EDUCATION
(BOOKLET 2)

Lung Diseases

Allina Health

Lung Diseases

First edition

Developed by Allina Health. Information adapted from the National Institutes of Health.

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Lung Disease

❑ Chronic Obstructive Pulmonary Disease (COPD)

Watch to Learn More

Go to allinahealth.healthclips.com and click on *Chronic Obstructive Pulmonary Disease* under *Pulmonology*. You can watch several short videos about COPD.

Important

COPD is a progressive disease. This means it will get worse over time.

COPD is a disease that makes it hard for you to breathe. Less air flows in and out of your airways because the:

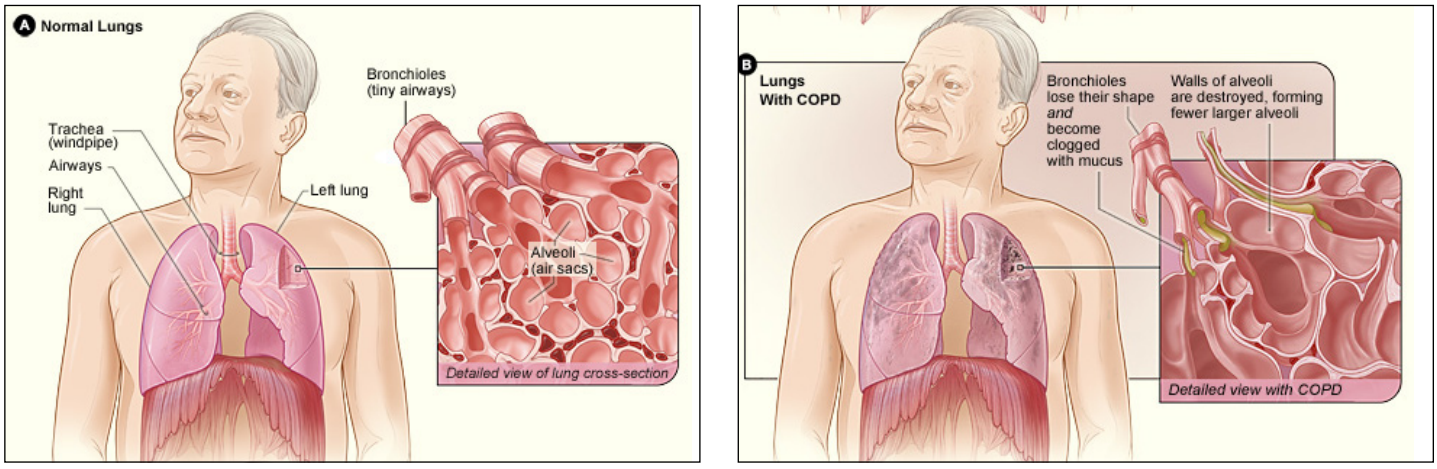
- air sacs lose their stretchy ability to fill up with air when you breathe in and deflate when you breathe out
- walls between air sacs are broken
- walls of the airways are too thick and inflamed (swollen)
- airways make extra mucus.

Most people who have COPD have 1 or 2 conditions:

- chronic bronchitis: the lining of the airways is always irritated and inflamed. This causes the lining to get thicker. This leads to extra mucus production.
- emphysema: the air sacs lost their shape and became floppy. This means you have fewer and larger air sacs.

Cigarette smoking is the most common cause of COPD. Other things, like pollutants, can cause or make COPD worse.

The first signs are a mild shortness of breath and coughing. The cough then occurs more often and has clear mucus (also called sputum). The cough becomes worse and you need more effort to get air in and out of your lungs. It is a disease that gets worse over time.



The drawings from the National Institutes of Health show a set of normal lungs and alveoli (left) and lungs damaged by COPD (right).

Symptoms

Symptoms appear slowly and may get worse over many months or years. You may have some or all of the following:

- shortness of breath
  - You may feel short of breath during an activity, such as climbing stairs or walking quickly.
  - Over time, you may become short of breath even when you rest. It is easy to ignore this symptom as being "out of shape."
- coughing with mucus
  - The mucus is usually clear.
  - The cough is often worse in the morning.
- wheezing
  - This can sound like a whistling or squeaking sound when you breathe. You may feel a tightness in your chest.
- feeling tired or losing energy
- losing weight
  - As the disease gets worse, you may find that eating makes you feel "too full to breathe comfortably." You may eat less than you need for strong muscles and energy.
- flare-ups (or "exacerbations")
  - This usually occurs when COPD is more severe. You may need to be treated in the hospital.
  - Flare-ups usually have a change in the color of the mucus. Wheezing may not get better with inhaled treatments, or both.

COPD is described in different stages based on your symptoms and lung function (how well your lungs work).

When to call your primary care provider

Call your primary care provider if you:

- have more coughing, sputum or phlegm than usual
- are more short of breath or wheezing more than usual
- are more tired than usual or unable to do normal activities
- have a fever of 100.8 F or higher
- are using your inhalers or nebulizers more than usual
- have lower oxygen saturation than usual
- are unable to think clearly.

When you call your clinic or primary care provider, tell the person who answers the phone, "I have chronic lung disease and my symptoms have changed. I need to make an appointment with a primary care provider today."

When to call 911 or go to the hospital

Call 911 or have an adult drive you to a hospital Emergency Department if you:

- are unable to catch your breath
- have no relief from your rescue inhaler
- have a bluish color to your lips or fingernails
- have a grayish color to your skin
- have confusion or cannot wake up easily.

Do not use more oxygen than is prescribed for you.

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How to Care for COPD

Call 911 if you can't catch your breath, have symptoms for 2 days, have no relief from your rescue inhaler, have bluish lips or fingernails, have grayish skin, have confusion, or you can't wake up easily.

Activity

- Even a small amount of exercise can improve your health. Try to work on being active 5 to 6 days a week for 30 minutes each day.
- Walking is good exercise because it is easy. You may also try other exercise that is low impact.
- Save your energy.
- Find easier ways to do things to help give you energy to do the things you enjoy.
- Consider using equipment to save energy.

Medicines

- Know which medicines you are taking:
  - ❑ **beta-2 agonists**: open your airway quickly
  - ❑ **anticholinergics**: open your airway quickly and reduce cough
  - ❑ **inhaled steroids:** reduce swelling
  - ❑ **combination medicines:** open your airway and reduce swelling
  - ❑ **oxygen:** help you feel better.
- Take your medicines as directed.

Do Not Use Tobacco

- Using any form of tobacco, including electronic nicotine delivery systems, is hard on your body.
- If you need help quitting, talk with your doctor or:
  - — Quit Partner
    - 1-800-QUIT-NOW (1-800-784-8669) or quitpartnermn.com
  - — online tobacco cessation support
    - smokefree.gov.

