

Having an MRI scan with a MRI compatible pacemaker

Patient Information

Radiology Department



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Introduction

Your clinician has referred you for an MRI (Magnetic Resonance Imaging) scan to obtain important clinical information which cannot be achieved using any other diagnostic imaging modality.

In the past, we have been unable to scan patients who have a pacemaker and/or an ICD device due to the risk of the device malfunctioning. You may have been told that you can never have an MRI scan due to your pacemaker/ICD device.

We now know that certain pacemakers/devices are safe for us to scan however we must follow a strict procedure to ensure that you are kept safe. This procedure involves turning your pacemaker into a safe mode by a cardiology technician whilst you have an MRI scan.

What is an MRI scanner?

Magnetic Resonance Imaging (MRI) is a type of scan that uses strong magnetic fields and radio waves to produce detailed images from anywhere inside the body.

How does it work?

MRI 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 powerful magnet and therefore do not use x-rays. They are safe for most people however some people with certain magnetic or electronic objects in or on them cannot be scanned.

How long will I be in the MRI department for?

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

A cardiology technician will need to check your device before we scan you and your device will need to be turned into a "safe mode". You will then have your scan. Once your scan is completed the cardiology technician will need to check your device once again and return the pacemaker to its "normal" mode. Due to all these checks please plan to be in the department for up to 2 hours. This allows us to complete any extra scans if needed.

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 my pacemaker is safe?

When the MRI department receives the request from your referrer, the referrer should tell us if you have an implanted pacemaker or Defibrillator (ICD).

The radiographers will investigate your pacemaker and find out lots of information to check it is safe for us to scan. The radiographers will liaise with the cardiology department and The Christie Hospital's Medical Physics department to check your pacemaker is safe to scan. The radiographers may contact you to go through an MRI Safety Screening questionnaire to make sure you have no other devices in your body that might not be safe for us to scan.

The radiographers complete a safety check form which may result in you needing a Chest X-Ray prior to the MRI scan. This is to confirm the leads from your pacemaker are in the correct position and are not broken. Once all the checks have been completed you will be given an appointment for an MRI scan.

On the day of your scan

Before your scan

When you arrive in the department, we will go through an MRI safety questionnaire (this may have already been done over the phone however, to ensure that there have been no changes we will go through the questionnaire again). You can bring a relative to the radiology department however they will not be allowed into the MRI department as it is a controlled area.

You will be asked to lock away valuables, jewellery, electronic devices, or metal objects in a secure locker. You will be asked to change into a hospital gown.

A cardiology technician will check your pacemaker using a special device. They will check that the device is working properly and that you will be able to tolerate the pacemaker being turned into safe mode. If the cardiology technician thinks that it will not be safe for us to switch your pacemaker into safe mode, then we will not be able to complete the scan. This is extremely rare, and we do not expect this to happen.

We may need to monitor your heart during the scan, to do this we may need to place ECG stickers on your chest. This may require us to shave your chest.

If you need an injection of contrast dye during the scan, we will normally place a cannula in your arm before you enter the scan room.

During your scan

Once your device has been placed into a safe mode you will then be taken into the scan room. Depending on the area being scanned you may enter the scanner feet first or headfirst. You will have a pulse oxygen monitor on your finger to monitor your oxygen levels and your heart rate throughout the scan. We may also need to place ECG leads on your chest to monitor your heart throughout the scan.

You will need to lie very still throughout the scan. If you move it may be necessary to repeat a section of the scan, this means you will be in the scanner longer. Some scans may require you to hold your breath for a few seconds.

MRI scans can be noisy (repetitive knocking sounds) you will be given headphones or earplugs to reduce the noise of the scanner to an acceptable level. It is possible to play music to you if you wish. Most patients listen to the local radio station. If you would like to bring in your own CD to listen to your own music, then you can.

You will be given a buzzer in case you feel you need to speak to the Radiographer during your scan or to stop the scan for any reason. The radiographer will talk to you throughout the scan to ensure you are ok.

After your scan

Once the scan has been completed you will be taken out of the scan room and the cardiology technician will then check your pacemaker and return it back to its normal mode. Once the cardiology technician is happy with you and your pacemaker you will then be able to get changed, collect your belongings, and leave.

Results

You will not receive any results on the day of your appointment. A Radiologist will need to study your scans carefully and they will produce a written report of their findings. The report will be sent to the person who referred you for the scan.

Will I need an injection?

Depending on your scan an injection may be required to provide clearer pictures. This will give the Radiologist extra information to provide a full and comprehensive report on your scan. It may be an MRI contrast dye (Gadolinium) to highlight the blood supply to the organs, and/or a muscle relaxant to settle bowel movement which can be obscuring an area of interest. If an injection is required, it will usually be given by a Radiographer into a vein in the arm. As with all injections and medications you may have a mild allergic reaction. We would monitor you after the injection and depending on the reaction we could give you some medication to help you. This is extremely rare. You may be required to stay in the department for up to 30 mins after the injection.

Are there any side effects from an MRI scan?

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

Will it hurt?

No, MRI 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.

Is it claustrophobic?

You will be required to lie in the centre of the scanner. It is open ended and brightly lit. Some patients may feel claustrophobic during their scan. If you suffer with claustrophobia, then

please contact the MRI department before your scan. Our radiographers are skilled at putting you at ease and making you as comfortable as possible.

You may be able to speak to your GP regarding your scan and they may be able to prescribe a mild sedative for you to take prior to your scan.

If you would like to have your own music playing during the scan, then you are more than welcome to bring in your own CD to listen to during the scan.

If it helps, when you are having your scan, the radiographer can talk to you in-between each set of pictures to let you know how long is left.

We also have eye-masks available if you wish to use one

Relatives and Escorts

You can bring a relative or friend with you to the Radiology Department, however they will not be allowed in the MRI 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).

Comments, Compliments or Complaints

The Patient Relations/Patient Advice and Liaison Service (PALS) Department provides confidential on the spot advice, information and support to patients, relatives, friends, and carers.

Contact Us

Tel: 01942 822376 (Monday to Friday 9am until 4pm)

The Patient Relations/PALS Manager
Wrightington, Wigan and Leigh Teaching Hospitals NHS Foundation Trust
Royal Albert Edward Infirmary
Wigan Lane
Wigan
WN1 2NN

Ask 3 Questions

Become more involved in decisions about your healthcare. You may be asked to make choices about your treatment. To begin with, try to make sure you get the answers to three key questions:

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



How We Use Your Information

For details on how we collect, use, and store the information we hold about you, please see patient information leaflet, Ref. **Corp 006** How we use your information, this can be found on the Patient Information Leaflets page on the Trust website, see details on the front cover.

This leaflet is also available in audio, large print, Braille, and other languages upon request. For more information, please ask in the department/ward.

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