



PATIENT & CAREGIVER EDUCATION

Image-guided Biopsy of Your Lung, Pleura, Mediastinum, or Adrenal Glands

This information will help you get ready for your image-guided biopsy of the lung, pleura, mediastinum, or adrenal glands and let you know what to expect after.

Your healthcare provider recommended that you have a biopsy (a procedure to collect small pieces of tissue from your organs) of your lungs, pleura, mediastinum, or adrenal glands (see Figure 1). These organs are in your chest. Your lungs are surrounded by 2 layers of tissue, called the pleura, that protect your lungs. The space between the 2 layers is called the pleural space.

- Your **pleura** is 2 layers of tissue that surround and protect your lungs.
- Your **mediastinum** is the area in the middle of your chest, between your lungs.
- Your **adrenal glands** are glands that sit on top of your kidneys under your ribs and produce several hormones.

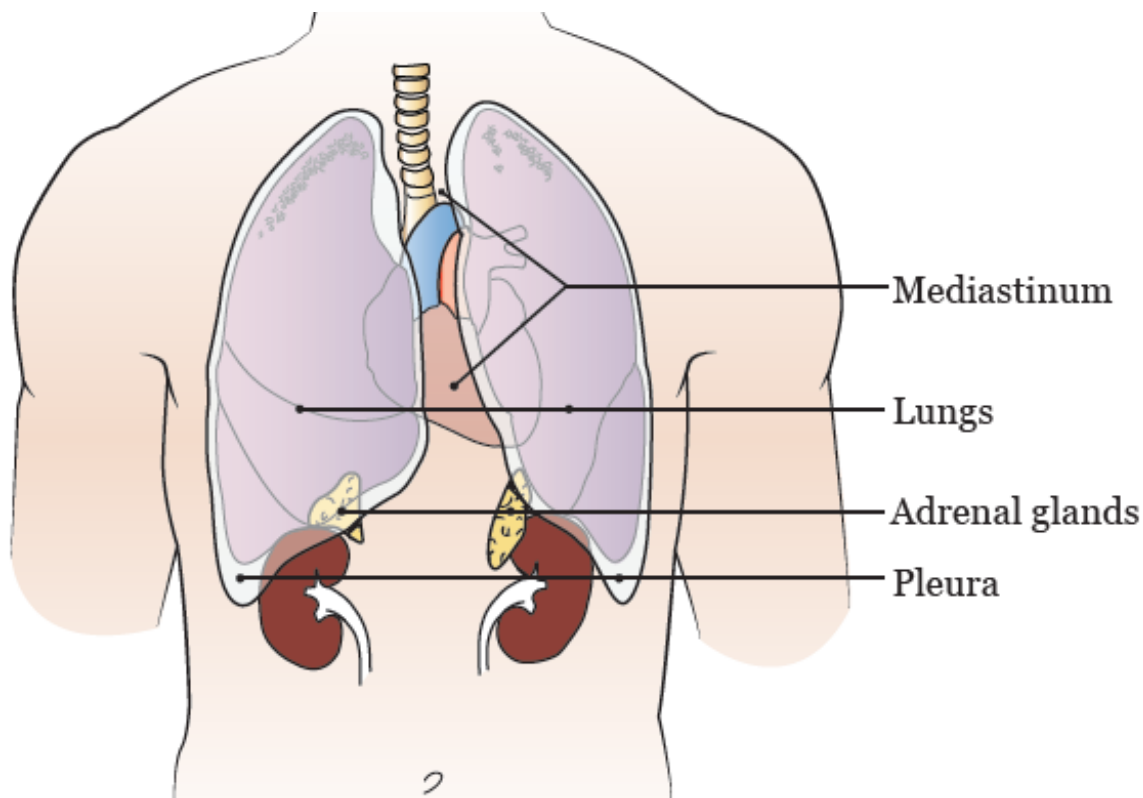


Figure 1. Your organs that may be biopsied

About Your Procedure

During your biopsy, your interventional radiologist will place a needle through your skin to collect a sample of tissue. An interventional radiologist is a doctor who specializes in image-guided procedures. They may use computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, or fluoroscopy (realtime x-rays) to find the area to biopsy. The sample is sent to the laboratory for testing.

Air leaking around your lungs

This kind of biopsy can cause air to leak out of your lungs and collect in your pleura. If the amount of air increases, it prevents your lung from expanding fully. About 30 out of 100 people who have this biopsy have a small amount of air leakage out of their lung into their chest cavity. Most people won't have symptoms and will get better without treatment. We will monitor you after your procedure.

