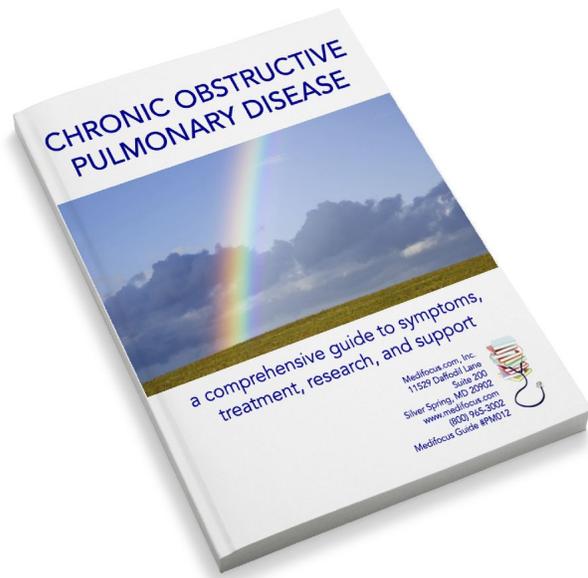


Preview of the Medifocus Guidebook on: Chronic Obstructive Pulmonary Disease

Updated March 12, 2013



This document is only a SHORT PREVIEW of the **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease**. It is intended primarily to give you a general overview of the **format and structure** of the Guidebook as well as select pages from each major Guidebook section listed in the Table of Contents.

To purchase the COMPLETE Medifocus Guidebook on Chronic Obstructive Pulmonary Disease (158 pages; Updated March 12, 2013), please:

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 - 800-965-3002 (United States)
 - 301-649-9300 (Outside the United States)
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1 - Background Information

Introduction

Chronic or life-threatening illnesses can have a devastating impact on both the patient and the family. In today's new world of medicine, many consumers have come to realize that they are the ones who are primarily responsible for their own health care as well as for the health care of their loved ones.

When facing a chronic or life-threatening illness, you need to become an educated consumer in order to make an informed health care decision. Essentially that means finding out everything about the illness - the treatment options, the doctors, and the hospitals - so that you can become an educated health care consumer and make the tough decisions. In the past, consumers would go to a library and read everything available about a particular illness or medical condition. In today's world, many turn to the Internet for their medical information needs.

The first sites visited are usually the well known health "portals" or disease organizations and support groups which contain a general overview of the condition for the layperson. That's a good start but soon all of the basic information is exhausted and the need for more advanced information still exists. What are the latest "cutting-edge" treatment options? What are the results of the most up-to-date clinical trials? Who are the most notable experts? Where are the top-ranked medical institutions and hospitals?

The best source for authoritative medical information in the United States is the National Library of Medicine's medical database called PubMed®, that indexes citations and abstracts (brief summaries) of over 7 million articles from more than 3,800 medical journals published worldwide. PubMed® was developed for medical professionals and is the primary source utilized by health care providers for keeping up with the latest advances in clinical medicine.

A typical PubMed® search for a specific disease or condition, however, usually retrieves hundreds or even thousands of "hits" of journal article citations. That's an avalanche of information that needs to be evaluated and transformed into truly useful knowledge. What are the most relevant journal articles? Which ones apply to your specific situation? Which articles are considered to be the most authoritative - the ones your physician would rely on in making clinical decisions? This is where *Medifocus.com* provides an effective solution.

Medifocus.com has developed an extensive library of *MediFocus Guidebooks* covering a wide spectrum of chronic and life threatening diseases. Each *MediFocus Guidebook* is a

high quality, up- to-date digest of "professional-level" medical information consisting of the most relevant citations and abstracts of journal articles published in authoritative, trustworthy medical journals. This information represents the latest advances known to modern medicine for the treatment and management of the condition, including published results from clinical trials. Each *Guidebook* also includes a valuable index of leading authors and medical institutions as well as a directory of disease organizations and support groups. *MediFocus Guidebooks* are reviewed, revised and updated every 4-months to ensure that you receive the latest and most up-to-date information about the specific condition.

About Your MediFocus Guidebook

Introduction

Your *MediFocus Guidebook* is a valuable resource that represents a comprehensive synthesis of the most up-to-date, advanced medical information published about the condition in well-respected, trustworthy medical journals. It is the same type of professional-level information used by physicians and other health-care professionals to keep abreast of the latest developments in biomedical research and clinical medicine. The *Guidebook* is intended for patients who have a need for more advanced, in-depth medical information than is generally available to consumers from a variety of other resources. The primary goal of a *MediFocus Guidebook* is to educate patients and their families about their treatment options so that they can make informed health-care decisions and become active participants in the medical decision making process.

