

# Nuclear Medicine Brain Scan

An Introductory Guide For  
Patients And Their Families



You may be wondering why your doctor ordered a **nuclear medicine brain scan**. You might have questions such as: How does this test work? What can I expect? Do I need to do anything to prepare? Is it safe? When will I know the results?

This brochure will help answer these and other questions. As always, talk with your doctor if you have additional questions or concerns.

## Why has my doctor ordered this scan?

Neuroimaging scans can give your doctor important information about your brain — its size, shape and how well it is working.

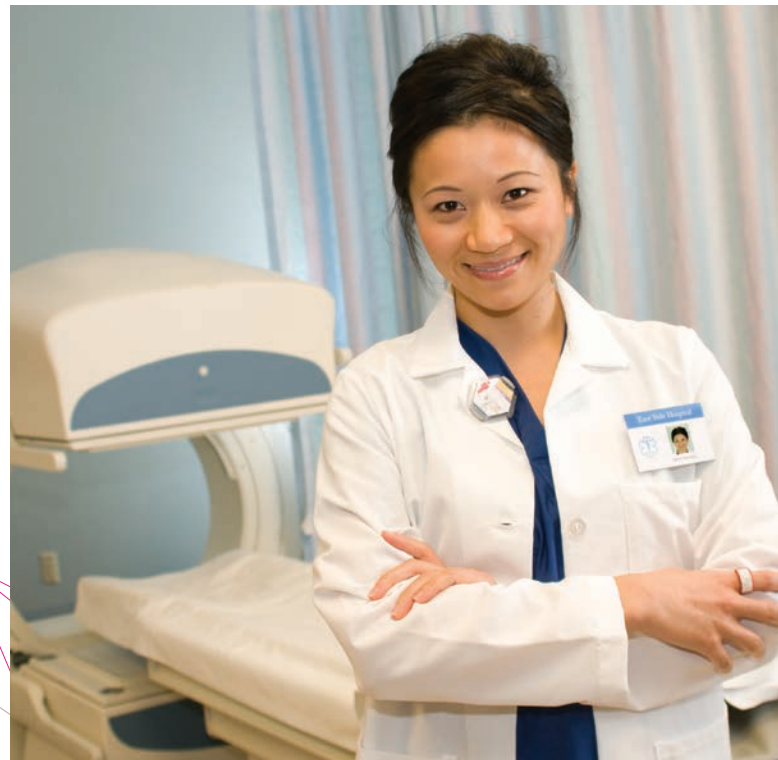
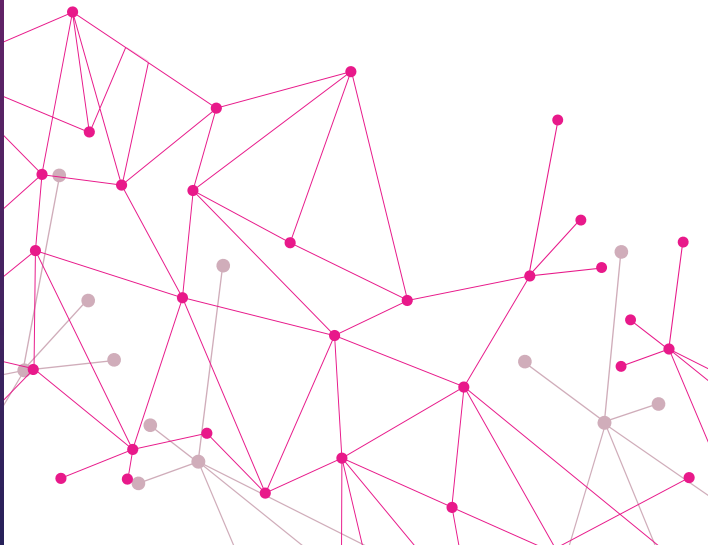
Unlike x-rays, CT scans or MRI, neuroimaging tests show:

- 1) the brain's structure
- and**
- 2) the changing activity, blood flow and electrical impulses of the brain during certain tasks

A brain scan may be used to look for brain injury or disease, including:

- Brain tumors, infections or other brain diseases
- Brain damage or bleeding from a head injury, stroke or other illness
- The part of the brain that is causing seizures in people with epilepsy
- Behavioral or mood problems such as dementia, anxiety, depression, rage or addiction

The results of this test can help your doctor know what is happening in your brain and recommend the best treatment plan for you. In some cases, these scans are also used to see how well someone is responding to treatment.



