

# Understanding COPD



An educational health series from



**National Jewish  
Health**<sup>®</sup>

Science Transforming Life<sup>®</sup>



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Health<sup>®</sup>**

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**Our Mission since 1899 is to heal, to discover, and to educate as a preeminent healthcare institution.**

**We serve by providing the best integrated and innovative care for patients and their families; by understanding and finding cures for the diseases we research; and by educating and training the next generation of healthcare professionals to be leaders in medicine and science.**

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# Understanding COPD

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## IN THIS ISSUE

What is COPD?	2
How is COPD Managed?	5
Healthy Lifestyle	6
Treatment of COPD	9
Medication Therapy	10
Devices for Inhaled Medication	14
Oxygen Therapy	16
Breathing Techniques	17
Techniques for Bringing up Mucus	19
Action Plan for COPD	20
Living with COPD	22

Note: This information is provided to you as an educational service of National Jewish Health. It is not meant as a substitute for your own doctor.

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### What is COPD?

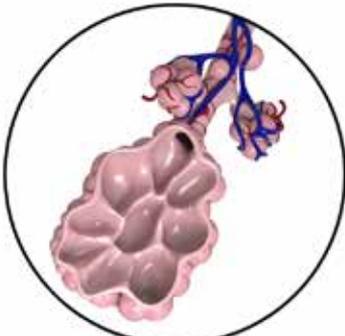
Chronic Obstructive Pulmonary Disease, or COPD for short, is a lung disease that affects millions of people. COPD includes emphysema and chronic bronchitis. A person with COPD may have either emphysema or chronic bronchitis, but many have both.

Let's take a look inside the lungs to see what is happening. The air sacs, also call alveoli and the airways have been damaged in COPD, most often by cigarette smoking or certain agents in the environment. In the healthy lung the air sacs or alveoli look like a bunch of grapes. Look at the alveoli of emphysema. In emphysema the walls of the alveoli are partially destroyed. This results in a smaller total number of alveoli in the lungs. Fewer air sacs mean that the lungs are not able to transfer oxygen into the bloodstream as well. Also the lungs may not be able to get rid of carbon dioxide as well.

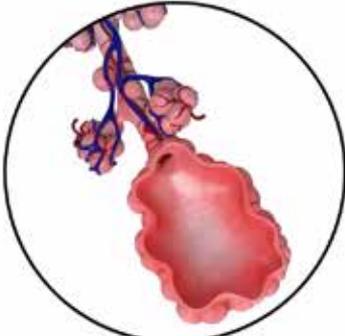
Now look at the healthy airway. Air moves in and out of the middle of the airway. Now look at the airway of chronic bronchitis. In chronic bronchitis the airway walls are swollen and produce more mucus.

The earliest symptom of emphysema is shortness of breath with activity. The earliest symptom of chronic bronchitis is a frequent cough with mucus production. Later symptoms with emphysema and chronic bronchitis include shortness of breath with activity and even at rest.

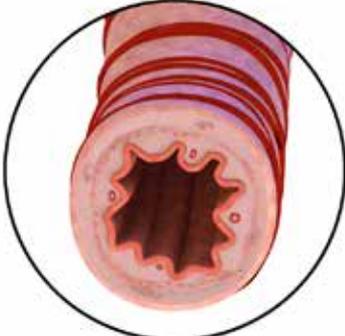
A person with COPD may also have heart disease, muscle weakness, osteoporosis, depression and other medical problems. They may also be at higher risk for lung cancer. Your health care provider will evaluate these problems as part of managing your COPD.



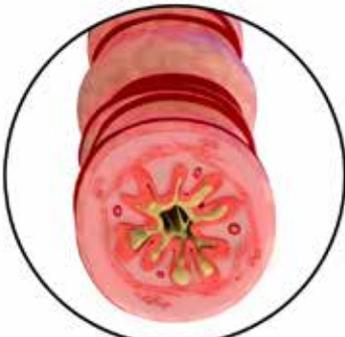
Healthy Alveoli



Emphysema



Healthy Airway



Chronic bronchitis

### How is COPD Diagnosed?

The first step in diagnosing emphysema and chronic bronchitis is a good evaluation. Your doctor may have you do a number of tests to evaluate your breathing. These may include:

- **Detailed medical history and physical exam**
- **Breathing test (spirometry and full pulmonary function tests)**
- **High resolution CT scan**
- **Oxygen levels**
- **Exercise tests**
- **Blood tests**

Your doctor may order other tests based on the history and physical exam.