The *Guidebook* production process involves a team of experienced medical research professionals with vast experience in researching the published medical literature. This team approach to the development and production of the *MediFocus Guidebooks* is designed to ensure the accuracy, completeness, and clinical relevance of the information. The *Guidebook* is intended to serve as a basis for a more meaningful discussion between patients and their health-care providers in a joint effort to seek the most appropriate course of treatment for the disease.

Guidebook Organization and Content

Section 1 - Background Information

This section provides detailed information about the organization and content of the *Guidebook* including tips and suggestions for conducting additional research about the condition.

Section 2 - The Intelligent Patient Overview

This section of your *MediFocus Guidebook* represents a detailed overview of the disease or condition specifically written from the patient's perspective. It is designed to satisfy the basic informational needs of consumers and their families who are confronted with the illness and are facing difficult choices. Important aspects which are addressed in "The Intelligent Patient" section include:

- The etiology or cause of the disease
- Signs and symptoms
- How the condition is diagnosed
- The current standard of care for the disease
- Treatment options

- New developments
- Important questions to ask your health care provider

Section 3 - Guide to the Medical Literature

This is a roadmap to important and up-to-date medical literature published about the condition from authoritative, trustworthy medical journals. This is the same information that is used by physicians and researchers to keep up with the latest developments and breakthroughs in clinical medicine and biomedical research. A broad spectrum of articles is included in each *MediFocus Guidebook* to provide information about standard treatments, treatment options, new clinical developments, and advances in research. To facilitate your review and analysis of this information, the articles are grouped by specific categories. A typical *MediFocus Guidebook* usually contains one or more of the following article groupings:

- *Review Articles*: Articles included in this category are broad in scope and are intended to provide the reader with a detailed overview of the condition including such important aspects as its cause, diagnosis, treatment, and new advances.
- *General Interest Articles*: These articles are broad in scope and contain supplementary information about the condition that may be of interest to select groups of patients.
- *Drug Therapy*: Articles that provide information about the effectiveness of specific drugs or other biological agents for the treatment of the condition.
- *Surgical Therapy*: Articles that provide information about specific surgical treatments for the condition.
- *Clinical Trials*: Articles in this category summarize studies which compare the safety and efficacy of a new, experimental treatment modality to currently available standard treatments for the condition. In many cases, clinical trials represent the latest advances in the field and may be considered as being on the "cutting edge" of medicine. Some of these experimental treatments may have already been incorporated into clinical practice.

The following information is provided for each of the articles referenced in this section of your *MediFocus Guidebook*:

- Article title
- Author Name(s)
- Institution where the study was done
- Journal reference (Volume, page numbers, year of publication)

- Link to Abstract (brief summary of the actual article)

Linking to Abstracts: Most of the medical journal articles referenced in this section of your *MediFocus Guidebook* include an abstract (brief summary of the actual article) that can be accessed online via the National Library of Medicine's PubMed® database. You can easily access the individual abstracts online via PubMed® from the "electronic" format of your *MediFocus Guidebook* by clicking on the corresponding URL address that is provided for each cited article. If you purchased a printed copy of a *MediFocus Guidebook*, you can still access the article abstracts online by entering the individual URL address for a particular article into your web browser.

Section 4 - Centers of Research

We've compiled a unique directory of doctors, researchers, medical centers, and research institutions with specialized research interest, and in many cases, clinical expertise in the management of the specific medical condition. The "Centers of Research" directory is a valuable resource for quickly identifying and locating leading medical authorities and medical institutions within the United States and other countries that are considered to be at the forefront in clinical research and treatment of the condition.

Inclusion of the names of specific doctors, researchers, hospitals, medical centers, or research institutions in this *Guidebook* does not imply endorsement by Medifocus.com, Inc. or any of its affiliates. Consumers are encouraged to conduct additional research to identify health-care professionals, hospitals, and medical institutions with expertise in providing specific medical advice, guidance, and treatment for this condition.

Section 5 - Tips on Finding and Choosing a Doctor

One of the most important decisions confronting patients who have been diagnosed with a serious medical condition is finding and choosing a qualified physician who will deliver high-level, quality medical care in accordance with currently accepted guidelines and standards of care. Finding the "best" doctor to manage your condition, however, can be a frustrating and time-consuming experience unless you know what you are looking for and how to go about finding it. This section of your *Guidebook* offers important tips for how to find physicians as well as suggestions for how to make informed choices about choosing a doctor who is right for you.

Section 6 - Directory of Organizations

This section of your *Guidebook* is a directory of select disease organizations and support groups that are in the business of helping patients and their families by providing access to information, resources, and services. Many of these organizations can answer your questions, enable you to network with other patients, and help you find a doctor in your geographical area who specializes in managing your condition.

2 - The Intelligent Patient Overview

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Introduction to Chronic Obstructive Pulmonary Disease

The lungs are a vital part of the respiratory system that enable oxygen from the air to be taken into the body (inhalation) while also enabling the body to eliminate carbon dioxide, a waste gas produced by the cells, through the air that is breathed out (exhalation). *Respiration* is the technical term used to describe this exchange of gasses. In the average person, the process of respiration occurs automatically at a rate of about 25,000 times each day.