Food

- Eat healthful foods, such as:
  - — lean meats
  - — low-fat dairy
  - — fruits and vegetables
  - — whole wheat breads and cereals.
- Drink at least 6 to 8 glasses of water a day.
- Eat 5 or 6 smaller meals during the day.
- Eat softer foods.

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When To Call Your Health Care Provider

Call if you:

- have more coughing, sputum or phlegm than usual
- are more short of breath or have more wheezing than usual
- are more tired than usual or are unable to do your regular activities
- have a fever of 100.8 F or higher
- use your rescue inhalers or nebulizers more than usual
- have lower oxygen saturation than usual
- are unable to think clearly.

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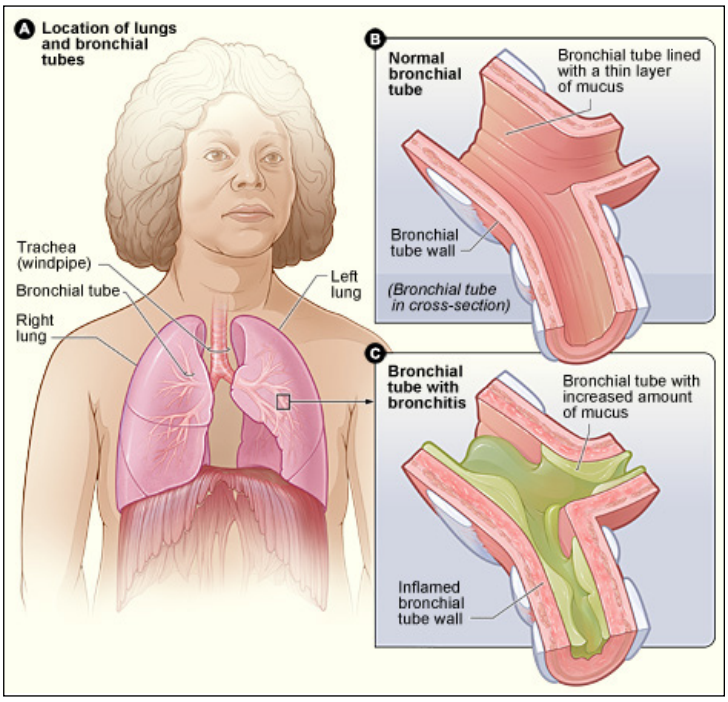
❑ Chronic Bronchitis

Chronic (long-term) bronchitis is inflammation of the air passages (bronchial tubes) that carry air to your lungs. This causes a cough with lots of mucus.



The drawing from the National Institutes of Health shows a normal bronchial tube and a bronchial tube with bronchitis.

Over time, this causes narrowing of the air passages in the lungs, which can make it hard to breathe and get air in and out of your lungs. This is a disease that will never fully go away.

Cigarette smoking is the most common cause of chronic bronchitis. Breathing in other pollutants, like fumes and dust, over a long period of time may also cause this disease.

Symptoms

Common symptoms are:

- cough
- mucus

Germs (viruses or bacteria) can infect irritated air passages. This will make your symptoms worse.

This is a serious, long-term medical condition. Early treatment, quitting smoking and avoiding secondhand smoke can help you feel better. Drinking lots of water may help keep mucus thin and easier to cough up.

Together, you and your primary care provider will create a treatment plan.

❑ Emphysema

Emphysema is damage to the small air sacs (alveoli) in your lungs. They lose their ability to stretch back to normal size. The old air gets trapped in the sacs and it leaves less room for new air. This makes it hard for you to breathe.

As a result, your body does not get the oxygen it needs. Emphysema makes it hard to catch your breath.

Smoking is the most common cause of emphysema.

Symptoms

Common symptoms are:

- cough that does not go away
- shortness of breath, especially with exercise.

If you smoke, quitting will slow down the damage to your lungs.

Treatment options depend on your symptoms. Together, you and your primary care provider will create a treatment plan.

❑ Asthma

Watch to Learn More

Go to allinahealth.healthclips.com and click on *Asthma* under *Pulmonology*. You can watch short videos about asthma.

Asthma is a breathing disorder that causes the small airways in your lungs to become inflamed or swollen. It may also lead to airway spasms. Both of these conditions narrow the airway and make it hard for you to breathe.

There is no cure for the disease, but you can control it with the right care. Being free of symptoms does not mean you no longer have asthma.

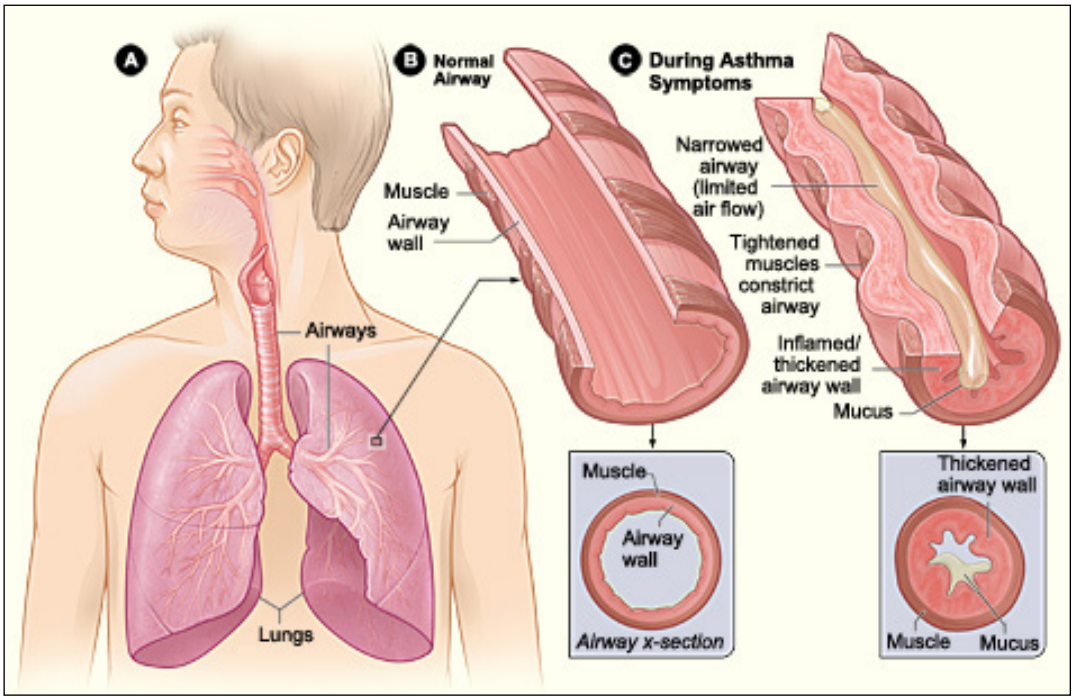
Asthma is chronic (long-term). With the right asthma management plan and medicines, you can have an active life.

