A CT-guided lung biopsy uses a special X-ray machine and involves removing small pieces of soft tissue with a needle and using a special X-ray machine to take detailed pictures of the body.

Read this handout to learn more about the procedure, how to prepare for it, what to expect during and after your procedure, and how to get your results.

What is a CT-guided lung biopsy?

A computed tomography scan (CT or CAT scan) uses a special X-ray machine to take detailed pictures of the body’s organs and tissues. These pictures are much more detailed than a standard X-ray.

A biopsy is the removal of a small piece of tissue to be examined in the lab. A needle biopsy is the easiest way to remove this tissue safely from the body. To do a needle biopsy, the radiologist will insert a needle through your skin and into your tissue. A syringe or an automated needle may be used to take the tissue sample.

How does the procedure work?

CT scans use X-rays much differently than standard X-rays. In a CT scan, many X-ray beams are passed through the abdomen at different angles, and special detectors measure the amount of radiation absorbed by the different tissues. The X-ray tube revolves around you and records data from all these angles. This creates cross-sectional pictures of the area. These pictures are called “slices.” The pictures are then reviewed on a computer screen.

During CT-guided biopsies, patients must hold still on the CT table for up to an hour or longer.

How should I prepare for the CT scan?

- You will be asked to change into a hospital gown for your exam. All of your belongings will stay with you during your visit.
- You may be asked to remove hairpins, jewelry, eyeglasses, hearing aids, and any removable dental work that could affect the images.
• Eat your regular diet until 6 hours before your scan, or as instructed by the radiology clinic staff.

• Your kidney function will be checked before the procedure. If you are dehydrated, you will receive fluids through the intravenous (IV) line that was started before your exam.

• If you have diabetes and take insulin, talk with your doctor who manages your diabetes. You may need to adjust your insulin since you will not be able to eat for 6 hours before the CT scan.

• Take your other regular medicines as prescribed by your doctor unless your doctor or the radiology clinic staff has told you otherwise.

• If you normally take aspirin or other anticoagulant medicine (blood thinners), follow the instructions for not taking it that the Imaging Services scheduling staff gave you. They have checked with our clinic doctors about whether you should stop taking the blood thinners before your biopsy.

• Tell your radiologist or the CT technologist if there is any chance you may be pregnant.

• Make sure you bring someone to drive you home after your exam.

How is the CT-guided biopsy done?

• First, the Radiology nurse will insert an IV into a vein in your hand or arm. You may receive fluids or medicine to help you relax through the IV during your procedure. You may also be given a mild sedative through your IV before your biopsy.

• The CT technologist will help place you on the CT table. Pillows will be used to help you hold the correct position during your scan.

• The first few scans will confirm the area to be biopsied and the safest approach to this area.

• Once the location of the area to be biopsied is confirmed, the needle insertion site will be marked on your skin. The skin around the insertion site will be scrubbed and disinfected, and a sterile drape will be put over it. A local anesthetic will be injected. This will numb the path of the needle. Then a small incision will be made in your skin. The biopsy needle will be inserted through this incision.

• You will be asked not to move or cough during the procedure. You will also be asked to hold your breath at different times. It is very important that you try to hold your breath each time you are asked to. It will ensure that the needle is getting tissue from the right area.
Using the CT image for guidance, your doctor will direct the needle to the correct site and remove a small amount of tissue. Several tissue samples may be needed. After all the samples are taken, the needle will be removed.

After any bleeding has stopped at the incision site, a bandage will be placed over it. Bleeding will be minor and you will not need stitches.

After your biopsy, you will go to the limited-stay area. There, you will be monitored for any complications. Most patients are monitored here for 4 or more hours before they leave.

**What will I feel during the procedure?**

When you receive the local anesthetic to numb your skin, you will feel a slight pin prick from the needle. You may feel a burning sensation as the medicine is injected and takes effect. The area will become numb in a short time.

You may feel pressure from the doctor’s hands or from the biopsy needle itself.

When the needle enters your lung, you may need to start coughing and some blood may come out of your mouth. This is normal, and usually it is not painful. It should stop after a few minutes.

**What should I expect after the procedure?**

Usually, patients are told they may remove their bandage the day after their procedure. You may also bathe or shower as normal the day after your CT-guided biopsy.

Do not do heavy physical exercise (such as heavy lifting, a lot of stair climbing, sports, etc.) the night of and for 1 full day after your biopsy. Two days after your biopsy, you may return to your normal activities if you feel up to it. For air travel within 24 hours after your lung biopsy, talk with your radiologist.

Your biopsy site may be sore as the local anesthesia wears off, but this should quickly get better. You may also cough up a little blood. This should be minimal if you did not cough up blood during your biopsy. These symptoms will slowly decrease over the 12 to 48 hours after your procedure.
When to Call for Help

A collapsed lung can occur after a needle biopsy. Symptoms include:

- Shortness of breath
- Difficulty in catching your breath
- Rapid pulse (heart rate)
- Sharp chest or shoulder pain with breathing
- Pale skin

If you have any of these symptoms, go to the nearest Emergency Room or call 9-1-1. Call your doctor as soon as possible.

Who interprets the results and how do I get them?

The radiologist will send a detailed report to your doctor who referred you for the biopsy. It may take a few days to a week, or more, for your doctor to get these results. Your referring doctor or nurse will discuss your results with you.

What else do I need to know?

The radiologist, who performs the procedure, or an assistant, will explain this procedure to you in detail before your biopsy begins. They will describe the technique and possible complications, and will give you instructions and self-care tips for after your procedure. Be sure to ask all the questions you may have. You will have to sign a consent form that says you understand what you talked about and that you agree to have this procedure.