The respiratory system consists of the nose, throat, larynx (voice box), trachea (windpipe), and the lungs. The lungs are divided into segments called *lobes*. The right lung has three lobes while the left lung, which is smaller, has only two lobes. There are two major blood vessels that service the lung: the *pulmonary artery* brings blood rich in carbon dioxide to the lungs and the *pulmonary vein* brings oxygen-rich blood from the lungs to the heart for distribution to the body.

When air is inhaled through the nostrils or the mouth, the trachea (windpipe) moves the air down into the lungs. The upper portion of the trachea is located in the neck while the bottom portion extends down into the chest cavity where it divides into two tubes called the right and left *bronchi*. The right bronchus brings air into the right lung and the left bronchus brings air into the left lung. Within the lungs, the bronchi divide into smaller branches called *bronchioles*. At the end of the bronchioles are tiny air sacs called *alveoli*.

The alveoli are encased in a mesh of tiny *capillaries* (smallest blood vessels where blood cells pass through just a few at a time) that connect to larger blood vessels and eventually connect to the pulmonary artery and pulmonary vein. The process of respiration, the exchange of oxygen and carbon dioxide, actually takes place in these tiny capillaries. Oxygen-rich air is inhaled and when it reaches the alveoli, the oxygen moves into the capillaries and attaches to the red blood cells while the carbon dioxide moves from the capillaries into the alveoli from where it is expelled when we exhale. For this reason, any impairment in the breathing process (e.g., obstruction) alters this delicate exchange of gasses. Lung function slowly declines with age, beginning around age 30.

There are also several muscles that are involved in respiration that help the lungs expand with inhalation and contract with exhalation. A few of the muscles involved include:

- Diaphragm - a half moon shaped muscle below the lung that is the main muscle used in breathing

- Intercostal muscles - muscles between the ribs that enable the expansion and contraction of the chest cavity with each breath
- Abdominal muscles - beneath the diaphragm
- Muscles in the neck and collarbone - these muscles help with breathing when the other muscles are not working properly or if lung disease impairs breathing

What is Chronic Obstructive Pulmonary Disease?

Chronic obstructive pulmonary disease, or COPD for short, is the medical term used to describe diseases of the lung that are associated with airway obstruction. COPD is a progressive condition but partially reversible through treatment, especially when diagnosed early in its clinical course. With early diagnosis, lifestyle changes (e.g., smoking cessation), and appropriate treatment, many people can lead normal and productive lives. In most cases COPD is preventable. It is a major burden on the health care system, the economy, and has a profound effect on the quality of life of patients who suffer from the condition.

The two major diseases that are included in the category of COPD are:

- Chronic bronchitis - a chronic, inflammatory condition of the bronchi characterized by coughing and expectoration (spitting-up) of sputum (mucous coughed-up from the lungs) occurring on most days and lasting 3 months or longer for at least two consecutive years.
- Emphysema - a respiratory disorder that is characterized by enlargement and eventual destruction of the air sacs (alveoli) in the lungs, through which oxygen passes from the lungs into the bloodstream.

Although asthma is also a condition that is associated with airway obstruction, and many people with COPD also suffer with asthma, as a general rule, asthma is not included under the category of COPD.

In general, COPD is characterized by:

- Chronic airflow limitation
- Airway inflammation
- Structural changes to the airways and lung tissue
- Systemic effects such as pulmonary hypertension or cardiovascular disease

COPD is an insidious disease and there are usually no symptoms in the early stages when diagnosis and treatment are effective in slowing its progression. However, even in later stages, with aggressive treatment and good patient compliance, COPD is partially reversible and the decline of quality of life may be significantly slowed.

Facts about Chronic Obstructive Pulmonary Disease

- Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death in the United States in people between the ages of 65-84 and is expected to become the third leading cause by 2020.

- Approximately 25 million people in the U.S. suffer from COPD (12 million diagnosed cases plus an estimated 12-14 million undiagnosed cases).
- Of the 12 million diagnosed cases of COPD about 88% suffer from chronic bronchitis while about 12% suffer from emphysema.
- In 2002, there were approximately 124,000 deaths in the U.S. and about 2.7 million deaths worldwide that were attributed to COPD.
- The World Health Organization (WHO) estimates that in 2002, approximately 210 million people worldwide suffered from COPD.
- The National Institutes of Health (NIH) reports that death rates of COPD in women has been rising steadily and presently, more women than men die each year of COPD.
- COPD is a leading cause of doctor visits and hospitalizations in the U.S. each year. In 2003, COPD was responsible for 15.4 million physician office visits.
- In 2007, the cost to the U.S. Health care system related to COPD exceeded \$42 billion, excluding costs of employment lost and other costs not directly related to health care.
- The primary cause of COPD is cigarette smoking and about 80% of cases of COPD in the U.S. occur in people who are current or former smokers.
- WHO estimates that exposure to second-hand smoke increases a person's risk for developing COPD by up to 43%.
- 20% of patients with COPD never smoked and only 15% of smokers develop COPD, implying that genetic and environmental factors may influence risk of developing COPD.

