

# Living Well With COPD

## Chronic Bronchitis and Emphysema

YOUR PATIENT GUIDE



# Living Well With COPD

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The American College of Chest Physicians (CHEST) is the global leader in advancing best patient outcomes through innovative chest medicine education, clinical research, and team-based care. The CHEST mission is to champion the prevention, diagnosis, and treatment of chest diseases through education, communication, and research.



2595 Patriot Boulevard  
Glenview, Illinois 60026  
800/343-2227 or 224/521/9800  
[chestnet.org](http://chestnet.org)

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# What Is COPD?

## **COPD stands for Chronic Obstructive Pulmonary Disease**

The term COPD describes a slowly progressive disease involving the airways in the lungs. The most common symptom of COPD is shortness of breath. COPD is a long-term disease that does not completely go away and can get worse as time goes on.

Every case of COPD is a bit different from COPD of other individuals. Part of this difference is based on whether there are holes in the lungs called emphysema or whether the airways produce extra mucus which is called chronic bronchitis. Many people with COPD have a combination of these two conditions.

In addition, some people with COPD may also have asthma-like symptoms or reactive airway disease. People with COPD may have worsening attacks from time to time, called COPD exacerbations

COPD is a common lung disease. It affects more than 5% of the adult population and is the third leading cause of death in the United States. About 12 million Americans have been diagnosed and an estimated 12 million more living with COPD are undiagnosed.



**Long-term cigarette smoking causes most cases of COPD, and it takes many years for COPD to develop before people need medical help.**

- Most people begin to feel the disease symptoms between 50 and 70 years of age.

# Living Well With COPD

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COPD is a serious illness that can affect many aspects of life, but it doesn't have to mean the end of enjoying your life or living well. Together with your healthcare provider, you can learn ways to improve your breathing and fitness and prevent quick and serious worsening of your disease. It takes a commitment to improve your health, and it takes effort to use your medicines and therapies correctly. You might see the expression "people suffering with COPD." Instead, we like to say, "people living well with COPD," and this can be YOU. This guide will help you understand COPD and the medical treatments, therapies and lifestyle choices that can help you live well.

**You can live well with COPD. It's up to YOU to take control.**

## Inside Your Lungs

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### Healthy Lungs – Breathing in and out.

We have two lungs, a right one and a left one. They are located in the chest, and are protected by ribs. In a healthy lung, air flows freely into the nose, mouth, windpipe (trachea), through the airways (bronchial tubes), and to the air sacs (alveoli) located deep within the lungs.

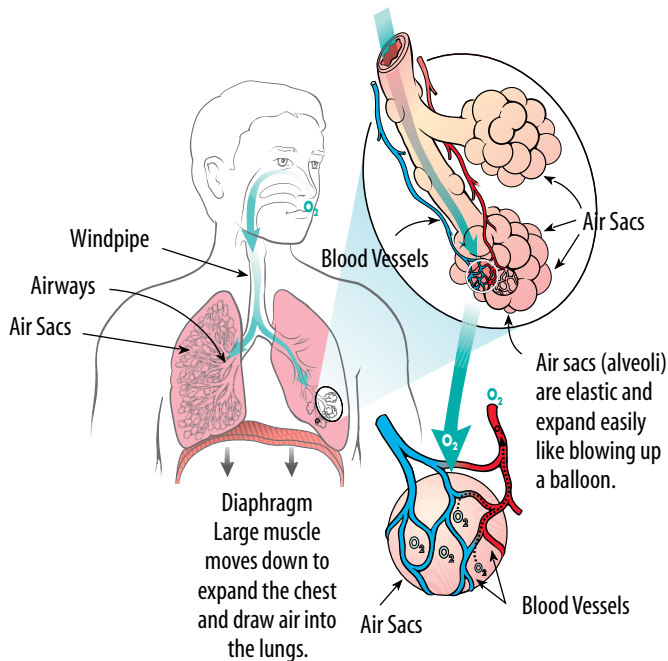
Oxygen ( $O_2$ ) from the air passes through the air sacs and into the blood vessels. The blood then carries the oxygen to all parts of the body. At the same time, carbon dioxide ( $CO_2$ ) passes out of the blood vessels into the air sacs and is blown out of the lungs when you exhale.

# How Do Your Lungs Work?

Inhale

## Healthy Lungs – Breathing In

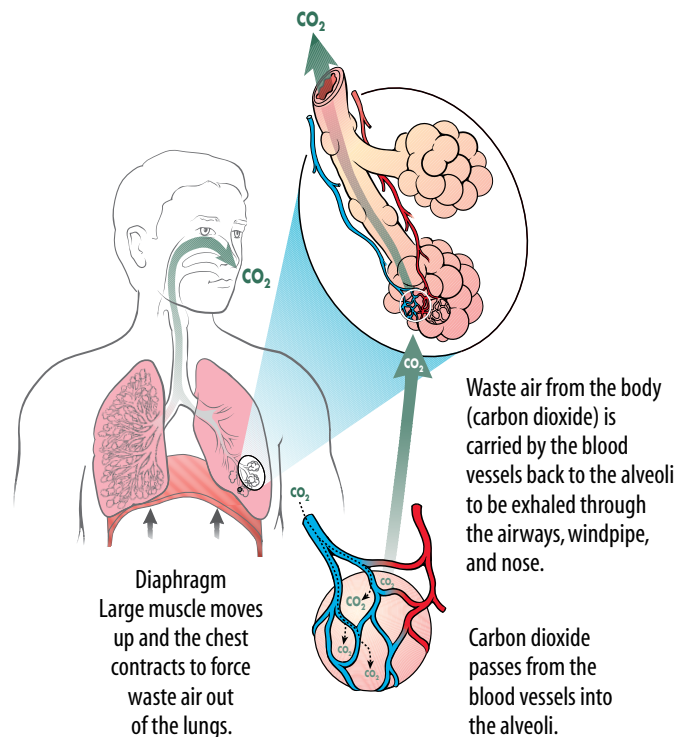
In a healthy lung, air flows freely into the windpipe (trachea), through the airways (bronchial tubes), and to the air sacs (alveoli) located deep within the lungs.



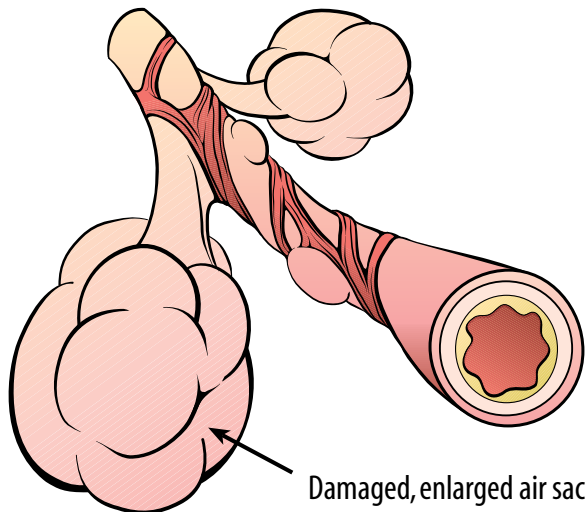
Oxygen from the air passes through the air sacs and into the blood vessels. The blood then carries the oxygen to all parts of the body.

