

## Patient information

# Cardiac resynchronisation therapy (CRT) Pacemaker pre-admission information

## What is a CRT Pacemaker and why do I need one?

A CRT pacemaker, sometimes called a biventricular pacemaker, is an implantable device intended to improve the pumping function of your heart. In heart failure, the left and right sides of the heart may not pump at the same time, which leads to less effective pump function, as well as symptoms of heart failure such as breathlessness. CRT stands for **Cardiac Resynchronisation Therapy**, and a CRT pacemaker stimulates the left and right sides of the heart to beat at the same time, with a view to improving the heart's pumping function.

Like other pacemakers, a CRT pacemaker also prevents your heart rate from becoming too slow, which may cause tiredness, dizziness or blackouts.

The pacemaker consists of two main components: the generator (a small metal case containing the battery and pacemaker circuitry), and up to three leads. The generator is placed under the skin, usually on the upper left-hand side of the chest (occasionally the right side is used). The lead(s) are inserted through a vein which leads to your heart.

Implantation of the device is performed in an operating theatre where X-ray is used to guide the insertion of the pacemaker lead(s) (Cardiac Catheterisation Lab). When the pacemaker is in place, it is programmed according to your heart's needs.

The decision to have a pacemaker is one that you need to make with the help of the doctor and nurse who will go through the risks and benefits of having a device with you. If you are unsure why you need a pacemaker, you can either ask your doctor or discuss it with the nurse at your pre-admission appointment.

# Risks and benefits

## Intended benefits

- To improve the pumping function of your heart, and alleviate heart failure symptoms
- The pacemaker will pace your heart when it needs to, therefore preventing it beating too slowly
- The pacemaker will improve symptoms caused by a slow heart rate such as dizziness, collapse or shortness of breath.

## Risks

This is generally a safe procedure with low risk, but as with any procedure, complications may occur which are listed below:

### Potential major risks

- Less than 1 in 1000 (0.1%) risk of death.
- 1 in 500 (0.2%) risk of bleeding around the heart (pericardial effusion and tamponade).
- Less than 1 in 200 (0.5%) risk of pacemaker site infection. This usually happens in the first 12 months of the pacemaker being implanted and may result in the need to remove the system and replace it.
- Less than 1 in 100 (<1%) risk of punctured lung (pneumothorax) causing a leak of air from the lungs into the chest cavity. If this is small it will get better on its own. If the leak is large, a chest drain may be needed and a few days stay in hospital whilst it gets better.
- 1 in 100 (1%) risk of pacemaker lead displacement. This will require the lead to be repositioned or replaced.
- 5 in 100 (5%) risk of bleeding (haematoma) and bruising around the wound.
- In patients with impaired kidneys, contrast nephropathy (deterioration in kidney function, due to X-ray dye) may occur. It is usually mild and reversible within seven days. Persistent severe deterioration occurs in less than 1%, mainly in people with pre-existing, significant kidney failure.

- Other major complications and serious allergic reactions are very rare.

## **Minor risks**

- 1 in 100 (1%) risk of minor side effects from the X-ray dye e.g. skin rash or itch, headache.
- Mild bruising at the pacemaker site is normal.

## **What will happen if I don't have my CRT pacemaker?**

If you decide not to have a CRT pacemaker, you may not gain the potential improvement in heart function and symptoms. If you have a tendency to slow heart rates, you may also continue to feel tired, dizzy, or short of breath. If your heart rate becomes particularly slow or stops briefly, you are at risk of collapsing and needing urgent medical attention.

## **Does CRT always improve heart failure symptoms?**

The majority of patients feel some benefit from their CRT pacemaker, but there are a few who unfortunately do not feel an improvement after CRT pacemaker implantation.

## **Preparation**

### **What preparation is necessary?**

You will have a pre-admission phone call. The aim of this is to prepare you for the pacemaker implant and to give you the opportunity to discuss any worries you may have about the procedure. Your pre-admission phone call will last for up to 30 minutes. During this time a cardiac nurse will explain the procedure to you.

You will need a blood test and collect a bottle of antimicrobial wash lotion from the cardiac centre day unit. A blood form has been sent with this information.