## How does a nuclear medicine brain scan work?

You will be given a small amount of radioactive material (called a tracer). This tracer is usually injected into a vein in your arm or hand. It travels through the blood, and collects in the brain and its tissue, where it sends signals (gamma waves) to special cameras that:

- **detect** the tracer
- **take pictures** of your brain
- **record and store** information on a computer

Tracers in the blood help doctors see if the blood is circulating to all parts of the brain. Usually, areas of the brain with highly active cells will appear as bright “hot” spots. These hot spots might be a sign of cancer, trauma or infection. Less active cells show up as darker “cold” spots. Cells that are not very active can point to damage from a stroke or parts of the brain that are not working normally.

There are several types of nuclear medicine brain imaging tests. Your doctor will select the test that’s right for you based on the goals of the scan.



Millions of Americans  
have nuclear medicine imaging  
exams each year<sup>1</sup>

### What is nuclear medicine?

Nuclear medicine is a type of medical imaging that uses small amounts of radioactive material (called tracers) to help find and/or treat a variety of diseases, including heart disease, kidney disease, many types of cancers and many other problems.

Unlike other imaging tests, nuclear medicine scans give doctors important information about how various parts of the body are working. Millions of Americans have nuclear medicine imaging exams each year.

1 Goethals P, Zimmermann R. Nuclear Medicine Market, Nuclear Medicine Procedures. In: Nuclear Medicine World Market Report and Directory. MEDrays Intell. June 2016: 45.

## Are there any safety concerns with this test?

Don't let the words "nuclear" or "radioactivity" scare you. These tests are designed to expose you to the least amount of radiation possible. The drug or drugs that will be used during the exam are prepared with exceptional care and have been approved by the U.S. Food and Drug Administration. However, there is always a chance that you may have a reaction to the drugs.

Your doctor will explain the risks before the test. It is important to tell your doctor or the person performing the test if you notice any side effects.

The exam is minimally invasive and generally painless except for the injection.

**If you are pregnant, trying to get pregnant or breast feeding, tell your doctor before having the test.**

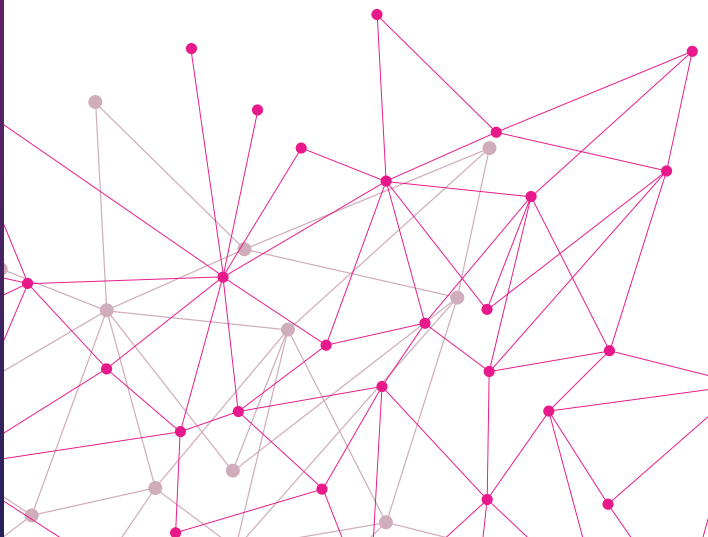
## What will the procedure be like?

It depends on the type of brain scan ordered. The test will be done in a hospital or out-patient clinic that offers this type of imaging. Usually, a technologist with special training in nuclear medicine will conduct the test.