Exhale

## Healthy Lungs – Breathing Out



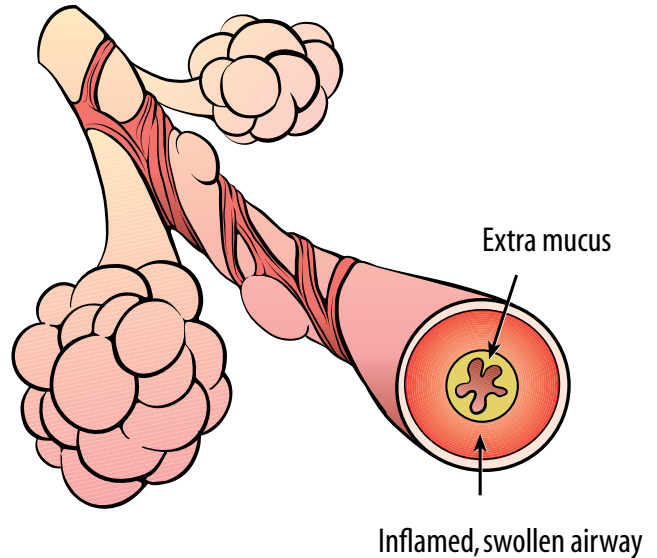
## Lungs With Emphysema



### Emphysema

With emphysema, the air sacs (alveoli) and small airways (bronchioles) are damaged and lose their elasticity (if you think of the air sacs as little balloons, they are worn out and never able to return to their normal size). When you breathe out, stale air becomes trapped inside the air sacs. This makes it harder for fresh air (oxygen) to come in and carbon dioxide to go out. The blood vessels around the air sacs are also damaged, which prevents fresh air (oxygen) from reaching the bloodstream and carbon dioxide from going out of the body.

## Lungs With Chronic Bronchitis



### Chronic Bronchitis

With chronic bronchitis, the airways (bronchial tubes) become swollen and inflamed and produce large amounts of mucus. The swollen tissues and mucus can make breathing difficult, because the inside of the tubes become narrow or closed. The airways (bronchial tubes) often become easily infected, because it is difficult to cough out the excess mucus.

# Lungs With Emphysema

### Emphysema

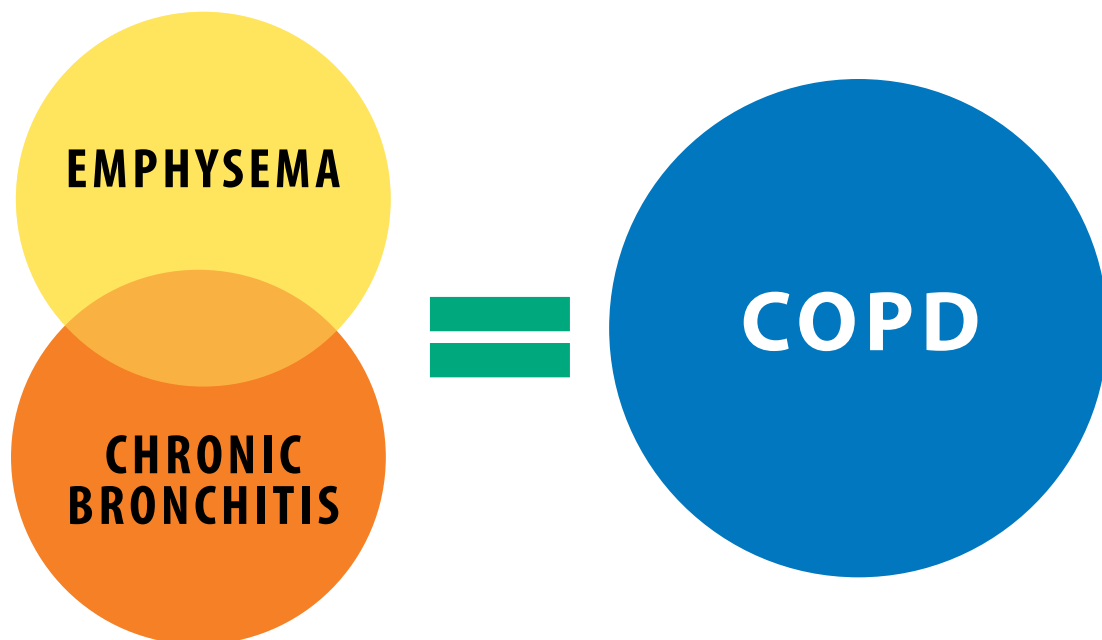
- With emphysema, the air sacs (alveoli) and small airways (bronchioles) are damaged and lose their elasticity.
- When you breathe out, stale air becomes trapped inside the air sacs.
- This makes it harder for fresh air (containing oxygen) to come in and carbon dioxide to go out.
- The blood vessels around the air sacs are also damaged, which prevents fresh air with oxygen from reaching the bloodstream and carbon dioxide from going out of the body.



# Lungs With Chronic Bronchitis

## Chronic Bronchitis

- With chronic bronchitis, the airways (bronchial tubes) become swollen and inflamed and produce large amounts of mucus.
- The swollen tissues and mucus can make breathing difficult, because the inside of the tubes become narrow or closed in.
- The airways (bronchial tubes) often become easily infected, because it is difficult to cough out the excess mucus.



- COPD is different for every person with variable amounts of emphysema and chronic bronchitis.
- Emphysema is caused by damage to the air sac walls.
- Chronic bronchitis is caused by swelling, inflammation, and scarring in the bronchial tubes.
- The two conditions often overlap with wheezing that is similar to asthma, scarring in the small airways called bronchiolitis, and airway enlargement called bronchiectasis.



# Who Gets COPD?

The National Health Interview Survey for years 1998-2009 showed that more women than men had COPD. From 2007 to 2009, 6.1% of women (7.4 million) had COPD compared to 4.1% of men (4.4 million).