All patients having a pacemaker will be treated with an antimicrobial wash lotion which will eliminate skin bacteria before your procedure. The wash and instructions on how to use this wash will be given to when you collect your wash lotion.

## How do I prepare on the day of the procedure?

### If you take anticoagulants:

- **Warfarin, phenindione or nicoumalone** (anticoagulant drugs), you will not need to stop taking these prior to your procedure.
- **Apixaban, dabigatran, edoxaban or rivaroxaban** (otherwise known as NOACs or DOACs), you will need to stop this for two days prior and on the day of procedure.
- **If you take insulin or drugs for diabetes** they may need to be altered, further information will be given to you at your **pre-assessment clinic appointment**.
- If you are on **metformin**, stop this on the day of the test and omit it for 48hours after, then restart at the usual dose.
- Take all other morning medications at their usual dose on the morning of the test, at or before breakfast.
- The nurse will go over the instructions for taking your usual medications during your pre-assessment phone call
- Please bring all your usual medications **or a current list of medications** with you.
- Have a light breakfast:
  - Before 6.00am, if your test is scheduled for the **morning**
  - Before 9.00am, if your test is scheduled for the **afternoon**

You should have no further food or drink until after the procedure. It is ok to have sips of water. If you are diabetic, the nurse will advise you at pre-assessment on when you can eat and take your medication. Diabetic patients are usually put on a morning list so that meals are not missed.

Please do not shave your chest, this will be done at the hospital on the day of your procedure

The test is usually done as a day case if:

- There is a responsible adult for you to go home to (if this is not possible there is a risk that your pacemaker implant may not be able to proceed)
- Transport is available (hospital transport can be arranged if necessary)

- You have a telephone at home in case of emergencies
- You have no significant complications

If you do not fulfil these criteria, please let the pre-admission nurse know in advance.

## **Once at the hospital**

When you come into the hospital, it may sometimes be necessary to ask you to wait in the waiting area until your bed is available. You will be shown to your bed as soon as is possible.

Once you have your bed in the day ward:

- You will be given a hospital gown to change in to.
- You will go through pre-admission checks with the nurse.
- You will have a cannula (a short thin plastic tube) inserted into a vein in your arm or hand to give medications or fluids before and during the procedure.
- You may have a 12-lead ECG.
- You will be asked to sign a consent form to confirm that you understand the procedure, understand the possible complications and agree to the procedure being done. A doctor will go through this with you at some point before you are taken to the cardiac catheterisation lab for your procedure.
- You will be given an injection of antibiotics on the day of your procedure, before you are taken into the catheterisation lab.
- If you are anxious, please discuss this with the nurses and doctor before the procedure (preferably at pre-admission) as you may be prescribed medication to help you relax.
- Females may need to sign an X-ray disclaimer to confirm that they are not pregnant. If you think that you may be pregnant, you must tell the doctor who is doing the test.

# **In the Cardiac Catheterisation Lab**

## **Inside the cardiac catheterisation lab**

You will be taken in to the cardiac catheterisation lab by a day ward nurse and a member of the lab team, by walking there if you can, if not then by wheelchair or bed. Once there, you will be introduced to all members of the team. We will help you onto the bed and begin fitting monitoring equipment to you, so that we can record your ECG, blood pressure and oxygen saturations throughout the procedure. A safety checklist is read out to ensure that all members of the team are aware of the procedure and any special requirements before the procedure starts.

## **Will it hurt?**

You will be awake during the procedure, but local anaesthetic is injected into the area that the pacemaker will be inserted. The injection of the local anaesthetic may sting and be uncomfortable initially. If required, medicine can be given to relax you. You may be aware of some pulling or pushing sensations by your shoulder at times during the procedure, but due to the local anaesthetic, there should be no sharp pains. You cannot feel the leads inside your heart or blood vessels. You may feel occasional 'missed' or 'extra' heart beats during the procedure but this is normal.

## **How do they fit my new pacemaker?**

After cleaning the skin where the pacemaker will be inserted, you will be covered in a big blue sterile sheet. This will go over your face, but we will make a 'tent' for you so that it will not rest on your face and you can see the nurse. A small cut is made in the upper left (or sometimes right) hand side of your chest, just under your collar bone which you will not feel. The doctor will make a small pocket under the skin for the pacemaker to sit in. The leads are placed into the heart through a vein in your upper left chest under the guidance of the X-ray. The X-ray machine will come close to your chest but only when it is needed, and it will not touch you. Once the leads are in and the pacemaker is attached and put in the pocket, the cut in the skin is closed with stitches.

