

**Patient
Information**

Nuclear Medicine Scan

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**Nuclear
Medicine**

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Introduction

This leaflet gives you information about having a nuclear medicine scan, including any preparation required and the equipment used.

What is a nuclear medicine scan?

There are a large variety of nuclear medicine scans (also called radioisotope scans). They all involve taking images that show the physiological function of different parts of the body.

Preparation for your scan

Some nuclear medicine scans require you to stop taking certain medicines, to avoid caffeine, or to refrain from eating for a period of time before the scan. Therefore, it is important that you follow any instructions that you are given by the department. If you do not receive any preparation instructions then you can eat and drink as normal before your appointment.

For any nuclear medicine scan, it is necessary to administer (give) a small amount of a radioactive tracer, called a radiopharmaceutical. The radiopharmaceutical is taken up by a specific part of the body and then the emitted radiation is detected by the camera to produce an image.

The radioactive tracer is usually injected into a vein in your arm or hand. This is a similar sensation to a blood test that you may have had in the past.

For some specific types of scans, you may be asked to swallow a capsule containing the radiopharmaceutical, or have it mixed in with food.

The images for some scans will be taken immediately following the administration of the radiopharmaceutical, while others may require a period of waiting. The length of this waiting time depends on the type of scan you are having, but it can be up to 3 hours, so please read the information in your appointment letter. If there is an extended waiting time, you may be allowed to temporarily leave the department.

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It is not advisable for young children and pregnant women to be present after a patient has been given the radioactive tracer, radiopharmaceutical. If this is the case for you, please contact the Nuclear Medicine Department before the date of your scan to discuss. The contact details are at the end of this leaflet.

Your scan

Before the scan you may be asked to go to the toilet to empty your bladder.

For most scans you will not need to undress but you will be asked to remove any metallic objects such as trouser braces, jewellery and belts that are within the region of your body where the images are to be taken.

The scan is performed by using a special machine called a gamma camera.

A member of the team will monitor you throughout the scan.

MIBG scans

If you are attending for an MIBG scan, you will need to attend on 2 days that follow one another. The first appointment will be for an injection, and the second for the scan(s). The details of this will be in your appointment letter.

Sentinel lymph node biopsy patients

If you are attending for a sentinel lymph node injection before surgery, then you will not require a scan, unless stated on your appointment letter. The injection appointment will typically take about 20 minutes.

SeHCAT scans

If you are attending for a SeHCAT scan to test for bile acid malabsorption, you will need to attend twice. The appointments will be one week apart. The details of this will be in your appointment letter. The SeHCAT test uses a small radioactive capsule that is swallowed, as opposed to an intravenous injection.

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Paediatric patients

For patients younger than 18 years old, the radiation dose given will be adjusted based on weight, to a minimum of 10% of the adult dose.

Please read the appointment letter carefully, as this will contain information about what time and where to attend for your child to have a cannula inserted before their injection and scan. A cannula is a thin tube inserted into a vein in the arm, this allows the radioactive tracer to be given.

The gamma camera

A gamma camera is used to measure the radioactive tracer that is inside your body. The camera has 2 large radiation detectors which will move close to you while the images are being taken. Sensors will automatically stop the camera moving if it touches your body so it cannot hurt you.

For most scans you will be asked to lie flat on your back. For other scans you may be asked to stand in front of the camera.

The scans usually take about 30 minutes and it is very important that you keep still during this time. If you think that you will find this difficult, please speak to a member of staff in the Nuclear Medicine Department before your appointment. The contact details are at the end of this leaflet.

Some types of scans require other images to be taken with a CT scanner. This may prevent you needing to return for further imaging tests or provide additional information that could not be obtained with any other test. These extra images will only take a few minutes.

After your scan

Side effects of having a nuclear medicine scan are rare.

You can continue with your normal activities after the scan, unless you have been advised otherwise.

There will be some radioactivity left in your body but this will not harm you or the people around you. However, after some nuclear medicine scans you may be advised to avoid close contact with pregnant women and children under 5 years of

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age; there is no need to stop giving children essential care. The restriction period will vary depending on the scan type.

The restriction periods are:

- 48 hours for I-123 MIBG, I-123 DaTSCAN
- 24 hours for Tc-99m Bone, Tc-99m Parathyroid, Tc-99m Myocardial Perfusion and Tc-99m Tektrotyd

There are no restrictions for any other diagnostic tests.

Please note that all radionuclide therapy patients are subject to separate restrictions.

