

# Tests





# Tests

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**Developed by Allina Health.**

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For specific information about your health condition, please contact your health care provider.





# Table of Contents

Tests .....	5
Chest X-ray .....	5
Chest MRI .....	6
Chest CT .....	9
Pulmonary (Breathing) Function Tests .....	11
Sleep Tests (Actigraphy and Sleep Study) .....	12
Bronchoscopy .....	14
Pulse Oximetry .....	15
Arterial Blood Gas .....	16
To Do List .....	17
Questions and Notes .....	19



# Tests

Your primary care provider may want you to have one or many tests listed in this booklet. They will talk with you about the benefits and possible risks of each test.

Before any test, call your health insurance provider to find out what is covered and how much you will have to pay.

## □ Chest X-ray



A chest X-ray can help your primary care provider find out what is causing your symptoms.

### General information

A chest X-ray is a painless test that takes pictures of your lungs, heart, ribs and blood vessels. The X-ray machine uses electromagnetic waves to take pictures inside your chest. The amount of radiation you receive is very small.

Your primary care provider will use the images to find the cause of your symptoms, such as pneumonia, heart failure or lung cancer. Your primary care provider may also want you to have a chest X-ray to see how well a treatment is working.

### Before the test

- You do not need to prepare.
- You will wear a hospital gown.
- Tell the technician (person giving you the test) if you:
  - are pregnant or thinking about getting pregnant
  - are breastfeeding
  - have any metal objects in your body
  - have any body piercings on your chest.
- You will need to remove jewelry, glasses or hearing aid.

### During the test

- You will sit, stand or lie down for the test.
- The technician (person giving you the test) will help you get in the right position.
- They will walk behind a wall or into the next room to help reduce their risk of radiation exposure.
- The technician will take different views of your chest, from the back and from the side.
- You will need to hold still for the X-ray. You may need to hold your breath for a few seconds.

- The technician may ask you to put your arms over your head.
- They will look to make sure the images are good.

### **After the test**

- You will change back into your clothes.
- A radiologist will read your X-rays. Your primary care provider will talk with you about the result.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## **❑ Chest MRI**



**An MRI has greater depth than X-rays and can create detailed pictures of your lungs, heart and blood vessels.**

### **General information**

A chest MRI is a painless test that creates detailed pictures of your lungs, heart and blood vessels.

Magnetic resonance imaging (MRI) uses a magnetic field to make three-dimensional (3-D) images of the inside of your chest wall. MRI has greater depth than X-rays and does not use radiation.

Your primary care provider will use the images to find the cause of your symptoms, such as pneumonia, heart failure or high blood pressure in the arteries of your lungs. Your primary care provider may also want you to have a chest MRI to see how well a treatment is working.

An MRI is a safe test. Possible risks include:

- headache
- nausea (upset stomach)
- feeling dizzy
- allergic reaction to the contrast.

The machine makes a lot of loud sounds (clunking, humming, tapping and buzzing). You will lie on a table that slides into the long tube of the machine.



## Before the test

- You do not need to prepare.
- You will wear a hospital gown.
- There are certain things that could interfere with it. Before your scheduled MRI, tell your primary care provider and technician if you:
  - have a sensitivity or allergy to contrast (Contrast is injected into a vein in your arm. It helps the MRI take more detailed pictures.)
  - are afraid of closed-in spaces (claustrophobia). Your primary care provider may give you a special medicine to help you relax before your scan. **If you do receive medicine, you will not be able to drive after your scan. Please arrange to have someone drive you home.**
- Tell primary care provider and technologist if you have:
  - a brain aneurysm clip
  - a Cochlear™ implant, implanted hearing aid or hearing aid
  - an implantable cardioverter defibrillator (ICD)
  - a pacemaker
  - body piercings
  - an electronic or magnetic device or implant
  - an insulin pump
  - an infusion pump or implanted drug infusion device
  - an artificial joint (prosthesis) or implant
  - an artificial or prosthetic limb
  - any metal object inside or outside of your body, or have ever gotten metal in your eyes
  - any other implanted device or foreign object in your body.

