



Having a pacemaker implant

This leaflet explains what having a pacemaker implanted entails and how it may affect your daily life.

What is a pacemaker?

A pacemaker is a small electrical device that is implanted under the skin of the chest to maintain an appropriate heart rate, usually to prevent the heart from beating too slowly. Most pacemakers are implanted below the left collarbone, but they can also be implanted below the right collarbone, and very occasionally, in the abdomen.

In general, pacemakers are made up of two parts: the pacemaker generator (sometimes called the battery or can) and one or more wires called leads.

The generator contains the battery and computer components that make the pacemaker work. The leads are special wires that are connected to the generator on one end, with the other end implanted inside the heart. Small electrical impulses are transmitted from the generator and travel along the leads, which causes the heart to contract.

Pacemakers can be implanted with either one, two or three leads. The type of pacemaker you receive will depend on your clinical diagnosis.

Why do I need a pacemaker?

You have had or are at greater risk of having a slow heart rate. This could result in you experiencing symptoms such as fatigue, dizziness, or shortness of breath, and in some cases, this can be dangerous if left untreated. A pacemaker will prevent the heart rate from going too slowly or may help to regulate the rhythm by 'filling in the gaps'.

A biventricular pacemaker can help to improve symptoms for people who have heart failure with dyssynchrony (the two lower chambers of the heart do not beat in time with each other).

Common reasons for needing a pacemaker are:

- Sick sinus syndrome (where the heart's own pacemaker is faulty)
- Heart block (a disconnect between the top and bottom chambers)
- Atrial fibrillation (an irregular rhythm)
- Cardio-inhibitory syncope (where you lose consciousness due to overactivity of a nerve supplying the heart)
- Heart failure with dyssynchrony (the two lower chambers of the heart do not beat in time with each other)

What are the risks and benefits?

The benefits are a reduction in your previous symptoms and protection against a dangerously slow heart rate. A biventricular pacemaker can also improve symptoms of heart failure and help to slow progression of the disease.

Like all procedures, there are some risks involved in having a pacemaker implant.

Complications from this procedure are rare but may include:

- **Pain** – you will be given local anaesthetic and sedation if you wish. There may be discomfort during the procedure around the area where the incision is made. If it is painful, please speak up and we will give you more medication, as necessary.
- **Bleeding and bruising around the pacemaker site:** (*common*).
- **Keloid scar formation:** an enlarged raised scar that can be skin coloured, pink or darker than the surrounding area (*uncommon*).
- **Arrhythmia** – the heart rhythm can be temporarily disrupted during the procedure, most often experienced as feeling a few 'extra' beats, which quickly resolve (*2 in 100 cases*).
- **Haematoma** – a large collection of blood at the pacemaker site. A pressure bandage may be applied to help decrease the haematoma, but it may require drainage in more severe cases (*1 in 100*).
- **Pneumothorax** – an accidental puncture of the lung, which may be caused when inserting a needle into a vein. This can be detected on a chest x-ray that is done after the procedure, and often rectifies itself without any treatment, but may require a chest drain (*1 in 100*).
- **Infection** – antibiotics are given routinely in order to prevent infection. Serious infections will likely require the removal of the pacemaker and leads (*1 in 100*).
- **Lead displacement** – this usually occurs within the first month of insertion, which is why you are asked to limit the movements of the arm on the side of the pacemaker. A repeat procedure may be required to reposition or replace a dislodged lead (*5 in 100*).
- **Tamponade** – a collection of blood may develop around the heart if it is punctured by one of the leads. This will be treated promptly while you are still in the hospital (*1 in 1000*).
- **Death** – this is extremely rare but could theoretically occur following inadvertent perforation of the heart, or due to a dangerous rhythm occurring at the time of implant from which you cannot be resuscitated. (*1 in 1000*)

What do I do before the procedure?

On the day of the procedure, you will be admitted to our cardiac day ward, which is known as the 'Jim Shahi Unit' (JSU), located on level 1 in Battle Block. The JSU is an emergency unit and there may be unforeseen delays. Please bring some reading material along to occupy you while you wait.

You may have a light breakfast and drink as normal prior to the procedure.

Most people can continue to take their regular medications. Please refer to the accompanying letter, which will contain any specific instructions regarding your medications. If you have any concerns regarding your medications, please ring the JSU, 0118 322 6502, for clarification.

It is common to have an MRSA swab prior to the implant, and details about this will be given in your letter.

If you are pregnant, or think you may be pregnant, you should notify a member of the administration team prior to the procedure.

Tell one of the nurses if you have any allergies.

Please be sure to bath or shower prior to your procedure, avoiding any moisturizers or oils to the skin

What happens during a pacemaker implant?

A nurse will undertake some pre-procedure checks, including taking your blood pressure, an electrocardiogram (ECG) to assess your heart rhythm and insert a small tube (cannula) into your arm. The tube is used to give you a one-off dose of antibiotics at the start of the procedure to help minimise the risk of infection. The tube can also be used during the procedure to give any other medications, such as pain relief or sedation as required.

The risks and benefits of the procedure will be explained to you, and you will then be asked to sign a consent form. This will also be an opportunity for you to raise any questions you might have with the doctor.