Many people see their family doctor, nurse practitioner, physician assistant or internal medicine doctor for COPD care. You and your health care provider may choose to have you seen by a specialist, such as a pulmonologist (lung specialist) also.

### What is Spirometry?

Spirometry is a simple test to measure how much (volume) and how fast (flow) you can move air into and out of your lungs. Through routine spirometry, lung diseases can often be diagnosed in the early stages when treatment is most effective. Once a lung disease is diagnosed and treated, routine spirometry tests can monitor changes in lung functions with specific treatment. This will help your doctor find the best treatment plan for you.



## Goals of Treatment?

At National Jewish Health, health care providers believe people with COPD can lead active full lives. Our goal is to help people with COPD take charge of their breathing and maintain their quality of life.

**Put a check mark (✓) in the box if your answer is “yes”.**

- Decreasing shortness of breath
- Reducing exacerbations
- Becoming more active
- Decreasing anxiety or stress
- Improving mood
- Accepting new health status
- Learning about COPD

**Write any other goals in the space below:**

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Talk with your health care provider about your goals.



## How is COPD Managed?

People with COPD must become active in the management of their disease. Participating in your treatment plan will help you and your family take charge of your breathing.

COPD management includes:

- Learning more about your COPD,
- Healthy lifestyle including exercise and diet,
- Giving up smoking,
- Avoiding infections,
- Medication therapy,
- Oxygen therapy,
- Breathing techniques,
- Techniques to bring up mucus and,
- An Action Plan.

Now that you have an overview of management, let's talk about each topic in more detail.



## Healthy Lifestyle

A healthy lifestyle is important for everyone, including people with COPD.

A health lifestyle includes:

- A healthy diet,
- Regular exercise,
- Enough rest and,
- Giving Up Smoking.

### Healthy Diet

It is important for everyone to eat a healthy diet and maintain a healthy weight. Being overweight or underweight can affect your health. A poor diet is common for people with COPD. Shortness of breath and feeling tired and fatigued can make it hard to eat a healthy, well balanced diet.

### Regular Exercise

A regular exercise program is another important step in managing COPD. It is common for people with lung disease to limit physical activities because they are afraid of becoming short of breath. When you aren't as active, your muscle strength decreases and you may become weaker. Regular exercise 4 to 5 times a week helps you improve your fitness by improving your heart and muscle function. When you improve your fitness, you can be more active with less shortness of breath. Many people with COPD enjoy walking, water aerobics and riding a stationary bike. Most people who exercise regularly also feel an increased sense of well being.

What exercise do you enjoy?

- Walking
- Water aerobics or swimming
- Riding a bike
- Golf
- \_\_\_\_\_
- \_\_\_\_\_

People with COPD often use an inhaled short-acting bronchodilator before exercise to decrease shortness of breath. Some people with COPD need oxygen therapy while exercising. Portable oxygen units are available. If you are avoiding activities and exercise, talk with your health care provider.

People with COPD can benefit from a formal rehabilitation program. Most pulmonary rehabilitation programs will include medical management, education, emotional support, exercise, breathing retraining and nutrition counseling. Ask your health care provider for a referral for pulmonary rehabilitation.



Regular exercise helps you improve your overall fitness by improving your heart and muscle function.



Giving up smoking is the single most important thing you can do to help control your disease and prevent further damage to your lungs.

### Rest

Rest is important. Make sure you get enough sleep each night. Some people need a nap or rest during the day also. If you are having trouble sleeping, talk with your health care provider.

### Giving Up Smoking

Giving up smoking is the single most important thing you can do to help control your disease and prevent further damage to your lungs. When you quit smoking, your breathing and response to your medicines may noticeably improve. Even if you have smoked many years, you will benefit from quitting.

