



CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

A GUIDE FOR PATIENTS AND THEIR FAMILIES



ABOUT COPD

COPD is a chronic lung disease that causes difficulty with breathing and other symptoms. It is caused by exposure to particles in the air or certain gasses over a long period of time. The most common substance that causes COPD is cigarette smoke, but it can also be caused by certain chemicals, types of dust, air pollution, or other substances.

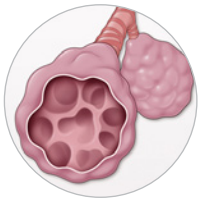
In healthy lungs, oxygen flows in through airways that branch off and become smaller, ending in tiny air sacs called alveoli. It is in the walls of the alveoli that oxygen that is inhaled during breathing is transferred into the bloodstream and carbon dioxide is transferred from the bloodstream back into the lungs and then exhaled. When a person has COPD, less air is able to flow in and out of their lungs due to one or more of the following:

IMPORTANT FACTS ABOUT COPD

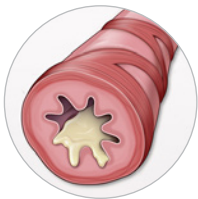
- Over 11 million people in the U.S. have been diagnosed with COPD. It is the third leading cause of death in the United States
- COPD is sometimes called chronic bronchitis or emphysema
- There is no cure for COPD, but there are many treatments available that can reduce symptoms and exacerbations
- Early diagnosis of COPD is important. The earlier COPD is diagnosed, the more damage to the lungs can be prevented
- There are more deaths from COPD in women than in men



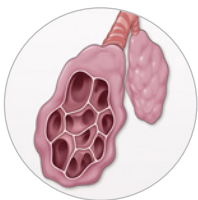
When the walls of the airways in the lungs are inflamed and have become thickened (Chronic Bronchitis)



When the walls between the tiny air sacs in the lungs are destroyed (Emphysema)



When the airways in the lungs produce more mucus than usual, causing clogging of the airways



When the airways and air sacs in the lungs have become less elastic



CAUSES AND RISK FACTORS

Smoking is the main risk factor for COPD. Most people who have COPD either smoke currently or used to smoke. However, there are other causes or risk factors for COPD. These include:

- A family history of COPD
- Exposure to substances such as air pollution, chemical fumes, or dust over a long period of time
- Being 40 years old or older

SYMPTOMS

It is common for COPD symptoms not to appear until after the lungs have been significantly damaged. These symptoms will usually get worse as COPD progresses. People with COPD may experience periods where their COPD symptoms are worse than normal. These periods are called exacerbations, and they usually last for several days before symptoms return to normal.

The most common symptoms of COPD are:

- A persistent cough or a cough that produces a lot of mucus
- Shortness of breath, particularly during physical activity
- Wheezing
- Tightness in the chest

Other symptoms of COPD include:

- The need to clear your throat first thing in the morning due to excess mucus in the lungs
- Blueness of the lips or fingernail beds
- Low energy
- Frequent respiratory infections

Severe or advanced COPD can cause other symptoms, such as:

- Swelling in the ankles, feet, or legs
- Lower muscular endurance
- Unintended weight loss

Some of these more serious COPD symptoms may require treatment in a hospital. If you experience any of the following, you should seek emergency assistance:

- You are having a hard time catching your breath or talking
- Your lips or fingernails turn blue or gray
- You feel foggy or are not mentally alert
- Your heartbeat is very fast
- Treatment you have been prescribed for worsening symptoms is not working

DIAGNOSIS

Diagnosis of COPD is very important. This is because the earlier COPD is diagnosed, the less likely it is that the lungs will have been significantly damaged, and a higher possibility for effective treatment. Many cases of COPD remain untreated because they are not diagnosed, which can result in significant lung damage or even death. You should see your doctor as soon as possible if you experience the symptoms of COPD.

