicted.

Stage IV, Very Severe disease, have a ratio of FEV¹/FVC \leq 0.70, and the FEV¹ $<$ 30 percent predicted, or FEV¹ $<$ 50 percent predicted plus chronic respiratory failure.

It cannot be emphasized enough that spirometry is essential in evaluating these individuals, and is often the only way to differentiate a progressive disease (COPD) from a reversible one (asthma).

Evaluating the functionality of the patient is a recommended step in assessing the overall severity of the disease state. The ATS guidelines suggest using the Medical Research Council dyspnea scale for assessing functionality in the overall assessment of the severity of COPD.⁵ The following are the four levels of functional impairment that can be easily assessed when taking a history:

1. Troubled by breathlessness when hurrying or walking up a slight hill
2. Walks slower than people of the same age due to breathlessness or has to stop when walking at own pace on the level
3. Stops for breath after walking about 100 meters or after a few minutes on the level;
4. Too breathless to leave the house or breathless when dressing or undressing.

In assessing the severity of the individual's overall chronic condition, it is also important to evaluate the complications of COPD as well as other existing co-morbid conditions.⁴ These other clinical situations add to the burden of the disease for the individual and may dramatically affect the ability to cope with their COPD. This is particularly true of those who have concurrent depression. It is important to take the time to focus on all of the organ systems in the history, to elicit information that may point to cardiovascular, neurological and orthopedic problems.

Outpatient Management: Pharmacotherapy

Although present pharmacologic therapies do not alter the rate of decline in lung function, they have been demonstrated to reduce symptoms, decrease exacerbations, and improve the quality of life for the patient taking them.²⁰

The pharmacologic approach to the management of COPD should be viewed as a stepwise progression of treatments that are basically added sequentially to provide as much relief of symptoms as possible, and to prevent further exacerbations.²⁰

For those with Mild COPD, the approach is to control intermittent symptoms as they occur. Patients should be encouraged to receive the influenza vaccine and also provided a short-acting bronchodilator, mainly as a rescue medication. Chronic daily pharmacotherapy is not indicated in this group of patients.²⁰

Individuals with Moderate COPD have demonstrated that the level of airway obstruction does not reverse back into the normal range after bronchodilator therapy, including both the ratio of FEV¹:FVC and the FEV¹. These individuals may or may not present with symptoms, but have the risk factors associated with COPD and are candidates for daily therapy. The regular use of daily long-acting bronchodilators, either a beta-2 agonist or an anticholinergic agent, is the cornerstone of therapy for patients with moderate to very severe COPD. This is in addition to the use of a short-acting bronchodilator as a rescue drug.²⁰

Some individuals do not establish good control over their symptoms with a single class of bronchodilator. There is evidence to suggest that combining a beta agonist with an anticholinergic agent is better than either alone²¹ – i.e., directing therapy at two different physiologic areas (the beta receptors and the cholinergic receptors) is better than either one alone.⁵

For these patients who often deny their disease, it is important to stress that bronchodilator therapy should be daily, even if the patient is asymptomatic. The ATS guidelines provide the following evidence to support this concept. Bronchodilators:⁵

- Improve FEV¹
- Decrease dyspnea
- Increase exercise and functional capacity
- Improve quality of life
- Reduce use of additional medication
- Decrease exacerbations.

For those with Severe COPD, there is a significant loss of airway function and these individuals are often quite symptomatic. Unfortunately, once a person has reached this level of lung destruction, there are limited choices as to the next therapy to add to the daily bronchodilator therapy. Many times, physicians will begin a course of oral steroids in an effort to control the ongoing symptoms. There is significant evidence that oral steroids are of benefit for the treatment of exacerbations but, even in low doses, should not be used for chronic management. Their side effects when used on a prolonged daily basis far outweigh their benefit.⁴

In the past few years, the use of inhaled corticosteroids has been recommended for patients with an FEV¹ <50 percent of predicted and in those with multiple exacerbations of their disease who are not controlled with daily bronchodilator therapy.⁵ These agents do not work for everyone with COPD, but have been shown to not only improve lung function, but also to improve quality of life in others where basic spirometry has not changed.²²

As indicated above, many patients with Severe and Very Severe disease have multiple co-morbid disease states that

make their quality of life quite poor. Paying attention to these other organ symptoms is a critical step toward providing a better quality of life, despite the presence of marked airway destruction.

Unfortunately, individuals with Very Severe COPD are quite ill and may demonstrate signs of respiratory failure. There are no other medications to add to the stepwise approach. A careful monitoring of other organ systems is helpful, along with non-pharmacologic approaches, including pulmonary rehabilitation, daily oxygen therapy and possible lung surgery. These individuals have a poor prognosis and it is important to discuss end-of-life planning for all with such severe disease.⁵

Outpatient Management: Non-Pharmacotherapy

Various non-pharmacologic management approaches can be instituted in the office setting and performed by the patient and their caregivers at home.

Of course, smoking cessation is at the top of this list. For all of the reasons discussed above, the physician should discuss smoking cessation with the patient and recommend appropriate steps to help in this effort.

