

## Exacerbation of COPD

An exacerbation (ex-zass-er-bay-shun) of Chronic Obstructive Pulmonary Disease (COPD) is a worsening or “flare up” of your COPD symptoms. In many cases an exacerbation is caused by an infection in the lungs, but in some cases, the cause is never known. The inflammation (irritation and swelling) in the lungs during and after an exacerbation can cause some people to be extremely ill and it often takes a month or longer to recover completely.

Figure 1-Normal

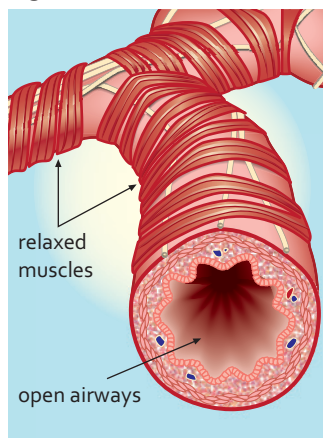
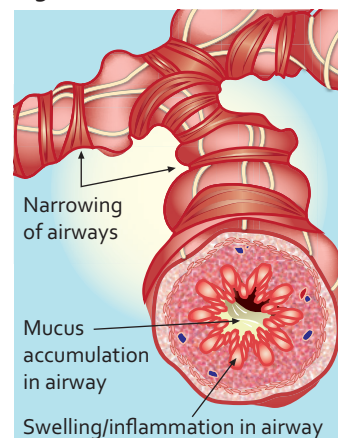


Figure 2-Exacerbation



Knowing the signs and symptoms of an exacerbation will help you to get treatment early, shorten the length of the exacerbation, and hopefully prevent the exacerbation from becoming severe.

### What causes an exacerbation?

The most common cause of an exacerbation is infection in the lungs or airways (breathing tubes). This infection is often from a virus, but it may also be caused by bacteria or less common types of organisms. Exacerbations can also occur from inhaling irritating substances from the environment like air pollution, or from severe allergies. The lungs react to infection or irritating substances by developing inflammation that makes the airways narrow from muscle tightness, swelling, and mucus (see Figure 2). These changes in the airways cause the increased signs and symptoms. This fact sheet will discuss exacerbations of COPD. For more about COPD see other *ATS Patient Information Series* pieces at [www.thoracic.org/patients](http://www.thoracic.org/patients).

### What are the signs and symptoms of an exacerbation?

Exacerbations can come on very quickly (hours to days). They involve worsening of your usual signs and symptoms of COPD:

- You may notice that you become more breathless than usual with routine activities, like walking to the car or showering.
- Your typical cough may increase in severity or frequency, or a new cough may develop.
- You may notice a change in the **color** of your sputum (mucus) from clear to colored (deep yellow, green, or brown) and/or the **amount** of sputum that you bring up may increase. In many people, a change in sputum is the first sign that they have an exacerbation.

- You may feel more tired (fatigue).
- If you find that you have more trouble sleeping than usual, develop a headache when you wake up, or feel confused (or a family member notices you are confused and/or have difficulty waking you up), you may be having signs of high carbon dioxide levels that need immediate medical attention.
- If you measure your oxygen level regularly by using a pulse oximeter, you may also notice that your oxygen levels are lower than usual.

You can also have other signs and symptoms of infections in the lung, such as fever. You should report the signs and symptoms you notice to your healthcare provider to figure out if you are having an exacerbation and how it should be treated.

If you have had an exacerbation of your COPD in the past, you should take note of the “pattern” of your symptoms. Everyone has slightly different signs and symptoms from an exacerbation. In particular, notice the color and amount of sputum you bring up every day when you are not ill so that you recognize your signs and symptoms of an exacerbation.

### How is an exacerbation diagnosed?

Diagnosis of an exacerbation is based upon a history of worsened signs (such as your oxygen levels being lower than normal for you) and symptoms and physical exam findings by a doctor or nurse, such as new or increased , feeling like you cannot get a big enough breath, or wheezing, feeling like you cannot get a big enough breath, or rapid shallow breathing. There are no tests of the blood, sputum, or chest x-rays that have been found to diagnose an exacerbation. Thus, the best person to help identify an exacerbation early is **you**. Knowing the signs and symptoms of an exacerbation and getting help early, are the very best ways to

limit it from becoming very severe.

