Wrightington, Wigan and Leigh Teaching Hospitals
NHS Foundation Trust

Having an MRI Scan with a MR compatible pacemaker

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Having an MRI Scan with a MR Compatible Pacemaker

Patient Information

Radiology Department

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Introduction

Your clinician has requested you to have a Magnetic Resonance Imaging (MRI) scan. MRI is often the best diagnostic test for certain clinical questions.

In the past, we have been unable to scan patients who have a pacemaker and/or an implantable cardioverter-defibrillator (ICD) device, due to the risk of the device malfunctioning.

We now know that patients with certain pacemakers/ICD devices are safe for us to scan. However, there are certain conditions that we need to follow. This involves your pacemaker being turned off or into ‘safe mode’ by a cardiology technician, who will monitor you throughout the whole scan.

What Is an MRI Scanner?

An MRI scanner is an advanced medical imaging system that consists of a large, open-ended tube designed to capture detailed images of the inside of your body.

How Does It Work?

MR Imaging uses powerful magnets and radio waves to align protons in the body. Each proton produces a signal which is read by a receiver. This information is converted by a complex computer technology to create detailed pictures of the inside of your body.

Is It Safe?

MRI scanners use a strong magnetic field instead of X-rays to create detailed images. This means the procedure does not involve any radiation and is safe for most people. However, very occasionally, individuals who have certain metal or electronic implants or devices may not be able to have an MRI scan.

How Long Will I Be in the MR Imaging Department for?

A scan can take anywhere between 15-60 minutes, depending on the area being scanned. However, on average, scans take around 30 minutes. The radiographer can advise you how long the scan will take when you are in the department.

Patients who have pacemakers take a little longer, due to the extra safety steps we need to follow. A cardiac physiologist will check your device before you enter the scan room. Once the cardiac physiologist is happy, your device will be turned into “MRI safe mode” and you will be safe to enter the scan room. After your scan, your device will be checked one last time and turned back on by the cardiac physiologist. Due to these extra steps, the appointment can take up to 2 hours, but this is quite rare.

We may have to accommodate emergency cases that will need to be scanned out of turn. This may mean you have to wait a little longer than anticipated. Please allow for extra time on your parking ticket.

How Will I Know if My Pacemaker Is Safe?

When the MR Imaging department received a request from your referrer, we were informed of your pacemaker or ICD.

The radiographers have investigated your pacemaker to find out lots of information, which includes the make and model number of the pacemaker, and the leads implanted.

This information is used to find out if the device and leads are MR safe.

The radiographers may contact you to go through an MRI Safety Screening questionnaire to make sure you have no other devices or implants. On very rare occasions, you may be asked to go for a chest X-ray prior to the MRI scan. This is to confirm that the leads from your pacemaker are in the correct position and are not broken.

On the Day of Your Scan Before your scan

When you arrive in the department, you will follow the same process as all patients. We will go through an MR Imaging Safety Questionnaire, and we will lock away your valuables and metallic devices in a secure locker. You will then be asked to change into a hospital gown.

A cardiac physiologist will check that your pacemaker is working properly before being turned off or into safe mode. There is a very small possibility that they decide that it is not appropriate to switch your pacemaker into off/safe mode. If this is the case, we will discuss the next steps with you and inform your referrer.

If you need an injection of contrast during the scan, we will normally insert a cannula into your arm or hand before you enter the scan room.

During your scan

Depending on the area being scanned, you may enter the scanner feet first or headfirst. We will monitor your oxygen levels and your heart rate throughout the scan. We may also need to place Electrocardiogram (ECG) leads on your chest to monitor your heart throughout the scan.

We will ask you to lie very still throughout, as movement can blur MRI images. Some scans may require you to hold your breath for a few seconds.

MR Imaging is very noisy; however, you will be given ear defender headphones that help to reduce this. We can also put music on, so please feel free to request this if you think it will help you relax.

All patients are given a safety buzzer throughout the scan; if you need to speak to the radiographer or feel you need to get out, you can squeeze the buzzer to alert the radiographer. The radiographer will check on you throughout the scan.

After your scan

Once the scan has been completed, the cardiac physiologist will return your pacemaker to normal mode and answer any questions you might have. You will then be free to leave the department.

Results

You will not receive any results on the day of your appointment. The report will be available to whoever requested your scan after around 10 days. However, this can sometimes be quicker or slower, depending on the urgency.

Will I Need an Injection?

Sometimes, in order to answer a clinical question, it is necessary to administer some contrast, as this helps us to identify adjacent anatomical structures more clearly on MR imaging. It is also sometimes necessary to administer a muscle relaxant (Buscopan) to

calm down any bowel movements. We do need to make patients aware that there is a very small chance of an allergic reaction to any injection. However, there are lots of health professionals around and we are very experienced at dealing with these situations.

Are There Any Side Effects from an MRI Scan?

There are no known adverse side effects from a clinical MR Imaging. You can continue to take any medication as normal.

Will It Hurt?

No, MR Imaging scans are painless. If your condition makes it difficult to lie flat and still during your scan, the radiographers will do their best to make you as comfortable as possible.

What does the scanner look like?



Is It Claustrophobic?

You will be required to lie in the centre of the scanner (magnet). It is open ended and brightly lit. About 1% of patients may feel claustrophobic during their scan. However, the radiographers are skilled at putting you at ease and making you as comfortable as possible.

Many patients find the experience very relaxing.

Relatives and Escorts

You can bring a relative or friend with you to the Radiology department, however they will not normally be allowed in the MR Imaging department.

Children/Vulnerable Adults

Please be aware that the department does not have the facilities to supervise children/vulnerable adults. If you need to bring a child or vulnerable adult with you, you must bring an appropriate adult to supervise them whilst you are having the examination.

Interpreters

If you require an interpreter, please contact the department before your appointment, so that this can be arranged. (Please note: Hospital policy states that relatives cannot act as interpreters).

What if I Am Unable to Attend?

Due to the multi-disciplinary team required for the appointment on average, it costs the NHS

£800. If you cannot attend your appointment, please contact the MR Imaging Suite, so that we can offer your appointment to somebody else. We will be glad to offer you an alternative appointment; however currently, these are only performed once a week. Please allow plenty of time to park your car. If you are running late, please let us know.

Our telephone number is 0300 707 8675 available 08:00 to 17:00 Monday to Friday.



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