Risk Factors for Chronic Obstructive Pulmonary Disease

A *risk factor* is anything that increases a person's chances for developing a disease or condition. Risk factors for chronic obstructive pulmonary disease (COPD) include:

- Smoking
 - approximately 80% of the cases of COPD in the United States occur in people who are current or former smokers
 - cigarette smoking is the leading risk factor for COPD
 - pipe and cigar smoking are also risk factors for COPD, although the risk is thought to be less than for cigarettes
 - people who are exposed to second-hand smoke are also at increased risk for developing COPD but the risk is less than for smokers
 - infants of women who smoke during pregnancy have been found to have reduced breathing capacity
- Air pollution - studies have shown that people who live in urban areas with a high concentration of air pollutants are at increased risk for developing coughs, shortness of breath, and reduced breathing capacity.
- Occupational exposure - examples of substances that have been found to be occupational risk factors for COPD include: grains, isocyanates, cadmium, coal, and welding fumes

- Alpha-1 antitrypsin deficiency
 - alpha-1 antitrypsin (AAT) deficiency is a genetic disorder that results in damage to the air sacs in the lungs leading to emphysema and damage to the liver that can cause liver cirrhosis
 - alpha-1 antitrypsin deficiency is the only known genetic risk factor for COPD
 - this genetic mutation is thought to exist in approximately 3% of patients with COPD and those patients tend to develop COPD at an earlier age
- Any conditions affecting lung growth during gestation and childhood, such as low birth weight or respiratory infection) has the potential to elevate the risk of developing COPD

Pathogenesis of Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) typically follows prolonged exposure to toxic gasses or particles. The total accumulation of particles over time increasingly elevates the risk of COPD. As a result of the exposure, the mechanism in the lung responsible for protecting the cells and repairing damaged cells is compromised and works less and less efficiently. Toxic gasses and particles include:

- Occupational dusts
- Occupational chemicals
- Outdoor pollution
- Indoor pollution such as radon, biomass fuels that may be used in wood burning stoves, or yard clippings/wood chips that may be used for fuel or heating
- Smoking, which is thought to be both directly harmful to the cells in the lungs as well as harmful to the mechanism that repairs damaged lung tissue

It is thought that any of these triggers initiates an inflammatory reaction in the lungs that intensifies and has a cascading effect resulting in damage to the tissue.

Although elevated inflammatory markers may be found in the blood of smokers who do not have COPD, exaggerated levels are found in smokers with COPD. Serum inflammatory markers that are elevated in COPD include:

- Tumor necrosis factor-alpha (TNF-A)
- C-reactive protein (CRP)
- Interleukin 8 and 6 (IL-8, IL-6)
- Monocyte chemoattractant protein-1 (MCP-1)

In general, the levels of these markers in the blood correlate with the severity of dyspnea (difficulty breathing, "air hunger"), FEV1 (forced expiratory volume), and the rate of exacerbation.

In addition to the presence of inflammatory cells in patients with COPD, there is also a marked

increase of:

- Leukocytes - white blood cells that are part of the immune system and defend the body against infectious disease and foreign bodies. Specific leukocytes, such as neutrophils (most common white blood cell and the first immune cells to arrive at the site of infection), may be found in sputum and in the blood.
- Protease/antiprotease imbalance - *proteases* are enzymes that break down connective tissue in the lung and *antiproteases* inhibit the activity of the enzyme thereby protecting the cells
- Oxidative stress - tissue damage caused by excess presence of free radicals of oxygen that cause increased inflammation, increased mucous secretions, and further inactivity of antiproteases
- Alpha-1 antitrypsin deficiency - AAT is a genetic factor in the development of some cases of COPD. It is an important antiprotease that protects lung tissue by inhibiting specific enzymes that break down the cells.

Classification of Chronic Obstructive Pulmonary Disease

Classification of chronic obstructive pulmonary disease (COPD) symptoms, severity, or stages is important as a basis for guidelines for treatment, prognostic indicators regarding various aspects of the disease including progression, exacerbation, hospitalization, and mortality. To date, three different classification systems have been developed, the most recent being introduced in 2008.

