

Having a lead revision

This leaflet explains what is involved in having a lead revision for your cardiac device.

What is a lead revision?

Pacemakers and implantable cardiac defibrillators (ICDs) are cardiac devices. Pacemakers are used to manage slow heart rhythms and ICDs to treat dangerously fast heart rhythms. Each device has two main components: a pulse generator and one or more wires known as leads. A lead revision involves repositioning a lead within the heart muscle, or replacing it with a new one. The old lead may remain in place or may be removed. Your doctor will advise on the best course of action for you.

Why do I need a lead revision?

Your routine checks suggest that the lead may not be functioning properly. This could be because it has moved from its original position, or it may have developed a fault over time. Revising the lead means your pacemaker or ICD can function properly to regulate your heart rhythm and provide appropriate treatment for you.

What are the risks and benefits?

The main benefit is that your cardiac device will be able to carry on giving you relief from previous symptoms and protection against abnormal heart rhythms.

Like all procedures, there are some risks involved. Complications from this procedure are generally 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, but 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 'extra' beats which quickly resolve (*2 in 100 people experience this*).
- **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:** this is an accidental puncture to the lung, which may happen 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:** usually happens 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. **If you are having a lead revision and have a subcutaneous ICD (S-ICD), please do not eat or drink for 6 hours prior to the procedure.**
- Most people can continue to take their regular medications. Please refer to the accompanying letter for specific instructions on this. If you have any concerns regarding your medications, please ring the Jim Shahi Unit (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, 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.

What happens during a lead revision procedure?

- 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 that helps to 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 can raise any questions you might have with the doctor. You will then be asked to sign a consent form.
- Having a lead revision is relatively straightforward 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 near to where your current device is. This will sting initially but the skin will soon become numb. A small cut will be made near to or over your previous device scar and the generator will be temporarily removed. The lead will then be repositioned or replaced with a new one. This is done under X-ray guidance, and in some instances, the old lead may be removed. The lead is then connected to the generator and the generator placed back into its original position.
- The skin is closed with stitches or glue, and the wound site may be covered with a transparent dressing, which enables you to monitor the wound at home.
- The procedure can take up to an hour in straightforward cases but could be longer in cases that are more complex.
- You will then spend 2-4 hours recovering on JSU ward, where you will have a chest X-ray and a post procedure device check. Your post procedure care will be explained during the device check.

What happens after the lead revision?

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.

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

You will be given an 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 procedure 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 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 a high temperature, please get in touch with 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 be given a sling to wear for the first 24 hours to remind you not to move the arm on the affected side. You should limit your arm movements to below shoulder height for the first 4-6 weeks to minimise the chance of dislodging the new lead. You should avoid doing activities such as swimming or golf during this period. It is important to continue to do small movements of the arm in order to prevent a frozen shoulder.
- **Driving:** if you have a group 1 licence and you have a pacemaker, you will not be able to drive for 1 week following a lead revision. However, if you have an ICD and have had a lead revision, you will not be able to drive for 1 month. Please refer to the DVLA website for up-to-date information: <https://www.gov.uk/guidance/cardiovascular-disorders-assessing-fitness-to-drive>
- **Electrical gadgets and mobile phones:** keep all electrical gadgets and mobile phones 6 inches (15cm) away from your device. It is best not to keep your mobile phone in a shirt or jacket pocket that may be near to your device.

- **A new device identification card** will be given to you and you should carry this around with you at all times. This is particularly important when attending a hospital or a dental appointment and when travelling.
- **A device check** will be arranged for you in 6 weeks' time. It is important to attend regular checks in order to ensure the appropriate functioning of your pacemaker or ICD.

Useful contact information

Cardiac Rhythm Management (CRM)/ 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 6684 (Mon - Sun, after 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/patient-booklets
DVLA:	www.gov.uk/guidance/cardiovascular-disorders-assessing-fitness-to-drive

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 largely 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:

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