

Having a Pacemaker

This leaflet

This leaflet is designed to give you more information about pacemakers. It will hopefully cover any questions you may have about the procedure. Further information can be found online and details of useful websites and contact numbers are listed at the end of the leaflet.

Admission

Most cases are now performed as a day case procedure. However, you may need to stay in hospital overnight. You should bring an overnight bag and any medication you are currently taking.

The time you should arrive in hospital will be stated on your admission letter. You should refrain from eating for 6 hours prior to this time. Water can be continued until the time of the procedure (but not tea, coffee, milk).

If you are diabetic and take insulin and are booked for the morning please take half your usual morning dose. If you are booked for the afternoon please take half your lunchtime dose on the day of the procedure. Please bring your insulin with you to hospital.

If you take Warfarin, please continue to take it unless your admission letter states otherwise. Please have your INR checked one week prior to the procedure. For most people you should aim for an INR between 2-3. If however, you usually have a target INR ≥ 3 please contact us.

If you take any of the new anticoagulants Dabigatran, Rivaroxaban, Apixaban or Edoxaban you should continue taking it unless your admission letter states otherwise.

If you take two of the following: Aspirin, Clopidogrel, Prasugrel or Ticagrelor, or one in combination with an anticoagulant your

admission letter should advise whether this should be continued or not.

If you feel that you may be pregnant, please contact the ward prior to coming in.

If you have any questions or queries, please do not hesitate to ask your nurse on admission. You will be asked to sign a consent form prior to the procedure.

On the day checklist

- 1a. Morning procedure - No food after midnight the night before the procedure (you should not eat 6 hours before the procedure), you may drink water until the procedure (not tea, coffee, milk etc).
- 1b. Afternoon procedure – Light early morning breakfast (before 7am), no food following this, you may drink water until the procedure.
2. Phone the ward on the morning of your procedure.
3. Shower or bath the morning of the procedure. This will clean the skin and reduce the risk of infection.
4. Bring an overnight bag.

What is a pacemaker?

The pacemaker is a small energy source (battery), which produces an electronic impulse which stimulates the heart to beat (contract). On average, it is less than 1/4" (0.5cm) thick and between 2" and 2 1/2" (5-6.5cm) wide. It weighs approximately 2-4ozs (50-100g). From this battery run either one, two or three leads, which conduct the electrical impulse directly to the heart muscle.

If only one lead is used, this is called a single chamber system. This lead generally sits in the right ventricle. If a second lead is used, this is known as a dual chamber system. This second lead is placed above the first lead in the right atrium. The functions of both chambers of the heart are then regulated. If a third lead is used this is placed around the back of the left ventricle and this is known as a biventricular device or cardiac resynchronisation therapy. The average lifespan of a pacemaker or defibrillator battery is 6-10 years.

Why do I need a pacemaker?

The heart consists almost entirely of muscle tissue which contracts at regular intervals and pumps blood around the body. Each heart beat is triggered by an electrical impulse generated by the heart's own natural pacemaker.

Disturbances sometimes occur within the heart's electrical system which prevents either the impulse being generated or prevents its journey through the heart. This can interfere with the regular beating of the heart itself. When this occurs, symptoms such as dizziness, breathlessness or even blackouts can occur. The best permanent solution to these problems is to have an artificial pacemaker inserted to regulate the heart beat.

If you have heart failure symptoms or signs of impaired pumping function of the heart and certain criteria are met then you may be offered cardiac resynchronisation therapy. This is designed to help co-ordinate the heartbeats to improve the pumping function of the heart.

What to expect on the day

Please attend the ward at the time stated on the admissions letter.

A nurse will welcome you to the ward and take your details.

A doctor will review your symptoms and consent you for your procedure.

You will then be given a gown and a small cannula placed in the hand or arm to allow us to give pain relief and sedation during the pacemaker insertion.

Procedures are undertaken throughout the day and we can't accurately predict how long each will

take. We are therefore unable to give you an exact time for your procedure to start. Although you may be admitted in the morning, you might have your procedure in the afternoon. The team on the ward will keep you informed of progress whilst you wait.

The Procedure

A nurse will walk you into the operating room. The operating room has a bed, a large X-ray machine and many computer screens. The room



is air-conditioned so often feels a little cold.

There will normally be 2 nurses, 1 or 2 cardiac physiologists and a cardiologist in the operating room.

The staff will introduce themselves and help to make you comfortable. Once you are lying down you will be connected to a blood pressure machine and heart monitoring system. You will be given oxygen via a tube around the nose.