The first system was developed in 1998 and is called the *Global Initiative for Obstructive Lung Disease* (GOLD). The guidelines were formulated by the National Heart, Lung, and Blood Institute and the World Health Organization. The purpose of the GOLD initiative was to increase awareness of COPD and to create a consensus regarding guidelines for diagnosis, treatment, and prevention of COPD. The GOLD guidelines of 2006 were last updated in 2008. The stages identified in the GOLD guidelines are based primarily on a forced expiratory volume reading one second after taking a deep breath (FEV1) and followed by a second reading after the inhalation of a short-acting bronchodilator, as well as forced vital capacity (FVC). The degree of response abnormality generally reflects the severity of COPD. Stages of COPD that were identified include:

Stage I - Mild COPD

- Mild airflow limitation (FEV1/FVC < 70%; FEV1 > 80% predicted, i.e., compared to normal values for person's age, height, and sex without COPD)
- Chronic cough and sputum production may or may not be present
- Person may not be aware that lung function is abnormal

Stage II - Moderate COPD

- Worsening airflow limitation (FEV1/FVC < 70%; 50% < FEV1 < 80% predicted)
- Shortness of breath on exertion (dyspnea)
- Most people seek help at this stage

Stage III - Severe COPD

- Worsening airflow limitation ($FEV_1/FVC < 70\%$; $30\% < FEV_1 < 50\%$ predicted)
- Greater shortness of breath
- Reduced exercise capacity
- Repeated exacerbations
- Impact on quality of life

Stage IV - Very Severe COPD

- Severe airflow limitation ($FEV_1/FVC < 70\%$; $FEV_1 < 30\%$ predicted OR $FEV_1 < 50\%$ predicted plus chronic respiratory failure)
- Quality of life is very impaired and exacerbations may be life threatening

The previous GOLD classification of "stage 0", where a patient had symptoms that placed them at risk for progression to COPD but had normal spirometry, has been eliminated.

This initiative will be referred to in the Medifocus Guidebook as the "GOLD guidelines". To view the full-text of the GOLD guidelines of 2008, please click on the following link:

<http://www.goldcopd.com/Guidelineitem.asp?11=2&12=1&intId=989>

In 2004, a new grading system to predict the risk of death from any cause among patients with COPD was published in *The New England Journal of Medicine* (vol. 350; number 10: pp. 1005-1012, March 2004). It is called the *BODE Index* and is a functional measure of severity of COPD based on four values rather than FEV1 values alone. The measurements used in the BODE Index includes 4 dimensions of COPD: nutrition (bone mass); spirometric airflow (airway obstruction); symptom (dyspnea); and exercise capacity (6-minute walk test). The values are as follows:

B - Body mass index

- >21 (0 points)
- <21 (1 point)

O - Airway obstruction based of FEV1 measurements after bronchodilator - ranges from:

- $>65\%$ (0 points)
- $<35\%$ (3 points)

D - Dyspnea - ranges from:

- Dyspnea on strenuous exercise (0 points)
- Cannot leave house; breathless while dressing/undressing ((3 points)

E - Exercise capacity measured by the 6-minute walk test - ranges from:

- >350 meters - (0 points)

- <149 meters - (3 points)

The total number of points determines the basis for four-year survival prediction:

- 0-2 points = 80%
- 3-4 points = 67%
- 5-6 points = 57%
- 7-10 points - 18%

For more information about the BODE Index, please click on the following link:

<http://www.ncbi.nlm.nih.gov/pubmed/14999112>

There are several studies, some completed and some ongoing, which continue to compare the two systems for accuracy of predicting the progression of many aspects of COPD, such as anxiety, depression, hospitalization, and mortality.

More recently, in 2008, the COPD Prognostic Index was published in the *Archives of Internal Medicine* Jan 14; (vol.168, issue 1:pp.71-9). It has been shown to predict not only mortality but exacerbations and hospitalizations for COPD as well. To read more about the COPD Prognostic Index, please click on the following link: <http://www.ncbi.nlm.nih.gov/pubmed/18195198>

Women and Chronic Obstructive Pulmonary Disease

Recent history has shown that the mortality rate from chronic obstructive pulmonary disease (COPD) among women has climbed faster than for men and since the year 2000 more women than men die of COPD per year. It is thought that the rapid rise in incidence of COPD and mortality of women is due to previously high rates of misdiagnosis or lack of diagnosis among women and as awareness of COPD has increased, more women have been identified and treated for the disease. Other differences that have been noted regarding COPD in women include:

- Prevalence of symptoms
- Triggering stimuli
- Smoking patterns and effect on COPD
- Response to treatment
- Frequency of exacerbations
- Quality of life
- Response to oxygen therapy
- Presence of malnutrition
- Airway hyper-responsiveness
- Depression
- Poor health-related quality of life in all physical and mental domains

All of these problems are more prevalent in women. Presently, there are no differences cited in any guidelines regarding diagnosis, treatment, and management of COPD in women. It is important for health care professionals to recognize these differences when monitoring the disease in women. The BODE Index is generally thought to be more closely related to the subjective symptoms that

women with COPD experience.