Probably from the very first time that COPD is diagnosed, an ongoing education program should be started. This education can occur over a long period of time and include the patient and their family members. It can include discussions about the disease, the medications and how to take them, and the importance of adherence to a daily medication regimen as well as other strategies. It also can include information about lifestyle changes, exercise and nutrition. Having a lifestyle that includes exercise and good nutrition is an excellent way to help the individual improve and maintain a decent quality of life.

A written symptom-based COPD Action Plan is another way to help the patient and family better understand the disease, as well as have at home your recommended approaches to daily therapy and what to do when an exacerbation starts to occur. This can be written early in the course of management and updated with each visit. It should include areas of concern beyond respiratory symptoms – such as cognitive functioning, weight loss, signs of other co-morbid conditions and infection. Different from an Action Plan for asthma, this type of plan may need to be a lot longer and more complex. It should be discussed not only with the patient, but also with family members or caregivers.

Pulmonary rehabilitation is one good way to help patients maintain a better quality of life. Depending on the setting, a rehab program can include exercise training, education and nutrition counseling.⁴ Many patients with Severe and Very

Severe COPD have significant difficulty maintaining adequate nutrition. Patients with significant weight loss have a worse prognosis.^{4,23} Therefore, it is important to evaluate this at every visit.

As part of any management program for patients with chronic illness, monitoring in the office and at home are both important. Work not only with the patient, but also with the caregiver to establish specific areas to monitor. Areas of home monitoring can include early warning signs of an exacerbation, signs of faulty nutrition, depression, and changes in cognitive functioning. Unfortunately, home monitoring of lung function is not easily available or useful. A Peak Flow Meter is of little value in COPD.

It is important to frequently assess and monitor the disease progression. Depending on the duration of smoking and its negative impact on the lung and other organ systems, individuals have different levels of effects on their daily lives. Repeated spirometry will help to assess the damage that has happened and still is occurring in the lungs. This should be a routine part of each visit.

SUMMARY

COPD is both a preventable and treatable disease state that affects millions of people and has an enormous medical and financial burden. Yet, it is one of the only major chronic illnesses that is on the rise with respect to both morbidity and mortality.

Reducing this burden is the responsibility of many, but the physician seeing the patient in their office has the best opportunity to affect these rising rates. It is clear that the physician setting can play an important role in mitigating the burden of COPD in three major ways: 1) taking steps to prevent their patients from developing COPD; 2) keeping COPD in their mind when assessing individuals with risk factors for COPD presenting with any symptoms to assure making a diagnosis as early as possible; and 3) instituting appropriate and early interventions for the management of COPD.

These three critical steps are important in dealing with the present level of COPD prevalence, preventing its future increase and also creating a better quality of life for those who already have this disease. **IHPM**

Go to www.ihpm.org/respiratory-health.php
to obtain references for this Chapter



COPD

and the Patient

By Rick Nevins, MD

Chronic Obstructive Pulmonary Disease

(COPD) is a serious lung disease that needs early detection and comprehensive management. COPD is usually caused by cigarette smoke¹ and results in shortness of breath, frequent coughing, and an excess of mucus.²

If you have COPD or are at risk for it, or have a family member or friend with COPD, this article is for you. It will discuss what COPD is and what causes it, as well as the treatments that are available to manage it. The article also emphasizes the importance of what you can do to reduce the impact of COPD on your health, your life and your family.

WHAT IS COPD?

Chronic Obstructive Pulmonary Disease (COPD) is:³

- Chronic – long-lasting
- Obstructive – partially blocking the flow of air
- Pulmonary – relating to the lungs
- Disease – an illness

*COPD is a lung disease that causes problems with the way the lungs push “used” air out, resulting in not enough room left to take in “new” air. More than 12 million American adults have been diagnosed with COPD and about 12 million more have impaired lung function but have not been diagnosed.*⁴

COPD is the only major fatal illness for which there is still an increasing death rate² and is fourth after cardiovascular disease (reduced blood supply to heart muscles resulting in a heart attack, angina and heart failure), cancer, and cerebrovascular disease (reduced blood supply to the brain resulting in stroke and transient ischemic attack or TIA).^{1,2} And the COPD death rate is rising so rapidly that it is expected to be the third-leading cause of death globally by 2020.^{2,5}

WHAT CAUSES COPD?

The main cause of COPD is cigarette smoking. Approximately one out of three smokers gets COPD⁶ and 80 percent to 90 percent of COPD is due to smoking.¹ Other things that may raise the chances of getting COPD include:²

1. being around other people’s smoking (secondhand smoke);
2. working or living in an area polluted by dust or chemicals;
3. frequent respiratory infections; and
4. having had problems with lung growth and development (such as being born at a low birth weight or with a rare hereditary deficiency of a needed substance in the lungs).²

Some of these things – such as problems with lung growth – you cannot control. But others, such as smoking, you can control. If you have COPD you can do a lot to keep it from getting worse. If you smoke, quitting is the most important thing you can do, and it may help slow down the progression of your disease.²

WHAT HAPPENS WHEN YOU HAVE COPD?