Don't be discouraged if you have tried to quit, one time or many times, in the past. More services and quitting aids are now available to help you quit and remain smoke free.

### Steps to help you quit smoking

- Make a firm commitment to quit. Start thinking of yourself as someone who doesn't smoke.
- Talk to your health care provider about quitting and a plan to help you quit. Your provider can discuss the use of medicines to help you give up smoking.
- Consider joining in a program that provides guidance and support for learning to live without cigarettes. Every state offers free telephone counseling through the Quitline. **The Quitline number is 1-800-QUIT-NOW, or 1-800-784-8669.** In addition, there are many online and face to face group quit smoking programs. Check for programs offered by the American Lung Association, American Heart Association, American Cancer Society, etc.

Once you stop smoking it is important to avoid being around tobacco smoke. This will help decrease irritation to your lungs. Also, a smoke free environment is healthier for everyone.

- Talk with family members about avoiding tobacco smoke.
- Encourage family members and friends who smoke to quit. If they are not ready to quit, ask them not to smoke in your home or car.



## Treatment of COPD

A healthy lifestyle is important for people with COPD. In addition, COPD management includes:

- Avoiding infections,
- Medication therapy,
- Oxygen therapy,
- Breathing techniques and,
- Techniques to bring up mucus.

### Avoiding Infections

People with COPD have an increased risk of lung infections. There are a number of measures that can help avoid infections.

- Vaccines are recommended. The influenza or flu vaccine is recommended yearly, often in the fall. The pneumonia vaccine is recommended once. Both vaccines help prevent infections.
- Good handwashing with soap and water is also very important to help prevent the spread of germs and infections. Alcohol based gels are also effective.
- Avoid touching your eyes, nose and mouth. Germs are often spread this way.
- Also, avoid contact with others when they are sick.

### Medication Therapy

Your doctor may prescribe medication to help treat symptoms of COPD. Most people with COPD take medication every day to help shortness of breath. In addition, some medicine is used only when needed to decrease shortness of breath. For many, a combination of medication is prescribed.

Here are the types of medications often prescribed for people with COPD:

- Bronchodilators
- Anti- Inflammatories
- Antibiotics



Most people with COPD take medication every day to help shortness of breath.

### Bronchodilator Medication

Bronchodilator medicine helps open the airways in the lungs by relaxing smooth muscle around the airways. Bronchodilators can be short or long acting.

#### Short-acting bronchodilators

Common short-acting inhaled bronchodilators include:

- Proventil HFA<sup>®</sup>, Ventolin HFA<sup>®</sup>, ProAir<sup>®</sup> (albuterol)
- Xopenex<sup>®</sup> (levalbuterol)
- Maxair<sup>®</sup> (pirbuterol)
- Atrovent<sup>®</sup> (ipratropium)
- Combivent (albuterol and ipratropium)

These inhaled medications work quickly to help decrease shortness of breath. Your doctor may prescribe a short-acting bronchodilator to use as-needed to decrease shortness of breath or every day. They may also be prescribed before exercise.

#### Long-acting bronchodilators

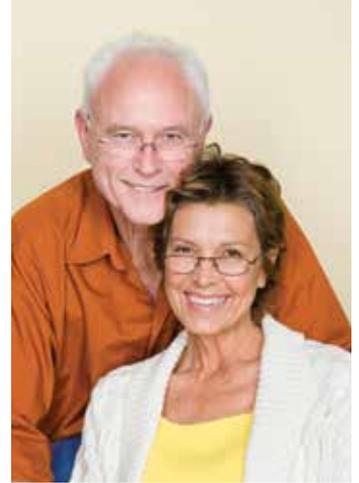
Long-acting bronchodilators relax the muscles around the airways.

Common long-acting inhaled bronchodilators that are inhaled once every 24 hours include:

- Spiriva<sup>®</sup> (tiotropium)
- Arcapta<sup>®</sup> (indacaterol)

Common long-acting inhaled bronchodilators that are inhaled every 12 hours include:

- Foradil<sup>®</sup> (formoterol)
- Serevent<sup>®</sup> (salmeterol)
- Brovana<sup>®</sup> (arformoterol)



Some people feel less shortness of breath with a combination of medications.

