PACEMAKER AND IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (ICD)

A Guide for Patients

ST VINCENT'S
PRIVATE HOSPITAL
MELBOURNE
A FACILITY OF ST VINCENT'S HEALTH AUSTRALIA

Welcome

Thank you for choosing St Vincent's Private Hospital Cardiac Services.

This booklet has been developed to aid your understanding of the electrical conduction of the heart, pacemaker/ICD implantation and care after the insertion of a pacemaker/ICD.

The Heart

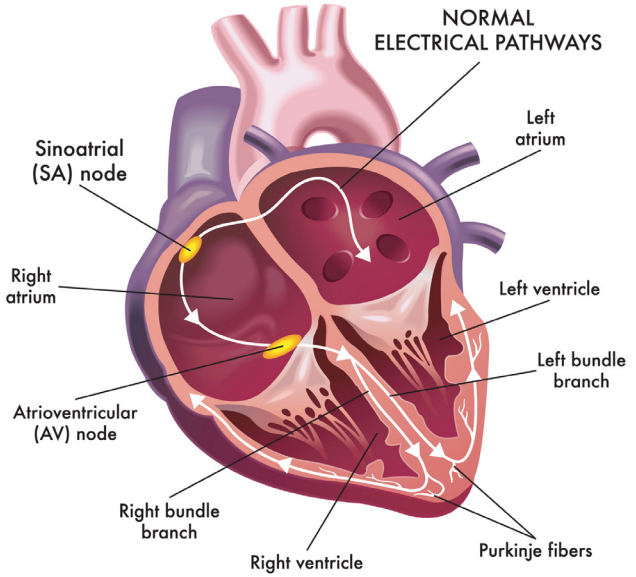
Your heart is a muscle that pumps blood to supply all parts of your body with oxygen and nutrients. The heart has an electrical conduction system that stimulates the heart muscles to beat (contract).

Sometimes due to ageing, certain medical conditions or medications, your heart may beat too slow, too fast or skip a beat.

Your cardiologist may recommend a pacemaker as a treatment for your heart's electrical abnormality.

Normal Electrical Conduction of the Heart

A normal healthy heart beats in a regular pattern between 60 to 100 beats per minute. This well coordinated and rhythmic electrical conduction system initiates contractions of the heart's chambers (atrium and ventricle) which results in blood being pumped out of the heart and to the body.



Electrical impulse spreads from the SA node throughout the atrium to the AV node causing the atrium to contract and expel blood into the ventricles.	Electrical impulse spreads from the AV node to the bundle branches and throughout the ventricles causing the ventricles to contract and expel blood out of the heart into the body's circulation.

Pacemakers

Why do I need a pacemaker?

You may need a pacemaker as treatment for an abnormality in the electrical conduction system of your heart (arrhythmia) or as a treatment for heart failure.

Arrhythmias may cause your heart to pump blood ineffectively throughout your body causing symptoms such as breathlessness, tiredness, dizziness and fainting.

Common arrhythmias are:

- Bradycardia – Slow heart rate or delay of impulse conduction
- Tachycardia – Fast heart rate
- Heart block/missed beat – Partial/complete block of the conduction system
- Sick sinus syndrome – Unusually fast and slow heart rate
- Slow atrial fibrillation – Slow and irregular heart rate

Pacemaker System

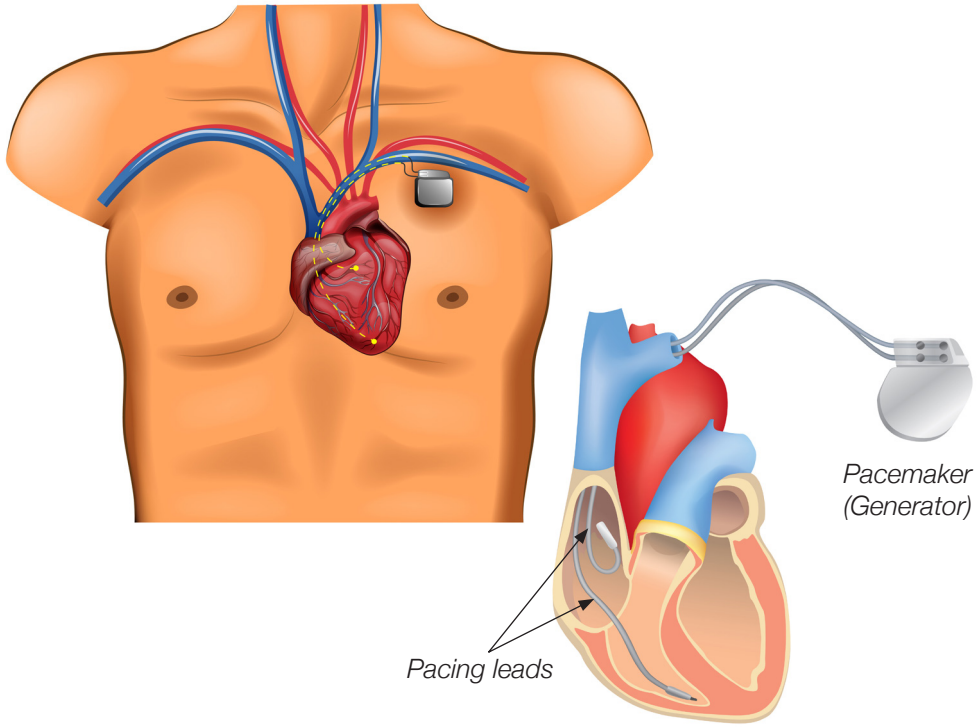
A pacemaker is an electronic device that produces artificial electrical impulses/ stimuli to sustain your normal heart rate. The pacemaker system comprises of a **pulse generator (pacemaker) and pacing leads.**

The pacing leads are inserted into the chambers of the heart allowing the pacemaker to recognise the natural electrical conduction system of the heart.