Having a pacemaker implanted is a relatively straightforward process and is carried out in a room called a catheter lab, which looks like an operating theatre. The team usually consists of one or more cardiology doctors, a cardiac physiologist, one or more nurses and a radiographer. All members of the team will be wearing a hat and mask.

You will be taken into the catheter lab and asked to lie flat on a narrow table. You will be attached to a heart monitor (ECG), have a blood pressure cuff put on your arm and a probe attached to your finger.

Your chest area will be cleaned with an antiseptic solution and a sterile sheet placed over you. This will cover your face temporarily.

The doctor will inject a local anaesthetic into the skin on the side where your pacemaker will be placed. This will sting initially but the skin will soon become numb. A small cut is made just beneath your collarbone. The doctor will make a “pocket” for the pacemaker by separating the skin away from the chest muscle. You may feel a tugging sensation when this is being done, which may be uncomfortable.

One or more leads are then passed through a vein via the same incision and are positioned into your heart under X-ray guidance. The leads are then connected to the pacemaker generator once the team is happy with the physiological parameters. The generator will be placed into the pocket that was created earlier.

The skin is closed with stitches or glue, and the wound site may be covered with a transparent dressing that allows for close monitoring of the wound at home. The procedure can take between one and three hours depending on the type of pacemaker you are having.

You will then spend 2-4 hours recovering on JSU ward, where you will have a chest X-ray and a post implant pacing check. Your post implant care will be explained during the post implant check.

What happens after the pacemaker implant?

You will usually be able to go home later in the afternoon or evening depending on what time you had the procedure done. In some cases, you may need to stay overnight.

Please arrange for a friend or relative to pick you up from the hospital and stay overnight with you, as you are not allowed to drive yourself home.

You will be given a pacemaker information pack while recovering on the day ward and can read this when you get home. This will provide you with further details on the post implant care.

- **Wound care:** The wound will be closed with either absorbable stitches or a special type of skin glue. If the wound has been covered with a dressing, please keep it on for 7 days. If glue has been used, this will gradually flake off with time as the wound heals. You should keep the wound dry for 7 days. If you notice any signs of redness, swelling, oozing, or bleeding from the wound or have an elevated temperature, please contact the cardiac rhythm management (CRM) team so that this can be dealt with as soon as possible. The cardiac care unit (CCU) can be contacted out of hours (contact details below).
- **Limiting arm movement:** you will have a sling to wear for the first 24 hours to remind you not to move the arm on the side of the implanted device. You should limit your arm movements to below shoulder height for the first 4-6 weeks to minimise the chance of a lead dislodging. Avoid doing activities such as swimming or golf during this period but it is important to continue to do small movements of the arm to prevent a frozen shoulder.
- **Driving:** you must tell the DVLA that you have had a pacemaker fitted. If you have a group 1 licence, you will not be able to drive for 1 week. If you have group 2 licence, you will not be able to drive for 6 weeks. Further information can be found on the DVLA website (see below).
- **Insurance:** you should tell your insurance company that you have had a pacemaker fitted.
- **Electrical gadgets and mobile phones:** the recommendation is to keep all electrical gadgets and mobile phones 6 inches (15cm) away from your pacemaker generator. It is best not to keep your mobile phone in a shirt or jacket pocket that may be near to your device.
- **MRI scans:** most newly implanted devices are MRI conditional and are designed to allow you to safely undergo an MRI scan if required. Certain conditions need to be met and settings usually need to be adjusted prior to and after having an MRI. A member of your medical team can contact the CRM team if an MRI is required.
- **A pacemaker ID card** will be given to you, and you should **always carry this around with you**. This is particularly important when attending a hospital or a dental appointment and when travelling.
- **A pacemaker check** will be arranged for you in 6 weeks' time. It is important to attend regular checks to ensure the appropriate functioning of your pacemaker.

Useful contact information

Cardiac Rhythm Management / Devices clinic:	0118 322 6636 (Mon - Fri, 8am - 6pm)
Jim Shahi Unit (JSU):	0118 322 6502 (Mon - Fri, 8am - 6pm)
Cardiac Care Unit (CCU):	0118 322 6528 (Mon - Sun, out of hours)
Clinical Admin Team (CAT 11, bookings):	0118 322 6676 (Mon - Fri, 8am - 5pm)
British Heart Foundation:	www.bhf.org.uk
Arrhythmia Alliance:	www.heartrhythmalliance.org/aa/uk/pacemaker
DVLA:	www.gov.uk/pacemakers-and-driving
Health and care video library:	https://healthandcarevideos.uk/hp?videoid=1395

This leaflet is printed privately for the Cardiac Fund. It was set up in 1976 for the purpose of providing cardiac services that would otherwise not be available through National Health resources. Our Cardiac Laboratory was equipped through the fund and many other areas in the Department have also benefited from equipment and staff training.



If you would like to contribute, please scan the QR code below to donate direct to the fund online, alternatively, cheques should be made payable to:

The Royal Berks Charity Cardiac Fund U226

Royal Berks Charity
Royal Berkshire NHS Foundation Trust London Road
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Please ask if you need this information in another language or format.

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