### **Combination Long-Acting Bronchodilator and Anti-Inflammatory**

Anti-inflammatory medicine helps reduce the prevent inflammation inside the airways. Inhaled steroids may be combined with long-acting bronchodilators. Common combination long-acting bronchodilator and anti-inflammatory medications include:

- Advair® (Flovent® and Serevent®)
- Symbicort® (Pulmicort® and Foradil®)

These combination medications combine two medications that are used to manage COPD in one device. Advair® and Symbicort® are often inhaled every day. They are taken every 12 hours.

Remember to rinse your mouth and use a spacer (if using a metered-dose inhaler) after inhaling these combination medicines. The inhaled steroid contained in these medicines can cause thrush. Thrush, a possible side effect, is a yeast infection causing white patches in the back of the throat.

### **Steroid Pills**

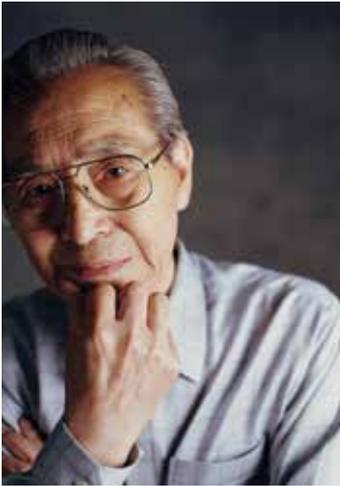
Steroid pills include:

- Deltasone® (prednisone)
- Medrol® (methylprednisolone)

Steroid pills are used when you have an exacerbation or flare-up and your symptoms are getting worse. Long-term use of steroid pills can result in serious side effects and are not recommended to treat COPD, long-term.

### **Antibiotics**

A bacterial infection can cause the symptoms of COPD to worsen, called an exacerbation. Antibiotics help fight bacterial infections that can occur with COPD.



The medication you are taking for COPD doesn't totally take away shortness of breath you often feel, but you should feel better.

### Is My Medication Helping

How can you work with your health care provider to see if your medication is helping?

The medication you are taking for COPD doesn't totally take away the shortness of breath you often feel, but you should feel better. There are changes to watch for. Changes you may notice when the medication is helping include:

- You can do the same activities earlier and with less shortness of breath,
- You are able to walk more and be more active,
- You can do more chores and activities around the house,
- You don't tire as easily,
- You feel less short of breath.

Watch for these changes as your medications are adjusted. When you visit your health care provider discuss any changes with him or her.

### Devices for Inhaled Medications

Inhaled medications are often used to treat people with COPD. Inhaled methods deliver medication directly to the airways, which is useful for people with lung disease. Aerosol devices for inhaled medication may include:

- Metered-dose inhaler
- Metered-dose inhaler with a spacer
- Dry powder inhaler devices
- Nebulizer



Inhaled methods deliver medication directly to the airways, which is useful for people with lung disease.

#### Metered-dose Inhaler with a Spacer

It is crucial that you use the inhaled medication correctly to get the full dosage and benefit from the medication. It is often hard to use a metered-dose inhaler correctly. A spacer is a device which can be attached to the metered-dose inhaler. A spacer helps deliver the medication to the airways of the lungs, instead of the mouth. This helps the medication work better.

Common spacers include:

- AeroChamber®
- Vortex®

Ask your doctor about using a spacer with a metered-dose inhaler, which helps deliver the medication from the mouth into the airways of the lungs.

#### Many inhaled medicines have a counter.

This will help you identify when the device is out of medicine. Some metered-dose-inhalers do not have a counter. If your metered-dose-inhaler does not have a counter, date the canister of the metered-dose-inhaler when you start using it. The canister of your metered-dose-inhaler is marked with the number of puffs in the canister. You can determine how long the medicine will last. Plan ahead to get the amount of medicine you need from the pharmacy.

### Nebulizer

A nebulizer is another way to inhale medications. A nebulizer treatment is given with an air compressor machine. Inhalers are often recommended instead of a nebulizer. These devices are preferred because there is less chance of getting a lung infection.