Any metallic object or substance could affect the quality of the images. It could also cause discomfort or injury when you are in the scanner.

- You will need to remove:
  - body piercings
  - jewelry and watches
  - hairpins or barrettes
  - dentures
  - glasses
  - hearing aids
  - anything else that could be attracted to the magnet.
- If contrast is used, an IV (intravenous) line will be started in your arm.

### **During the test**

- The technologist will position you on a special table.
- The technologist will talk with you about when you will be able to hear and talk with them during the scan.
- The technologist will place earplugs or headphones on you.
- The table will slide into the scanner.
- The inside of the scanner is lighted and allows air to pass through for your comfort.
- Both ends of the scanner are open.
- You will need to relax and lie still during the scan. This will help the scanner take clear images. Any movement could cause blurry images.
- The scanner makes a fast thumping noise while it is taking images.
- While the scanner is taking pictures, try to lie still and breathe normally and quietly.
- You may be asked to hold your breath.
- When the thumping noise stops, you need to continue to lie still.
- The technician will tell you how long each set of pictures will take. You may need to hold your breath during some of the images.
- The technician will give you directions before each set of pictures and tell you how long to hold your breath.
- You will have a button to squeeze if you feel uncomfortable during the test. There is medicine that can help you relax.

## After the scan

- The table will slide out of the scanner.
- You will change back into your clothes.
- If you had contrast: drink up to four 8-ounce glasses of water for the next 8 hours to clear the contrast out of your system.
- If you are breastfeeding: ask your primary care provider when you can continue breastfeeding.
- Return to your normal routine.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well. A radiologist will read your X-rays. Your primary care provider will talk with you about the result.

## Chest CT



A CT scan creates pictures of your lungs and heart. The X-rays are more detailed than a regular X-ray can provide.

## General information

A chest CT is a painless test that creates pictures of your lungs and heart. A CT (computerized tomography) scan uses X-ray but the pictures are more detailed than a regular X-ray.

Your primary care provider will use the images from the chest CT to follow up on an abnormal chest X-ray, find out what's causing your symptoms and get a better look at your heart or lungs.

A CT test uses radiation. The machine is a tube. You will lie on a table that goes into the tube.

## Before the test

- Tell your primary care provider if you:
  - are pregnant
  - have had a contrast reaction during an X-ray, CT, MRI (magnetic resonance imaging) or angiogram test. You may need a medicine before the scan.
  - have a sensitivity or allergy to contrast (Contrast is injected into a vein in your arm. It helps the CT take more detailed pictures.)
  - are afraid of closed-in spaces (claustrophobia). Your primary care provider may give you a special medicine to help you relax before your scan. **If you do receive medicine, you will not be able to drive after your scan. Please arrange to have someone drive you home.**

- Follow the directions you receive for what you can eat or drink, and what medicines to take before the test.
- You will wear a hospital gown.
- Remove all jewelry.
- If contrast is used, an IV (intravenous) line will be started in your arm.
- The nurse or technologist may place some electrodes on your chest to record your heart rate during the test.

### **During the test**

- You may be given a medicine to slow your heart rate. A lower heart rate helps get clearer images.
- You will lie on a long table that slides into a short, doughnut-shaped machine.
- The technologist will go into a control room. They will talk with you through an intercom.
- You will be asked to hold your breath for a brief time. Lying still during the scan is important. Any movement can blur the X-ray images.
- The contrast is given through the IV in your arm. You may feel a warmth or flushing throughout your body. You may also have the sensation of urinating during the injection. These feelings last about 2 minutes.

### **After the test**

- You will sit in a waiting area for about 15 minutes to make sure you do not have a reaction to the contrast.
- Your IV will be removed.
- You will change back into your clothes.
- You may return to your regular activity for the rest of the day.
- Call your primary care provider if you have a reaction such as itching or hives.
- **Call 911 right away if you start wheezing, have shortness of breath or have trouble swallowing.**
- A radiologist will read your X-rays. Your primary care provider will talk with you about the result.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## ❑ Pulmonary (Breathing) Function Tests



**Breathing tests check how well your lungs are working.**

Your primary care provider wants you to have breathing tests to check how well your lungs are working. Your primary care provider will use the tests to tell if you have asthma, COPD or pulmonary fibrosis (scarring of lung tissue).