Hemoptysis

Hemoptysis (coughing up blood) is caused by bleeding around your biopsy site. This can make it hard for your healthcare provider to continue with the procedure. This generally won't last for more than a few minutes. You may be asked to lay on your side if this happens.

Before Your Procedure

Ask about your medicines

You may need to stop taking some of your medicines before your procedure. Talk with your healthcare provider about which medicines are safe for you to stop taking. We've included some common examples below.

Blood thinners

Blood thinners are medicines that affect the way your blood clots. If you take blood thinners, ask the healthcare provider performing your procedure what to do. They may recommend you stop taking the medicine. This will depend on the type of procedure you're having and the reason you're taking blood thinners.

Examples of common blood thinners are listed below. There are others, so be sure your care team knows all the medicine you take. **Do not stop taking your blood thinner without talking with a member of your care team.**

- Apixaban (Eliquis®)
- Aspirin
- Celecoxib (Celebrex®)
- Cilostazol (Pletal®)
- Clopidogrel (Plavix®)
- Dabigatran (Pradaxa®)
- Dalteparin (Fragmin®)
- Meloxicam (Mobic®)
- Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil®, Motrin®) and naproxen (Aleve®)
- Pentoxifylline (Trental®)
- Prasugrel (Effient®)
- Rivaroxaban (Xarelto®)

- Dipyridamole (Persantine®)
- Edoxaban (Savaysa®)
- Enoxaparin (Lovenox®)
- Fondaparinux (Arixtra®)
- Heparin (shot under your skin)
- Sulfasalazine (Azulfidine®, Sulfazine®)
- Ticagrelor (Brilinta®)
- Tinzaparin (Innohep®)
- Warfarin (Jantoven®, Coumadin®)

Read *How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil* (www.mskcc.org/pe/check-med-supplement). It has information about medicines you must avoid before your procedure.

Medicines for diabetes

Before your procedure, talk with the healthcare provider who prescribes your insulin or other medicine for diabetes. They may need to change the dose of the medicine you take for diabetes. Ask them what you should do the morning of your procedure.

Your care team will check your blood sugar levels during your procedure.

Diuretics (water pills)

A diuretic is a medication that makes you urinate (pee) more often. Hydrochlorothiazide (Microzide®) and furosemide (Lasix®) are common diuretics.

If you take any diuretics, ask the healthcare provider doing your procedure what to do. You may need to stop taking them the day of your procedure.

Take devices off your skin

You may wear certain devices on your skin. Before your scan or procedure, device makers recommend you take off your:

- Continuous glucose monitor (CGM)
- Insulin pump

Talk with your healthcare provider about scheduling your appointment closer to the date you need to change your device. Make sure you have an

extra device with you to put on after your scan or procedure.

You may not be sure how to manage your glucose while your device is off. If so, before your appointment, talk with the healthcare provider who manages your diabetes care.

Arrange for someone to take you home

You must have a responsible care partner take you home after your procedure. A responsible care partner is someone who can help you get home safely. They should be able to contact your care team if they have any concerns. Make sure to plan this before the day of your procedure.

If you don't have a responsible care partner to take you home, call one of the agencies below. They'll send someone to go home with you. There's a charge for this service, and you'll need to provide transportation. It's OK to use a taxi or car service, but you still need a responsible care partner with you.

Agencies in New York

VNS Health: 888-735-8913

Caring People: 877-227-4649

Agencies in New Jersey

Caring People: 877-227-4649

Ask about air travel

After your biopsy, there is a risk of air leaking out of your lung and collecting around it. If this happens, you won't be able to travel by plane until the air leak closes and your healthcare provider tells you that it's safe to fly. If you think you'll be traveling by plane within 2 weeks of your biopsy, talk with the healthcare provider who is doing your procedure.

Arrange for someone to take you home and stay with you overnight

You must have a responsible care partner take you home and stay with you overnight. Make sure to plan this before the day of your procedure. If you don't have someone to do this, tell your Interventional Radiology nurse.

Tell us if you're sick

If you get sick (including having a fever, cold, sore throat, or flu) before your procedure, call your IR doctor. You can reach them Monday through Friday from 9 a.m. to 5 p.m.

After 5 p.m., during the weekend, and on holidays, call 212-639-2000. Ask for the Interventional Radiology fellow on call.

Note the time of your appointment

A staff member will call you 2 business days before your procedure. If your procedure is scheduled for a Monday, they'll call you on the Thursday before. They'll tell you what time to get to the hospital for your procedure. They will also remind you where to go.

Use this area to write down the date, time, and location of your procedure:

If you don't get a call by noon (12 p.m.) on the business day before your procedure, call 646-677-7001. If you need to cancel your procedure for any reason, call the healthcare provider who scheduled it for you.