Your health care provider may have you demonstrate inhaler technique each visit to make sure it's done correctly. Whichever device you use, talk with your health care provider about:

- how to use the device,
- how to clean the device and,
- how to tell when the device is empty.

### Helpful Hints for Remembering Your Medication

It can be difficult to remember your medication every day. Here are some helpful hints for remembering your medication.

- Use a daily routine for taking your medications. Pick something you do every day and take your medication around that activity. Many people take medication around meal time, brushing teeth or going to bed.
- Use a checklist to record when you take your medication. Place the checklist someplace visible to use as a reminder.
- Pack your medications in pill boxes to help you remember to take them.

Remember, there is no “best” medication regimen. Your medication is prescribed based on your symptoms and needs. Monitoring your COPD and working with your health care provider is the best way to ensure that your medication is right for you. Ask your health care provider if you have any questions or are concerned about your medication.



Your health care provider may have you demonstrate inhaler technique each visit to make sure it's done correctly.

### Oxygen Therapy

Some people with COPD may need oxygen therapy. Oxygen therapy is used to ensure there is enough oxygen in the blood to provide for the body's needs.

It is sometimes difficult for you to know when oxygen therapy is required. If your oxygen level is low you may have symptoms such as: shortness of breath, irritability, trouble with thinking, memory problems, morning headaches, fatigue or ankle swelling. If you notice any of these symptoms, talk with your health care provider. It is also possible your oxygen level is low and you will have no symptoms at all.

Your oxygen level can be tested to determine if oxygen is required. Two methods to test the oxygen level in the blood are pulse oximetry and arterial blood gas. Your oxygen level can be measured at rest and with activity. You may need different amounts of oxygen during rest and exercise.

When the tests determine that oxygen is needed, your health care provider will write a prescription for oxygen. If you need oxygen, it is important to use your oxygen as prescribed to live longer. You will also feel better using oxygen and have more stamina.

Some people will need oxygen all the time, twenty-four hours a day. Some people will need oxygen with activity or while sleeping. For the most benefit, use your oxygen exactly as prescribed.

**There are three systems that can supply oxygen:**

- Concentrators,
- Compressed gas and,
- Liquid systems.

Each system has advantages and disadvantages. You will receive an explanation and demonstration of the system you choose. Your health care provider or oxygen supply company can assist you if you have questions.

You may be concerned about how oxygen therapy may change your lifestyle, how oxygen affects your body and whether oxygen therapy is safe. You may worry that oxygen treatment will prevent you from leaving your home, but many convenient portable systems are available. In fact, oxygen therapy allows you to be more active by providing the oxygen that your body needs.



Oxygen therapy is used to ensure there is enough oxygen in the blood to provide for the body's needs.

Many people travel while using oxygen. Advance planning is important when traveling with oxygen.

Oxygen therapy does not cause any harm to your lungs or your body, if used as prescribed. You will not develop an addiction to oxygen. Oxygen therapy is very safe. Talk with your health care provider if you have specific safety concerns.

Information about oxygen therapy may be available in your community from your health care provider, your oxygen supply company and a support group of other people using oxygen in your community.



Pursed lip breathing inhale

### Breathing Techniques

Learning new breathing techniques will help you move air in and out of your lungs. It is helpful to use effective breathing techniques with exercise to minimize shortness of breath and assure adequate oxygen to your working muscles. Breathing retraining has the added benefit of helping you relax when you are anxious or stressed. Two types of breathing techniques are pursed lip breathing and coordinated breathing with exercise.

#### PURSED LIP BREATHING

The purpose of pursed lip breathing is to help keep your airways open. This helps your airways to remain open. Pursed lip breathing also slows down your breathing rate and calms you down.

**Here are the steps for pursed lip breathing:**

- Inhale slowly through your nose with your mouth closed; try to take in a normal amount of air.
- Exhale slowly through your mouth with your lips in the whistling or kissing position.
- Breathe out for twice as long as you breathe in.

Do not take in a large deep breath. Never try to force out the air.