COPD is diagnosed based on your symptoms, medical and family history, and the results of certain tests. Your doctor will ask you if you have had contact with lung irritants that can cause COPD, such as cigarette smoke, air pollution, chemical fumes, or dust. Your doctor will also listen to your chest using a stethoscope to detect abnormal sounds or wheezing.

Some of the tests used to diagnose COPD are:

- **Lung function tests:** these tests measure how much air you can breathe in and out, how fast you can breathe out, and how well your lungs deliver oxygen to the blood. The most common lung function test is called spirometry and this measures how much air you can breathe out after taking a deep breath and how fast you can expel the air.
- **X-ray or computed tomography (CT) scan:** these scans provide images of the lungs. Doctors can look at these images to see if there are visible signs of COPD.
- **Arterial blood gas test:** this is a simple blood test that shows the amount of oxygen in your blood. Low oxygen levels in the blood could indicate COPD.



TREATMENT OPTIONS

Because there is no cure for COPD, treatment is designed to help patients breathe easier by relieving symptoms. Treatment for each COPD patient is different, but doctors use the same approach when deciding on a treatment plan. This includes evaluating what type of COPD is present, how serious the symptoms are, and how much lung damage is present. A patient who has COPD from emphysema will probably be treated different than a patient who has COPD from chronic bronchitis.

In treating COPD, doctors may use a combination of drugs, surgery, lifestyle adjustments, and other treatments depending on the type and severity of a patient's COPD. These treatments may be used alone or in combination when treating COPD.

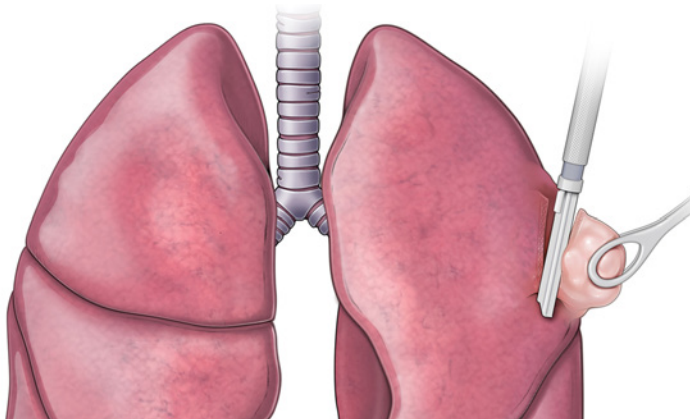
MEDICINES: there are several types of medicines that help to treat COPD:

- **Bronchodilators:** these relax the muscles around your airways. This helps to open the airways and makes breathing easier. There are two types of bronchodilators, short-acting and long-acting. Short-acting bronchodilators last for approximately 4 – 6 hours and are used on an as-needed basis. They are usually used in milder cases of COPD. Long-acting bronchodilators last for 12 hours or more and are used everyday. They are usually prescribed when COPD is moderate or severe.
- **Inhaled corticosteroid medications:** these can reduce inflammation of the airways, making breathing easier, and help prevent exacerbations. However, they may have side effects that can include bruising, oral infections, and hoarseness.
- **Oral steroids:** short courses of oral corticosteroids are used to treat exacerbations of COPD. Long-term use of these medications can cause serious side effects and should be avoided.
- **Combination bronchodilators plus inhaled glucocorticosteroids:** are used for more severe cases of COPD or cases where symptoms flare-up often. These are a combination of medications consisting of a bronchodilator and an inhaled steroid.
- **Phosphodiesterase-4 Inhibitors:** these are a new type of medication used to treat severe COPD symptoms from chronic bronchitis. Phosphodiesterase-4 inhibitors decrease inflammation and also relax the airways.
- **Long acting anti-muscarinic agents:** these dilate the airways, making it easier to breathe. They are used for more severe cases of COPD or cases where symptoms flare-up often.
- **Antibiotics:** are used to treat respiratory infections such as acute bronchitis, pneumonia, and influenza, which can aggravate COPD symptoms.
- **Vaccines:** are used for the prevention of illnesses such as influenza and pneumonia, which can cause serious problems for people who have COPD.