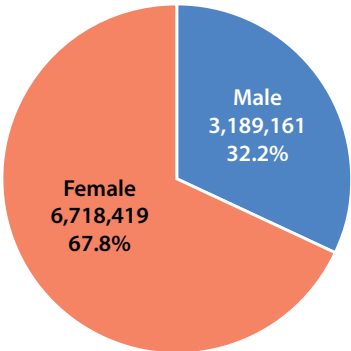
COPD rates were highest among women aged 65 to 74 (10.4%) and 75 to 84 (9.7%) and among men aged 75 to 84 (11.2%).

COPD diagnoses are most common among non-Hispanic white and Puerto Rican adults and among adults with family income below the poverty level.

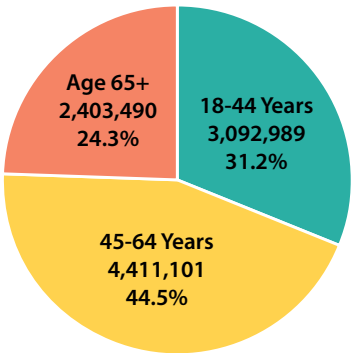


# Demographic Characteristics of People with Chronic Bronchitis in the United States – Percentage by Sex, Age, Ethnic Group, and Geographic Region, 2009

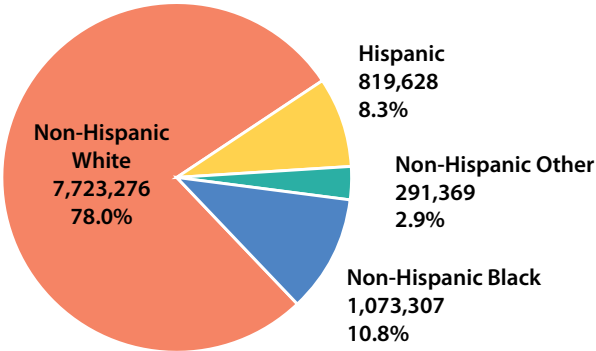
**SEX**



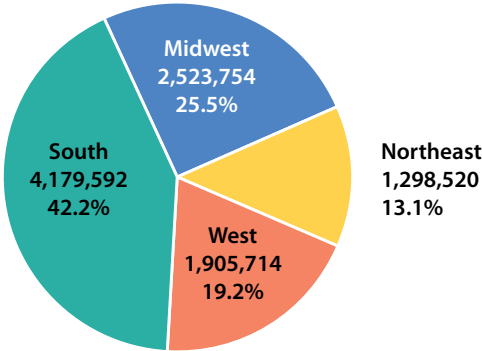
**AGE**



**ETHNICITY**



**GEOGRAPHIC REGION**

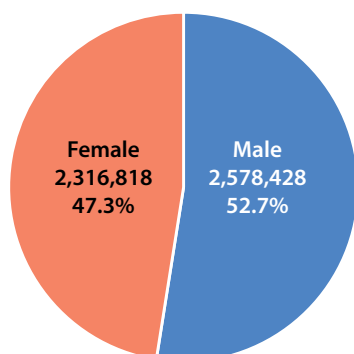


**CHRONIC BRONCHITIS 9,907,580 CONDITIONS**

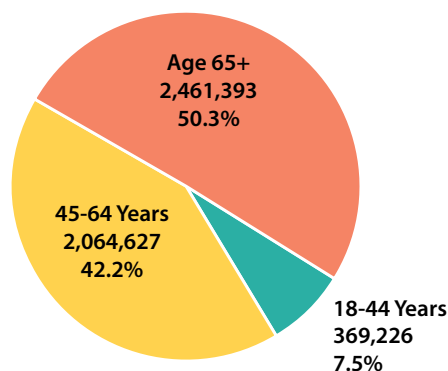
Source: National Center for Health Statistics, National Health Interview Survey, 2009

## Demographic Characteristics of People with Emphysema in the United States— Percentage by Sex, Age, Ethnic Group, and Geographic Region, 2009

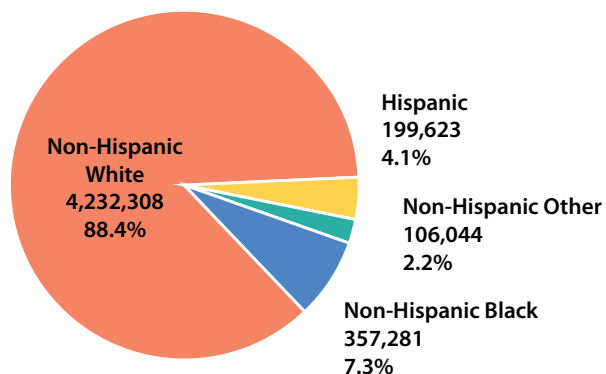
### SEX



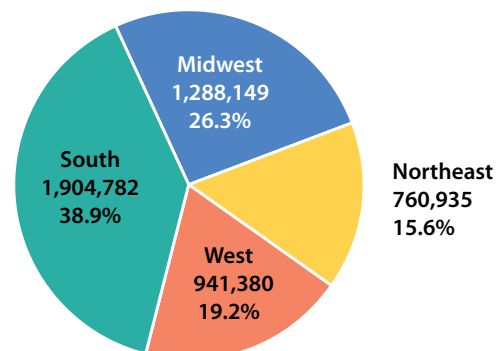
### AGE



### ETHNICITY



### GEOGRAPHIC REGION



**EMPHYSEMA 4,895,246 CONDITIONS**

Source: National Center for Health Statistics, National Health Interview Survey, 2009

# Causes of Chronic Obstructive Pulmonary Disease (COPD)

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The most common cause of COPD is cigarette smoking, although only about 20% of smokers develop lung disease and some nonsmokers develop COPD too.

Other factors that increase the risk for COPD are:

- Work-related dusts and chemicals (vapors, irritants, and fumes) and things in the environment, such as coal dust or silica
- Indoor air pollution from fuels used for cooking and heating in poorly ventilated homes
- Secondhand smoke
- Childhood respiratory infections (colds and viruses) may be linked to less lung function and more breathing problems in adulthood

Some people who develop COPD have an uncommon inherited disorder called **alpha1-antitrypsin deficiency (Alpha-1)**. This condition can only be diagnosed by a blood test. Guidelines recommend that everyone with COPD should be tested once for Alpha-1, regardless of smoking history. About 3% of people with COPD have Alpha-1. It is important to test for Alpha-1 because people with COPD due to Alpha-1, benefit from treatment that does not help people with COPD due to other reasons.

# Symptoms of COPD

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- Shortness of breath, especially with activity
- Frequent cough
- Cough with mucus (phlegm)
- Inability to maintain activity levels due to fatigue or shortness of breath
- More frequent colds and nose and throat infections
- Knowingly or unknowingly limiting your activities because you get out of breath or tired more easily

Although there is no cure for COPD, symptoms can be controlled to improve the quality of life.

The lung and airway damage cannot be repaired, but ALL of the symptoms of COPD can be reduced if you take action.