Pursed lip breathing exhale

### COORDINATED BREATHING

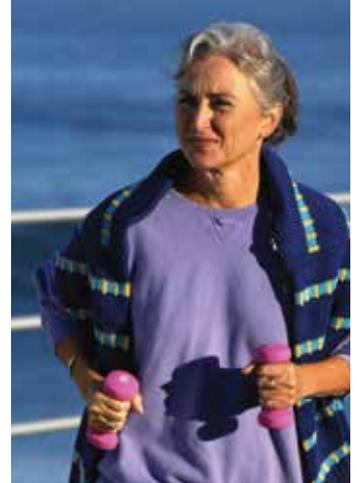
The purpose of coordinated breathing is to help assure adequate oxygen to your working muscles and to prevent you from holding your breath.

**Here are the steps for coordinated breathing.**

- Inhale through your nose before starting the exercise or activity.
- Exhale through pursed lips, during the most exerting part of the exercise or activity.

If coordinating your breathing with exercise is difficult, as you perform the movement, count out loud. This helps prevent you from holding your breath. If you become very short of breath, stop the exercise, use pursed lip breathing to help control your breathing, then start exercising again.

Practice these breathing techniques daily. When you feel short of breath, anxious or just wound up, use these breathing techniques.



The purpose of coordinated breathing is to help assure adequate oxygen to your working muscles and to prevent you from holding your breath.

### Techniques to Bring Up Mucus

People with chronic bronchitis often produce a large amount of mucus. If the mucus is allowed to collect in the airways, breathing may become difficult and infection may occur. Techniques to remove mucus may be recommended to help you cough up the mucus.

Common techniques used to help remove mucus include deep coughing and huff coughing.

**Here are the steps for deep coughing.**

- Take a deep breath.
- Hold your breath for 2-3 seconds.
- Use your stomach muscles to forcefully expel the air.

Avoid a hacking cough or merely clearing the throat. A deep cough is less tiring and more effective in clearing mucus out of the lungs.

Huff coughing is an alternative to deep coughing if you have trouble clearing your mucus.

**Here are the steps for huff coughing.**

- Take a breath that is slightly deeper than normal.
- Use your stomach muscles to make a series of 3 rapid exhalations with the airway open, making a “ha, ha, ha” sound.
- Follow this by controlled breathing and a deep cough if you feel mucus moving.

**Other techniques to help remove mucus include:**

- Medications can be used to help loosen the mucus.
- Devices such as Acapella® or Flutter® valve. These are small devices you exhale into. This helps loosen the mucus.
- Postural drainage, chest percussion and vibration promote drainage of mucus from the lungs.

Each technique can be ordered and demonstrated by your health care provider.

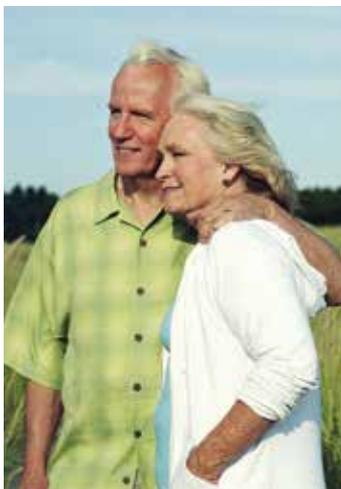


If the mucus is allowed to collect in the airways, breathing may become difficult and infection may occur.



## **An Action Plan for COPD**

Sometimes it is hard to know what to do when your symptoms change or worsen. Do you call your doctor, go to the emergency room? Your health care provider can tell you what you can do when this happens. This is an Action Plan. Knowing when your symptoms are getting worse can help you and your health care provider decide what you should do in your home, at your health care provider's office or in the emergency room.



Talk with family members and those close to you about your action plan.

A change or increase in the symptoms you usually have may be the only early warning sign. When your symptoms are getting worse, you may notice one or more of the following:

- A change in the mucus, and/or mucus turns yellow or green,
- An increase in shortness of breath, coughing or wheezing,
- A fever,
- A general feeling of ill health,
- Trouble sleeping,
- Feeling of lack of energy or fatigue, and/or,
- Morning headaches.