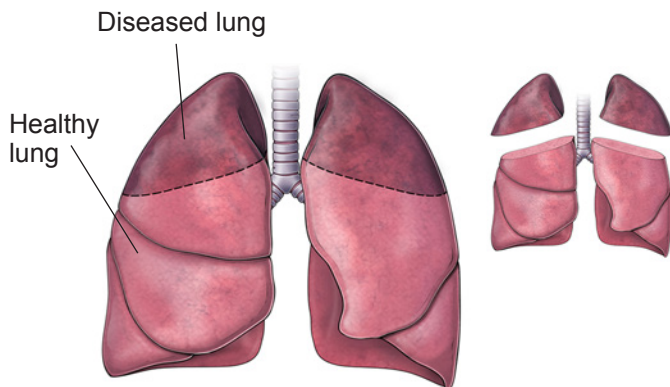




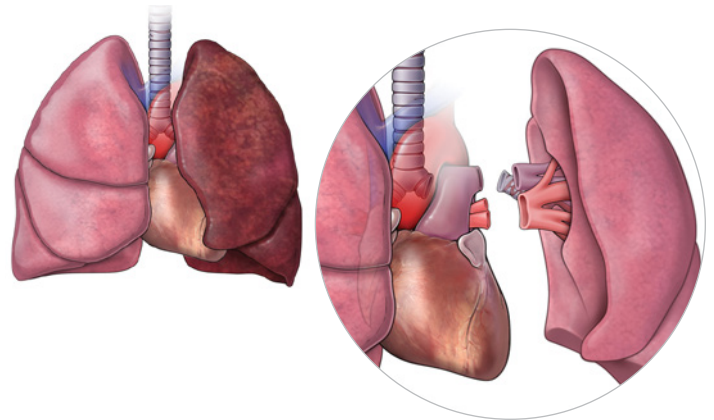
SURGERY: Surgery is usually a last resort for people who have severe COPD symptoms that do not respond well to medication or other treatments. There are three main types of surgery that are used to treat COPD:



- **Bullectomy:** bullae are air spaces that are formed when the walls of the small air sacs in the lungs are destroyed. Bullae can become large enough that they interfere with a person's ability to breathe. A bullectomy is a surgery that removes these bullae from the lungs, making it easier to breathe. Usually, these surgeries are performed on patients with emphysema.



- **Lung volume reduction surgery (LVRS):** COPD can damage lung tissue, which can cause difficulty with breathing. In a lung volume reduction surgery, doctors remove damaged lung tissue. Getting rid of damaged lung tissue can help patients to breathe better and improve their quality of life, but it is not recommended for every COPD patient.



- **Lung transplant surgery:** in very severe COPD, the lungs can become so seriously damaged that other treatments are not feasible. In a lung transplant surgery, the damaged lung is removed and replaced with a healthy lung from a deceased donor. There are many risks associated with lung transplant surgery, including infection, or even death if the recipient's body rejects the transplanted lung. However, if successful, lung transplant surgery can significantly improve quality of life.

IS SURGERY RIGHT FOR ME?

Surgical treatment of COPD is reserved for severe cases where other treatments, such as medication, oxygen therapy, and lifestyle changes do not effectively treat symptoms. Surgery can significantly improve breathing and quality of life for COPD patients. However, for some patients, including patients over 75 years of age, patients with pulmonary hypertension, patients with other illnesses in addition to COPD, or severely obese patients, surgery may not be a suitable option, as the risks associated with surgery are more serious. Even in patients who are considered good candidates, there are significant risks involved in any surgery.

Speak with your doctor about whether surgery is an option for treating your severe COPD.