Your quality of life can be improved, and the length of your life can be extended.



# COPD and Heart Disease

In COPD, oxygen levels in the blood may fall, and carbon dioxide levels may rise, which can cause tiredness, poor concentration, and heart strain. The strained heart may enlarge and lead to swelling of the ankles and legs, called edema. People with COPD are at risk for heart disease.

Additionally, COPD and heart disease often go together, because long-term cigarette smoking is one of the biggest risks for both diseases.

## Making the Diagnosis

The first step toward finding out if you have COPD is scheduling an appointment with your health-care provider and getting a good examination, including a detailed medical and work history and physical examination. The health-care provider may do a number of tests to evaluate your breathing.

These may include:

- Breathing tests (also called pulmonary function tests (PFTs) or spirometry)

This test is the only way to accurately diagnose and grade the severity of COPD and is available at almost every clinic. Ask your clinician for this test.

- Chest X-ray

A normal X-ray does not prove the absence of COPD because emphysema and chronic bronchitis cannot be easily seen.

- Oxygen level measurements

In severe COPD an oximeter is used to check for oxygen levels

- Blood tests

An Alpha-1 antitrypsin level is an inexpensive test needed to rule out this form of COPD

### What does “health-care provider” mean?

*These days, there are many different kinds of healthcare providers.*

*A healthcare provider could be a physician, (a Doctor of Medicine or MD, a Doctor of Osteopathy or DO), Nurse Practitioner (NP), or Physician Assistant (PA). Specialized physicians who take care of lung problems are called pulmonologists. Depending on where you live and what kind of insurance you have, all of these medical professionals can take care of people with COPD.*

# What can YOU do about your COPD?

There are many things that people with COPD can do to feel better and lead productive and happy lives. IT'S UPTOYOU. You are in the driver's seat and must stay in control. Here are some suggestions:

- Find a health-care provider who you can talk easily with. This will be an important relationship for you since we know that COPD is a progressive disease (it does not go away).
- Your chosen health-care provider will prescribe medications and therapies, perhaps oxygen if you need it, and help you if you become sicker. This is now a PARTNERSHIP, and you are one half of it!
- Make an action plan with the help of your health-care provider. This will help you set real goals to maximize wellness.
- Get support from family and friends. They can help you achieve your goals and know you're not alone.

Now here are some real and practical ways that you can improve your health and live well with COPD:

- Quit smoking
- Get flu and pneumonia vaccines
- Understand your COPD Medicines
- Exercise and get good nutrition
- Conserve your energy
- Reduce stress
- Control your breathing
- Use oxygen therapy if your health-care provider thinks it is necessary
- Manage COPD exacerbations; these are acute flare-ups , or worsening episodes that may be caused by infections



## ACTION PLAN

*A series of steps and goals that you will plan with your health-care provider to help you succeed in living well with COPD.*



# Quit Smoking

If you smoke, quit now! It is the single most important thing you can do to improve your health and life with COPD.

According to experts, these methods can help:

- **Nicotine Replacement**

- nicotine patch
- nicotine gum
- lozenge
- inhalers
- nasal spray



These products can help lessen the urge to smoke. Check with your health-care provider first to make sure the one you choose will not interfere with other medicines and to select the correct dosage. Ask your health-care provider about prescription medications that can also help.

- **There are oral medications that can help you control the urge to smoke.**

- Wellbutrin (brand name), bupropion (generic)
- Zyban (brand name), bupropion (generic)
- Chantix (varenicline) – (no generic available)

Speak with your health-care provider to see if these medications might be right for you. While these medications are known to help many patients stop smoking, they may cause side effects that need to be understood when making the decision to use them. Ask your health-care provider and/or pharmacist to discuss the risks and benefits.

### ***Get support and encouragement.***

- **Learn how to handle and limit stress and urges to smoke**

Check your local hospitals and health clinics, libraries, civic groups, and community centers to see if they offer smoking cessation counseling programs or support groups.

***Remember, your best chance of success is with the help of others.***

# Avoiding Getting Sick With Flu (Influenza) and Pneumonia

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Many people with COPD become very ill every year during flu season. The flu can greatly increase your chances of coming down with pneumonia, a lung infection that can be serious. Take steps to reduce risk for illness.

- Avoid germs! Stay away from people who are sick with colds and flu. The droplets in coughs and sneezes are full of germs. Covering the nose and mouth to cough or sneeze reduces droplet transmission. Still, germs end up on handrails, doorknobs, shopping carts, and a things people touch.
- Wash your hands often to prevent the spread of germs! Carry alcohol-based hand sanitizer gel with you if you cannot get to soap and water. These are available in many kinds of stores, even in small containers that fit into a purse or a pocket.
- Ask your health-care provider about getting a flu shot every year at the end of September or in early October. Flu types change every year and so do the vaccines. Just because you had a flu shot last year does not mean you are protected this year. Flu shots every year reduce your risk of getting sick.
- Flu and pneumonia vaccines are not the same, but they can both be important for people who have COPD. Ask your health-care provider about a pneumonia vaccine. This vaccine protects against a common type of pneumonia and is typically given every 5 to 7 years. A new pneumonia vaccine previously given only to children is now also recommended at the time of revaccination.
- If you are unable to receive a vaccine (for example, people who are allergic to eggs cannot have a flu shot), make sure you get treatment as early as possible. If you do get sick, your doctor can diagnose the flu. Flu medications are most effective if given in the first 24 hours of symptoms and are not effective if given much later. Treatment shortens the time for recovery.

## Be Aware of Irritants and Allergens and Take Steps to Minimize Exposure:

- Avoid fumes, smoke, and strong odors.
- Stay inside and/or decrease strenuous activity when air pollution levels are high.
- Correct dampness problems in your home that promote mold growth.
- Cover your mouth and nose when going out in very cold or windy weather.
- If you have allergies in addition to COPD, try to stay away from pollens or other things that you are allergic to.



*Learn what things you are sensitive to and take steps to avoid or control them*



# COPD Medications

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Understanding your medicines and how to take them regularly and effectively is a very important step toward living better with COPD.

Medications may include those taken with inhalers or nebulizers, and/or a variety of pills. Some COPD medications relax the muscles around the airways or decrease swelling in the airways. Antibiotics are used to clear up infections. The flu and pneumonia vaccines are also important medications to get in the treatment of COPD.

Medications are generally put into two categories: maintenance medications and rescue medications.

Maintenance medications are taken regularly, often on a daily basis and whether or not you notice symptoms. Maintenance medications work to control symptoms over the long run.

Rescue medications are added to your maintenance medication routine when you have increased COPD symptoms or exacerbations (flare-ups). Usually, when your exacerbation is over you will return to your usual dose of maintenance medication(s).

