

# Implantation of a permanent pacemaker

*affix patient label*

## What is a pacemaker?

The heart has its own pacemaker called the sinus node, which produces electrical impulses. These keep your heart beating in a regular rhythm throughout life.

## What is an artificial pacemaker?

This is a small electronic pulse generator (smaller than a matchbox) connected to one or two electrodes, which stimulates your heart when required to beat in a regular rhythm. It is powered by a battery and is implanted under your skin. There may be a small bump where the pacemaker lies.

## Why do I need this procedure?

You are having an artificial pacemaker implanted (fitted) because you have an abnormal heart rhythm. Pacemakers are implanted for a number of reasons which include:

- a heartbeat that is very slow or pauses intermittently, causing blackouts, falls or dizzy spells
- fast heart rhythms that require drugs to control – these drugs may slow your heart rate too much at times
- a catheter ablation (see separate leaflet) that results in either deliberate or accidental damage to your heart's natural electrical system.

The main benefit of having a pacemaker is that it protects you from the symptoms and dangers of slow heart rhythms.

## How does it work?

There are many different models of pacemakers. A typical one consists of two parts; the batteries that power it and the electronic part that controls the heartbeat. The whole thing weighs only 20-50g (1-2 ounces) and is about 4cm by 8mm. It is attached to one or two electrodes that transmit the electrical impulse to your heart.

## What does it involve?

You will usually come in to hospital on the day of your procedure. A nurse will complete a pre-procedure check list and you will be given a hospital gown to change into. A specialist doctor will explain the proposed implantation to you and ask you to sign the consent form to confirm that you understand the procedure and agree to go ahead with it. Please ask any questions you want. A porter will take you to the Cardiac Catheter Lab where you will have the procedure.

1. You will lie on a table, which can be moved around. Mounted above it is an X-ray machine.
2. You will have an injection of local anaesthetic (which numbs the area) and you may also be given a sedative to make you feel relaxed and sleepy. Antibiotics will be given into a vein before we begin the procedure.
3. The pacemaker is implanted just under the skin in a 'pocket' below your left collarbone. If you are left-handed the right side may be used instead.
4. The electrode(s) are inserted through a vein into your heart using X-ray screening for guidance. They are then attached to the pacemaker.
5. Stitches are usually inserted just under your skin to hold the pocket edges together and skin glue is often used. The scar is about 2 inches long.

### How long does it take?

The procedure takes about an hour.

### Will I have any pain or discomfort?

The procedure shouldn't hurt, although you will feel pressure as the pacemaker is inserted. Your shoulder may feel uncomfortable for a week or so. You may have swelling and bruising but this should return to normal in 2-3 weeks.

You will be able to feel the pacemaker and sometimes the wires beneath your skin but don't worry, it won't pop out. It may feel rather strange at first.

### What happens afterwards?

You will stay in hospital overnight and go home the next day. Once fully awake you should be able to eat and drink. Please ask for painkillers if you need them.

You may have a chest X-ray to check that the electrodes are in the correct position and that there has been no damage to your lung.

The following day, a cardiac technician will check the pacemaker. A sensor is held over the pacemaker to programme it. This is painless, but you may be aware that your heart is beating slightly faster than normal. The device is then checked to make sure it is effective at managing your heart condition.

### What happens when I go home?

- Please make sure that a friend or relative collects you and takes you home.
- You should be able to return to your normal activities in a week or so.
- Avoid vigorous arm movements for a few weeks, but otherwise move your arm normally.
- We will give you a pacemaker registration card (plus information from the manufacturer) following your implantation. Please carry it with you and show it to any dentist or doctor who may treat you.
- If you notice redness, swelling or a discharge at the site of your implant (signs of infection), **please tell your GP immediately** as infection can spread.

### Are there any risks or complications?

The implantation is usually very successful, but as with all procedures there are some small risks:

- **Lung puncture** – there is a 1% chance of puncturing the lung as the vein used for the wire runs close to it. No corrective treatment may be needed, or the escaped air may have to be removed using a needle or a small drain (tube).
- **Electrode slipping** – there is a 1-2 % chance of the electrode slipping out of place. If this happens it must be repositioned under X-ray guidance with a further operation.
- **Infection** – the 1-2% risk of infection is minimised using antibiotics given before the procedure commences. If infection occurs the pacemaker system may need removing with another operation.
- **Bruising** – there is a small risk of a major bruise/haematoma which may rarely require removal with a separate operation. A small amount of bruising is usual and settles within a few days.

For some patients the risks may be higher; please speak to your specialist doctor before your operation if you have any worries.

**When can I drive?**

If you have had a pacemaker implanted, you must inform the DVLA (Driver and Vehicle Licensing Agency). You should also inform your car insurance company. If you don't, your insurance may not be valid.

If you have an ordinary license, you can usually start driving after one week, provided you meet the DVLA criteria. If you have an HGV or PCV license, you will not be able to drive these vehicles for 6 weeks. Please follow DVLA guidance to get your HGV license back.

**How long will my pacemaker last?**

The pacemaker will last for years but the batteries will eventually run down (after around 7-10 years) and then it will have to be replaced.

**Will I need further appointments?**

Yes, you should attend regular check-ups at the pacemaker clinic.