OTHER TREATMENTS: In addition to medication and surgery, there are other treatment options for COPD, and new treatments are being developed. Your doctor may recommend other treatments such as:

- **Oxygen therapy:** people with severe COPD may have low levels of oxygen in their blood. Oxygen therapy involves the administration of oxygen through two small tubes that enter the nose. This can help with breathing. Some people receive oxygen therapy all the time, and others only need it at certain times, such as when they exercise or while they sleep.
- **Endobronchial Lung Volume Reduction (ELVR):** this is an investigational therapy for COPD. It is similar to lung volume reduction surgery, but is performed using a tube with a light and camera (endoscope) that enters the body through the mouth or nose to place a small valve in the airway. The valve prevents airflow into the diseased part of the lung, while allowing trapped air to escape. This is currently an experimental treatment in the United States and is pending FDA approval.



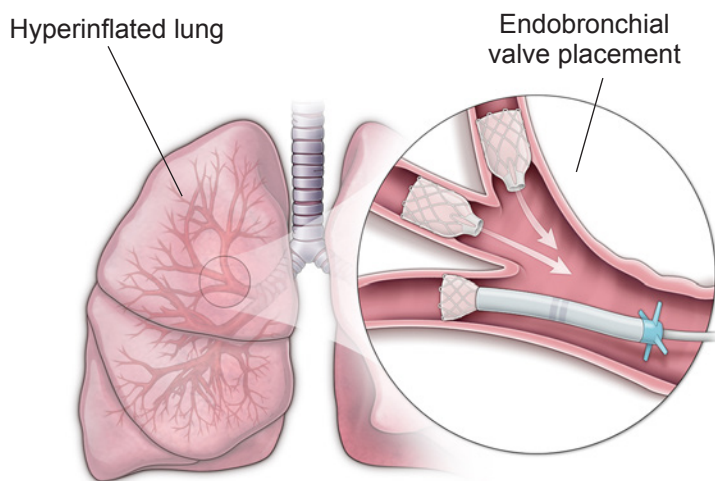
LIFESTYLE CHANGES

If you have COPD, you may be able to significantly improve your symptoms and quality of life by making some changes to your lifestyle. The most important thing you can do is to quit smoking. Your doctor can recommend products and programs that can help you quit, and you may find joining a support group with other people who are quitting smoking to be helpful.

In addition to quitting smoking, you should avoid secondhand smoke, chemical fumes, dust, pollutants, and other lung irritants as much as possible. If you are unable to completely avoid irritants, you may consider wearing a respirator or air-filtering mask when you come into contact with these substances.

Getting regular exercise can strengthen the muscles used in breathing and improve your overall well-being. Your doctor can help you find types of exercise and physical activity that are safe for you.

Pulmonary rehabilitation (rehab) may help to improve your quality of life. Rehab includes a variety of treatments and methods that are designed to improve well-being, including nutritional counselling, exercise programs, training in managing COPD symptoms, and psychological counseling.





WHY CHOOSE THE TEMPLE LUNG CENTER?

The Temple Lung Center is one of the leading treatment centers for COPD in the United States, treating over 3,300 COPD patients each year, more than any other hospital in Pennsylvania. The physicians at Temple have extensive experience in diagnosis and treatment of all types of COPD, from relatively mild COPD at an early stage, to very advanced COPD that requires surgical intervention.

At Temple Lung Center, COPD patients benefit from rapid evaluation of their condition and treatment via a multi-disciplinary approach, involving medications, device-based therapies, surgery, interventional procedures, transplantation, biotechnological agents, oxygen therapy, and pulmonary rehabilitation. Patients receive the highest standard of care from a team of specialists, including pulmonologists, thoracic and cardiovascular surgeons, respiratory therapists, pulmonary nurse specialists, physical therapists, nutritionists, counselors, and transplantation specialists. Temple Lung Center physicians also work closely with primary care physicians to provide the highest level of patient care.

What truly sets the Temple Lung Center apart is its extensive clinical trial program. Temple Lung Center is an internationally known research center for the investigation of new therapies for COPD. Temple physicians have participated in every major COPD clinical trial in the U.S. in the last 20 years, and this commitment to research and the development of new treatments continues today. Currently, over half of Temple's clinical trials are focused on treatment and management of COPD.