# Understand Your COPD Medicines

Tell your health-care provider about your problems, activities, family, support systems, and lifestyle to help determine the best treatment plan for you.

Your health-care provider will ask about the medicines you take, including over-the-counter medicines and any complementary or herbal medicines.

The health-care provider will want to know how well each medicine works and any side effects you are having.

Be sure to tell the health-care provider about any medication allergies that you have. Remember to report any problems, no matter how minor.

Write down any concerns and questions before your health-care provider appointments so you do not forget to ask them.

To best care for yourself while taking COPD medications:

- Always carry a current list of medications with you. Include on that list all of the over-the-counter vitamins and supplements you may be using. Also include a list of any allergies to medication or food.
- If possible, obtain your medications from only one pharmacy; then the pharmacist will be able to know your full medication and allergy history and be able to advise both you and your health-care provider about medication or food interactions.
- ALL medications can have some side effects, but the benefits may outweigh the side effects. Some people experience no side effects, and others may have multiple side effects. Make sure you ask your health-care provider or pharmacist about the specific side effects of the medicine(s) you are taking.
- Always ask your health-care provider about new medicines that may be available for your lung disease.



# Inhaled Medications

- Open the airways by relaxing tight muscles around them or by decreasing swelling in the airways.
- Available as metered-dose inhalers, dry powder inhalers, or as a liquid in nebulizers.
- Medications must be used correctly in order for them to be effective. If you are not comfortable with the device or unsure of how to use it properly, discuss these issues with your health-care provider. Many medications are available in different forms, and learning how to take them effectively is important.

It is important to take your medication as prescribed; this is the best way to protect your health and maintain your quality of life.

Organize your medication with a pill box, a chart, or around routine events like meals or brushing your teeth. For instructions on how to use inhaled medication devices, go to [chestnet.org/patient-educations](http://chestnet.org/patient-educations).

Inhaled COPD Medications that are FDA approved in the United States Include:

Brand Name	Generic	Type	Delivery System
Atrovent HFA	No	Short-Acting Anticholinergic	Metered-dose Inhaler
Atrovent (ipratropium)	Yes	Short-Acting Anticholinergic	Nebulized Medication
Combivent Respimat (ipratropium and albuterol)	No	Combination Short-Acting Anticholinergic and Beta <sub>2</sub> -agonist Bronchodilator	Metered-dose Inhaler
DuoNeb (ipratropium and albuterol)	Yes	Combination Short-Acting Anticholinergic and Beta <sub>2</sub> -agonist Bronchodilator	Nebulized Medication
Proventil (albuterol)	No	Short-Acting Beta <sub>2</sub> -agonist Bronchodilator	Metered-dose Inhaler
ProAir (albuterol)	No	Short-Acting Beta <sub>2</sub> -agonist Bronchodilator	Metered-dose Inhaler
Ventolin (albuterol)	No	Short-Acting Beta <sub>2</sub> -agonist Bronchodilator	Metered Dose Inhaler

Brand Name	Generic	Type	Delivery System
Xopenex (levalbuterol)	No	Short-Acting Beta <sub>2</sub> -agonists Bronchodilator	2 Formulations: Metered-dose Inhaler and Nebulized Medication
Brand Name	Generic	Type	Delivery System
Spiriva (tiotropium)	No	Long-Acting Anticholinergic	Inhaled Dry Powder
Tudorza™ Pressair™ (aclidinium bromide)	No	Long-Acting Anticholinergic	Inhaled Dry Powder
Incruse (umeclidinium bromide)	No	Long-Acting Anticholinergic	Inhaled Dry Powder
Foradil (formoterol)	No	Long-Acting Beta <sub>2</sub> -agonist Bronchodilator	Inhaled Dry Powder
Anoro	No	Long-Acting Anticholinergic and Long Acting Beta <sub>2</sub> -agonist	Inhaled Dry Powder
Serevent (salmeterol)	No	Long-Acting Beta <sub>2</sub> -agonist Bronchodilator	Inhaled Dry Powder
Arcapta (indacaterol)	No	Long-Acting Beta <sub>2</sub> -agonist	Inhaled Dry Powder
Advair HFA and Diskus (fluticasone/ salmeterol)	No	Combination Long-Acting Steroid and Beta <sub>2</sub> - agonist Bronchodilator	2 Formulations:
Symbicort (budesonide/ formoterol)	No	Combination Long-Acting Steroid and Beta <sub>2</sub> - agonist Bronchodilator	Metered-dose Inhaler or Inhaled Dry Powder
Brand Name	Generic	Type	Metered-dose Inhaler
Dulera (mometasone/ formoterol)	No	Combination Long-Acting Steroid and Beta <sub>2</sub> - agonist Bronchodilator	Metered-dose Inhaler
Breo (fluticasone furoate and vilanterol)	No	Combination Long-Acting Steroid and Beta <sub>2</sub> - agonist Bronchodilator	Inhaled Dry Powder
Brovana (arformoterol)	No	Long-Acting Beta <sub>2</sub> -agonist Bronchodilator	Nebulized Medication
Perforomist (formoterol)	No	Long-Acting Beta <sub>2</sub> -agonist Bronchodilator	Nebulized Medication
Pulmicort Respules (budesonide)	Yes	Long-Acting Steroid	Nebulized Medication and
Pulmicort Flexihaler (budesonide)	No	Long-Acting Steroid	Inhaled Dry Powder
Alvesco (ciclesonide)	No	Long-Acting Steroid	Metered-dose Inhaler
QVAR (beclomethasone dipropionate)	No	Long-Acting Steroid	Metered-dose Inhaler
Asmanex Twisthaler (mometasone furoate)	No	Long-Acting Steroid	Inhaled Dry Powder
Veramyst (fluticasone furoate)	No	Long-Acting Steroid	Inhaled Dry Powder



# Oral Medications

## Oral Bronchodialators

- Open the airways by relaxing tight muscles around them.
- Taken as pills

Brand Name	Generic	Type	Delivery System
Daliresp (roflumilast)	No	PDE4 inhibitor	Pill

Other Examples:

- Uniphyll and Theo -24 (theophylline)

### REMEMBER

Always take steroids exactly as your health-care provider directs, even when you feel better or do not believe they are helping you. Don't stop taking steroids on your own because your breathing can get worse.

Taking steroids can raise your blood sugar. If you are diabetic, you will need to monitor your blood glucose more closely and perhaps adjust your diabetes medication.

## Expectorants

Expectorants (mucolytic medicines) are sometimes used to treat the increased or thicker mucus that can occur with COPD. These medicines may help keep mucus thin and more easily cleared from the airways. These are taken as pills or liquids. The expectorant most commonly used for COPD is guaifenesin.