What happens during an asthma attack

When you breathe in, air moves down your trachea (windpipe) into your bronchi in each lung. The lower ends of each bronchi divide and branch, looking like an upside-down tree.

At the end of the smallest bronchi are tiny hollow air sacs called alveoli. When you breathe in, air rushes into the alveoli and they expand.

When you have an asthma attack, the lining of your airway becomes inflamed from the things you are allergic to or find irritating. The muscles around your airway tighten up. This causes less air to flow through.



The drawing from the National Institutes of Health shows a normal airway and what happens to an airway during asthma symptoms.

Your airway also makes more mucus, which will narrow your airway even more. These changes will cause you to have symptoms of an asthma attack. Drinking lots of water may help keep mucus thin and easier to cough up.

Many people have these symptoms during an asthma attack:

- shortness of breath
- chest tightness
- wheezing or coughing.

Most of your symptoms happen when certain allergens or irritants make your airway inflammation worse. These are called triggers.

Common triggers include:

- dust mites
- mold
- pollen
- tobacco smoke
- animal dander
- smoke, strong odors and sprays
- exercise, sports, work or play
- sulfites in food and other food allergies
- cold air
- strong emotions and stress
- some medicines.

Together, you and your primary care provider will create an asthma action plan and treatment plan.

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How to Care for Asthma

Activity

- Get up and out of bed. Your lungs can expand fully when you are standing. This will help you breathe easier and help you get better faster.
- Slowly increase your activity. Your lungs need time to heal.
- Limit activities that increase coughing or cause you to be short of breath.
- Exercise your lungs by taking deep breaths and coughing 5 to 6 times every hour while you are awake. Take a deep breath and hold it as long as you can. Push the air out of your lungs with a deep, strong cough.

Medicines

- Two common types of asthma medicines are:
  - ❑ **controllers**: used every day to prevent your airway from getting inflamed
  - ❑ **rescuers (relievers)**: used to keep an asthma flare-up from getting worse.
- Take your medicines as directed.
- Your heart rate may increase or you may feel jittery right after taking medicine. This may last for about one hour. Talk with your health care provider if this happens.

Do Not Use Tobacco

- Using any form of tobacco, including electronic nicotine delivery systems, is hard on your body.
- If you need help quitting, talk with your doctor or:
  - — Quit Partner
    - 1-800-QUIT-NOW (1-800-784-8669) or quitpartnermn.com
  - — online tobacco cessation support
    - smokefree.gov.

Food

- Eat healthful foods, such as:
  - — lean meats
  - — low-fat dairy
  - — fruits and vegetables
  - — whole wheat breads and cereals.
- Drink at least 6 to 8 glasses of liquids a day to help thin the mucus. Water is a good choice.

When To Call Your Health Care Provider

Call if you have or your child has **any** of these:

- breathing very hard or very fast
- nostrils wide open
- ribs show, body is hunched
- feeling anxious due to breathing
- flu-like symptoms, such as fever, cough, sore throat, runny or stuffy nose, or body aches
- vomiting or can't keep medicine down
- mucus becomes yellow or green
- fever of 101.5 F or higher
- sudden increase in feeling jittery.

Call 911 if your breathing doesn't get better, you can't talk or if you have blue lips.

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❑ Bronchiectasis

Bronchiectasis (bron-ke-EK-ta-sis) is a condition in which damage to the airways causes them to widen and become flabby and scarred.

It is usually the result of an infection or other condition that injures the walls of your airways or prevents the airways from clearing mucus.

Your airways slowly lose their ability to clear out mucus. When mucus cannot be cleared, it builds up and bacteria can grow. This leads to repeated, serious lung infections.

Each infection causes more damage to your airways. Over time, the airways lose their ability to move air in and out. This can prevent enough oxygen from reaching your vital organs.

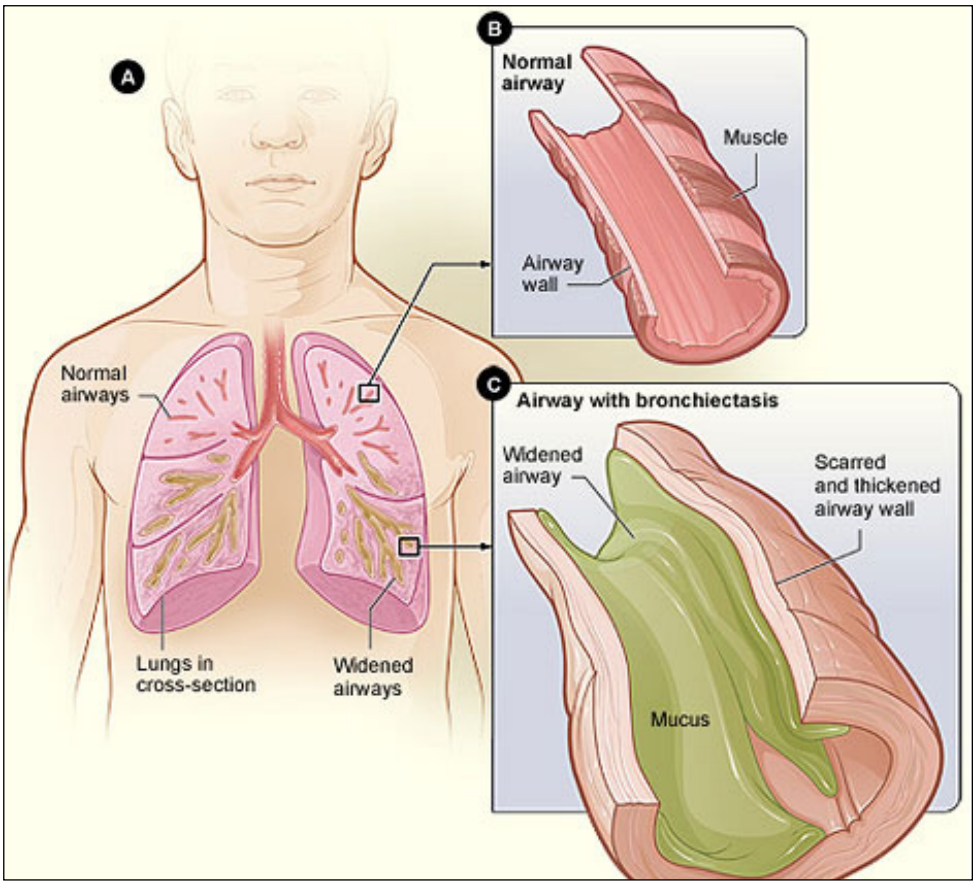
It can affect one part or many parts of the lungs and can lead to serious problems such as heart failure.

There is no cure. Together, you and your primary care provider will create a treatment plan.

Symptoms

Common symptoms are:

- cough every day
- large amounts of mucus
- shortness of breath
- wheezing
- chest pain
- clubbing.



