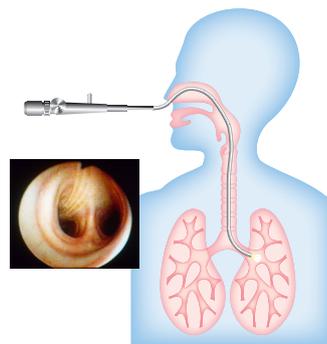


Flexible Bronchoscopy (Airway Endoscopy)

Flexible bronchoscopy (bron-kos'ko-pi) is a procedure that is done to look at the breathing passages of the lungs (called "airways"). This test allows your doctor to see inside the airways of the lungs, or to get samples of mucus or tissue from the lungs. The bronchoscope (bron'ko-sko-p) is a thin tube-like instrument that passes through the nose or mouth and can be used to inspect the various parts of the airways in the lungs. The tube acts as a camera and is able to carry pictures back to a video screen.



Why do I need a bronchoscopy?

There are many reasons why a bronchoscopy should be performed. Some of the most common reasons include:

- **Infections**—When a person is suspected of having an infection, bronchoscopy may be performed to get better samples from a particular area of the lung. These samples can be looked at in a lab to try to find out the exact cause of the infection. A person who has recurrent infection may have a bronchoscopy to try to figure out a cause.
- **Lung spot**—An abnormal finding ("spot") in the lung viewed on an x-ray film or CT scan may be caused by an infection, cancer, or inflammation. Bronchoscopy is done in some cases to take samples from the area. These samples are then looked at in a lab to help find the specific cause of the lung spot.
- **Airway blockage and Atelectasis**—Atelectasis is caused when the airway to a lung or part of a lung is blocked and air cannot get through. The air sacs do not expand which can be seen on chest x-ray. This blockage is usually caused by something in the airway such as a peanut or other foreign body, a tumor, or thick mucus. A blockage may also be caused by something outside the airway compressing it. Bronchoscopy allows the doctor to see the blockage and try to sample and/or remove the substance. This helps to open up the airway and lung, especially when other treatments (like airway clearance) have failed.
- **Bleeding**—When a person has coughed up blood, bronchoscopy may help find the cause of the bleeding. For example, if a tumor is causing the bleeding, the doctor will localize the tumor and take actions to try to stop any active bleeding.
- **Noisy Breathing and Abnormal Airways**—A person can have noisy or abnormal breathing sounds that may be caused by a problem with the throat or airways of the lung. Other symptoms include shortness of breath, or labored breathing during sleep. Bronchoscopy allows the doctor to

look directly at the throat, vocal cord area, windpipe, and major airways to identify any problems. Causes of noisy breathing may include vocal cord paralysis or weakness, floppiness in the airways (bronchomalacia) or voice box (laryngomalacia), or a blood vessel pressing on the outside of the airway (vascular compression).

Alternatives to bronchoscopy

Other tests and procedures, such as x-rays, CT scans and suctioning techniques can give some information about the lungs, but bronchoscopy allows the doctor to look at the inside of the lungs, obtain very specific samples and at times remove a blockage. This is why a bronchoscopy may be needed even after you have had X-rays or other tests.

Preparing for a bronchoscopy

If you are having a bronchoscopy you will be told not to eat after midnight the night before (or about 8 hours before) the procedure. You will also receive instructions about taking your regular medicines, not smoking, and removing any dentures before the procedure. Be sure to ask about stopping if you are on any medicines that thin the blood or prevent clotting.

Right before the procedure, you may be given a medicine to numb your nose and throat area to make it more comfortable and help prevent coughing and gagging during the procedure. After that, you may be given a sedative by IV (in your vein). The sedative will help you to relax, and may make you sleepy.

What happens during a bronchoscopy?

Your doctor can explain what will happen during the bronchoscopy. If you are awake, he or she can talk you through it step-by-step. You will probably be lying down with the head of the bed tilted up slightly. Typically your doctors will be monitoring your vital signs (heart rate, oxygen levels, blood pressure very closely during the procedure. The bronchoscope is placed through your nose or mouth, then advanced slowly down the back of the throat, through the vocal cords and into the airways. If a person has a breathing

tube in place, the bronchoscope is passed through this tube. You may feel like you cannot “catch your breath,” but there is usually enough room around the tube to breathe and get enough oxygen. The doctor can also give you breaks during the procedure as needed.