The tests are:

- ❑ **spirometry**  
It checks how well air moves in and out of your lungs. It may be repeated after you take an inhaled breathing medicine.
- ❑ **lung volumes**  
It checks how much air your lungs hold.
- ❑ **diffusing capacity**  
It checks how easily oxygen can move from your lungs to your blood.

The tests can help your primary care provider:

- help find the cause of your breathing problem
- follow the progress of lung diseases
- plan treatment
- check for side effects of medicines that can affect the lungs.

Each separate test takes about 30 minutes.

### **Before your test**

- For **6 hours** before your test, try to avoid:
  - large meals
  - caffeine
  - heavy exercise
  - smoking.
- **Important:** follow directions for taking your medicine.

### **During your test**

- You will have nose clips and you may be asked to hold your breath for parts of the test.

### **After your test**

- Your primary care provider will let you know your results.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## ❑ Sleep Tests

### ❑ Actigraphy

Actigraphy is a special study of your activity and sleep. It measures your body movements with the use of a watch-like device called an actigraph.

The actigraph records your activity and sleep patterns over a period of time (usually 7 to 14 days). Your sleep primary care provider will use this information to see if you are having problems with your sleep.

#### Test details

- Follow any directions you receive.
- Wear the actigraph on your non-dominant wrist. (If you are right-handed, wear the device on your left wrist.)
- Your sleep primary care provider will tell you how many days to wear the actigraph.
- You will wear the actigraph 24 hours a day. The only times you may take off the actigraph include:
  - when you take a shower or bath, swim or wash dishes. The actigraph is not waterproof and should not be put under water.
  - if you will be doing any activity that may damage the device (yard work, other physical labor). Wearing the watch during exercise will not damage the device.
- You will need to keep an activity log while you wear the actigraph. Your sleep primary care provider will give you a blank activity log to write down your physical activity.

#### Returning the actigraph

Return the actigraph and your activity log **as soon as you finish the study.**

- Your sleep primary care provider will look at your activity patterns and activity log to interpret your results. This will take some time. Please do not call to get your results before your follow-up appointment.
- Your follow-up appointment will be scheduled with the primary care provider who ordered the study. They will talk with you about the results, your treatment options and answer any questions or concerns you have.



**A sleep study records your brain activity, eye movements, breathing, heart rate, and more, for at least 6 hours.**

## ❑ Sleep Study (Polysomnography)

Polysomnography is a special study of your sleep. It records your brain activity, eye movements, breathing, heart rate, oxygen level, and chin and leg muscle movement patterns.

For the sleep study, you will spend the night at the hospital's sleep center. Special electrodes and sensors will be placed on your head, face, chest, legs and finger. A video camera will record you sleeping.

The study has little to no discomfort and it will last for at least 6 hours.

You do not need to do anything to prepare for the study. You will receive a list of what to bring. Take any medicines as usual unless your primary care provider gives you other directions.

### The day of your sleep study

- Take any medicines as usual before you come, or bring them with you.
- Do not bring jewelry, valuable items, large amounts of cash or visitors. (Talk with a member of the sleep center staff about visitors before your stay.)
- Bathe as usual and wash and dry your hair. Avoid using any hair or skin products so study equipment will adhere properly. This includes gel, hair spray and lotions.
- Avoid any caffeine after noon to help you sleep better.

### During your sleep study

- You will have:
  - small metal electrodes attached to your skin with adhesive
  - elastic belts around your chest and abdomen
  - a clip on your finger.

These are painless and are made to be comfortable. You should not have trouble changing positions with them attached. The recording equipment and the technician will be in another room.

- If you have breathing problems, the technician may wake you and ask you to try using continuous positive airway pressure (CPAP). You will have a small mask over your nose that provides a gentle stream of air to help keep your airways open for easier breathing.