The drawing from the National Institutes of Health shows a normal airway and what happens to an airway with bronchiectasis.

❑ Restrictive Lung Disease

Restrictive lung disease keeps your lungs from being able to fully fill with air when you breathe in (inhale). Your lungs may not be able to expand or there may be a problem with the muscles around your lungs.

Symptoms

Symptoms include:

- shortness of breath
- coughing
- chest pain
- wheezing.

To help tell if you have restrictive lung disease, your primary care provider will give you a pulmonary function test. You may have other tests as well. Together, you and your primary care provider will create a treatment plan.

❑ Pulmonary Hypertension (Increased Pressure in the Pulmonary Arteries)

Pulmonary hypertension (high blood pressure) is increased pressure in the arteries that carry blood from your heart to your lungs. These arteries pick up oxygen.

The cells in the pulmonary arteries become inflamed (swollen). Other things that can cause this disease are a blood clot, lung disease you have had since birth, or if the walls of the arteries tighten or become stiff.

All of these changes make it hard for blood to flow through the arteries into your lungs. This results in the pressure in the arteries rising.

As a result, your heart has to work harder to pump blood. Over time, your heart muscle can weaken which can lead to heart failure.

Symptoms include:

- shortness of breath
- tiredness
- chest pain
- racing heartbeat.

Your everyday activity is affected as the disease gets worse. There is no cure but the earlier the disease is found, the easier it is to control. Together, you and your primary care provider will create a treatment plan.

❑ Pneumonia

Watch to Learn More

Go to allinahealth.healthclips.com and click on *Pneumonia* under *Pulmonology*. You can watch short videos about pneumonia.

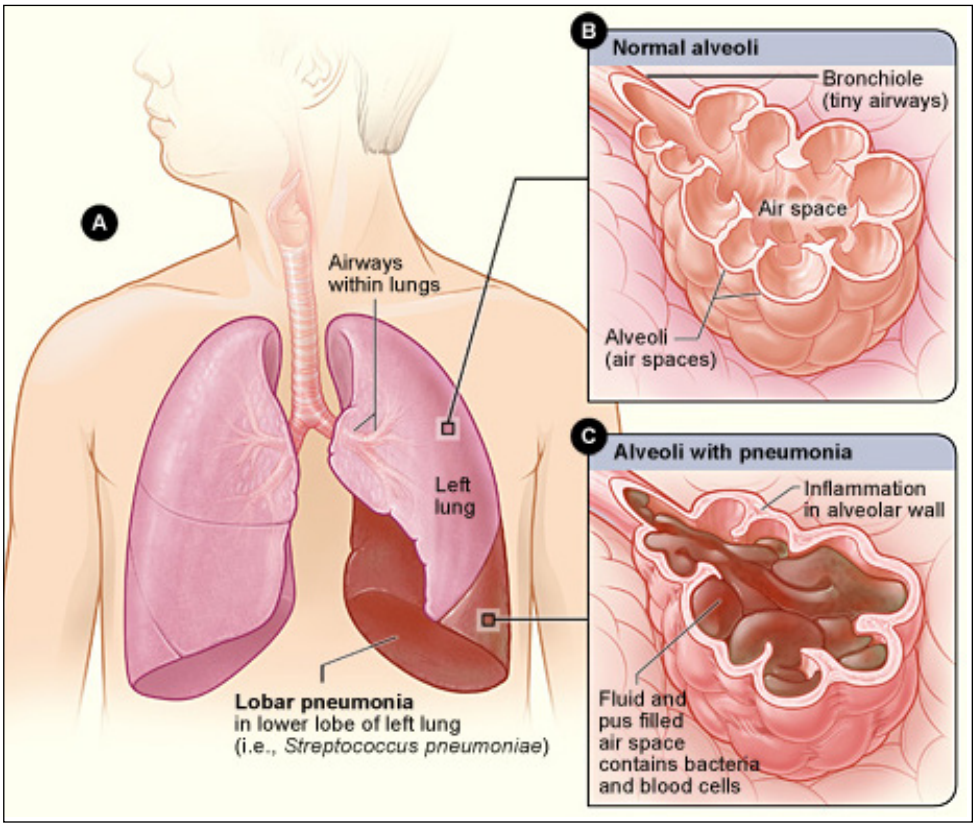
Pneumonia is an infection of the lungs. It can be caused by germs (bacteria or virus) or even by a fungus. It can follow a cold and settle into the lungs. Medicines will treat pneumonia caused by bacteria or fungus, but not by a virus.

Symptoms

- fever and shaking chills, especially if you have other symptoms
- breathing problems, including painful breathing
- coughing with bloody, green or yellow mucus (also called sputum or phlegm)
- body aches.

To confirm that you have pneumonia, your primary care provider may do the following:

- order chest X-rays to find out where the pneumonia is located in your lungs
- give you a physical exam
- send a sample of your mucus (sputum) or blood for testing to find out what kind of bacteria may be causing your illness.



The drawing from the National Institutes of Health shows normal alveoli and what happens to alveoli with pneumonia.

When to call your primary care provider

Call your primary care provider right away
if you have any of the following:

- a temperature higher than 101.5 F
- chills
- increased chest pain
- nausea, vomiting or diarrhea that lasts longer than 24 hours
- bloody or pink, frothy mucus
- itchy, swollen, reddened skin
- breathing difficulties
- severe headache with a stiff neck
- any worsening symptoms.

When to call 911

**Call 911 if you cannot talk, have blue lips or
if your breathing does not get better.**

Recovery From Pneumonia

Call 911 if you have chest pain that worries or concerns you.

Do Not Use Tobacco	Medicines	Activity	Food and Beverages	Follow-up Appointment
				
■ Using any form of tobacco, including electronic nicotine delivery systems, makes it harder for your body to recover from pneumonia. ■ If you need help quitting, talk with your doctor or: — Quit Partner • 1-800-QUIT-NOW (1-800-784-8669) or quitpartnermn.com — online tobacco cessation support • smokefree.gov.	■ Have your prescription(s) filled the same day you leave the hospital. ■ Take your medicine(s) as directed. ■ Complete your prescription for antibiotics. Take them until they are gone, even if you feel better. If you don't finish your prescription, you are at risk for getting pneumonia again. ■ Call your health care provider right away if you have side effects from your antibiotics you can't tolerate. Don't stop taking them on your own.	■ Get up and out of bed. Your lungs can expand fully when you are standing. This will help you breathe easier and help you get better faster. ■ Slowly increase your activity. Your lungs need time to heal. ■ Limit activities that increase coughing or cause you to be short of breath. ■ To "exercise" your lungs, take deep breaths and cough 5 to 6 times every hour while you are awake. Take a deep breath and hold it as long as you can. Push the air out of your lungs with a deep, strong cough.	■ Drink plenty of liquids. Drink 6 to 8 glasses a day. Liquids will help thin your mucus, which may make it easier for you to cough it up. ■ Follow your doctor's directions if you have a fluid restrictions. ■ Do not drink alcohol while you are being treated. Allina Health allinahealth.org	■ Make an appointment with your regular doctor 3 to 5 days after you leave the hospital. ■ It is important to go to this visit even if you feel better. **Call Your Health Care Provider if You:** ■ have increased shortness of breath that is worse than it was during your hospital stay ■ have watery diarrhea (at least 3 bowel movements a day for up to 2 days) ■ develop a rash or have side effects you can't tolerate.