COPD is not just one disease, but a group of different lung disorders, most often including chronic bronchitis and emphysema.⁷ *Characteristic symptoms of COPD include excess phlegm production, chronic progressive shortness of breath and cough.*^{2,7}

When you have COPD, there are changes in your lungs that affect your breathing. If you have chronic bronchitis, the walls inside your airways become swollen and thick, and your airways become narrow. Large amounts of mucus form, also blocking the airflow.⁷

If you have emphysema, the air sacs at the ends of your airways are damaged and get stiffer.⁷ Air gets trapped in the tiny air sacs, which get stretched too much and break down, so that they begin to function improperly. This results in having a few large air sacs instead of many tiny ones. Not all the air in the larger space gets pushed out when you breathe out. Your blood may not get enough oxygen and you have to work harder to breathe – to get rid of the carbon dioxide.⁸

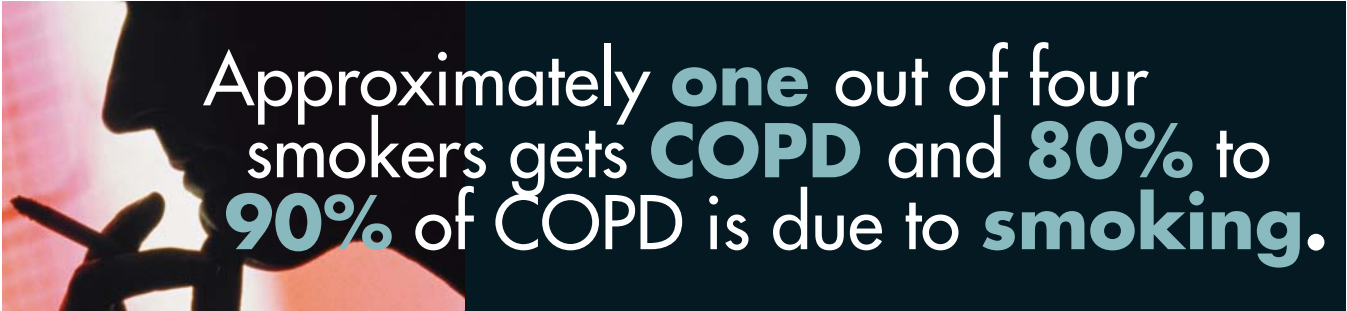
ASTHMA IS NOT COPD

Asthma also is a disease that affects the airways, but it is a different disease, and *asthma and COPD need different treatments.*⁹

Asthma is sometimes confused with COPD and COPD with asthma by both patients and healthcare practitioners. In a study published in 2006, half (52 percent) of patients with a study diagnosis of COPD were previously misdiagnosed with asthma.¹² This trend toward misdiagnosis has important implications for your care, since the treatments for asthma and for COPD are different.⁹

COPD can be caused by smoking or being around smoking.² It also can be caused by working or living in an area polluted by dust or chemicals, while asthma is caused by being sensitive to something (like a certain food or pollen in the air) that causes an allergic reaction. It also can be caused by being sensitive to non-allergenic factors such as infections, exercise, and some drugs.²

COPD is a long-lasting disease that often gets worse over time and usually has some continuous symptoms between



Approximately **one** out of four smokers gets **COPD** and **80%** to **90%** of COPD is due to **smoking**.

flare-ups, while asthma attacks come and go, often without symptoms between attacks. COPD usually starts in people over 40 years of age, and asthma usually starts in childhood.²

If you have COPD symptoms that are not controlled, and are being treated with asthma medication only, review your medication list with your pharmacist and healthcare practitioner to be sure that you are on the right medications.

HOW IS COPD DIAGNOSED?

COPD should be suspected in any adult over 40 years of age with a history of smoking for a period of time and any respiratory symptoms (cough, wheezing, shortness of breath with exertion or at rest).² The physical examination may not be of much help in many cases until the disease has progressed.² Sometimes a chest x-ray will show findings that could be from COPD.

The diagnosis of COPD is made with the use of a breathing test known as spirometry.² Spirometry measures the amount of air blown out of the lungs (exhalation) over a period of time and may confirm a diagnosis of COPD, show how severe the COPD is,² help your healthcare practitioner decide what medicines and other health instructions to use, and show how well the medicine and the other disease management components are working.

(See the Resource Section of this publication for a sample COPD risk survey and more information on spirometry.)

Your responses to this survey may indicate that you have COPD symptoms or are at risk for COPD. A survey like this, combined with spirometry, is very useful for your healthcare practitioner in determining if you have COPD.