The length of the bronchoscopy varies depending on what needs to be done and why you need it. The doctor can give you an estimate, but usually it can last from 15 minutes to an hour.

Risks of bronchoscopy

Bronchoscopy is a safe procedure. Serious risks from bronchoscopy, such as an air leak or serious bleeding, are uncommon (less than 5%). The risks associated with the procedure are as follows:

- **Discomfort and Coughing**—While the bronchoscope is passed through your nose and back of your throat into the lungs, it may cause some discomfort. It may also cause a cough. You will be given medicine to help with this prior to the procedure.
- **Reduced oxygen**—Your oxygen level will be continuously monitored during the procedure using a pulse oximeter. The level of oxygen in the blood may fall during the procedure for several reasons. The bronchoscope may block the flow of air into the airway, or small amounts of liquid used during the test may be left behind, causing the oxygen level to drop. This drop is usually mild, and the oxygen level usually returns to normal without treatment. If the oxygen level remains low, the doctor will give extra oxygen or stop the test to allow for recovery.
- **Lung Leak**—Rarely, an airway may be injured by the bronchoscope, particularly if the lung is already very inflamed or diseased. The procedure could cause an air leak (pneumothorax) in which air comes out of the lung and gathers in the space around it, which can limit how well the lung expands. This problem is not common, and is more likely if a biopsy is taken during bronchoscopy. If there is a large or ongoing air leak, it may need to be drained with a chest tube. (For more information see the ATS patient information piece “Chest Tube Thoracostomy” at www.thoracic.org/patients).
- **Bleeding**—Bleeding can occur after the doctor performs a biopsy. Bleeding can also occur if the airway is already inflamed or damaged by disease. Usually bleeding is minimal and mixed with sputum (phlegm) and stops without treatment. If you continue to cough up blood after your procedure, contact your healthcare provider. Sometimes a medication can be given through the bronchoscope to stop bleeding. Rarely, bleeding can lead to severe breathing problems or death.
- **Infection**—While equipment used is cleaned before and after use, there is a small risk that a germ could be introduced into the airways that could cause infection. If a new infection develops, it would be treated.

What happens after the procedure?

Patients vary in how long it takes to wake-up with sedation. You

will need to stay in a recovery area until the sedative has worn off. You will also need to wait until the numbing medicine wears off before drinking any liquids. If you are an outpatient, it is recommended that you bring someone along to drive you home.

It is unlikely that you will experience any problems after the test other than a mild sore throat, hoarseness, cough, or muscle aches. You may have some low-grade fever for a day that is not a new infection. If fever continues, contact your healthcare provider. If you feel chest pain or increased shortness of breath or cough up more than a few teaspoons of blood once you leave the hospital, contact your doctor immediately.

Your doctor can tell you how your airways look right away. Lab results take more time, usually 1–4 days or more depending on the specific test that is being done.

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Rx Action Steps

You are scheduled to have a bronchoscopy, a procedure that your doctor performs to examine your airways or take samples from your lungs.

- ✓ Do not eat or drink after midnight the day before the procedure.
- ✓ Review your medication schedule with your doctor.
- ✓ If you smoke, let your doctor know and do not smoke prior to the procedure.
- ✓ After the procedure, do not drink until you are told it is safe after numbing medicine completely wears off.
- ✓ Do not drive home by yourself after the procedure; arrange for a family member or friend to take you home.
- ✓ Contact your healthcare provider immediately if you have shortness of breath or chest pain, or you cough up more than a few teaspoons of blood at home.

Healthcare Provider's Contact Number:

For More Information

American Thoracic Society

- www.thoracic.org/patients/

U.S. National Library of Medicine

- <https://medlineplus.gov/ency/article/003857.htm>

National Heart Lung & Blood Institute:

- <https://www.nhlbi.nih.gov/health-topics/bronchoscopy>

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