## Steroids

- Reduce inflammation and swelling of the airways
- These are not the same as anabolic steroids, which are muscle-building steroids often misused by athletes and others.

# Antibiotics

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Antibiotics are used to treat infection. See your health-care provider as soon as you think you have an infection so he or she can determine if you need antibiotics.

## Ideas for getting your medications

Check with your insurance provider to see if your plan includes a list of preferred drugs. See if your health-care provider thinks your disease can be managed well with those drugs.

If your drug insurance plan has a 90-day mail away benefit, use it. This may save you money.

Nebulized medications are sometimes less convenient to use but may be less expensive, so explore the option of using nebulized medication with your health-care provider. Contact your insurance company to determine the cost of the medication.

Contact drug manufacturers for patient assistance programs, if needed. Ask your health-care provider for samples.

Set aside money for COPD medicine. Renew and refill your prescriptions to avoid running out of medicine.

Consider enrolling in a research study. Becoming part of a research study or clinical trial may be a way to get medication and extra care. Ask your health care provider if he or she knows about any research studies that may be suitable for you. Always ask about the details of any clinical trial since new medications or treatments may be being tested.

# How to Take COPD Medicines

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Each medication comes with a package insert that shows how to correctly take the medication. If you have any questions about the instructions, don't be afraid to ask your health-care provider or pharmacist for help. It is very important that your medications are taken correctly.

# Over-the-Counter Medicines

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You may have tried some of the short-acting inhalers available without a prescription at drug stores. These medicines may cost less than the bronchodilator inhalers your health-care provider prescribes, but they don't save you money in the long run. They are much less effective and must be used more often to get the same benefit prescription medicines provide. As any medication has some risks, it's best not to use over-the-counter inhalers without the guidance of your physician.

# Exercise and Good Nutrition

COPD makes the lungs and heart work harder to carry oxygen to all parts of the body.

Because of this, you should control your weight to reduce heart and lung strain.

## Pulmonary Rehabilitation

Pulmonary rehabilitation is a very important part of treatment for moderate and advanced COPD. Pulmonary rehabilitation is a Medicare funded outpatient program that will help you reduce the impact of COPD. Pulmonary rehabilitation can help you control or reduce breathlessness and recondition your body to feel less short of breath.

Pulmonary rehabilitation offers:

- Structured and monitored exercise training
- Nutrition advice
- Techniques for reducing and controlling breathing problems
- Education about maintaining and improving function
- Help to quit smoking
- Information about your disease and ways to cope
- Emotional and psychological support
- Improved muscle function that decreases shortness of breath
- Improved quality of life

***You can benefit tremendously from pulmonary rehabilitation. Discuss it with your health-care provider.***



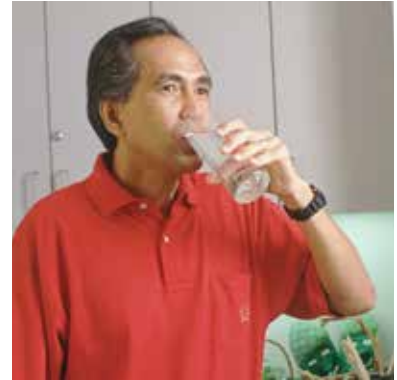
## Good Nutrition

Maintaining good health also requires eating the right foods.

Some people with COPD have trouble keeping weight on, and it is easy to lose muscle mass when you lose weight. Being overweight adds cardiovascular strain and risk. If you're not sure, ask your healthcare provider what a healthy weight range is for you.

To maintain an ideal weight many people with COPD find it helpful to:

- Eat several smaller meals throughout the day instead of three large ones.
- Drink plenty of fluids to keep airway mucus thin and free-flowing.
- Slow down when you are eating.



# Conserve Your Energy and Control Stress

Most people with COPD must learn to pace themselves to avoid getting worn out throughout the day. Some practical tips can help you conserve energy and accomplish more without getting short of breath.

- Move slowly to conserve energy and avoid breathlessness.
- Use a cart with wheels to move dishes, tidy up, work in the garage, put away laundry, and so on.
- Sit to dress, undress, shave, put on makeup, and cook. Sit for as many tasks as possible.
- Arrange your house so that most things you use are at waist level or within easy reach.
- Take rests after meals when your body is working hard to digest food.
- Invest in a shower stool and hose sprayer for bathing.
- Use assistive (“helping”) devices, such as a long-handled reacher, for pulling on socks and shoes and for reaching things in high places.





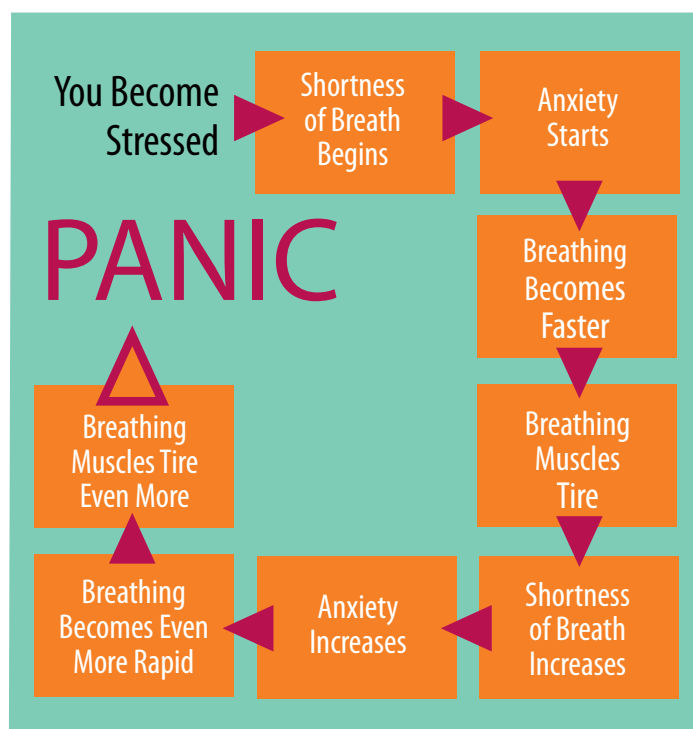
## Control stress

Feeling stressed can make breathlessness much worse.

## Learn to relax

Stress is a normal part of life, but it is less likely to build to anxiety and cause other problems if you know how to relax yourself when you start to feel tense. Find coping strategies for you. For example:

- Try yoga, prayer, meditation, or listening to relaxing music.
- Some people like to get comfortable and concentrate on the things that relax them.
- Slowly tense and relax each part of your body. Start with your toes and work all the way up to your scalp. Breathe in as you tighten, and breathe out as you relax.



