

Additional Notes

Empty box for additional notes.

Pacemaker patient information

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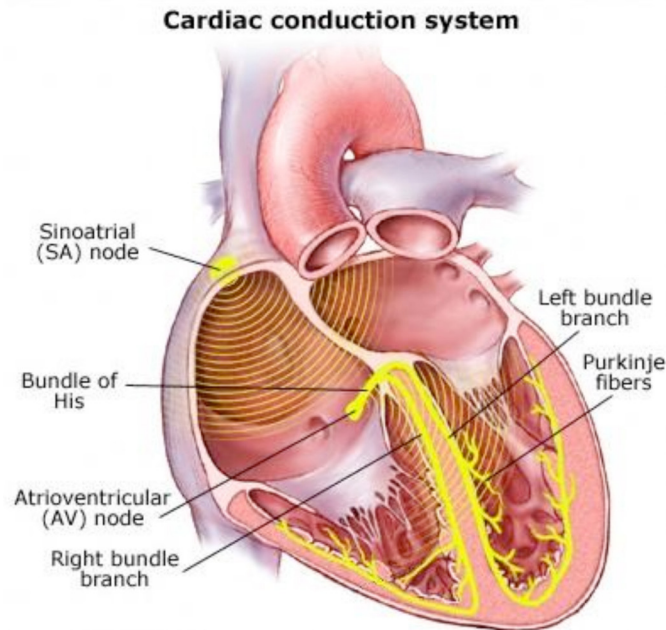
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This booklet provides information and advice for patients and their families about pacemakers.

The electrical system of the heart

The heart consists of two pumps that sit side by side. One pump circulates blood around the lungs before emptying into the second pump. The second pump circulates blood around the body. Each pump consists of two chambers; the atrium and the ventricle.



Courtesy of Boston Scientific

The heart needs an electrical impulse to generate a heartbeat. The electrical impulse starts in the heart's natural pacemaker called the sino-atrial node (SA node). This is situated in the right atrium. The electrical impulse travels through the tissues of the conduction system causing the heart muscle to contract in sequence, the atrium before the ventricle. There is a junction between the atria and ventricles called the atrio-ventricular node (AV node) which allows communication between the chambers.

Glossary of terms

ARRHYTHMIA -

an abnormal heart rhythm

ATRIA -

the two top chambers of the heart, right and left

ATRIOVENTRICULAR NODE -

the 'junction' between the atria and the ventricles allowing communication between the two

CONDUCTION SYSTEM -

specialised tissue in the heart allowing the electrical impulse to travel

ELECTROMAGNETIC FIELD -

an invisible area of energy that is emitted from magnetic or electrical equipment

ELECTROMAGNETIC INTERFERENCE (EMI) -

interference from very strong electromagnetic fields which can affect the functioning of the ICD

LEADS -

fine insulated flexible wires that transmit the impulse from the heart to the ICD and the energy from the ICD back to the heart

PACING -

small electrical impulses that stimulate the heart to contract

SINO-ATRIAL NODE -

the heart's natural pacemaker

Common conditions that can lead to an abnormal heart rhythm include:

Complete or intermittent heart block

This is when the AV node breaks down and does not transmit the electrical pulse from the top to the bottom chamber of the heart. This is called heart block. This can occur all of the time or intermittently. When heart block occurs the heart beat usually goes very slowly and you may experience dizziness or collapse as a result of it. A pacemaker can restore a normal heart rate.

Sick sinus syndrome

This is when the SA node does not function properly and results in your heart rate going too slowly or too fast or a combination of both. A pacemaker can prevent the heart from going too slowly and, if needed, medication can be given to prevent the heart rate from going too fast.

How does a pacemaker work?

The pacemaker is constantly monitoring the heart rate. If the heart rate goes too slow, it sends tiny electrical impulses down the leads to stimulate the heart to contract. This is called pacing and you should not be aware that it is occurring. The pacemaker will be programmed to the best settings for you. These settings can be changed during your follow up appointments.

- the lead(s) from the pacemaker to the heart chambers becoming displaced to an extent that a further procedure is required. The risk of this occurring is 1 in 50 (2%).