The radioactivity will naturally reduce over time, but after some scans you may be advised to drink plenty of liquids to help clear the radioactivity more quickly.

If you are pregnant or breastfeeding

If you know that you are pregnant, or there is any chance that you may be pregnant, then please contact the department as soon as possible. The scan may be postponed if it is not urgent. You should also contact the department if you are breastfeeding, as you may be given special instructions.

Travelling abroad

It is perfectly safe for you to travel abroad after your scan but many airports and sea ports are now equipped with very sensitive radiation detectors. It is possible that the very small amount of radioactivity left in your body could set off a detector as you pass through security. Therefore, if you intend to travel abroad within a week of your scan, it may be helpful to take with you something to explain that you have recently had a nuclear medicine scan. For example, this could be your appointment letter.

Results of the scan

Your images will be looked at by a specialist doctor (radiologist), who will issue a report. The report will be sent to the doctor who requested your scan.

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As part of your care, information will be shared between clinical staff, some of whom you may not meet. It may also be used at a later time to help the department train staff, improve quality of care, plan services or conduct scientific research. Where it is appropriate to do so, your images will be anonymised and it will not be possible to identify you.

All information will be treated as confidential and is not given to anyone who does not need it. If you have any concerns about this then please contact a member of staff at the Nuclear Medicine Department.

For more information about how we look after your information, please visit the Privacy Notice at www.gloshospitals.nhs.uk/privacy-notice/

Are there any risks associated with my scan?

Yes, there is a small increased risk of developing cancer later in life. However, all nuclear medicine scans are justified by a health care professional to make sure that the benefit to you outweighs the very small risk associated with the use of medical radiation.

In everyday life we are constantly exposed to low levels of background radiation. When we take a flight, we are closer to space and receive a slightly higher background radiation dose. To help put the risk associated with the scan into context we have included the table below. It compares the risk associated with having a scan, background radiation and radiation related to taking a flight. It is also important to remember that more than 1 in every 3 people in the UK will be diagnosed with cancer in their lifetime, regardless of radiation exposure.

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Study	Increased Cancer Risk (1 in ...)	Background radiation time equivalent (Days)	Flight time equivalent (Hours)
Bone Scan	5100	488	390
DaTSCAN	4300	575	460
Myocardial Perfusion (Rest + Stress)	1500	1688	1350
Parathyroid	2500	1000	810
Renal Study (MAG3 or DMSA)	28000	88	70
Sentinel Node Biopsy	110000	23	18
CT Abdomen Pelvis	2000	1250	1000
CT Chest	2500	1000	800

References: HPA-CRCE-028, PHE-CRCE-026, ARSAC, Cancer Research UK 2018.

The dose of radiation from the additional CT part of your scan (if required) varies greatly from patient to patient, as it is dependent on patient size/shape, the area being imaged and the scanner itself.

Contact information

We would like to make your visit as pleasant as possible. If you have any concerns or would like further information, please talk to a member of the Nuclear Medicine team.

If you do not understand why you need to have this scan, please speak to the doctor who referred you.

Isotope Department

Radiology 2

College Road Wing

Cheltenham General Hospital

Tel: 0300 422 3011

Monday to Friday, 8:30am to 4:30pm

Patient Information

Nuclear Medicine Department

Imaging 1

Gloucestershire Royal Hospital

Tel: 0300 422 6824

Monday to Friday, 8:30am to 4:30pm

Further information

More information about nuclear medicine scans can be found on the following websites:

Patient info

www.patient.info/treatment-medication/radionuclide-scan-isotope-scan

British Nuclear Medicine Society (BNMS)

www.bnms.org.uk/page/PatientsCarers

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Making a choice

Shared Decision Making

If you are asked to make a choice, you may have lots of questions that you want to ask. You may also want to talk over your options with your family or friends. It can help to write a list of the questions you want answered and take it to your appointment.



Ask 3 Questions

To begin with, try to make sure you get the answers to three key questions if you are asked to make a choice about your healthcare.

1. What are my options?
2. What are the pros and cons of each option for me?
3. How do I get support to help me make a decision that is right for me?

These resources have been adapted with kind permission from the MAGIC Programme, supported by the Health Foundation

* Ask 3 Questions is based on Shepherd HL, et al. Three questions that patients can ask to improve the quality of information physicians give about treatment options: A cross-over trial. Patient Education and Counselling, 2011;34: 379-85



<https://aqua.nhs.uk/resources/shared-decision-making-case-studies/>