The procedure can take anywhere between an hour and a half in straight forward cases, up to three hours for more complex procedures, such as in patients with small veins or previous heart attacks.

## **After the procedure**

Before you leave the cardiac catheterisation lab the physiologist will check your pacemaker using a computer like device. Once the check is complete, the team will take off all the monitoring equipment and the blue sterile sheet and help you to

transfer to a bed. It is important that you are very careful with the arm on the side where your pacemaker is fitted, the physiologist or nurse will remind you of this. You may have something called a pressure dressing fitted which will help to minimise swelling/bruising, especially if you usually take blood thinning medication.

You will be taken back to the day ward to recover. Here, you will rest in bed whilst your blood pressure and pulse is monitored. You may have a 12-lead ECG. You may need to be taken to have a chest X-ray and your pacemaker will be checked by the physiologist before you go home to ensure that it is working appropriately. They will also talk to you about the do's and don'ts when you have a pacemaker. If you have had a pacemaker generator change only, you may not need this check.

The doctor will see you before discharge to discuss your procedure and the next steps in your care. You will be given a preliminary discharge summary letter to take with you and given instructions for any changes in medications, aftercare etc, before you leave. A full formal letter will be sent to your GP subsequently.

## **After care and discharge advice**

You may have some mild discomfort around the pacemaker site at first, but once it has healed most people are not aware of its presence. Painkillers such as paracetamol will help to ease the soreness. You will have some stitches at the pacemaker insertion site which will dissolve over the course of 6-8 weeks. You are unlikely to see them. If this does not happen, visit your GP surgery or call the Cardiology department to have them removed. Rarely, you will have stitches that need removing which can be done at your GP practice. We will inform you if this is the case.

You will be advised not to lift heavy objects or do strenuous exercise involving your arms until the pacemaker site has healed and you have had your first pacemaker check. Otherwise you can carry on with your other activities as normal. You may want to discuss your return to work with the doctor, this may be dependent on the type of work you do. Your first pacemaker check will be around six weeks after your procedure date.

You should avoid manipulating the pacemaker if you feel it under your skin or massaging the chest area around it. You should monitor the skin around the pacemaker site: it will appear bruised initially but if it becomes red, sore, more swollen or inflamed, then please contact the pacemaker clinic in the diagnostic cardiology department on 01284 712536.

Before discharge you will be given a card with the details of your pacemaker, along with an appointment to return for your first pacemaker check. Your pacemaker identification card is a very important card that should be carried with you at all times. It tells anyone that needs to know about all the pacemaker equipment that has been



implanted. This is especially important when travelling as airport screening devices may affect the function of the pacemaker temporarily, so please inform security and show them your pacemaker identification card before passing through security.

Remember to tell your dentist or any other health care professional that you have a pacemaker inserted. It may affect treatments that they can give you.

You must inform the DVLA and your insurance company that you have had a pacemaker fitted. If you hold an ordinary driving licence, you must not drive for one week after your pacemaker implantation. You will be advised if you cannot drive for a longer period. If you have any other type of driving licence, please ask the cardiac physiologist or doctor for advice.

Your pacemaker has built-in features to protect it from interference produced by other electrical devices. Most electrical items that you encounter in daily life will not interfere with your device however we advise that you use a telephone on the opposite ear to the site of your pacemaker. Keep your mobile phone 15cm (6 inches) away from your pacemaker and avoid keeping it in a breast pocket. If you do have an induction hob, please speak to a physiologist before using it.

You will be given more information on the aftercare of your pacemaker and living with your new device after your procedure has been carried out. If you have any queries or concerns about your pacemaker or potential interference, please speak to the physiologist before you are discharged.

*If you would like any information regarding access to the West Suffolk Hospital and its facilities please visit the website for AccessAble (formerly DisabledGo)*

<https://www.accessable.co.uk/organisations/west-suffolk-nhs-foundation-trust>



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