

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.



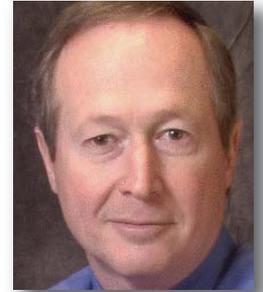
A graduate of Temple University and Hahnemann Medical College in Philadelphia, **David G. Tinkelman, MD**, served his residency in pediatrics at the St. Christopher's Hospital for Children, also in Philadelphia. He then did his fellowship training program at National Jewish Health (formerly, National 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**

SEAN SULLIVAN

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**