MANAGING YOUR COPD

COPD cannot be cured,⁷ but it can be managed. You can do a lot to feel and live better with it. The best management for COPD includes paying attention to all of the following components of care:

1. TAKING YOUR COPD MEDICATIONS

Most patients get several medications to help control symptoms.² There are two major categories of medications used in the management of COPD:

Maintenance medicines

Maintenance medicines should be taken every day to keep your symptoms under control and reduce or eliminate the need for rescue medications.⁷ Maintenance medicines will help you breathe more easily. They start to work gradually and may last 4 to 24 hours. They are bronchodilators (medications that dilate or open the airways) taken through an inhaler, nebulizer, pill or capsule or as combination medicines.²

Maintenance medicine should be taken as prescribed even if the symptoms of COPD are totally controlled or stable, not just when they're getting worse.¹¹ You should follow an Action Plan previously created by you and your healthcare practitioner for the management of flare-ups. **(See the Resource Section of this publication for more information about an Action Plan.)**

Rescue medicines

Rescue medicines are taken as needed to help you with difficulty breathing when usual symptoms get suddenly

Asthma is sometimes confused with COPD and **COPD** with **asthma** by both patients and healthcare practitioners. In a study published in 2006, half **(52 percent)** of patients with a study diagnosis of COPD **were** previously **misdiagnosed** with asthma.

worse.⁷ This kind of medication can quickly improve your breathing for about 4-6 hours.⁷ Rescue medicines include bronchodilators that are taken through an inhaler.²

Rescue medicines should not be used to prevent your symptoms, but are designed to treat them. Needing to use rescue medicines every day usually indicates that you need to contact your healthcare practitioner, who may make an adjustment in your maintenance medication.

If you get relief from your maintenance medication, don't assume that the medication is no longer needed and stop taking it. The consequences of that decision can be a flare-up of symptoms, requiring emergency department treatment or hospitalization, especially if a rescue medication has not been prescribed for flare-ups.

Likewise, when you get immediate improvement of symptoms from using a rescue medication, don't decide that the maintenance medication is no longer needed or could be taken less often than prescribed. The consequence of doing so is poor management of COPD symptoms that often results in urgent or emergency care. (See the Resource Section of this publication for more information about Maintenance and Rescue Medications.)

2. OTHER MEDICATIONS FOR COPD

Antibiotics are used to treat respiratory infections caused by bacteria.⁷ They are not used on a long-term basis but only when respiratory infection is present.¹²

Corticosteroids (steroids) are given by mouth, inhaler and intravenously⁷ and are usually used for a short time when symptoms are getting worse or hospitalization is needed.² With the exception of severe or very severe patients, they are used on a daily basis.² Steroids work to improve breathing by reducing inflammation in your airways.⁷

3. DO NOT SMOKE

If you smoke, quitting is the most important thing you can do. Stopping smoking is the only action that may stop your disease from getting worse.² Try to stay away from people who smoke, because secondhand smoke is harmful. Also avoid dust, chemicals and air pollution.² If you smoke, talk with your healthcare practitioner about a smoking cessation program to help you stop the use of tobacco.

COPD FLARE-UPS

A flare-up or exacerbation occurs when some or all of your COPD symptoms suddenly get worse.⁷

Examples of flare-up symptoms include:

- increased cough;
- having a cough with yellow or green mucus;⁷
- increased amounts of sputum;

- using more puffs of medicine from the rescue inhaler;
- feeling that the medicine is not working as well as it should;
- having a harder time breathing;
- coughing up blood streaks;
- having sudden shortness of breath with or without chest pain.¹³

Flare-ups have a variety of causes, including:

- smoking or being around smoke;
- infections such as colds or flu;
- strong fumes such as car exhausts;
- fumes or odors from cleaning products;
- fumes or odors from paint and perfume;
- air pollution;
- very cold or very humid air.

You should follow an Action Plan previously created by you and your healthcare practitioner. The plan should include specific reasons to contact the healthcare practitioner, and contact information including phone numbers.

COPD exacerbations are significant events, often with slow recovery periods. These events can limit your quality of life and overall prognosis^{2,5} by potentially contributing to a more rapid reduction in lung function over time. *Exacerbations should be managed quickly to avoid emergency room visits and inpatient hospitalizations.*²

(See the Resource Section of this publication for more information about Flare-Ups.)

COLDS, FLU AND PNEUMONIA

Colds, flu and pneumonia are all respiratory infections. People with COPD and any of these infections can get very sick.⁷ For this reason, you should get your healthcare practitioner's help in having immunizations to prevent the seasonal flu and pneumonia.⁷ (There are no immunizations available for preventing colds.)

IMPACT OF CO-MORBIDITIES

*COPD can coexist with, and sometimes aggravate, comorbidities.*² Patients with COPD are at increased risk for numerous co-morbid conditions, including:

- myocardial infarction (heart attack);
- angina;
- poor blood supply to heart muscles;
- heart failure;
- loss of heart rhythm;
- enlarged or thickened heart;
- reduced blood supply to the brain (stroke or pre-stroke);
- hypertension;

- osteoporosis;
- respiratory infection;
- asthma;
- bone fractures;
- depression;
- diabetes;
- sleep disorders including apnea (episodes of not breathing during sleep);⁷
- anemia;
- excessive weight loss;
- muscle wasting;
- glaucoma.²

The presence of COPD also may increase the risk of lung cancer.² Your healthcare practitioner also should manage the co-morbidities you have, given the impact of these conditions on the management and prognosis for your COPD.