The Day Before Your Procedure

Instructions for eating and drinking: 8 hours before your arrival time



- **Stop eating 8 hours before your arrival time, if you have not already.**
 - Your healthcare provider may tell you to stop eating earlier. If they do, follow their instructions.

- 8 hours before your arrival time, do not eat or drink anything except these clear liquids:
 - Water.
 - Soda.
 - Clear juices, such as lemonade, apple, and cranberry juices. Do not drink orange juice or juices with pulp.
 - Black coffee or tea (without any type of milk or creamer).
 - Sports drinks, such as Gatorade®.
 - Gelatin, such as Jell-O®.

You can keep having these until 2 hours before your arrival time.

The Day of Your Procedure

Instructions for drinking: 2 hours before your arrival time



Stop drinking 2 hours before your arrival time. This includes water.

Things to remember

- Take only the medications your healthcare provider told you to take the morning of your procedure. Take them with a few sips of water.
- Don't apply cream or petroleum jelly (Vaseline®). You can use deodorant and light moisturizers. Don't wear eye makeup.
- Remove any jewelry, including body piercings.
- Leave all valuables (such as credit cards and jewelry) at home.
- If you wear contact lenses, wear your glasses instead, if possible.

What to bring with you

- A list of the medications you take at home, including patches and creams.
- A case for your glasses or contacts.
- Your Health Care Proxy form, if you have completed one.

What to expect

Once you arrive, doctors, nurses, and other staff members will ask you to state and spell your name and date of birth many times. This is for your safety. People with the same or similar names may be having procedures on the same day.

After changing into a hospital gown, you'll meet your nurse. They will place an intravenous (IV) catheter into one of your veins, usually in your hand or

arm. At first, you'll receive fluids through the IV, but it will be used later to give you medication to make you sleepy and more relaxed during your procedure.

You'll talk with your healthcare provider before your procedure. They will explain the procedure and answer your questions.

During your procedure

When it's time for your procedure, you'll be brought into the procedure room and helped onto an exam table. You'll be attached to equipment to monitor your heart, breathing, and blood pressure. You'll also receive oxygen through a thin tube that rests below your nose.

Your healthcare provider will clean the skin around your biopsy area and cover it with a drape. A local anesthetic (medication to make an area numb) will be injected in the area where your healthcare provider will be working.

Your interventional radiologist will place the biopsy needle into your skin and check its position with an MRI, CT, ultrasound, or fluoroscopy. When the needle is in the right place, your radiologist will take the biopsy. The sample will be checked to make sure there is enough tissue. If there is enough, your interventional radiologist will remove the needle. If there isn't enough, they will take another sample.

When the procedure is finished, your healthcare provider will clean the site and cover it with a bandage.

After Your Procedure

In the hospital

You'll be brought to the recovery room where you'll have at least 2 chest x-rays to check for air around your lungs. The first is done right away. The second will be done about 2 hours later.

While you're in the recovery room, tell your nurse if you have:

- Any shortness of breath or trouble breathing

- Pain or discomfort
- Any symptoms that concern you

During this time, you may be given oxygen through your nose. You won't be allowed to eat right after the procedure.

After 2 hours, you'll have your second chest x-ray. If it's normal, you'll be able to go home. You must go with your responsible care partner who must spend the night with you.

If you have air around your lungs, your healthcare provider will decide whether you need more chest x-rays to watch the lung. You may need to have a small chest tube placed to allow your lung to re-expand. The chest tube allows the air around your lung to escape until the leak heals itself. You may be admitted to the hospital while your lung re-expands. This happens to about 8 out of 100 people who have this kind of biopsy.

At home

- You must have your responsible care partner stay with you until the next morning. This is for your safety.
- You may go back to your normal diet when you leave the hospital.
- You can shower or bathe the day after your biopsy. Remove the bandage after your shower.
- You may go back to your normal activities the day after your procedure.
- If you plan to travel by plane and you had no air leak around your lungs, it's safe for you to fly 2 days after your biopsy. If your chest x-ray shows an air leak, you may need to delay flying until your healthcare provider tells you it's safe.
- Call the doctor who scheduled your biopsy a few business days after your procedure to get the results.

Call 911 or Go to the Nearest Emergency Room if You:

- Become short of breath or have chest pain. This may mean that your lung is collapsing. Tell the paramedic or healthcare provider that you had a needle biopsy of your lung, pleura, mediastinum, or adrenal glands.

When to Call Your Healthcare Provider

Call your healthcare provider in Interventional Radiology if you have:

- A fever of 100.4 °F (38 °C) or higher
- Increasing pain at your biopsy site
- Swelling at your biopsy site

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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