❑ Alpha-1 Antitrypsin (AAT) Deficiency

Alpha-1 antitrypsin (an-tee-TRIP-sin) deficiency is also known as AAT deficiency. It raises your risk for lung disease (especially if you smoke) and other diseases.

Alpha-1 antitrypsin (AAT) is a protein made in your liver. The protein travels through the bloodstream. It helps protects your organs from the harmful effects of other proteins. One of the main organs AAT protects is your lungs.

AAT deficiency results if the AAT proteins are not the right shape. They get stuck inside liver cells and cannot get into the bloodstream.

As a result, not enough AAT proteins travel to your lungs to protect them. This increases the risk of lung disease such as emphysema. You can also get liver disease because the proteins get stuck in the liver.

Symptoms

Common symptoms are:

- shortness of breath
- less ability to be physically active
- wheezing.

Other symptoms are: repeated lung infections, tiredness, a rapid heartbeat when you stand, eye problems and weight loss.

Many people who have AAT deficiency are told they have asthma. This is because wheezing also is a symptom of asthma.

AAT deficiency is passed from parents to children through genes.

Smoking is the leading risk factor for life-threatening lung disease if you have AAT deficiency. Smoking or exposure to tobacco smoke increases the risk of earlier lung-related symptoms and lung damage. If you have severe AAT deficiency, smoking can shorten your life by as much as 20 years.

AAT deficiency has no cure, but treatments are available. Together, you and your primary care provider will create a treatment plan.

❑ Cystic Fibrosis

Cystic fibrosis (CF) is a disease of the secretory glands that make mucus and sweat. Your mucus becomes thick and sticky. It builds up in your lungs and blocks your airways. Your sweat becomes salty, which can lead to dehydration (lack of fluid in your body).

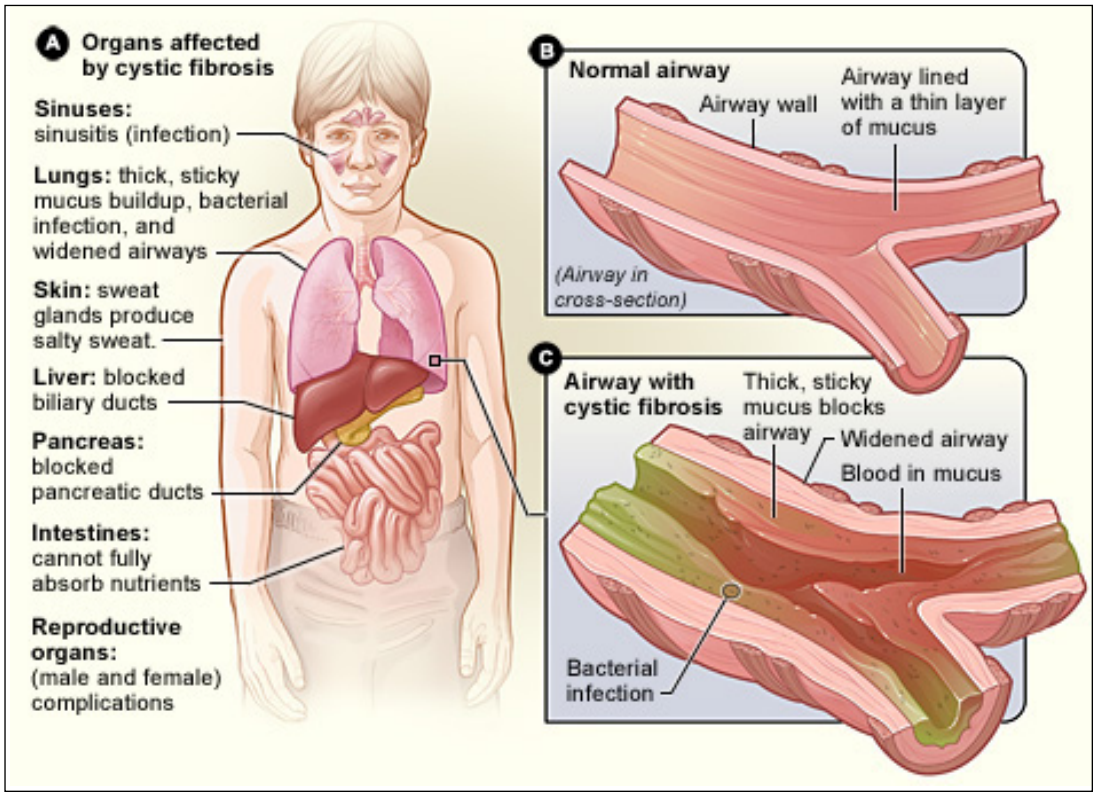
This disease is passed on from parents to children through genes. People who have CF inherit two faulty genes for the disease—one from each parent. The parents likely do not have the disease themselves.

CF mainly affects the lungs, pancreas, liver, intestines, sinuses and sex organs.

Symptoms

Common symptoms are:

- thick, sticky mucus that builds up in your airways
- cough that brings up thick sputum (phlegm) or mucus
- sinusitis (an infection of the sinuses), bronchitis and pneumonia
- fertility problems
- increased heart rate, fatigue (feeling tired), weakness, lower blood pressure.



The drawing from the National Institutes of Health shows how cystic fibrosis affects the body.