MANAGING YOUR DIET

COPD may cause you to use extra energy to breathe – more energy than someone who does not have COPD.¹⁴ Eating a healthy diet⁷ will not cure COPD, but it may help you have the energy you need to be more active, improve the way your lungs work, fight infections, keep a healthy weight and feel better in general.¹⁴

Work with your healthcare practitioner or a dietician to design the proper nutrition plan for your COPD and any other medical conditions that you have. Your plan will be specific for your needs. For most people with COPD, a healthy diet includes items from each of the basic food groups – fruits, vegetables, cereals, whole grain foods, proteins such as meat or fish, and dairy products such as milk or cheese (but limited if you have cholesterol problems).

You should limit salt and caffeine, avoid overeating, and avoid foods that cause gas – such as carbonated drinks, fried or spicy foods, beans and cabbage.¹⁴

To help prevent shortness of breath while eating or right after eating, try to eat six more small meals daily instead of three big meals.¹⁴ In addition, eat while sitting up, eat slowly,

chew foods well, drink liquids at the end of your meal and control your salt intake.¹⁴ To improve your appetite:¹⁴

- avoid non-nutritious drinks such as black coffee and tea;
- try to eat more protein such as chicken and fish;
- eat fewer simple sugars such as sodas and sweet cereals;
- eat small meals and snacks in between;
- walk or do light physical activity.

Check with your healthcare practitioner or dietician before you try any of these tips.

COPD AND WEIGHT

You need to stay at a healthy weight when you have COPD. How much you weigh affects how well your body works.

If you weigh too much, your heart and lungs have to work harder and breathing is harder.^{7,14} If you weigh too little you may have less energy, feel weak and tired, and be more likely to get an infection.¹⁴

Ask your healthcare practitioner or dietician what weight is right for you. Try to get to that weight and stay there. Ask about food plans and activities you should do before you start your own plan.

MANAGING YOUR FITNESS WITH COPD

Some people with COPD think exercise will make their breathing worse, but the opposite is actually true. In fact, lack of activity can make it worse. Getting physical activity (at all stages of COPD) may actually help you feel less short of breath, give you more strength and endurance while you do your daily activities, improve heart health and keep you in a better mood.

Talk with your healthcare practitioner about what and how much you should do before you start. Your practitioner may suggest a consultation with an exercise specialist, stretching (also good to warm up and cool down before and after exercise), walking, slow dancing, riding a stationary bike,¹⁵ and proper use of your inhalers while exercising.

(See the Resource Section of this publication for more information on Nutrition, Exercise, Weight Management and Fitness for COPD.)

Maintenance medicines should be taken **every day** to keep your symptoms under **control and reduce or eliminate** the need for rescue medications.



If you **smoke**, **quitting** is the **most important** thing you can do.

PULMONARY REHABILITATION

Your healthcare practitioner may want you to undergo pulmonary rehabilitation. This program is planned specifically to your needs and may include education, breathing exercises, medical and nursing management, exercise training, nutrition counseling, help with your psychological and social needs,⁷ answers to your questions on how and when to take your medicines, and recommendations for healthy lifestyle changes.

Pulmonary rehabilitation can help you learn how to:

- breathe easier
- possibly reduce your need for some medicines, health care practitioner visits and hospital stays
- relieve stress and anxiety
- increase your ability to do daily activities and exercise
- have a better quality of life.^{8,15}

MANAGING MOODS

Sometimes, having COPD may make you feel frustrated or helpless. You may feel this way especially if you are not able to be as active as you want to be or once were. It can be helpful to take the time to understand what is causing your frustration and to find new ways of doing things that will allow you to stay active, such as breaking down activities into steps with rest times in between.

Depression – We all feel sad or “blue” at times, but depression is more than that. Different people have different symptoms from depression. See your healthcare practitioner if you have any of the following:

- feel sad, nervous, or “empty” for a period of time
- feel like things are hopeless
- feel guilty, worthless or helpless
- lose interest or pleasure in hobbies and activities you used to enjoy
- have less energy, feel tired, or “slowed down”
- have trouble concentrating, remembering or making decisions
- have problems sleeping or over-sleeping
- lose your appetite and lose weight, or overeat and gain weight
- have thoughts of death or suicide
- feel restless or irritable
- have physical symptoms that do not respond to treatment, such as headaches, digestive problems, and long-lasting pain

Depression can be treated. If you think you may be depressed, talk to your healthcare practitioner. Counseling, medicine or both may help you feel better.

Worries, stress and anxiety

You may worry about shortness of breath, lifestyle changes, and loneliness. Stress and anxiety use up energy. You need energy to breathe. Talk with your healthcare practitioner to find ways to deal with worry, stress, and anxiety, such as yoga, relaxation techniques and breathing exercises.

SUMMARY

If you have COPD it is important to work with your doctor and focus on several components in the management of COPD:

- differences between COPD and asthma
- use of maintenance and rescue medications
- smoking cessation
- managing COPD flare-ups
- managing co-morbidities
- managing diet
- managing weight
- managing fitness
- managing moods
- pulmonary rehabilitation

COPD is a progressive disease that is under-recognized, under-diagnosed and under-treated. COPD management clearly requires a team of experts to produce the best results. You are the most important member of that team!