X-ray screening will be used during your procedure. This means you will be exposed to ionising radiation. In the long term, such exposure carries a very small risk of tissue damage

Please be reassured that all of these risks are small. If you have any further concerns about these, please discuss with the arrhythmia nurses or your doctor.

What happens after the pacemaker is fitted?

Once you have returned to the ward you will remain in bed for a couple of hours, depending on how sleepy you are. Your heart rhythm, blood pressure and wound site will be monitored. Once you are awake you will be given something to eat and drink.

The wound may feel sore once the local anaesthetic has worn off. It is important you inform your nurse who can give you painkillers. If swelling occurs under the wound, an additional dressing may be applied after the procedure.

If you are breathless or have difficulty breathing, feel dizzy or have any chest discomfort following the procedure, please inform the nursing staff immediately. You should not lift the arm on the same side as the pacemaker above shoulder level for about a week. This is because there is a small risk that the leads can move out of position.

Following the procedure, you will have a chest x-ray to check placement of the pacemaker leads and the pacemaker will be checked by a cardiac physiologist. A wand will be held over the device which will look at the settings and make sure that the pacemaker is working properly. This check takes about fifteen minutes. Please ask the physiologist or nurse if you have any questions or concerns about the device.

Further information will be given to you about your recovery after your procedure. We will cover how to look after the wound and practical issues of living with a pacemaker when you attend a pre-assessment appointment prior to your procedure

Further support and advice

For further information and advice please contact the Arrhythmia Nurse Specialists.

Tel: **0300 019 6154**

Email: **arrhythmia.nurses@uhd.nhs.uk**

9am to 5pm Monday - Friday

Please leave a message as the answerphone is checked frequently and your call will be returned as soon as possible.

Information on the internet

The following are websites that provide information for patients. While we recommend these sites, we cannot be held responsible for information that you collect from them. You can visit the following:

www.arrhythmiaalliance.org.uk

www.medtronic.com

www.bhf.org.uk

www.sjm.com

www.dvla.gov

www.bostonscientific.com

The heart normally beats 50-100 times at rest. It beats regularly and slowly at rest and faster during physical and emotional activity. Sometimes the heart's electrical system does not work as well as it should and this can cause the heart to beat too slowly, too quickly or irregularly. A pacemaker can treat some of these abnormal heart rhythms.

What is a pacemaker?

A pacemaker is a sealed metal and plastic device. The sealed unit contains a battery powered electronic circuit. The pacemaker is connected to the inside of the heart via one or two leads. The leads are passed along a blood vessel to your heart and the pacemaker box is usually implanted under the skin in your upper chest, below your collar bone.

The leads are very fine, flexible wires which are covered in a layer of plastic or silicone. The leads are connected to the heart by a small hook or screw that connects to the heart muscle. Pacemakers may be single; one lead, or dual; two leads. The number of leads you will have will be appropriate for your underlying heart rhythm.

Why do I need a pacemaker?

There are many reasons for requiring a pacemaker. For most people the indication is a slow heart rate or abnormal heart rhythm. The medical term for this is 'arrhythmia'. Most, but not all people, have associated symptoms. The symptoms and consequences of arrhythmia can include breathlessness, fatigue, collapse and death. Having a pacemaker can improve or prevent these symptoms. Alternatively, if you choose not to have a pacemaker, you may be at risk of these occurring. This risk will vary according to why you need the pacemaker. Please feel free to ask your doctor why they feel a pacemaker is the best option for you.

Do I still need my drugs when I have the device?

Never discontinue any drugs without consultation with your doctor. Some of your drugs may be adjusted by the doctor following insertion of the pacemaker but in general you will still need your drugs alongside it.

If you have concerns about the safety of the equipment or situation please contact the Arrhythmia Nurse Specialists.

What happens on the day of the pacemaker procedure?

Please wash with the antiseptic solution on the morning of the procedure. Please do not use any oils or body moisturiser.

You will be given specific instructions about when to stop eating and drinking on the day of the procedure. Please bring all your medication to hospital.

X-rays are used during the procedure so it is important to inform the team looking after you if you think there is a risk you may be pregnant.

On the ward, you will be given a hospital gown to wear for the procedure. The nurses will go through a check list to ensure you are ready for the procedure and a cannula will be inserted into a vein so that the nurse can give you antibiotics before the procedure.