Before proceeding further one of the nurses will give a brief summary of your case highlighting important information.

At this point the nurse will give you antibiotics and pain relief and a sedative if required.

A small area over your left (or occasionally) right shoulder will be sterilised with a cold cleaning fluid. A long surgical drape will be placed over this area to maintain sterility. This can cover the face but a small tent will be made to ensure your comfort. A local anaesthetic is used to numb the skin so that the doctor can insert the pacemaker leads. A small incision will be made on the upper chest.

The leads are guided to the heart using x-rays. Once they are in the correct position, the pacemaker battery is attached and placed under the skin, just below the collar bone. The incision is then closed using stitches and a dressing placed to cover the wound.

After the Procedure

You will be returned to the ward on your bed. You can drink water within the first hour and have other drinks and food if you aren't too drowsy.

The ward staff will monitor your heart rhythm, blood pressure and wound carefully in the first 4 hours.

You may require a chest X-ray to confirm the position of the pacemaker and to check for a leak of air around the lungs.

If all is well you can be discharged home after 4 hours. You will need someone to take you home. You will be followed-up in pacing clinic in 6 weeks time. If there are any changes to your medication they will be clearly documented before your discharge.

Is there any risk?

The risks of this procedure are small. It should be painless and straightforward. However, there are certain problems that can occur. These include:

Bleeding

Bleeding around the wound site.

Bruising around the wound.

Bleeding under the skin which results in the formation of a lump (haematoma). This very rarely requires a further procedure, again under local anaesthetic, to remove it and may also result in a further night in hospital.

Some inflammation and bruising is expected i.e. redness and soreness around the wound site.

Very rarely (less than 1 in 100 cases) there can be bleeding around the heart which can be painful (but resolve) or require drainage of the blood (pericardial effusion requiring drainage).

Infection

Infections are thankfully rare. Warning signs are:-

- Discharge from the wound
- Increased swelling of the pacemaker site after the initial bruise
- Itching with increasing redness and/or hotness related to the pacemaker site

- Fever

If you have any of these signs you should contact the pacing clinic so that you can be reviewed.

Sometimes people can be aware of a 'bump' under the skin from the insertion of the pacemaker. This is likely to disappear with time.

Pneumothorax (risk less than 1 person in 100 procedures)

This is a leak of air around the lung. It may require a special drain to re-inflate the lung over a few days. It is likely that you will be in hospital for an additional 2-3 days in the case of pneumothorax.

Lead Displacement/Damage/Box Erosion (risk less than 1 person in 100 procedures)

Rarely the pacemaker will look good when it's inserted but may need repositioning at a later date. This will require a second procedure and will be discussed with you if required.

Risks specific to biventricular devices(CRT)

Hiccups/diaphragmatic twitch/jumping in tummy

This is a rare problem but can happen particularly with biventricular devices (CRT). The nerve to the diaphragm travels very close to where the left ventricular lead is placed and can occasionally make the diaphragm twitch. If this occurs do not panic. It is a nuisance but not dangerous. You should contact the pacing clinic and arrangements will be made to fix this by re-programming the device.

Failure of the left ventricular lead to perform as expected

There is a higher degree of difficulty regarding the insertion of the left ventricular lead compared to the other leads of a pacemaker. As a result the chances of being offered a further procedure is slightly higher than a standard dual chamber or single chamber pacemaker.

Failure for symptoms to improve

In the case of biventricular devices (CRT) there is a risk that you do not feel any better despite the procedure. This should have been explained to

you by your doctor but it is important for you to mention this to us during follow-up as there may be programming changes that can be made to help.

More serious complications normally related to the seriousness of the underlying heart disease can include heart attacks, perforation of the heart, strokes and death. These are extremely rare.

Back on the ward

Your nurse will take your temperature, pulse and blood pressure. You will be offered something to eat and drink. Your wound will be checked regularly and you may need regular doses of over-the-counter painkillers for the first few days.

You will be asked to limit your arm movement on the affected side to give the lead(s) time to settle. Your nurse will advise you when you can get out of bed after returning to the ward.

Going home

Prior to your discharge, a chest x-ray may be carried out if required. The checks on the pacemaker will have been carried out before leaving the pacing theatre. Please arrange with your GP surgery to have your wound reviewed and where necessary any stitches removed 7 days after insertion.

If you are discharged on the same day as your procedure, you will need someone to stay with you overnight.