- You must learn about COPD and how it should be treated.
- You must use your maintenance and rescue medication as directed by your healthcare practitioner.
- You must work with your healthcare practitioner to develop an Action Plan to prevent and manage flare-ups.
- You must work closely with your healthcare practitioner to minimize the impact of other health issues on your COPD.
- You must take care of yourself through nutrition, exercise, fitness and mood management, all of which can have a significant impact on living with your COPD. **HPM**

Go to www.ihpm.org/respiratory-health.php to obtain references for this Chapter

The following **Resources** provide **surveys, checklists** and **information** for quick reference and better understanding of COPD.

Page 21Breathing Survey

Page 22My COPD Action Plan

Page 23My COPD Checklist

Page 24Spirometry and COPD: A Special Test to Help Determine the Health of Your Lungs

Page 25Know Your Medicines

Page 26Understanding COPD

Page 27Chronic Bronchitis and Emphysema:
How are They Different?

Page 28COPD – When Symptoms Flare-Up

Page 29Irritated by COPD Flare-Ups?

Page 30Organizations you can contact

These and many more resources may be found on IHPM's WorkPlace Center for Respiratory Health website:
www.ihpm.org/respiratory-health.php

BREATHING SURVEY



This survey asks questions about you, your breathing and what you are able to do. To complete the survey, mark an X in the box that best describes your answer for each question below.

1. During the past 4 weeks, how much of the time did you feel short of breath?

None of
the time
 0

A little of
the time
 0

Some of
the time
 1

Most of
the time
 2

All of
the time
 2

2. Do you ever cough up any "stuff," such as mucus or phlegm?

No, never
 0

Only with
occasional colds
or chest infections
 0

Yes, a few
days a month
 1

Yes, most
days a week
 1

Yes,
every day
 2

3. Please select the answer that best describes you in the past 12 months. I do less than I used to because of my breathing problems.

Strongly
disagree
 0

Disagree
 0

Unsure
 0

Agree
 1

Strongly
agree
 2

4. Have you smoked at least 100 cigarettes in your ENTIRE LIFE?

No
 0

Yes
 2

Don't know
 0

5. How old are you?

Age 35 to 49
 0

Age 50 to 59
 1

Age 60 to 69
 2

Age 70+
 2

How to score the survey: In the spaces below, write the number that is next to your answer for each of the questions. Add the numbers to get the total score. The total score can range from 0 to 10.

#1 + #2 + #3 + #4 + #5 = TOTAL SCORE

If your total score is 5 or more, your breathing problems may be caused by chronic obstructive pulmonary disease (COPD). COPD is often referred to as chronic bronchitis and/or emphysema and is a serious lung disease that slowly gets worse over time. While COPD cannot be cured, it is treatable.

Please share the completed survey with your doctor. The higher your score, the more likely you are to have COPD. Your doctor can help evaluate your breathing problems by performing a simple breathing test, also known as spirometry.

If your total score is between 0 and 4, and you experience problems with your breathing, please share this survey with your doctor. Your doctor can help evaluate any type of breathing problem.

MY COPD ACTION PLAN

Name: _____

Date: _____

INSTRUCTIONS: Please review this Action Plan with your doctor and have the doctor fill in the blanks, and sign and date the plan. Your Action Plan should be reviewed by your doctor every year or more often if you are having problems.

Doctor: _____

Emergency Contact Phone #: _____ Ambulance Co. Phone #: _____

I'M DOING WELL

- Breathing without shortness of breath
- Able to do daily activities
- Thinking clearly
- Mucus is easy to cough up
- Sleeping well
- Appetite good
- Able to exercise as my doctor directed

Take the following maintenance medications **every day** to help maintain control of COPD symptoms.

MEDICINE	HOW MUCH TO TAKE	WHEN TO TAKE IT

I FEEL WORSE due to my COPD (may have one or more of the following symptoms)

- I have shortness of breath
- Difficulty completing daily activities
- More coughing/wheezing
- Mucus is thicker and discolored
- May have a fever
- Restless—trouble concentrating
- May have trouble sleeping
- Appetite may be decreased

Continue to take the maintenance medications listed in the green zone. Add the following *rescue medications* to help you catch your breath when your usual symptoms worsen:

MEDICINE	HOW MUCH TO TAKE	WHEN TO TAKE IT

Additional Instructions: _____

Call the doctor or other healthcare practitioner to report the change in symptoms and to answer any questions. If you live alone, call a neighbor, friend, or relative to let them know you feel worse. Avoid or reduce activities and/or exposures to irritants that make your symptoms worse. If you use oxygen, ask the doctor how many liters/minute and how often you should use it. Do your breathing exercises and other things to help you relax.

I FEEL I AM IN DANGER (may have one or more of the following symptoms)

- I have severe shortness of breath (I feel like I can't breathe)
- Not able to do daily activities
- Trouble coughing up mucus, coughing frequently
- Blood in mucus
- May have chest pain
- Confused, slurred speech
- Feel faint
- Rescue medicine is not helping
- Fever and chills

TAKE YOUR RESCUE MEDICATIONS AND CALL 911 OR YOUR EMERGENCY MEDICAL SERVICES NOW!

Name of emergency contact

Phone # of emergency contact

EMS/Ambulance co. phone #

MY COPD CHECKLIST



INSTRUCTIONS: Please use the following checklist for healthcare practitioner visits and for tips to help you manage your COPD symptoms.

