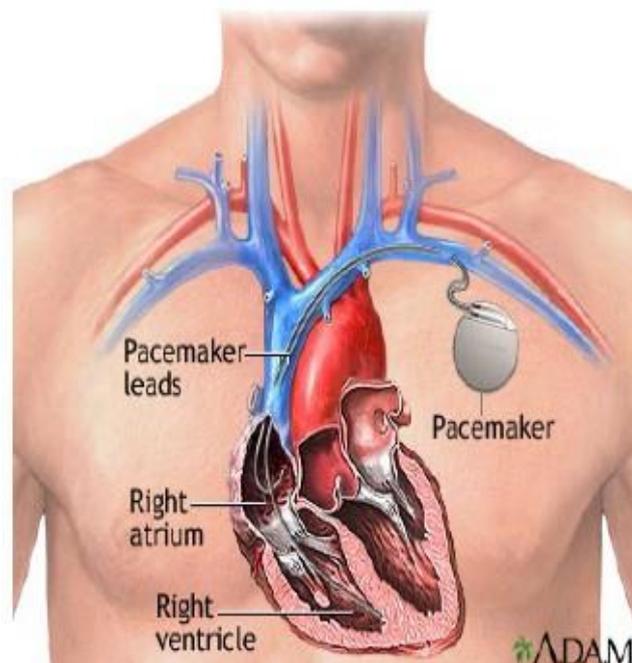


Permanent Pacemaker Implantation (PPM)

What is a pacemaker and why do we insert them?

A pacemaker is a device used to prevent your heart going too slow and to help your heart beat faster when it needs to. Your heart beats because of electrical impulses that fire automatically once a second from the Sinus Node in the top of the right atrium. These impulses are then transmitted through the heart's own internal wiring to the main pumping chambers, the ventricles. The Sinus Node or the wiring system can slow down as you get older or sometimes get damaged after a heart attack or the development of heart muscle conditions called cardiomyopathies. If your heart has been beating too slowly at times, you might have noticed dizziness or a blackout. A pacemaker, when in place, can tell when your heart is slowing down and so “kicks in” to speed up your heart rate and protect you from a blackout.



What to expect when having a PPM inserted?

Insertion of a pacemaker will be carried out with local anaesthetic with or without conscious sedation. Pacemakers are usually implanted under the skin or sometimes beneath the muscle in the upper left side of the chest near to the shoulder. The procedure is carried out in the cardiac cath lab. You will be checked in by a nurse and doctor. Bloods will be taken and an IV cannula inserted in your arm. The doctor will discuss the procedure with you and ask you to sign a consent form.

You will be brought to the procedure room and placed lying on your back on the x-ray table. You will be attached to a cardiac monitor and intravenous fluids. Sedative medication may be administered. Your skin will be cleaned with an antiseptic solution and intravenous antibiotics will be administered to reduce your risk of infection. A sterile drape will be placed over you. The area will be numbed with local anaesthetic. An incision is made in your skin and either one, two or three leads are threaded through a large vein under the collar bone into the heart chambers. The pacemaker box is then attached to the leads and secured. The wound will be sutured with dissolvable sutures. The procedure duration is usually 30-60 minutes.

Radiation

Ionising radiation is used to take images during this procedure. The Radiographer will optimise your X-ray examination, keeping your radiation dose as low as possible.

As X-ray is used, women aged between 12 - 55 years old will be asked to provide the first date of their last menstrual period (LMP and sign a "Pregnancy Status Declaration" form). If your period is overdue, a urine pregnancy test will be taken before your procedure. If you are aware that you are pregnant please inform the Nurse/Radiographer attending to you.

Radiation warning

Your procedure, which your doctor has recommended, involves the use of ionising radiation (X-rays). We monitor the radiation dose used throughout the case. High doses of radiation may be associated with some health risks, such as slightly elevated cancer risk or skin reddening. Although the doses of radiation usually incurred in a given procedure are small, it is possible that cumulative exposure received may produce a reaction such as skin reddening (very like sunburn). If levels measured indicate that the cumulative exposure could cause such skin reactions, then appropriate advice will be given and monitoring for any possible reactions instigated.

Sedation

Conscious sedation and painkiller medications may be used in conjunction with local anaesthetic for your pacemaker procedure. You will be awake for the procedure but the nurse will ensure you are relaxed and give you medications if needed to relax or relieve pain or discomfort. You may even find yourself drifting off to sleep. Your nurse will continuously monitor your breathing and oxygen levels and provide oxygen if required. If you experience discomfort please inform your nurse so that pain relieving medication can be administered as required.

Please follow these guidelines after your procedure;

- Sedation can cause drowsiness and increase your risk of falling.
- Do not drive for 1 week. Please make arrangements for an adult to collect you to bring you home after the procedure.
- Do not consume alcohol, make any legal decisions, sign any legal documentation or operate heavy machinery within 24 hours post procedure.

