

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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MEET THE AUTHORS

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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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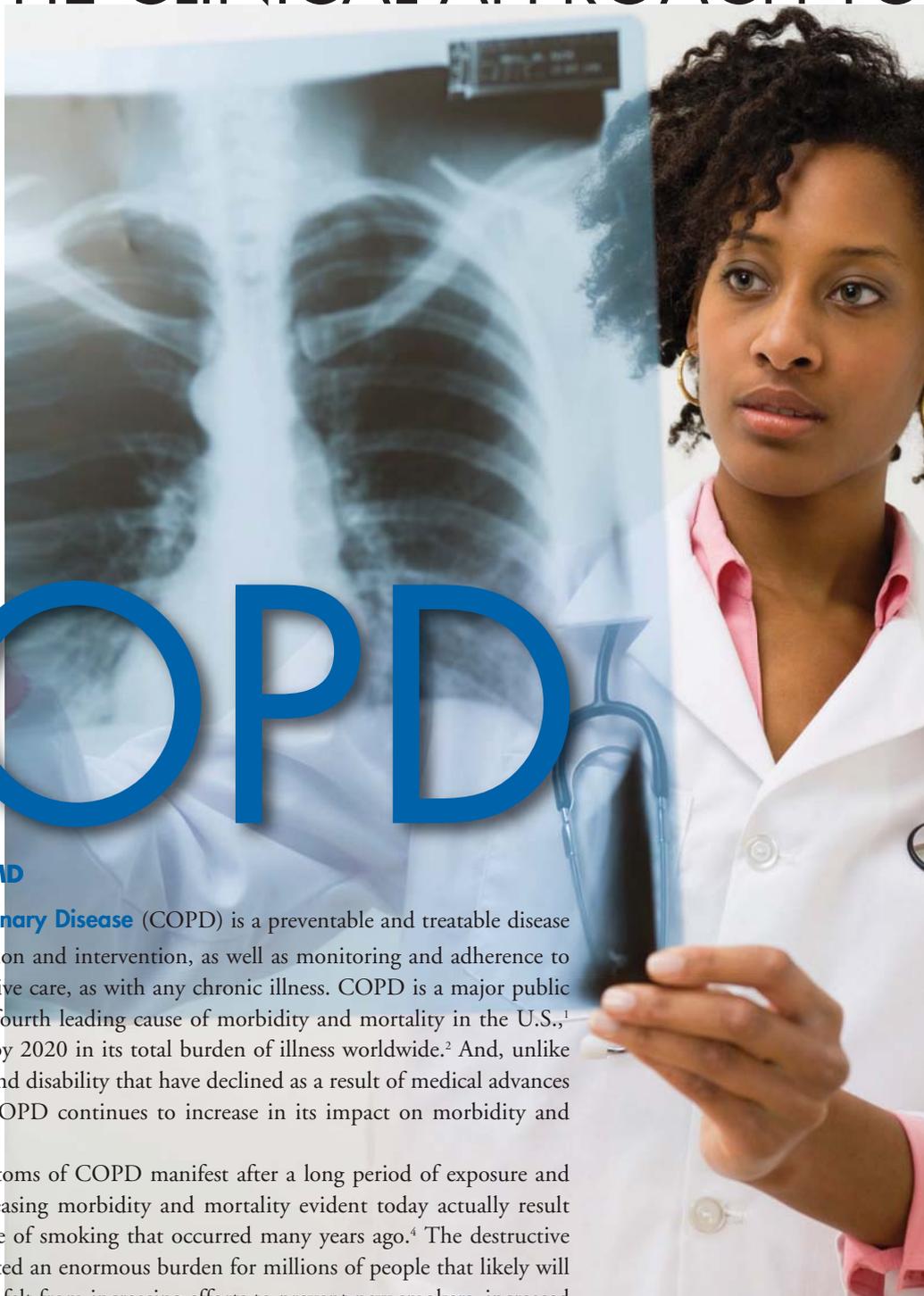
THE CLINICAL APPROACH TO

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**

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