# Control Your Breathing

## Pursed-Lip Breathing

Pursed-lip breathing not only helps you relax, but it also helps you get more oxygen into your lungs and prevents shortness of breath. Practice this breathing technique until it works well for you.



### STEP 1:

Relax your neck and shoulder muscles. Inhale (breathe in) slowly through your nose, and count to 2 in your head.



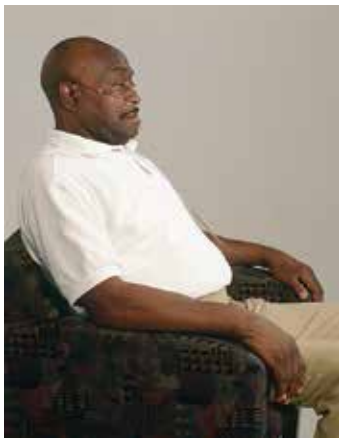
### STEP 2:

Pucker your lips as if you are whistling. Exhale (breathe out) slowly and gently through your lips while you count to 4 or more in your head. Always exhale (breathe out) for longer than you inhale (breathe in). This allows your lungs to empty more effectively.



## Diaphragmatic Breathing (Abdominal Breathing)

With COPD, trapped air in the damaged air sacs often causes the lungs to over expand.



### STEP 1:

Get into a comfortable position. Relax your neck and shoulder muscles.



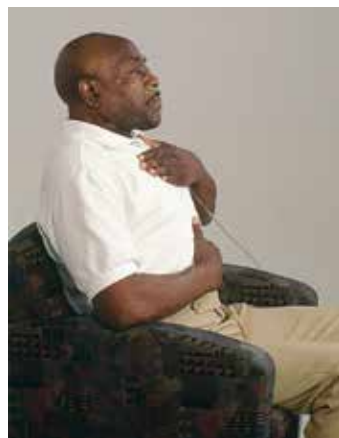
### STEP 2:

Put one hand on your abdomen and one on your chest.



### STEP 3:

Inhale (breathe in) slowly through your nose to the count of 2. Feel your abdominal muscles relax. Your chest should stay still.



### STEP 4:

Tighten your abdominal muscles, and exhale (breathe out) while you count to 4. Feel your muscles tighten. Your chest should stay still.

## Techniques to Help Clear Mucus From Your Lungs

Ask your health-care provider about different methods to help you cough up mucus. The Acapella™ and the Flutter® devices are two handheld devices that assist in clearing mucus from the lungs. Learning how to use these devices will make it easier to get rid of mucus in the lungs.

### HUFF Cough: Forced Expiratory Technique

- Repeat this cycle two to four times.
- Spit out the mucus as it comes up.



#### STEP 1:

Sit comfortably in a chair. Take three to five slow, deep breaths using pursed-lip and diaphragmatic breathing.



#### STEP 2:

Take in a normal breath.



#### STEP 3:

Squeeze your chest and abdominal muscles — open your mouth — and force out your breath while whispering the word “huff” (sounds like a forced sigh). Some people find it helpful to press on the lower chest at the same time. Repeat once.



#### STEP 4:

Return to pursed-lip and diaphragmatic breathing.

# Use of Oxygen

Eventually, many people with COPD will need supplemental oxygen.

It will improve your quality of life and may help you live longer.

Ask your health-care provider about how long you should use oxygen each day.

For many people, more oxygen use, not less, will add years to life. Oxygen is not addictive and more use will not make you need it more. It is often your most effective medicine.

## Travel With Oxygen

Traveling with oxygen can be done with ease, but it takes planning to ensure enough oxygen for the trip and for use at your destination.

Air travel requires more planning and coordination with the airline. Talk with your health-care provider and oxygen supplier for advice about traveling.

You cannot travel on an airplane with an oxygen canister. You must obtain a portable concentrator from your durable medical equipment supplier.



**Air travel requires an FAA-certified portable concentrator and, frequently, a form signed by your health-care provider. Check with your airline and oxygen company at least 2 weeks prior to travel.**

# COPD Exacerbations

A COPD exacerbation is a worsening, or 'flare-up' of symptoms. It may lead to poorer lung function and a decline in quality of life. Most importantly, it can be dangerous, as it may put you at risk for death. COPD exacerbations can land a person in the hospital. Be aware of exacerbations and your action plan to reduce this risk.

## Causes of COPD Flare-ups (Exacerbations)

- Infections caused by viruses and bacteria
- Very hot or very cold weather
- Asthma attacks
- Air pollution
- Heart failure

**Studies have found that smoking, lack of a pulmonary rehabilitation program, improper use of an inhaler, and not taking drugs properly are all related to having more COPD exacerbations.**

## What Can You Do?

You can prevent infections by doing your best to avoid germs and washing your hands regularly. Watch for cold and flu symptoms, and be tuned-in to your COPD baseline so that you notice and can act quickly if things get worse. A regular exercise program lets you notice smaller changes in lung function.

### LOOK FOR SIGNS OF A COPD FLARE-UP (EXACERBATION)

- Changes in mucus color and amount
- More mucus or difficulty coughing mucus up from the lungs
- More severe cough or more frequent coughing
- Cold or flu symptoms, such as runny nose, sore throat, achy feeling, chills, fever, or feeling of feverishness
- Increased shortness of breath with activities or at rest
- Wheezing or whistling sound in the chest

## CALL YOUR HEALTH CARE PROVIDER IF:

- You are more short of breath than usual.
- Your cough gets worse.
- You are coughing up more mucus or having trouble getting mucus up.
- Your mucus changes from clear or white to green or yellow.
- You are coughing up blood or mucus with blood in it.
- You have fever or chills or feel general achiness or fatigue.
- Your sleep is very disturbed or you are more sleepy than normal.
- You are feeling confused.

## What Will Your Health-care Provider Do During a COPD Exacerbation?

COPD exacerbations are treated by changes in your medications, adding steroids and/or antibiotics, and sometimes oxygen. A serious exacerbation may mean hospitalization and possibly receiving medication through an IV (intravenous line into your blood).

## Some New Ways to Prevent COPD Exacerbations

Since COPD exacerbations are a very serious problem for people with COPD, doctors and researchers have been looking for ways to prevent them. Some health-care providers believe that regular treatment with certain antibiotics will keep COPD exacerbations from occurring. Ask your health-care provider if this might be a good solution for you.

**Know when to call 911 or how to get help in an emergency. Discuss with your health-care provider what to do if you become so sick that you need immediate help. Talk about these symptoms with your health-care provider.**

# Surgical Options for the Treatment of COPD

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## Lung Volume Reduction Surgery

Lung volume reduction surgery removes diseased portions of one or both lungs. When these portions of the lung are removed, the volume of the lungs inside the rib cage is reduced, which makes it easier to breathe. A thorough evaluation is needed to see if you are a candidate for this surgery.