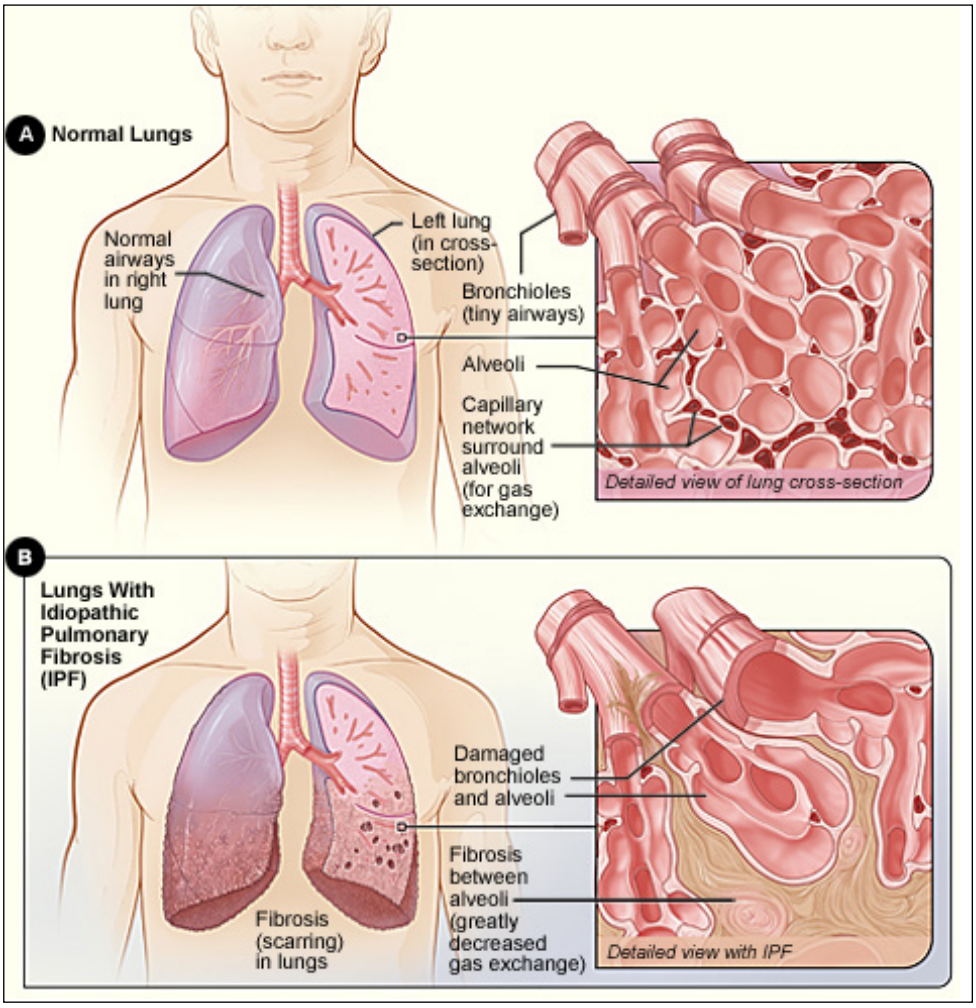
As CF gets worse, other problems may occur, such as diabetes, gallstones, liver disease, brittle bones, clubbing (widening and rounding of the tips of your fingers and toes).

There is no cure for CF. Treatment may help relieve your symptoms. Together, you and your primary care provider will create a treatment plan.

❑ Idiopathic (Unknown) Pulmonary Fibrosis

Pulmonary fibrosis is a disease in which tissue deep in your lungs becomes thick and stiff, or scarred, over time. The forming of scar tissue is called fibrosis.

As the lung tissue thickens, your lungs cannot properly move oxygen into your bloodstream. As a result, your brain and other organs do not get the oxygen they need.



The drawing from the National Institutes of Health shows normal lungs and what happens to lungs with idiopathic pulmonary fibrosis.

Sometimes primary care providers can find out what is causing fibrosis. Most often, they cannot find a cause. They call these cases "idiopathic."

This is a serious disease that varies from person to person. In some people, fibrosis happens quickly. In others, the process is much slower. In some people, the disease stays the same for years.

Symptoms

Common symptoms are:

- shortness of breath (Over time, you will likely feel breathless even at rest.)
- a dry, hacking cough that does not get better
- rapid, shallow breathing
- slow, unintended weight loss
- fatigue (tiredness) or malaise (a general feeling of being unwell)
- aching muscles and joints
- clubbing (widening and rounding of the tips of the fingers or toes).

Ideopathic pulmonary fibrosis has no cure. Many people live only about 3 to 5 years after diagnosis. Together, you and your primary care provider will create a treatment plan.

❑ Sarcoidosis

Sarcoidosis (sar-koy-DO-sis) is a disease that causes inflammation (swelling). It affects your body's organs. The cause is unknown.

Normally, your immune system defends your body against germs or harmful substances. For example, it sends special cells to protect your organs that are in danger.

These cells release chemicals that recruit other cells to destroy the harmful substance. Inflammation occurs during this process. Once the harmful substance is gone, the cells and the swelling go away.

If you have sarcoidosis, the swelling does not go away. Instead, some of the immune system cells cluster to form lumps (granulomas).

Sarcoidosis can affect any organ in your body. The disease usually starts in the lungs, skin or lymph nodes. The disease also often affects your eyes and liver.

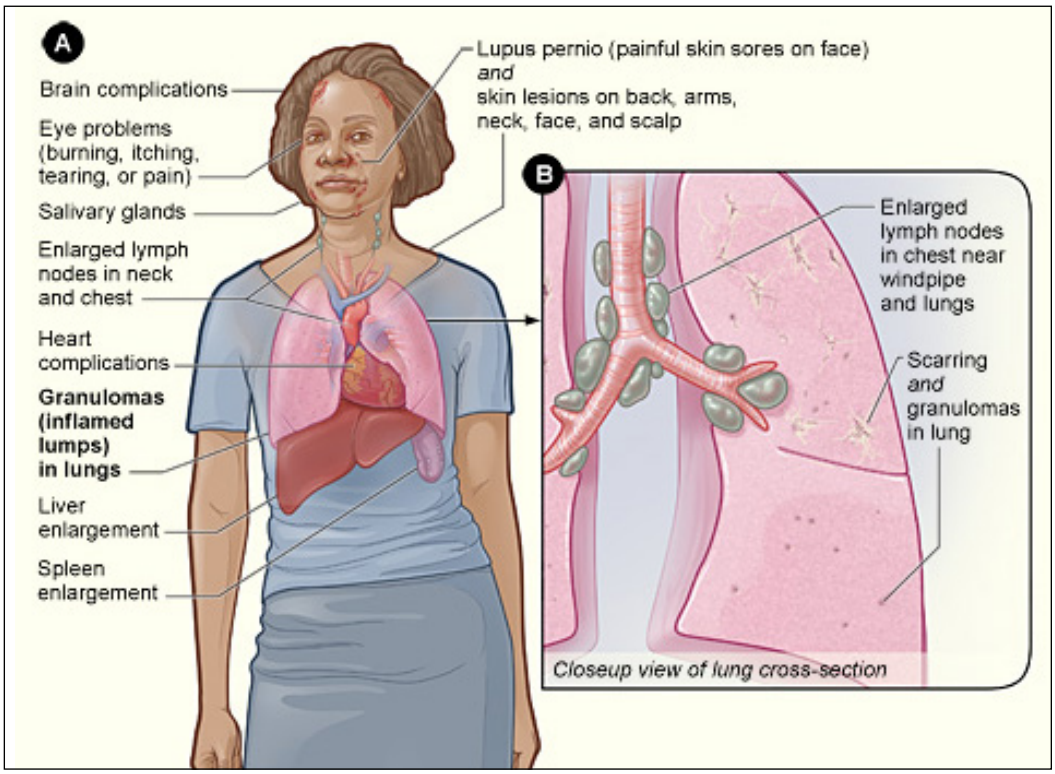
Symptoms

If many lumps form in an organ, they can affect how the organ works. Many people who have sarcoidosis have no signs or symptoms or mild ones such as feeling tired, uneasy or depressed. Night sweats and weight loss are also common.

