

Nuclear medicine

What is nuclear medicine?

Nuclear medicine is a medical subspecialty that has two applications: diagnostic nuclear medicine imaging and therapeutic nuclear medicine. It uses a small amount of radioactive material in the form of a tracer to assess the physiology or function of targeted areas of your body. Tracers are radiopharmaceuticals and are different from the contrast used during a CT scan.

Nuclear medicine is commonly used to diagnose, treat, or determine the severity of many diseases, including many types of cancers, heart disease, gastrointestinal, endocrine, neurological disorders, and other abnormalities within the body.

Nuclear medicine scans are very sensitive, as they can pinpoint molecular activity within the body. This means they can identify diseases at an earlier stage – they can detect evidence of abnormalities before they show up on an x-ray or ultrasound. They are also used to monitor a patient's immediate response to therapeutic interventions in real-time.

Nuclear medicine also uses radiopharmaceuticals to treat certain conditions. These therapeutic radiopharmaceuticals are specifically designed to treat the disease by emitting the radiation directly at the disease.

What preparation is required?

Some nuclear medicine procedures require special preparation. A staff member will inform you of the required preparation for your procedure at the time of booking. Please let a staff member if you are diabetic and have been instructed to fast so you can be booked in for an earlier appointment.

Most nuclear medicine studies should not be performed during pregnancy. In serious cases, where the benefits of a diagnosis outweigh the risks of disease, urgent scans may be modified for pregnant women to ensure the fetus is exposed to the least amount of radiation possible.

What happens during a nuclear medicine scan?

Depending on the type of nuclear medicine exam, a tracer is either injected, swallowed, or inhaled as a gas, before eventually accumulating in the organ or area of the body being examined. Tracers used for nuclear medicine procedures emit gamma rays, a type of radiation similar to an x-ray.

Radioactive emissions from the tracer are detected by a gamma camera or imaging device that produces pictures and provides molecular information.

Following your scan, your report and images will be sent electronically to your doctor.

How long will my nuclear medicine scan take?

There are many different nuclear medicine scans and procedures. Some tests take as little as 30 minutes, some require several appointments over 6 hours, and others require a daily 30-minute visit for 5 consecutive days.

The more commonly performed types of nuclear medicine scans, including bone scans and myocardial perfusion stress (MPS) tests, require a visit in the morning, followed by another visit several hours later in the day. You will usually be allowed to leave the department between appointments. A staff member will give you an approximate duration of your procedure at the time of booking.

Are there any risks associated with a nuclear medicine scan?

Nuclear medicine imaging procedures are non-invasive and, apart from intravenous injections, are usually painless. No common side effects have been documented from any nuclear medicine procedures.

Tracers used for nuclear medicine disappear as soon as they are administered, and most are undetectable within 24-48 hours. The total radiation dose to the body is approximately the same as having a CT scan.

Most radiotracers are passed through breast milk. If you are breastfeeding, please notify our technical staff, who will advise you of any necessary precautions. These precautions usually involve expressing and discarding breast milk for 24-48 hours after your scan.

How much will my nuclear medicine scan cost?

The cost for your nuclear medicine examination will vary according to your medical requirements. Many nuclear medicine examinations are entitled to be bulk billed, provided all Medicare eligibility requirements have been met. For further clarification on expected costs associated with your examination, please speak to a customer service member.