### How is an exacerbation treated?

Some exacerbations can be treated at home with inhalers, steroids, and/or antibiotics. However, if your symptoms become severe, you will need to be hospitalized. Treatment of an exacerbation is primarily with medications to control the swelling and constriction (tightness) in your airways. The airway swelling is treated with steroid pills or IV (intravenous) steroids. Airway constriction is treated with bronchodilators by inhaler or nebulizer. In most cases, you will also be prescribed an antibiotic to treat bacterial infection.

The main function of your lungs is to supply oxygen to the body and rid the body of carbon dioxide. Exacerbations can interfere with this, so you may need to have extra oxygen. You may need support from a PAP (positive airway pressure) machine with a nose or facemask to help you breathe better. If your exacerbation is severe, you may need treatment in an intensive care unit (ICU) and require a mechanical ventilator (a machine to breathe for you).

### How serious is an exacerbation?

Exacerbations can be very serious and can lead to death. Getting help early is therefore very important. If you have been told that you have severe COPD or have had exacerbations before, discuss with your healthcare provider what steps to take and how to contact them (or their team) for advice and assistance if your symptoms get worse. This is known as an *Action Plan*, and is described below. It is difficult to know who will get an exacerbation; however, if you have had one in the past, you have a greater chance of having another. For this reason, your healthcare provider may speak to you about advanced care planning. Talk with your healthcare provider and your family about your treatment wishes if you become too sick to speak for yourself. For example, if you cannot breathe well enough on your own, do you want to receive support from a mechanical ventilator to give your lungs time to recover? You can decide to forego or limit aggressive treatments (such as a mechanical ventilator) if you do not want them. You may be referred to a palliative care specialist who can work with you to help you breathe more comfortably and address any pain or distress you may be having. For more about palliative care see the *ATS Patient Information Fact Sheet*.

### What is an Action Plan?

An *Action Plan* is a set of instructions or steps you should take at the first sign of an exacerbation. For example, you will likely be told to take your short acting bronchodilator (often called a "rescue inhaler"), such as albuterol, every four hours. You may also be told to call your healthcare provider, or to fill a prescription and start taking steroid pills and/or an antibiotic. These instructions may tell you when to go to the emergency department. It is very important to note that every person is different and needs a plan that meets his or her needs. Your *Action Plan* should be created along with your healthcare provide, kept in a prominent place in your home, and reviewed with your healthcare provider regularly.

### Can I prevent having an exacerbation?

Not all exacerbations can be prevented, but there are ways to try to decrease how often you have them or limit how severe they become.

- If you smoke, get help to quit.
- Avoid being around others with colds or the flu
- Use good handwashing to help avoid infection.
- Get the flu vaccine (shot) every year. The flu shot has been shown to help prevent exacerbations.

Several types of medications have also been shown to decrease your chance of having an exacerbation. You may already be taking these to treat your COPD. Talk to your healthcare provider about how you are managing your COPD and how you can avoid exacerbations.

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## Rx Action Steps

- ✓ Watch for signs and symptoms of a COPD exacerbation. Call your healthcare provider promptly if you are starting to have symptoms.
- ✓ Take your medicines for COPD as prescribed and talk to your healthcare provider if you have any concerns about your treatment.
- ✓ Get a flu vaccine yearly. Avoid tobacco smoke, and quit if you are a smoker.

### Healthcare Provider's Contact Number:

## Resources

### American Thoracic Society

- <http://www.thoracic.org/patients/>
- Patient Information Series Pieces:
  - What is COPD
  - COPD Medicines
  - Surgery for COPD
  - Signs & Symptoms
  - Breathlessness
  - CPAP & PAP Troubleshooting
  - Mechanical Ventilation
  - Palliative Care
  - Tobacco Series
  - Influenza

### ATS Pulmonary Rehabilitation Website:

- <http://livebetter.org> (Live Better with Pulmonary Rehab)

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