What happens during the procedure?

The procedure will be performed in the Cardiac Intervention Unit (CIU) or pacing theatre. You will be taken into the room and will be greeted by the team looking after you, this will include a doctor, cardiac physiologist, radiographer and a nurse. Sometimes there may be other people in the room observing for teaching purposes. Please inform the staff if you have any objection to this.

Once you are lying on the X-ray table, stickers will be placed on your chest and a blood pressure cuff will be placed on your arm and a probe placed on your finger. This will enable your heart rate, blood pressure and oxygen levels to be observed throughout the procedure.

You will be offered sedation during the procedure. The sedation will make you feel relaxed and sleepy. Before the procedure starts your chest wall will be cleaned again with some antiseptic solution and sterile towels will be draped over you. The pacemaker will routinely be implanted in the left upper chest, unless there is a medical reason why that side is unsuitable. In this instance your doctor will discuss alternative options with you prior to the procedure.

Local anaesthesia will be injected to numb the area and the doctor will make a small cut just under your left collarbone. The lead or leads will be passed through a vein into your heart. You may have one or two leads inserted, depending on what type of pacemaker you need.

The leads are moved into position using x-ray. The cardiac physiologist will then perform some tests on the leads to check they are in a good position. You may be asked to cough, sniff or take a deep breath in order to assess the stability of the leads. The leads will be secured in place with a few stitches.

A pocket is made, usually between the skin and muscle, for the pacemaker. Sometimes the device will be positioned under the muscle. This can sometimes be a little uncomfortable. If you feel any pain please let the nurse know and they can give you more local anaesthetic. The leads are connected to the pacemaker, which is then inserted into the pocket. The cardiac physiologist will perform some more checks to ensure the pacemaker will function as intended.

The cut will be closed with dissolvable stitches or glue.

Are there any risks with having a Pacemaker fitted?

As with any procedure there are risks involved and all measures are taken to minimise the chances of complications. However it is important to be aware that occasionally complications do occur due to this procedure. These include:

- bruising to the chest area, which should get better on its own. This is more likely if you are taking blood thinning medication. Sometimes blood can collect under the skin and lead to swelling referred to as a haematoma. The risk of this occurring is approximately 1 in 500 (0.2%).
- the possibility of puncturing the lung causing air to be trapped between the linings of the lung (pneumothorax). This may need to be corrected by inserting a drain into the chest. The risk of this occurring is approximately 1 in 100 (1%).
- rarely, fluid can accumulate around the heart (pericardial effusion) and reduce the hearts ability to pump (cardiac tamponade). This is a very rare complication, approximately 1 in 500 (0.2%), and can be treated by placing a drain in the sac around the heart.
- infection. The risk of this occurring is approximately 1 in 100 (1%).

What happens before I have the procedure?

You will see an Arrhythmia Nurse prior to having the pacemaker procedure. This is a good time to ask questions or discuss any worries you may have.

If you are having the pacemaker put in as an outpatient, you will see the nurse in clinic. The nurse will ask you some questions, explain the procedure and obtain written consent. They will also examine you and listen to your chest with a stethoscope.

The nurse will give you an antiseptic solution with instructions on how to use it. You will be asked to wash with it for four days prior to the procedure. However, if you are having the pacemaker as an emergency, you will be given the solution as soon as it has been indicated that you need a pacemaker. The antiseptic solution will help to substantially decrease any bugs that naturally live on our skin.

At the clinic, routine blood samples will be taken and you will be screened for MRSA (Methicillin-Resistant Staphylococcus Aureus). This is a type of bacteria that has become resistant to some antibiotics. Some people carry MRSA in their nose or on their skin. In healthy people, this bacteria is not harmful. Screening means testing to see if you have the bacteria on your body. This is done by taking a swab from your nose, armpit and groin. The swab is then taken sent to the laboratory for testing.

If you take warfarin, you will be given specific advice regarding this. If you take DOAC's (direct oral anticoagulants) once a day you should miss one dose; if you take DOAC's twice a day please omit two doses prior to the procedure.

You will be able to go home the same day as the procedure if you have someone who can stay with you for the first night.