You will be given a card stating that you have had a pacemaker fitted. Please carry this with you at all times. Future pacemaker checks will be carried out in the Cardiology Department as an outpatient. The first one is generally performed approximately 6 weeks after insertion and then annually. You will not need to see a doctor. These checks will determine when a new battery is required (usually 6-10 years). When the time comes to replace the battery this will involve a simple procedure under local anaesthetic when the new battery is attached to your existing leads.

Living with a pacemaker

Once home, there are a few things of which you need to be aware. Firstly, continue moving the affected arm but limit the range of movement, i.e. **do not lift your arm above your head for**

6 weeks and avoid strenuous use such as lifting. It takes time for the pacemaker lead(s) to settle. After your 6-week check, you are in no way restricted and can lead a normal life.

Can I drive?

Yes you can, but it is against the law to drive for at least the first week. You must inform your insurance company. If you have had a biventricular device (CRT) you must inform the DVLA. If you have blacked-out, have another disqualifying condition or have a Group 2 licence the driving ban will be longer. Please ask the doctor at the time of implant or for further information contact the DVLA.

When can I return to work?

Everyone is different, though the average guide is 1-4 weeks, depending on how strenuous your job is and whether driving is involved.

Will I need to take my tablets?

This will depend on what tablets you are taking. Most medications remain unchanged after a pacemaker implant but there may be adjustments especially after defibrillator or cardiac resynchronisation therapy implants. The doctor will advise you accordingly.

Will I be affected by machinery?

Household electrical items (TVs, microwaves, lawnmowers, wireless internet etc) will not affect your pacemaker, but some powerful energy sources might, e.g. Arc welding and strong magnets such as those found in large speakers or induction hobs. If you require an MRI scan in the future this may now be possible providing certain conditions are met. If you have any queries please contact the Pacing Clinic for advice

Flying

You can fly after 1 week (unless you have a pneumothorax/leak of air around the lung). Airports are generally safe but observe the signs regarding pacemakers when travelling abroad.

Mobile Phones

Mobile phones are unlikely to affect your pacemaker, but it is recommended that it is not placed in a pocket next to the pacemaker and when using one it is held on the opposite side to your pacemaker.

Should you experience palpitations, feel light-headed, dizzy, breathless, or have a tendency to faint, please contact your GP.

Can I have a shower / go swimming?

You can shower on your return home but you should keep the wound dry. Swimming is not advised for at least 6 weeks due to strenuous arm movement. The same applies if you play golf!

Can I have sex / children?

Yes, of course!

Can I drink alcohol?

Yes, in moderation, i.e. do not exceed the recommended limits for men or women. Pre-procedure and post procedure we advise avoiding alcohol for 72 hours (it may interact with the sedation medication).

Home Monitoring

Most patients will be offered a monitor to take home. This talks to your pacemaker (via radio-waves) and allows data collected by the pacemaker to be sent to us remotely. The data allows us to track the pacemaker performance and your heart rhythm. The home monitor is a small box that is plugged in and you will be given clear instruction on how to set it up (usually just plug it in and press a button). The cardiac physiologists will give a more details regarding home monitoring. Examples of home monitors are shown below:

Remote monitoring will not replace the first visit after the device is implanted, which is important to

check that the wound is well-healed, and you may still need to attend the clinic. However, if all is well, it may take over the routine checks on your device, which relieves you from having to attend to these checks at the hospital.

Home monitoring has been in use since 2000 and has been proven to be safe, secure and reliable.

Your cardiac physiologist/arrhythmia nurse/doctor views your data via the internet through a secured connection. The server and all systems have been CE certified and comply with the UK data protection act.

The implant transmits data with an extremely low power on a frequency specially allocated to medical devices, so there is no danger.

With a pacemaker you can and should lead a normal life!

How to contact us

Arrhythmia Nurses..... 01392 403813
Taw Ward 01392 402836
Patient Advice and Liaison Service (PALS)
..... 01392 402093
Cardiac Admissions 01392 403713
Pacing Clinic..... 01392 402272

Where can I get more information?

Arrhythmia Alliance
..... www.rrhythmiaalliance.org.uk
Atrial Fibrillation Association
..... www.afa.org.uk
The British Heart Foundation
..... www.bhf.org.uk
British Cardiac Patients Association
..... www.bcpa.co.uk
DVLA Medical Enquires
..... 03007906806 (car, motorcycle)
..... 03007906807 (bus, coach, lorry)

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