To read more about women and the diagnosis of COPD, please click on the following links:

<http://www.ncbi.nlm.nih.gov/pubmed/19222634>

Nonsmokers and Chronic Obstructive Pulmonary Disease

Nonsmokers constitute approximately 20% of patients with chronic obstructive pulmonary disease (COPD) and yet little is known about the factors that come together to cause COPD in this seemingly low-risk group of people. Although it is known that 3% of patients with COPD suffer from an alpha-1 antitrypsin deficiency, researchers are actively investigating the pathogenesis, treatment, and prognosis of nonsmokers with COPD. A study published in 2005 in *Chest* (vol. 128, issue 3: pp. 1239-44) examined some of the characteristics of nonsmokers suffering from mild and moderate-severe COPD. Results included:

- Prevalence of COPD in nonsmokers is higher in women than men until the age of 60 after which it is equivalent between the genders.
- Nonsmokers with *mild* COPD tended to be older than 50 while nonsmokers with *moderate-severe* COPD tended to be younger than 50 years of age.
- Most patients had never received a diagnosis of emphysema or bronchitis.
- Risk of mild COPD increased with a prior diagnosis of asthma and with age.
- Moderate-severe COPD was more strongly associated with asthma than mild COPD.
- Moderate-severe asthma was not associated with exposure to second hand smoke at home or at work.
- Some cases may be related to organ-specific autoimmune disease. Active research in this area is ongoing.

For more information about nonsmokers and COPD, please click on the following link:

<http://www.ncbi.nlm.nih.gov/pubmed/16162712>

Complications of Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is increasingly considered to be a chronic, systemic, inflammatory syndrome that involves many comorbidities which require independent diagnosis and treatment. These complications impact strongly on symptom burden and quality of life. Airway obstruction, the hallmark of COPD, has a profound effect on many of systems in the body and can be the cause of:

- Cardiac dysfunction - patients with COPD are at risk for developing *cor pulmonare*, right-sided heart failure with pulmonary hypertension. It may appear with swelling in the lower legs of the patient with COPD. The right side of the heart which pumps blood to the lungs works very hard in COPD since there is increased resistance in the blood vessels of the lungs due to poor oxygenation and capillaries around the alveoli may be destroyed. As a

result, the right ventricle becomes enlarged and the walls of the heart may thicken thereby reducing the efficiency of right ventricular contractions and ultimately lead to heart failure.

- Nutritional problems - patients with COPD tend to initially be underweight and with time may become overweight due to inactivity. Malnutrition is also found in some COPD patients, particularly those who experience exacerbations.
- Exacerbations - abrupt increase and intensification of symptoms. Breathing problems during exacerbations can be life threatening and the patient may require mechanical ventilation until the exacerbation resolves.
- Inflammation and associated complications
- Skeletal muscle wasting
- Worsening of comorbid conditions such as cardiovascular disease, heart failure, diabetes, osteoporosis, lung cancer, and mood disorders
- Pulmonary disease such as pneumonia, respiratory failure, and end-stage lung disease where there is a decline in lung function and rising levels of carbon dioxide in the blood that become toxic.

Comorbid conditions also increase the hospitalizations and mortality in COPD. To read more about this issue, please click on the following link:

<http://www.ncbi.nlm.nih.gov/pubmed/19407051>

The **Intelligent Patient Overview** in the complete **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease** also includes the following additional sections:

- **Diagnosis of Chronic Obstructive Pulmonary Disease**
- **Treatment of Stable Chronic Obstructive Pulmonary Disease**
- **Quality of Life and Chronic Obstructive Pulmonary Disease**
- **New Developments in Chronic Obstructive Pulmonary Disease**
- **Questions to Ask Your Doctor about Chronic Obstructive Pulmonary Disease**

To Order the Complete **Guidebook on Chronic Obstructive Pulmonary Disease** [Click Here](#)
Or Call 800-965-3002 (USA) or 301-649-9300 (Outside USA)

3 - Guide to the Medical Literature

Introduction

This section of your *MediFocus Guidebook* is a comprehensive bibliography of important recent medical literature published about the condition from authoritative, trustworthy medical journals. This is the same information that is used by physicians and researchers to keep up with the latest advances in clinical medicine and biomedical research. A broad spectrum of articles is included in each *MediFocus Guidebook* to provide information about standard treatments, treatment options, new developments, and advances in research.