Lofgren's syndrome is common in some people who have sarcoidosis. It can cause fever, enlarged lymph nodes, arthritis (usually in the ankles), or a red or reddish-purple rash of bumps on your ankles and shins. The rash may be warm and tender to the touch.

Treatment for sarcoidosis varies depending on which organs are affected. Not everyone who has sarcoidosis needs treatment.

Together, you and your primary care provider will create a treatment plan.

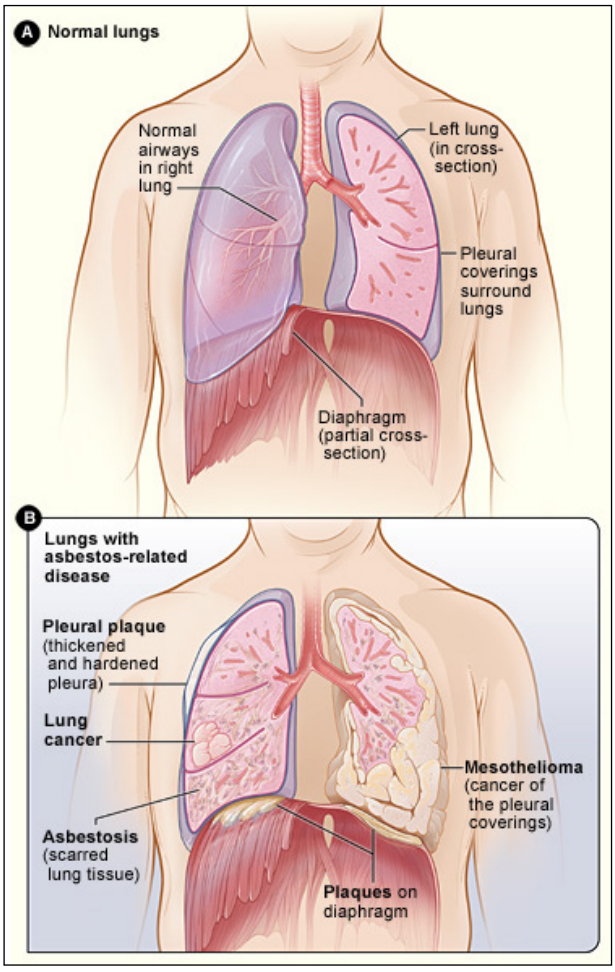


The drawing from the National Institutes of Health shows how sarcoidosis affects the lungs.

❑ Asbestosis

Asbestos-related lung diseases are caused by exposure to asbestos fibers. Asbestos is a mineral that was widely used in the U.S. until the 1970s. For example, it was used to insulate pipes and boilers, make brakes, strengthen cement, and to fireproof many items.

Asbestos is made up of tiny fibers that can escape into the air. When breathed in, these fibers can stay in your lungs for a long time. If the fibers build up in your lungs, they can lead to many diseases such as:



The drawing from the National Institutes of Health shows normal lungs and what happens to lungs affected by asbestosis.

- pleural plaque:
  Tissue around your lungs and diaphragm (the muscle below your lungs) thickens and hardens. This tissue is called the pleura.
- pleural effusion:
  Extra fluid builds up in the pleural space, which is the area between the lungs and the chest wall.
- asbestosis:
  Lung tissue becomes scarred. People who have asbestosis are at greater risk for lung cancer, especially if they smoke.
- lung cancer:
  This type of cancer forms in the lung tissue, usually in the cells lining the air passages.
- mesothelioma (MEZ-o-thee-lee-O-ma):
  This is cancer of the pleura (tissue around your lungs and diaphragm).

Asbestos fibers also can be released into the air when older buildings containing asbestos-made products are destroyed. Removing these products during building renovations also can release asbestos fibers into the air.

The symptoms of asbestos-related lung diseases vary. They depend on which disease you have and how much it has damaged your lungs.

Treatment may help relieve your symptoms. Together, you and your primary care provider will create a treatment plan.

Your primary care provider also may ask whether you smoke. Smoking, along with asbestos exposure, raises your risk for lung cancer.

❑ Obesity Hypoventilation Syndrome

Obesity hypoventilation syndrome is a breathing disorder that affects some people who are obese (having a body mass index of 30 or higher). Poor breathing results in too much carbon dioxide and too little oxygen in the blood.

The reason is not fully known but there are a few things that could lead to it:

- your respiratory system has to work harder than normal because of extra body weight
- your body responds slower to fix the problem of too much carbon dioxide and too little oxygen in the blood
- having sleep apnea. Sleep apnea is a sleep disorder in which you stop breathing while asleep. Your windpipe narrows (collapses) during breathing, blocking air flow. When this happens, your lungs cannot take in oxygen or breathe out carbon dioxide.

Symptoms

Common symptoms are:

- loud snoring
- choking or gasping during sleep
- daytime sleepiness (even while driving or working)
- morning headaches
- memory or learning problems
- feeling irritable
- inability to concentrate

- mood or personality changes
- dry throat in the morning.

When left untreated, OHS can cause serious problems such as:

- swelling in your legs
- high blood pressure in your pulmonary arteries (pulmonary hypertension)
- failure of the right side of the heart
- your body makes too many red blood cells.

There is no cure. Treatment may help relieve your symptoms and help you sleep better at night. Together, you and your primary care provider will create a treatment plan.

❑ Post-polio Syndrome

Post-polio syndrome (PPS) is a condition that only affects people who had polio. It occurs many years after recovery. No one else can get PPS.

PPS is known for a further weakening of muscles that were previously affected by the polio infection. It develops slowly.

Symptoms

Common symptoms are:

- muscle weakness
- fatigue
- decrease in muscle size
- pain in the joint deterioration
- problems with the spine such as scoliosis

Symptoms vary from person to person. Some people have minor symptoms, while others have problems living on their own.

There is no cure. Together, you and your primary care provider will create a treatment plan.

❑ Lung Transplant

Tip

You may have one or both lungs replaced.

A single-lung transplant takes 4 to 8 hours and a double-lung transplant takes 6 to 12 hours.

A lung transplant is a surgery to replace your diseased lungs with a healthy one from a donor. A transplant can help improve your quality of life and may help you live longer than if you did not have the surgery.

Your primary care provider may talk with you about a lung transplant if:

- you have a severe lung disease that is getting worse
- other treatments no longer work.