Things to remember for visits with your doctor or other members of the healthcare team:

- Take a list or bring all of your medications (including herbals and over-the-counter medicines)
- Review your daily (maintenance) and rescue medications
- Report any changes in your breathing
- Discuss feelings of anxiety, nervousness, or feeling sad/blue
- Review your usual activities and any changes in your energy level
- Discuss your diet and any changes in your appetite or in your weight
- If you are on oxygen, don't forget to review how and when you use it
- Share upcoming travel plans with your healthcare practitioner and family members
- Discuss any problems with your sleeping habits
- Review symptoms/action plans for other diseases such as diabetes, heart failure, etc.
- Take a list of questions—be specific
- If you smoke or use other tobacco products, discuss your challenges of quitting and treatment options to help you quit
- Review breathing exercises and forceful coughing
- Ask if you are eligible for a pulmonary rehabilitation program
- Ask your healthcare practitioner when you should get a flu shot
- Ask your healthcare practitioner if you are in need of a pneumonia vaccine
- Ask about triggers/irritants (things that make your COPD worse) and how to deal with them

You should do the following at least once a year:

- Get your flu shot
- Check with your doctor about a spirometry test
- Review and update your COPD Symptom Action Plan
- Have a complete physical exam
- Discuss any educational needs regarding your health with members of the healthcare team



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SPIROMETRY and COPD*:

A SPECIAL TEST TO HELP DETERMINE THE HEALTH OF YOUR LUNGS



What Is Spirometry?

There are many tests to detect or screen for diseases or medical problems. A test called spirometry (spy-rom-ih-tree) shows how well your lungs are working. It is also called Pulmonary (pull-muh-nair-ee) Function Testing.

Spirometry

- *Measures the amount of air you can breathe out and the amount of time taken to do so*
- *Lets your healthcare practitioner check how well your lungs are working*
- *Shows if you have any lung problems*

Why Is Spirometry Important in COPD?

A spirometry test may

- *Confirm a diagnosis of COPD*
- *Show how severe your COPD is*
- *Help your healthcare practitioner decide what medicines and other health instructions to give you*
- *Show how well your medicine and other disease management activities are working*

*Chronic obstructive pulmonary disease (a lung disease that includes both chronic bronchitis and emphysema).



How Well Do You Know Your COPD* Medicines?

When you have COPD, it is very important to understand what your medicines do, and how to use them. Use the chart below to check how much you know and how well you are using your COPD medicines.

Check the correct box below each question. If you are not sure what to answer, ask your doctor or pharmacist.

Do you have a prescription for a "rescue medicine?"

Yes No

Do you have a prescription for a daily medicine?

Yes No

Do you take other medicines for COPD, such as oral steroids or antibiotics (an-tie-by-ah-tiks)?

Yes No

Did your doctor tell you how and when to use your "rescue medicine?"

Yes No

Did your doctor tell you to take these medicines every day?

Yes No

Did your doctor tell you when to take these medicines?

Yes No

What "rescue medicine" do you use?

Inhaler

Inhaler + spacer

Do you take your daily medicines every day?

Yes No

Do you talk to your doctor at each visit to make sure you know when to use them?

Yes No

Talk to your healthcare practitioner to find out more about how your medicines can help your COPD symptoms.

Did You Know? The medicines your doctor prescribes for your COPD can help you manage your health better.

*Chronic (kron-ick) obstructive (ob-struck-tiv) pulmonary (pull-muh-nair-ee) disease, including chronic bronchitis (bronk-eye-tis), emphysema (em-fuh-zee-muh), or both.

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Understanding COPD*

What causes COPD?

COPD is a lung disease that affects your breathing.

The main cause of COPD is smoking. Other things that may raise your chances of getting COPD include:

- Second-hand smoke (being around people who smoke)
- Dust or chemical pollution where you live or work
- Problems with lung growth as an infant or child
- Respiratory (ress-per-uh-tor-ee) infections...especially if you get them a lot



What are some symptoms of COPD?

- Shortness of breath and/or frequent cough
- Mucus coming from the lungs and throat
- Wheezing and/or fatigue
- Lung infections, such as bronchitis (bronk-eye-tis), more than once a year



Did you know?

If you smoke, quitting is the most important thing you can do. It may help to slow down your disease.

Please talk to your healthcare practitioner (prak-tih-shun-er) for more information on managing COPD.

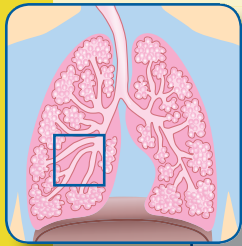
*Chronic (kron-ick) obstructive (ob-struck-tiv) pulmonary (pul-muh-nair-ee) disease, including chronic bronchitis (bronk-eye-tis), emphysema (em-fuh-zee-muh), or both.