To facilitate your review and analysis of this information, the articles in this *MediFocus Guidebook* are grouped in the following categories:

- Review Articles - 72 Articles
- General Interest Articles - 56 Articles
- Drug Therapy Articles - 17 Articles
- Clinical Trials Articles - 58 Articles

The following information is provided for each of the articles referenced in this section of your *MediFocus Guidebook*:

- Title of the article
- Name of the authors
- Institution where the study was done
- Journal reference (Volume, page numbers, year of publication)
- Link to Abstract (brief summary of the actual article)

Linking to Abstracts: Most of the medical journal articles referenced in this section of your *MediFocus Guidebook* include an abstract (brief summary of the actual article) that can be accessed online via the National Library of Medicine's PubMed® database. You can easily access the individual abstracts online via PubMed® from the "electronic" format of your *MediFocus Guidebook* by clicking on the URI that is provided for each cited article. If you purchased a printed copy of the *MediFocus Guidebook*, you can still access the abstracts online by entering the individual URI for a particular abstract into your computer's web browser.

Recent Literature: What Your Doctor Reads

Database: PubMed <January 2010 to March 2013>

Review Articles

1.

Update in chronic obstructive pulmonary disease 2011.

Authors: Agusti A; Barnes PJ
Institution: Institut del Torax, Hospital Clinic, Villarroel 170, Barcelona, Spain. alvar.agusti@clinic.ub.es
Journal: Am J Respir Crit Care Med. 2012 Jun 1;185(11):1171-6.
Abstract Link: **ABSTRACT NOT AVAILABLE**

2.

Evaluation of self-management interventions for chronic obstructive pulmonary disease.

Authors: Bentsen SB; Langeland E; Holm AL
Institution: Department of Health Education, Stord/Haugesund University College, Haugesund, Norway. signe.bentsen@hsh.no
Journal: J Nurs Manag. 2012 Sep;20(6):802-13. doi: 10.1111/j.1365-2834.2012.01469.x.
Abstract Link: <http://www.medifocus.com/abstracts.php?gid=PM012&ID=22967298>

3.

An update on bronchodilators in Phase I and II clinical trials.

Authors: Cazzola M; Rogliani P; Segreti A; Matera MG
Institution: University of Rome Tor Vergata, Department of System Medicine, Rome, Italy. mario.cazzola@uniroma2.it
Journal: Expert Opin Investig Drugs. 2012 Oct;21(10):1489-501. Epub 2012 Aug 23.
Abstract Link: <http://www.medifocus.com/abstracts.php?gid=PM012&ID=22916733>

The **Guide to the Medical Literature** in the complete **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease** includes the following sections:

- Review Articles - 72 Articles
- General Interest Articles - 56 Articles
- Drug Therapy Articles - 17 Articles
- Clinical Trials Articles - 58 Articles

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4 - Centers of Research

This section of your *MediFocus Guidebook* is a unique directory of doctors, researchers, medical centers, and research institutions with specialized research interest, and in many cases, clinical expertise in the management of this specific medical condition. The *Centers of Research* directory is a valuable resource for quickly identifying and locating leading medical authorities and medical institutions within the United States and other countries that are considered to be at the forefront in clinical research and treatment of this disorder.

Use the *Centers of Research* directory to contact, consult, or network with leading experts in the field and to locate a hospital or medical center that can help you.

The following information is provided in the *Centers of Research* directory:

- **Geographic Location**

- United States: the information is divided by individual states listed in alphabetical order. Not all states may be included.
- Other Countries: information is presented for select countries worldwide listed in alphabetical order. Not all countries may be included.

- **Names of Authors**

- Select names of individual authors (doctors, researchers, or other health-care professionals) with specialized research interest, and in many cases, clinical expertise in the management of this specific medical condition, who have recently published articles in leading medical journals about the condition.
- E-mail addresses for individual authors, if listed on their specific publications, is also provided.

- **Institutional Affiliations**

- Next to each individual author's name is their **institutional affiliation** (hospital, medical center, or research institution) where the study was conducted as listed in their publication(s).
- In many cases, information about the specific **department** within the medical institution where the individual author was located at the time the study was conducted is also provided.

Centers of Research

United States

AL - Alabama

Name of Author

Dransfield MT

Institutional Affiliation

Department of Medicine, Division of Pulmonary Allergy and Critical Care, University of Alabama at Birmingham, Birmingham, AL, USA.

Hughes A

Department of Pharmacy Practice, Auburn University Harrison School of Pharmacy, Auburn, Alabama, USA.

Kelly Freeman
ML

Samford University Global Drug Information Service, McWhorter School of Pharmacy, Birmingham, Alabama 35229-7027, USA.
mkelley@samford.edu

Pinner NA

Department of Pharmacy Practice, Auburn University Harrison School of Pharmacy, Auburn, Alabama, USA.

Tidwell SL

Department of Medicine, Division of Pulmonary Allergy and Critical Care, University of Alabama at Birmingham, Birmingham, AL, USA.

AR - Arkansas

Name of Author

Bartter T

Institutional Affiliation

University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA. mjoshi@uams.edu

Joshi M

University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA. mjoshi@uams.edu

CA - California

Name of Author

Fahy JV

Institutional Affiliation

Division of Pulmonary and Critical Care Medicine, Department of Medicine, University of California San Francisco, San Francisco, CA, USA.