## □ Bronchoscopy



A bronchoscopy shows part of your trachea or bronchial tubes that an X-ray cannot show.

A bronchoscopy is a test that lets your primary care provider see your trachea (windpipe) and large bronchial tubes.

Your primary care provider will gently insert a flexible, lighted tube (bronchoscope) through your nose (or your mouth) and into your lungs. The tube is as thick as a thin pencil and has a bright light on the end of it.

This test shows parts of your trachea or bronchial tubes that an X-ray cannot show.

### Before the test

- Follow your primary care provider's directions for which medicines to take the morning of the test.
- Remove any jewelry or piercings.
- You may need to have blood drawn for some lab tests.
- You will be asked to sign a consent form.
- If you are wearing glasses, you will be asked to remove them.
- Tell your primary care provider if you:
  - are pregnant
  - have diabetes
  - have allergies to medicines
  - have glaucoma
  - have heart disease or lung disease
  - have history of hepatitis
  - take a blood-thinner.
- **If you are not staying overnight at the hospital, you need to arrange to have someone drive you home. You will not be able to drive for 24 hours after you receive the test medicines.**
- An intravenous (IV) line will be started in your hand or arm. You will get medicine through this IV line.
- You will be given a breathing medicine to numb your airway passages, nose and throat. This will make it easier for your primary care provider to insert the scope.



## During the test

- The nurse or primary care provider will give you medicines to relax you and make your mouth dry.
- You will lie on your back. Your head will be raised slightly.
- Breathe normally during the exam to help you relax.
- You may feel slight discomfort when your primary care provider inserts the scope.
- Your primary care provider may want to do a biopsy (taking tiny pieces of tissue from your trachea or bronchial tubes). Tissue samples will be sent to the lab.

## After the test

- You may have a chest X-ray after your exam on the way to recovery.
- You may feel dizzy or lightheaded from the medicines. If you are an outpatient, you will be in the recovery area until you are ready to go home. This usually takes about 2 hours.
- Your gag reflexes will return in 1 to 2 hours.
- Your throat may feel sore for the rest of the day.
- When you can swallow a small amount of water, you may return to your normal diet.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## □ Pulse Oximetry



A pulse oximeter shows the amount of oxygen in your blood.

A pulse oximeter is a painless way to measure the oxygen saturation in your blood. A simple device placed on your finger uses light to measure the amount of oxygen in your blood.

## Before the test

- You do not need to prepare for the test.

## During the test

- Your primary care provider will clip the device to your finger or earlobe.

## After the test

- You may return to your regular activities.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## □ Arterial Blood Gas

A blood test is done to measure the amount of oxygen and carbon dioxide (arterial blood gas) in your blood. Your primary care provider will take a blood sample from an artery in your arm, wrist or groin.

The test is used to see how well your lungs move oxygen into the blood and remove carbon dioxide from the blood.

Your primary care provider will use this test, along with other tests, to tell if you have asthma, COPD, pneumonia or another disease. It can also be done to see how well your treatment is working. The risks of this test are small.

### **Before the test**

- You do not need to prepare for the test.
- Your primary care provider may give you medicine instructions.

### **During the test**

- Your primary care provider will prepare your skin.
- They will insert a needle to take blood.

### **After the test**

- You may return to your regular activities.
- You may take an over-the-counter pain reliever for discomfort. Follow package directions.
- Follow your After Visit Summary directions.
- Keep all follow-up appointments, even if you feel well.

## To Do List



- Learn all you can about your lung disease. If you find something online, take the information to your primary care provider. Ask your health care team for good sources.
- Consider bringing someone from your care circle (family member, friend or someone else close to you) along to your appointments. That person can keep notes and help you ask questions.
- Ask your primary care provider questions such as:
  1. Why do I need this test?
  2. What are the benefits of this test?
  3. What are the risks of this test?
  4. Is there a different test I can have?
  5. How often do I need this test?
  6. What happens if I do not have this test?
- Ask your primary care provider to better explain anything that does not make sense to you.
- Call your insurance provider to find out if the test(s) your primary care provider wants you to have will be covered. Ask how much money you will need to pay.











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