**Do I need to take any precautions?**

- **Mobile phones** – it is safe to use a mobile phone, but keep it as far as possible from your pacemaker, using the opposite ear or a headset.
- **Electronic surveillance** – security at airports or anti-theft devices in shops can interfere with pacemakers. They are safe provided you go through quickly, do not linger, and inform security staff.
- **MRI scans** – you must not have an MRI scan (body imaging scan) as it uses strong magnets (unless your pacemaker is specifically 'MRI compatible'). Other scans are safe.
- **Lithotripsy** – this is a type of treatment for kidney stones, which is unsuitable for patients with pacemakers.

**Any questions?**

If you need any more information or have any queries please contact the Cardiac Investigation Unit on 01872 252726.

Further support and information is available from the:

**British Heart Foundation**

08450 708070

[www.bhf.org](http://www.bhf.org)

**Arrhythmia Alliance**

Helpline - +44 (0)1789 867501

PO Box 3697

Stratford-Upon-Avon

Warwickshire

CV37 8YL

[www.heartrhythmcharity.org.uk](http://www.heartrhythmcharity.org.uk)

If you would like this leaflet in large print, Braille, audio version or in another language, please contact the General Office on 01872 252690



**CONSENT FORM 1**  
**PROCEDURE SPECIFIC PATIENT AGREEMENT**

# Implantation of a permanent pacemaker

NHS number: .....

Name of patient: .....

Address: .....

Date of birth: .....

CR number: .....

*Insertion of wires to heart chambers and attaching to electronic pulse generator*

**STATEMENT OF HEALTH PROFESSIONAL** (to be filled in by health professional with appropriate knowledge of proposed procedure, as specified in consent policy)

**I have explained the procedure to the patient.** In particular, I have explained the intended benefits:

- *To manage slow heart rhythm (causing dizzy spells, black outs, slow irregular heart beating etc)*

**Significant, unavoidable or frequently occurring risks:**

- *Bleeding, bruising, infection (2-3%) and pain*

**Uncommon but more serious risks:**

- *Pneumothorax (damage to lung covering leading to air leak and lung collapse), pleural effusion, pericardial effusion, damage to blood vessels (including those supplying the heart), dangerous heart rhythms or cardiac perforation. (The risk of all major complications together occurs in less than 1 in 100 procedures, and the risk of death is less than in 1 in 3000 procedures)*

**Uncommon possible later issues:**

- *Displacement of pacemaker leads, major bleeds needing re-exploration, scarring (occurs in 1 in 75 procedures)*

**Any extra procedures which may become necessary during the procedure:**

- *Blood transfusion (required very infrequently)*
- *Pleural or pericardial drain (required very infrequently)*
- *Other procedure (please specify):*

**I have also discussed what the procedure is likely to involve,** the benefits and risks of any available alternative treatments (including no treatment) and any particular concerns of this patient.

**I have given and discussed the Trust's approved patient information leaflet for this procedure: Implantation of a permanent pacemaker (CHA3090) which forms part of this document.**

**I am satisfied that this patient has the capacity to consent to the procedure.**

This procedure will involve:  General and/or regional anaesthesia  Local anaesthesia  Sedation

Health Professional signature: ..... Date: .....

Name (PRINT): ..... Job title: .....

**STATEMENT OF INTERPRETER** (where appropriate)

I have interpreted the information above to the patient to the best of my ability and in a way in which I believe he/she can understand.

Interpreter signature: ..... Name (PRINT): ..... Date: .....

affix patient label

### STATEMENT OF PATIENT

Please read this form carefully. If your treatment has been planned in advance, you should already have a copy of the patient information leaflet which describes the benefits and risks of the proposed treatment. If not, you will be given a copy now. If you have any further questions, do ask - we are here to help you. You have the right to change your mind at any time, including after you have signed this form.

**I agree** to the procedure or course of treatment described on this form.

**I understand** that you cannot give me a guarantee that a particular person will perform the procedure. The person will, however, have appropriate experience.

**I understand** that I will have the opportunity to discuss the details of anaesthesia with an anaesthetist before the procedure, unless the urgency of my situation prevents this. (This only applies to patients having general or regional anaesthesia).

**I understand** that any procedure in addition to those described on this form will only be carried out if it is necessary to save my life or to prevent serious harm to my health.

**I understand** that tissue samples will only be taken in relation to the procedure explained to me. No samples will be taken for quality control, clinical education or research purposes.

**I have been told** about additional procedures which may become necessary during my treatment. I have listed below any procedures **which I do not wish to be carried out** without further discussion.

**I have received a copy of the Consent Form and Patient Information leaflet: Implantation of a permanent pacemaker (CHA3090) which forms part of this document.**

Patient signature: ..... Name (PRINT): ..... Date: .....

A **witness** should sign below if this patient is unable to sign but has indicated his or her consent. Young people / children may also like a parent to sign here (see guidance notes).

Witness signature: ..... Name (PRINT): ..... Date: .....

**CONFIRMATION OF CONSENT** (to be completed by health professional when the patient is admitted for the procedure, if the patient has signed the form in advance).

On behalf of the team treating the patient, I have confirmed with the patient that they have no further questions and wish the procedure to go ahead.

Health Professional signature: ..... Date: .....

Name (PRINT): ..... Job title: .....

**Important notes** (tick if applicable):

See advance decision to refuse treatment  Patient has withdrawn consent (ask patient to sign/date here)

Patient signature: ..... Name (PRINT): ..... Date: .....

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