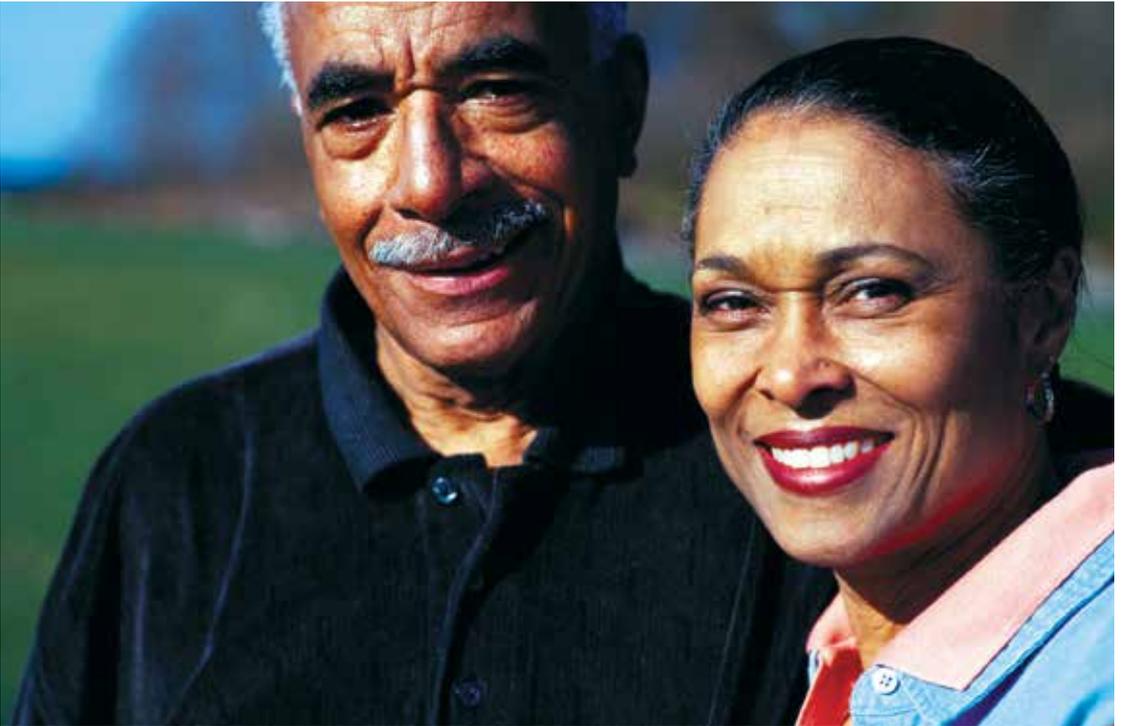
Symptoms do not go away when they are ignored. Therefore, call your health care provider if you have a change in symptoms, especially if they continue.

Severe symptoms may be a life-threatening emergency. Have an action plan for getting emergency care quickly if you have severe symptoms.

Talk with family members and those close to you about your action plan.

### **Advance Directives**

As part of the action plan, talk with your health care provider and family about treatment if you become seriously ill and are unable to express your wishes. Written legal documents expressing your wishes are called Advance Directives.



## Living with COPD

Living with COPD is a unique and special challenge that you and your family must deal with on a daily basis. But the more you know about COPD, the better suited you are in managing the various aspects of your disease. As you take control, your quality of life will improve.

Sometimes COPD can put a strain on responsibilities or relationships you may have. COPD can impact your family, career and your finances. If COPD is causing any problems be sure to talk with someone. Your health care provider can help you find an expert to talk with. A support group where you can meet and talk to other adults with COPD may also help you cope with the challenge of COPD.

This book has taught you about many aspects of managing your COPD. All of these can help you. Be sure to talk with your health care provider if you have questions or concerns after reading this book. Your health care provider is your partner in managing your COPD.

**Remember your goals for managing your COPD**

- Decreasing shortness of breath
- Reducing exacerbations
- Becoming more active
- Decreasing anxiety or stress
- Improving mood
- Accepting new health status
- Learning about COPD

**Questions to ask my health care team**

If you have thought of questions to ask your health care provider after reading this book, write them down. Ask your health care provider at your next appointment.

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about National Jewish Health,**

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