The **Centers of Research** in the complete **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease** includes the following sections:

- Centers of Research for relevant states in the United States
- Centers of Research listed for relevant countries outside the United States

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5 - Tips on Finding and Choosing a Doctor

Introduction

One of the most important decisions confronting patients who have been diagnosed with a serious medical condition is finding and choosing a qualified physician who will deliver a high level and quality of medical care in accordance with currently accepted guidelines and standards of care. Finding the "best" doctor to manage your condition, however, can be a frustrating and time-consuming experience unless you know what you are looking for and how to go about finding it.

The process of finding and choosing a physician to manage your specific illness or condition is, in some respects, analogous to the process of making a decision about whether or not to invest in a particular stock or mutual fund. After all, you wouldn't invest your hard earned money in a stock or mutual fund without first doing exhaustive research about the stock or fund's past performance, current financial status, and projected future earnings. More than likely you would spend a considerable amount of time and energy doing your own research and consulting with your stock broker before making an informed decision about investing. The same general principle applies to the process of finding and choosing a physician. Although the process requires a considerable investment in terms of both time and energy, the potential payoff can be well worth it--after all, what can be more important than your health and well-being?

This section of your Guidebook offers important tips for how to find physicians as well as suggestions for how to make informed choices about choosing a doctor who is right for you.

Tips for Finding Physicians

Finding a highly qualified, competent, and compassionate physician to manage your specific illness or condition takes a lot of hard work and energy but is an investment that is well-worth the effort. It is important to keep in mind that you are not looking for just any general physician but rather for a physician who has expertise in the treatment and management of your specific illness or condition. Here are some suggestions for where you can turn to identify and locate physicians who specialize in managing your disorder:

- **Your Doctor** - Your family physician (family medicine or internal medicine specialist) is a good starting point for finding a physician who specializes in your illness. Chances are that your doctor already knows several specialists in your geographic area who specialize in your illness and can recommend several names to you. Your doctor can also provide you with information about their qualifications, training, and hospital affiliations.

The **Tips on Finding and Choosing a Doctor** in the complete **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease** includes additional information that will assist you in locating a highly qualified and competent physician to manage your specific illness.

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6 - Directory of Organizations

Alpha 1 Foundation

2937 SW 27th Avenue, Suite 202, Miami, Florida 33133
877-228-7321; 305-567-9888

rplant@alphaone.org

www.alphaone.org

American Association of Respiratory Care

9425 N. MacArthur Blvd. Suite 100, Irving, TX 75063-4706
(972) 243-2272

info@aarc.org

www.aarc.org

American College of Chest Physicians

3300 Dundee Road, Northbrook, Illinois 60062-2348
(800) 343-2227

www.chestnet.org

American Lung Association

61 Broadway, 6th Floor, New York, NY 10006
800.548.8252.

www.lungusa.org

Canadian Lung Association

1750 Courtwood Crescent, Suite 300, Ottawa, ON, K2C 2B5, Canada
888.566.5864; 613.569.6411

info@lung.ca

www.lung.ca

COPD Council

www.copdcouncil.org

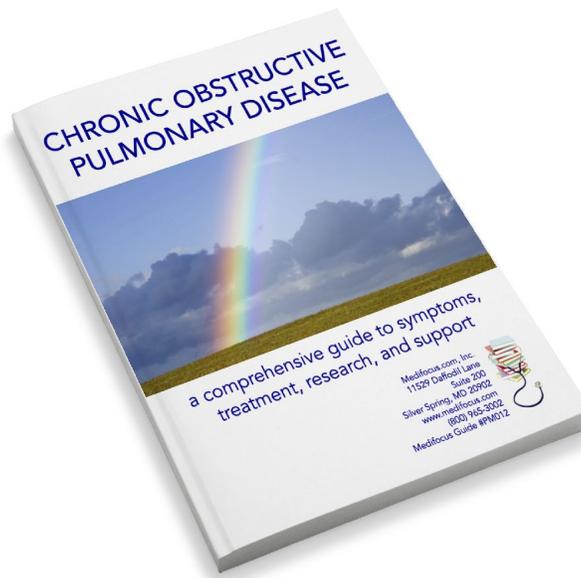
COPD Foundation

2937 SW 27th Ave - Suite 302, Miami, FL.33133
866.316.2673

www.copdfoundation.org

The **Directory of Organizations** in the complete **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease** includes a list of selected disease organizations and support groups that are helping people diagnosed with Chronic Obstructive Pulmonary Disease.

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This document is only a SHORT PREVIEW of the **Medifocus Guidebook on Chronic Obstructive Pulmonary Disease**. It is intended primarily to give you a general overview of the **format and structure** of the Guidebook as well as select pages from each major Guidebook section listed in the Table of Contents.

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