## Lung Volume Reduction Bronchoscopy

There are a variety of clinical trials evaluating procedures to decrease lung size and improve shortness of breath for individuals who have large lungs due to emphysema. These devices are currently available in Europe.

## Are You a Candidate?

- You must also be strong enough to undergo the surgery.
- You must be on proper medical therapy.
- You must participate in a pulmonary rehabilitation program.
- You cannot be smoking.
- The decision about whether you are a good candidate for lung volume reduction surgery is based on results of testing done before and after pulmonary rehabilitation and upon your general health condition.

## Lung Transplantation

Lung transplantation involves replacing one, or sometimes both, of your diseased lungs with a donor lung. To be considered a candidate, generally you must:

- Be oxygen-dependent.
- Have severe COPD that no longer responds to medical treatment and may be fatal in 2 years.
- Be physically able to undergo surgery and the treatment that follows.
- Usually be under the age of 65, but some centers will perform transplants on older patients..

Lung transplantation has many risks, and donor lungs are not easily available. Waiting for a donor lung can sometimes take 2 or more years. Also, after surgery, you will need to take many different medications for the rest of your life to prevent rejection of the transplanted lungs and to prevent infection.

*With transplantation and lung volume reduction, you must very carefully weigh all the pros and cons. These are big decisions and are not right for everyone. Make sure you discuss these procedures with someone who is an expert in these options.*





# Glossary

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## Action plan

A partnership program made with your health-care provider to help you stay on track with your wellness. It will have steps to take and goals to accomplish.

## Air sacs (alveoli)

Tiny balloon-like sacs, located deep within the lungs. From these sacs, oxygen and carbon dioxide are passed to the blood by tiny vessels (capillaries). Note: alveoli means “bunches of grapes” in Italian.

## Airways (bronchial tubes)

From the windpipe into the lungs, through which air passes during breathing.

## Alpha-1 antitrypsin

A kind of protein that helps to keep the elasticity of tissue in the lung. In some people, an inherited deficiency of this protein leads to the development of emphysema.

## Antibiotics

Medications that are effective against infections, usually this is bacteria, but some special antibiotics are made to fight viruses.

## Anticholinergics

Medications that have an effect upon smooth muscle in the airways. When inhaled into the lung, anticholinergics decrease muscle spasms or tightening of the airways.

## Antiinflammatories

A class of drugs, often corticosteroids, used to help reduce inflammation and swelling of the airways.

## Beta<sub>2</sub>-agonists

These medications can be short-term or long-term and work to open the airways by relaxing tight muscles around them.

## Bronchiectasis

Abnormal permanent dilation of the airways that can lead to repeated infections. This is only seen on a CT scan.

## Bronchioles

Small airways in the lung; they connect the bronchial tubes and the air sacs.

## Bronchiolitis

Inflammation and scarring of the small airways.

## Bronchodilators

Medications that relieve the tightening of the airways and that are in pill form or inhaled form. They include anticholinergics and short-term and long-term beta<sub>2</sub>-agonists.

## Carbon dioxide (CO<sub>2</sub>)

A waste product of body metabolism that is removed only by the lungs when breathed out. It gets transferred from the blood through the air sacs in the lung.

## Chronic bronchitis

An inflammation, or constant swelling and irritation, of the airways that causes increased production of mucus. It is considered chronic (or long-term) when a person is coughing and producing excess mucus for most days of the month for at least 3 months of a year for 2 or more years in a row.

## COPD (chronic obstructive pulmonary disease)

A term to describe two common diseases that result in airflow obstruction: emphysema and chronic bronchitis. Patients may experience either or both of these conditions.

## COPD Exacerbation (Flare-up)

A flare-up or a bad attack that is usually caused by an infection in the lung, but it is not always known why there is a worsening of symptoms. Usually accompanied by more mucus, coughing, and breathlessness.

## Corticosteroids (glucocorticoids, steroids)

Medications that work to decrease inflammation and swelling of the airways. They can be taken in pill form or inhaled. Corticosteroids are not to be confused with anabolic steroids used by athletes and others to build muscles.

## Diaphragm

The large muscle underneath the lungs that moves down when breathing in to allow air with fresh oxygen to be pulled into the lungs and moves up to force “used air” with carbon dioxide out of the lungs when breathing out. It is the main breathing muscle in the body.

## Emphysema

Part of COPD that involves the tiny air sacs in the lungs (alveoli). In emphysema, the lungs lose elasticity, which causes the air sacs to become enlarged, making breathing difficult. In advanced emphysema there are large empty spaces in the lung.

## Lung volume reduction surgery

An operation in which damaged parts of the lung are removed, allowing the healthy, remaining parts to work better and fill the space inside the rib cage.

## Mucus (phlegm)

A slippery substance produced by certain membranes in the body. In normal, healthy people, mucus moistens and protects these mucous membranes. However, in COPD, too much mucus is produced in the lungs, resulting in clogging, blocking, and coughing, which make breathing more difficult.

## Nebulizers (atomizer)

A machine that can produce an extremely fine spray for deep penetration of medicine into the lungs.

## Oxygen (O<sub>2</sub>)

A gas that provides the body with energy. When breathed in, it is pulled into the lungs, where it is transferred to the blood through the air sacs (alveoli). People who do not get enough oxygen into their systems may need oxygen therapy.

## Pulmonary rehabilitation

A multidisciplinary program of exercise, education and breathing retraining meant to help people with COPD stay conditioned, reduce symptoms of breathlessness, and improve lung function and attitude in order to improve quality of life.

## Pulmonologist (pulmonary doctor)

A medical doctor who has special training about lungs and treatment of lung disorders.

## Reactive airway disease

Often referred to as asthma, people with this disease have airways that are very sensitive to irritants, causing tightening of muscles and more mucus production. Some people with COPD also have reactive airway disease.

## Spirometry (pulmonary function tests)

A way of measuring the amount of air entering and leaving the lungs. This is the one way doctors and other health-care providers can diagnose COPD.

## Windpipe (trachea)

Air flows through this tube from the mouth and nose, down the throat, and into the lungs.

**For more patient education material available from CHEST, visit [chestnet.org/patient-education](http://chestnet.org/patient-education).**

#### **Additional Resources:**

[alpha1portal.org](http://alpha1portal.org)

[clinicaltrials.gov](http://clinicaltrials.gov)

[copdfoundation.org](http://copdfoundation.org)

[goldcopd.com](http://goldcopd.com)

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**American College of Chest Physicians**

2595 Patriot Boulevard  
Glenview, Illinois 60026

[chestnet.org](http://chestnet.org)

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