Clinical trials offer patients the opportunity to receive innovative and unique care. With such a large number and variety of trials, almost every patient can be confident there are further options in their treatment through a clinical trial. In participating, patients are able to receive therapy that may improve their health, while also assisting physicians in discovering new techniques for the treatment of COPD. Many treatments that are now common for COPD once came from clinical trials conducted at large institutions, such as Temple University Hospital.

CLINICAL TRIALS

Physicians at the Temple Lung Center are always researching new and better treatments for COPD and are involved in many clinical trials. Clinical trials are a type of research that physicians perform in order to learn whether a new treatment, medication, or device is effective and safe for patients. Treatments, drugs, or devices that are studied using clinical trials have already undergone some testing, but clinical trials allow doctors to see how effective and safe new strategies are in human patients. The knowledge gained from clinical trials is very important in improving treatment options and patient care. Additionally, participating in clinical trials can provide patients with access to brand new treatment options that may not yet be approved for broader use in the United States.

Temple Lung Center physicians are involved in a number of clinical trials evaluating new treatments and medications for COPD, with new trials offered regularly. Currently, our doctors are studying new medications that can prevent inflammation and exacerbations, a non-surgical lung volume reduction procedure, and many other new treatments for COPD. Speak with your doctor if you are interested in participating in a clinical trial.

NOW OFFERING TELEMEDICINE APPOINTMENTS



Temple Health offers telemedicine appointments for both new and current patients for many of our specialty services. See a Temple doctor from the comfort and safety of your home on your phone, tablet, or computer. [LEARN MORE](#)



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**For more information on our physicians and their clinical interests
visit templehealth.org/lung**

Temple Health refers to the health, education and research activities carried out by the affiliates of Temple University Health System (TUHS) and by the Lewis Katz School of Medicine at Temple University. TUHS neither provides nor controls the provision of health care. All health care is provided by its member organizations or independent health care providers affiliated with TUHS member organizations. Each TUHS member organization is owned and operated pursuant to its governing documents.

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Temple University Hospital does not exclude participation in, and no one is denied the benefits of, the delivery of quality medical care on the basis of race, religious creed, sex, sexual orientation, gender identity, disability, age, ancestry, color, national origin, physical ability, or source of payment.

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How We Are Protecting You

SAFETY PRECAUTIONS AND PROTOCOLS DESIGNED TO PROTECT OUR PATIENTS AND STAFF

The safety of our patients and staff is our highest priority, especially now. Our team of clinicians have implemented numerous safety protocols to protect our patients and staff, based on the guidelines of the CDC, local and federal government, and leading medical associations. These include:

- Everyone must wear a mask while in the hospital. We encourage patients to wear their own mask. However, we will provide a mask to those who do not have one
- Patients and visitors will be screened at entryways for COVID symptoms
- Thorough cleaning and disinfecting at least several times per day, based on infection control guidelines
- Staff use appropriate PPE for each procedure and appointment, based on CDC guidelines
- The isolation of COVID patients into dedicated hospital units, separated from where your appointments and procedures are located
- Social (physical) distancing requirements including seat spacing in waiting areas, minimizing the number of people in lobbies, waiting areas and other public locations such as elevators
- Visitor restrictions are in place for both inpatient and outpatient services
- COVID testing on patients before procedures
- Employees are encouraged to participate in a daily symptom monitoring application, which is reviewed in real time by clinical staff



HEAR FROM DR. AMY GOLDBERG, SURGEON-IN-CHIEF, TO LEARN MORE ABOUT OUR SAFETY PRECAUTIONS:

or go to <https://bit.ly/34izoBl>



TELEMEDICINE APPOINTMENTS FROM THE COMFORT AND SAFETY OF YOUR HOME

In order to support patient and staff safety, many appointments are now available through telemedicine (also called virtual visits). When an in-office appointment is not medically necessary, we encourage our patients to participate in appointments using telemedicine.

Temple Health offers telemedicine appointments for both new and current patients for many of our specialty services. See a Temple doctor from the comfort of your home on your phone, tablet, or computer.