



## Interventional Pulmonology: The Basics

### What is Interventional Pulmonology?

Interventional pulmonology (IP) is a medical specialty for diseases of the lungs and chest. IP specialists use an endoscope and other tools to perform minimally invasive procedures. These procedures are used to diagnose and treat problems in the lungs and nearby areas. A “minimally invasive procedure” uses less (or no) incisions and requires less healing time than an invasive procedure.

### What are IP procedures used for?

IP procedures may be used to:

- Diagnose a cancer or other health problem. This might help avoid major surgery.
- Help a patient breathe better when their lungs are blocked by a tumor.
- Help a patient breathe better if their cancer treatments have damaged the lung(s).

### Who makes up the IP team?

- Interventional pulmonologist: a doctor trained in lung diseases who has further training in doing IP procedures.
- The team may also have Nurse Practitioners, Physician Assistants, Nurses, Respiratory Therapists, and Coordinators.

### What types of cancers can be helped by IP?

Any cancer that affects the lungs may benefit from IP. Many lung cancers can be diagnosed by an IP procedure. This can be done by taking a sample of the tumor in the lungs, or the nearby lymph nodes, using an endoscope. IP procedures can help patients with cancers that have spread to the lung (called metastatic cancer) breathe easier.

### How are IP procedures done?

An interventional pulmonologist's main tool is a type of endoscope called a bronchoscope. A bronchoscope is a small tube that can be passed through the nose or mouth, down into the lungs. It has a camera and light on the end, letting the doctor see into the lungs. The doctor is able to pass small tools through the bronchoscope. These tools may include: small tweezers to take a biopsy (tissue sample), a laser to remove tissue blocking an airway, or a stent or balloon to open a blocked airway.

### IP Procedures

Some IP procedures are performed in the office or your hospital room, while others are done in the operating room. Some procedures use a numbing medicine to make you comfortable, while others require anesthesia or sedation to help you sleep during the procedure. Your doctor will determine which procedure is best for you.

- Airway stent placement: Cancer in the lung can block or press on your airway, making it hard to breathe. This can lead to cough and pneumonia. A stent, which can be made of metal, silicone, or a mixture of these, is put in the airway to hold it open.
- Balloon: A deflated balloon is passed through the bronchoscope and pumped up in a narrowed airway. This opens the airway, making it easier for you to breathe.

- Lung or lymph node biopsy: A bronchoscope can be used to reach suspicious areas in the lung for biopsy. A biopsy takes a small tissue sample, which is sent to the lab to look for cancer. The bronchoscope can also be used to biopsy the lymph nodes in the middle of the chest. This is a common place for lung cancer to spread.
- Thoracentesis: The IP team can do thoracentesis. This is done to drain extra fluid from around the lungs. Fluid buildup in the lining of the lung is called pleural effusion. This fluid puts pressure on the lungs, making it hard for the patient to breathe. Thoracentesis can be performed as needed, when fluid collects.
- Pleural catheter: The IP team can put in a catheter (tube) that stays in place in the lining of the lung. This allows the patient's caregiver to drain the pleural fluid at home, as needed.
- Pleurodesis: This procedure is used when a pleural effusion keeps collecting fluid, despite thoracentesis. In pleurodesis, the fluid is drained, and a chemical is infused into the pleural space. This chemical is irritating to the lung lining and causes inflammation to develop. Over a period of time, the outer lining of the lung and the inside lining of the chest stick together. This stops the fluid from coming back to that spot.
- Endobronchial ultrasound (EBUS): This procedure combines a bronchoscope with an ultrasound tool on the end of it. This helps the provider to do more accurate biopsies.

## What are the benefits and risks to IP procedures?

IP procedures may help a patient avoid a major surgery. IP procedures have a shorter recovery time than surgery.

The main risks to IP procedures are bleeding, infection, and pneumothorax. A pneumothorax happens when the lung is nicked by a needle and loses air. The air collects in the pleural space around the lung. This puts pressure on the lung, making it hard to breathe. Pneumothorax may require a stay in the hospital, where a tube is placed in the chest to remove the air. This allows the lining of the lung to heal.

Talk with your care team about whether interventional pulmonology will be a part of your plan and be sure to ask any questions you may have about the procedures listed above.

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