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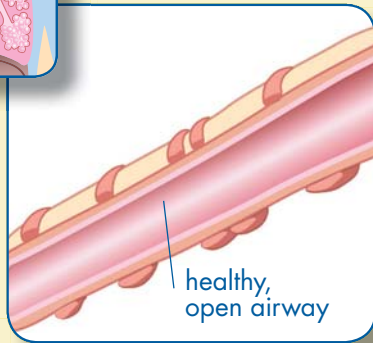


Chronic Bronchitis and Emphysema: How Are They Different?

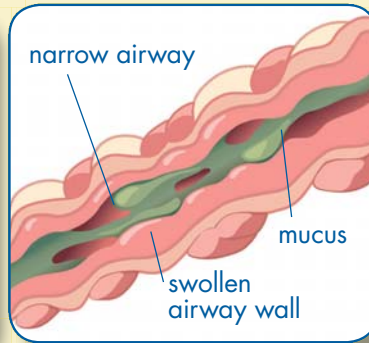


Chronic bronchitis

These pictures show how your airways change.



healthy,
open airway



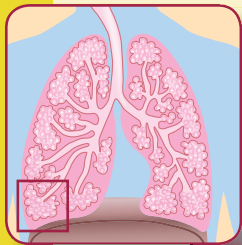
narrow airway

mucus

swollen
airway wall

When you have chronic bronchitis:

- Your airway walls become swollen
- Your airways get narrow
- Extra mucus makes you cough more



Emphysema

These pictures show how your air sacs change.



healthy
air sacs



stretched
air sacs

When you have emphysema:

- Not all the air gets pushed out when you breathe out
- You don't have enough room for healthy new air

Did you know?

COPD* is a lung disease that affects your breathing. COPD includes chronic bronchitis, emphysema, or both.

*Chronic (kron-ick) obstructive (ob-struck-tiv) pulmonary (pull-muh-nair-ee) disease, including chronic bronchitis (brank-eye-tis), emphysema (em-fuh-zee-muh), or both.

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COPD*— When Symptoms Flare Up

What Is a COPD Flare-Up?

A **flare-up** is when some of your symptoms get worse.

- Your cough may get worse
- You may have more shortness of breath
- You may cough up more mucus, or the mucus may be yellow or green

What Should I Do When a Flare-Up Occurs?

Talk to your healthcare practitioner (prak-tih-shun-er) as soon as your symptoms get worse. Describe your symptoms and how many puffs of medicine you are taking.

- Ask questions:
 - How much medicine should I take?
 - Do I need new medicine?
 - Am I using my inhaler the right way?
- Call 9-1-1 or go to the emergency room if your symptoms are very bad



Did you know?

It's a good idea to have a written *action plan* for when your symptoms get worse. Write down all the medicines you take and all your emergency numbers. Be sure to keep your healthcare practitioner's phone number with you.

*Chronic (kron-ick) obstructive (ob-struck-tiv) pulmonary (pull-muh-nair-ee) disease, including chronic bronchitis (bronk-eye-tis), emphysema (em-fuh-zee-muh), or both.

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Irritated by COPD* Flare-Ups?

Is an Irritant Causing Your Flare-Up?

Sometimes the cause of a flare-up is not known. Many times, a flare-up is due to an irritant.

Here is a list of common irritants:

- Smoking or being around smoke
- Infection, like a cold or the flu
- Strong fumes, like car exhausts and perfume
- Air pollution and smog
- Weather changes
- Very cold or very humid air
- Stress or anxiety (nervousness)



It's Personal

Every person has different irritants. Learn which things cause your symptoms to get worse. Then, try to avoid them. Keep a diary of your personal flare-ups.

Did you know?

It's important to share your diary of symptoms and personal irritants with your healthcare practitioners (prak-tih-shun-ers). They can give you better advice if they have more information.

*Chronic (kron-ick) obstructive (ob-struck-tiv) pulmonary (pull-muh-nair-ee) disease, including chronic bronchitis (bronk-eye-tis), emphysema (em-fuh-zee-muh), or both.

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Organizations you can contact

Non-Profit
U.S. Postage
PAID
Phoenix, AZ
Permit 1010

DID YOU KNOW ?

There are a lot of helpful resources for you.

American Cancer Society

www.cancer.org
1-800-ACS-2345

American Lung Association

www.lungusa.org
1-800-LUNGUSA

COPD Foundation

www.copdfoundation.org
1-866-316-COPD(2673)

Global Initiative for Chronic Obstructive Lung Disease

GOLD Patient Guide: What You Can Do About
A Lung Disease Called COPD
www.goldcopd.org

Institute for Health and Productivity Management

Reference materials and brochures
www.ihpm.org/respiratory-health.php

National Cancer Institute

Smoking cessation fact sheet
www.cancer.gov/cancertopics/factsheet/tobacco/cessation
1-800-4-CANCER (1-800-422-6237)

National Lung Health Education Program

www.nlhep.org
1-972-910-8555

Smokefree.gov

An online guide to help you quit
Created by the National Cancer Institute and
Centers for Disease Control and Prevention
www.smokefree.gov
1-800-QUITNOW (1-800-784-8669)

The National Emphysema Foundation

www.emphysemafoundation.org
1-203-866-5000

U.S. Department of Health and Human Services

www.surgeongeneral.gov/tobacco
1-877-696-6775