Your role in the procedure

You will be required to lie flat and refrain from touching the sterile working area under the collar bone. If you feel any discomfort or uncomfortable symptoms during the procedure for example pain, dizziness or shortness of breath please let your doctor or nurse know so they can assess you and take measures to help you get more comfortable.

On the day of your procedure

- You can have a light breakfast (e.g. Tea & Toast) the morning of your procedure
- On the day of your procedure, it is recommended to have a shower to clean your skin.
- Bring in a list of your regular medications.

Blood thinners

- If you are taking Aspirin and / or a second antiplatelet medication such as Clopidogrel (Plavix), Ticagrelor (Brilique) or Prasugrel, please continue these without any interruption
- If you are on Warfarin, you should skip 3 doses prior to your procedure
- If you are on Dabigatran (Pradaxa), Rivaroxaban (Xarelto), Apixaban (Eliquis) or Edoxaban (Lixiana), you should not take this the day before or on the morning of your procedure.
- If you are on your blood thinner because you have a metallic heart valve or because you have had a stroke or mini-stroke please call the cath lab nursing staff on 01 8032312 to confirm that it is safe and appropriate for you to stop your blood thinners prior to your procedure

Post Procedure

- You may be monitored overnight in the hospital and discharged the following day or discharged home 4 hours after the procedure particularly if you are just having a pacemaker battery replacement. Please bring an overnight bag with you.
- An X-Ray will be performed after your pacemaker insertion if you have received a new system or had a lead implanted or an old lead repositioned.
- A pacemaker check will be performed after your procedure before you go home.
- You will need to keep your arm in a sling for 24 hours and limit arm movements.
- A dressing will be in place over the pacemaker site for 3 days, you must keep this clean and dry. Avoid showering/direct water to the site for minimum 3 days.
- You may need to take oral antibiotics post procedure to reduce infection. You will be given a prescription before your discharge.
- When the local anaesthetic wears off you may experience some discomfort at the insertion site. Over the counter analgesic medication such as paracetamol may be taken 6-8 hourly for comfort.
- The doctor will give you specific information about restarting regular medications (e.g. blood thinners)
- It is encouraged to reduce arm movement above shoulder height for 4-6 weeks to avoid lead dislodgement.
- A follow up appointment will be given to you before you are discharged.

Potential Complications

The procedure is usually relatively painless though minor discomfort such as the following may occur:

- Possible discomfort when injecting local anaesthetic
- Pressure or pain while the doctor is implanting the pacemaker. Let the doctor know if you feel discomfort as additional local anaesthetic can be given.
- Minor bleeding, bruising, redness, swelling at site
- Possible palpitations while the leads are being moved into the correct position inside the heart.
- Usually there is some bruising around the pacemaker site following the procedure.
- Possible reaction to medications administered
- If bleeding occurs, a pressure dressing may be placed on the wound to stop it. Very rarely the wound may need to be reopened to remove collected blood and treat the source of bleeding.
- Lead dislodgement requiring reopening of the incision and repositioning of a lead occurs in < 5% of cases.

Serious complications happen very infrequently in less than 1% of cases. They include:

- Cardiac perforation resulting in bleeding around the heart. This could require emergency surgery to stop the bleeding.
- Infection of the pacemaker or insertion site that may require complete removal of the pacemaker and leads.
- Lung collapse which may require placement of a chest tube to re-inflate the lung.
- Nerve damage which can result in numbness or pain following the procedure.

Extremely rare complications occurring in less than 1-in-1,000 cases:

- Heart attack
- Stroke
- Death

Living with your Pacemaker

- You can resume driving your car 1 week after the Pacemaker insertion as per RSA guidelines.(truck and bus guidelines may vary. Please see www.rsa.ie - NDLS Slainte agus Tromaint GL 2019)
- Avoid swimming, golf or contact sports for a minimum of 6 weeks unless otherwise instructed
- Avoid heavy lifting or stretching high to reduce your risk of lead displacement for 6 weeks
- Your doctor will advise you about airport security, MRI scans and electronics
- Ensure you notify nurses/doctors that you have a Pacemaker in place

- It is essential that you attend your follow up appointments as they will monitor your device settings and battery life
- You should receive a heart rhythm device I.D. card from Heart Rhythm Ireland in the post within 4 weeks of the procedure. Please carry this with you at all times. Contact 041 687 1457 if you do not receive your ID card.

Useful websites:

https://www.rsa.ie/Documents/Licensed%20Drivers/Medical_Issues/Medical%20Fitness%20Guidelines.pdf
<https://www.hse.ie/eng/health/az/p/pacemaker-implantation/>
www.bostonscientific.com
www.medtronic.com



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