A lung transplant is most common for people who have:

- COPD (see pages 5-8)
- idiopathic pulmonary fibrosis (see pages 22-23)
- cystic fibrosis (see pages 21-22)
- alpha-1 antitrypsin deficiency (see page 20)
- pulmonary hypertension (see page 16).

Tip

There are serious risks with a transplant. Your body may reject the new lung or may get infections.

Your primary care provider will go over all of the benefits and risks of this surgery with you.

Your primary care provider will help you apply to the Organ Procurement and Transplantation Network, which manages the nationwide organ-sharing process and waiting lists for all organ donations.

You will have many tests to see if you are healthy enough for a transplant. Your primary care provider will explain these tests to you.

The process of waiting for a lung can be frustrating and you may feel worried, scared, anxious or depressed. While you are waiting:

- Keep all of your medical appointments.
- Go to pulmonary rehabilitation.
- Take your medicines as directed.
- Stay as healthy as you can.
- Do not smoke or be around second-hand smoke.
- Follow your health care team's directions.
- Ask members of your care circle (family members, friends and others close to you) for support.

You will need to be ready to go to the hospital for the transplant at any time a donor becomes available. Stay in close contact with the transplant center or hospital so they know how to reach you at all times.

Your primary care provider will talk with you and members of your care circle about the surgery and recovery.

Glossary

Airways
Airways are tubes that carry air in and out of your lungs.

Alpha-1 antitrypsin deficiency

Alpha-1 antitrypsin (AAT) is a protein made in your liver. The protein travels through the bloodstream. It helps protects your organs from the harmful effects of other proteins. One of the main organs AAT protects is your lungs. AAT deficiency raises your risk for lung disease (especially if you smoke) and other diseases.

Alveoli

When you breathe in (inhale), your lungs take in oxygen that your body needs. Tiny air sacs (alveoli) at the end of bronchi are filled with air. The blood vessels around them move the oxygen from the air into your bloodstream. The air sacs return to their original shape after you breathe out (exhale).

Asbestosis

Asbestos is a mineral that was widely used in the U.S. until the 1970s. It is made of tiny fibers that can escape into the air. When breathed in, these fibers can stay in your lungs for a long time. If the fibers build up in your lungs, they can lead to many diseases.

Asthma

Asthma is a breathing disorder that causes the small airways in your lungs to become inflamed or swollen. It may also lead to airway spasms. Both of these conditions narrow the airway and make it hard for you to breathe.

Bronchiectasis

Bronchiectasis (bron-ke-EK-ta-sis) is a condition in which damage to the airways causes them to widen and become flabby and scarred. It is usually the result of an infection or other condition that injures the walls of your airways or prevents the airways from clearing mucus.

Chronic bronchitis

Chronic (ongoing) bronchitis is inflammation of the air passages (bronchial tubes) that carry air to your lungs. This causes a cough with lots of mucus.

Clubbing
The flesh under your fingernails and toenails gets thicker.

Cystic fibrosis

Cystic fibrosis is a disease of the secretory glands that make mucus and sweat. Your mucus becomes thick and sticky. It builds up in your lungs and blocks your airways. Your sweat becomes salty, which can lead to dehydration (lack of fluid in your body). This disease is passed on from parents to children through genes.

COPD

Chronic obstructive pulmonary disease (COPD) is a lifelong breathing disease. Your airways become more narrow and blocked over time, making it hard to breathe. It includes chronic bronchitis and emphysema.

Emphysema

Emphysema is damage to the small air sacs (alveoli) in your lungs. They lose their ability to stretch back to normal size. The old air gets trapped in the sacs and it leaves less room for new air. This makes it hard for you to breathe.

Exacerbations (flare-ups)

A trigger or infection that makes your regular symptoms worse.

Exhale

This means to breathe out.

Idiopathic pulmonary fibrosis

Pulmonary fibrosis is a disease in which tissue deep in your lungs becomes thick and stiff, or scarred, over time. The forming of scar tissue is called fibrosis. As the lung tissue thickens, your lungs cannot properly move oxygen into your bloodstream. As a result, your brain and other organs do not get the oxygen they need.

Inhale

This means to breathe in.

Mucus

A slimy fluid made by your mucous membranes that traps dust, smoke and other particles.

Obesity hypoventilation syndrome

Obesity hypoventilation syndrome is a breathing disorder that affects some people who are obese (having a body mass index of 30 or higher). Poor breathing results in too much carbon dioxide and too little oxygen in the blood.

Pneumonia

Pneumonia is an infection of the lungs. It can be caused by germs (bacteria or virus) or even by a fungus. It can follow a cold and settle into the lungs. Medicines will treat pneumonia caused by bacteria or fungus, but not by a virus.

Post-polio syndrome

Post-polio syndrome (PPS) only affects people who had polio. It occurs many years after recovery. No one else can get PPS. It is known to weaken muscles that were previously affected by the polio infection. It develops slowly.

Pulmonary hypertension (high blood pressure)

Pulmonary hypertension (high blood pressure) is increased pressure in the arteries that carry blood from your heart to your lungs. These arteries pick up oxygen. The cells in the pulmonary arteries become inflamed (swollen).

Restrictive lung disease

Restrictive lung disease keeps your lungs from being able to fully fill with air when you breathe in (inhale). Your lungs may not be able to expand or there may be a problem with the muscles around your lungs. Symptoms include shortness of breath, coughing, chest pain and wheezing.

Sarcoidosis

Sarcoidosis (sar-koy-DO-sis) is a disease that causes inflammation (swelling). It affects your body's organs. The cause is unknown.

Sputum

A mixture of mucus and saliva (spit) you cough up from your lungs.

Wheezing
This is a whistling sound when you breathe.

To Do List

- ❑ Learn all you can about your lung disease. If you find something online, take the information to your primary care provider. Ask your health care team for good sources.
- ❑ Ask your primary care provider the Ask Me 3® questions:
  - — 1. What is my main problem?
  - — 2. What do I need to do?
  - — 3. Why is it important for me to do this?
- ❑ Ask your primary care provider to better explain anything that does not make sense to you.
- ❑ Consider participating in a pulmonary rehabilitation (rehab) program. Talk with your primary care provider to see if this is right for you.
- ❑ Have an emergency plan. Know when to call your primary care provider and when to go to the hospital. Share your plan with members of your care circle (family members, friends or others close to you).
- ❑ Join a support group. Ask your primary care provider for resources.
- ❑ Ask your provider about a health care directive or advance care planning. This will help you define your wishes for medical care if you cannot communicate or make my own health care decisions.

  You may sign up for a free class by calling 612-262-2224.
- ❑ Learn about future options for your care at allinahealth.org/palliative or call 651-635-9173.
- ❑ Keep all follow-up appointments.

Questions and Notes

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allinahealth.org

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