### Do I need to prepare for the test?

You will receive specific instructions based on the type of brain scan you are having. Generally, no special preparation is needed. If you have diabetes, make sure your doctor knows. Blood sugar or insulin levels may affect the test results.

Usually there is no need to stop taking medications, but check with your doctor.



## What can I expect?

Here is a basic description of what you can expect. Keep in mind, this process may vary based on:

- the type of brain scan
- the patient
- where the test is performed



**Step 1.** You may be asked to undress and wear a hospital gown. Leave your jewelry at home and be sure to remove any metal objects (for example, belts, most dentures or change in your pockets).

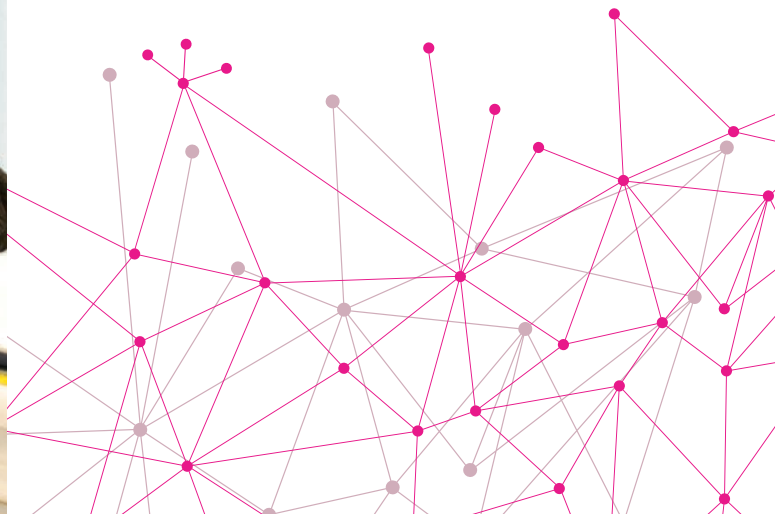
**Step 2.** The technologist will insert a tube called an intravenous (IV) line in your arm or hand to administer the tracer. You may feel a slight prick.

**Step 3.** A scan is often done right after this injection. Then, you will be asked to wait for 30 minutes to two hours before additional scans are taken. Before each scan, you'll be asked to lie down on an imaging table. It is important that you remain as still as possible so the pictures are not blurred.

**Step 4.** At the end of the exam, the technologist will carefully remove your IV line.

## How long does the test take?

The scan can take 35 minutes to several hours. It will depend on the type and purpose of the test used. Your doctor and/or technologist should tell you in advance how long the test will last.





## Is there anything I need to do after the test?

You may be asked to wait for a short time while the doctor (a radiologist who is trained to read the images) reviews the scans to see whether additional pictures are needed.

Make sure that you:

- Drink plenty of fluids to help clear the remaining tracer from your body. It is usually flushed from the body within six to 24 hours.
- Keep an eye on the injection site. Tell your doctor if you notice any redness or swelling.

## How do I get the results?

When the test is over, a radiologist trained in nuclear medicine will review the images and send a written report to your doctor. Your doctor will then discuss the results with you. Be sure to ask your doctor what the test results mean and what you should do next.



## Talking to your health team

Be sure to talk with your health team if you have any concerns. Here are some questions that you might want to ask:

- Why is this test being ordered?
- How long does the test take?
- What can I expect during the exam?
- Is it safe?
- Do I need to get my blood sugar level checked?
- Should I stop taking any of my medications before the exam?
- Will the test be covered by my health insurance?
- When will I get the results?
- When will I be able to resume normal activities?

Your examination has been  
scheduled for:

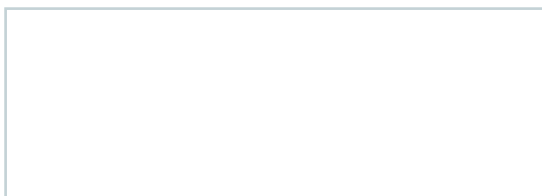
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