Any arrhythmia will be sensed by the pacemaker and it will send electrical impulses to your heart to correct the slow heart rate. The pacemaker only works when your heart rate is low. You will not be able to feel the electrical impulses produced by the pacemaker.

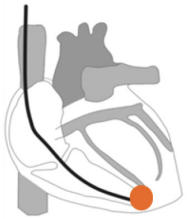
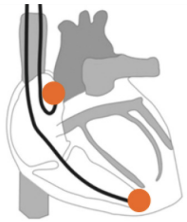
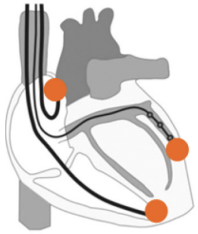
How is a pacemaker inserted?

- The procedure is performed at our cardiac catheter laboratory or operating theatre. You will be given intravenous sedation and local anesthetic at the operation site.
- A small incision approximately 5 – 7 cm is made just below the collarbone.
- The pacing leads are inserted into your heart's chambers through a large vein.
- The pacing leads are then connected to the pacemaker which sits underneath your skin just below the collarbone.
- The incision is then closed with dissolvable sutures and a waterproof dressing is applied. The procedure takes approximately 1 hour.
- There will be nurses with you at all times. If you feel unwell, please inform your cardiologist or nurse at any time during the procedure.



Types of Pacemakers

The type of pacemaker that your cardiologist will recommend depends on your heart condition and your symptoms. Common pacemakers are:

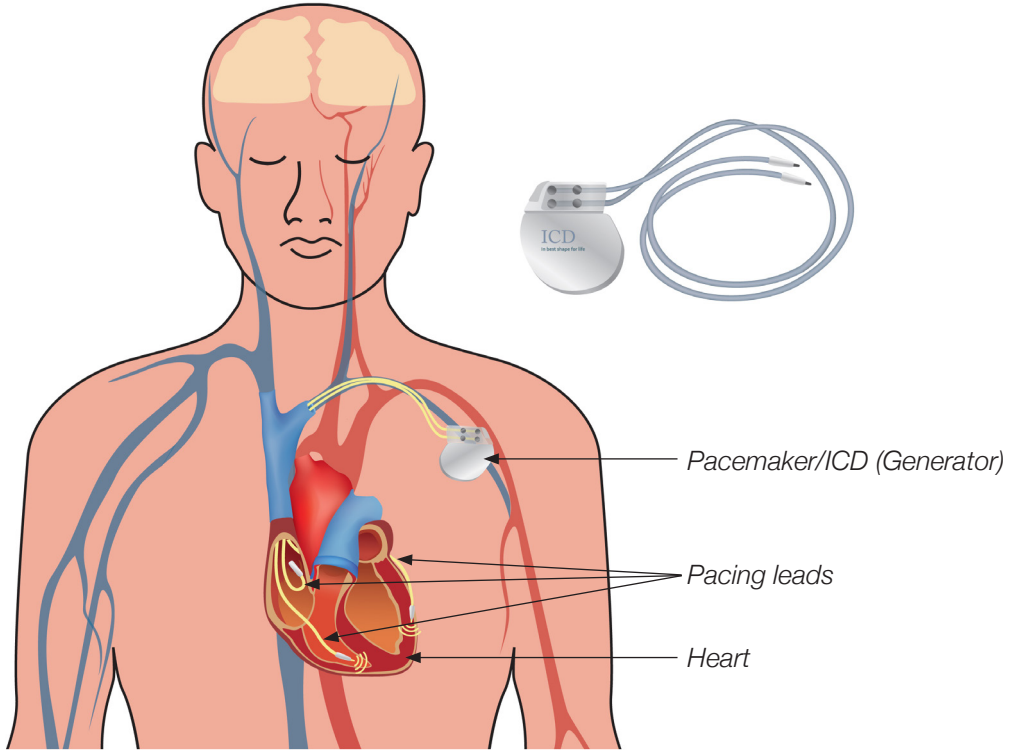
	Leads ●	How it works
Single Chamber Pacemaker		Single lead implanted in the heart's chamber to stimulate pacing when your heart rate is low.
Dual Chamber Pacemaker		Pacemaker with two leads implanted in the upper (atrium) and the lower (ventricle) chambers to help both chambers work in rhythmic coordination.
Biventricular/ Cardiac Resynchronisation Therapy Pacemaker		Commonly used to treat individuals with heart failure. Due to heart failure, the left and right lower chambers of the heart may have poor contraction coordination resulting in ineffective blood flow out of the heart. Pacing leads placed in each left and right lower chambers provides synchronized contraction of the heart which results in improved cardiac function.

Implantable Cardioverter Defibrillator (ICD)

You may require an ICD if you have a history or are at risk of developing dangerously fast, life threatening arrhythmias such as ventricular tachycardia and ventricular fibrillation.

If your ICD detects these arrhythmias, it will deliver an electrical shock to your heart to restore natural rhythm. You may feel this shock. There is no risk to anyone around you when your ICD initiates this shock. Your ICD will also function as a pacemaker if required. Your cardiologist may also recommend an ICD after a cardiac arrest.

Please advise your cardiologist if your ICD initiates shocks. If you feel unwell after your ICD delivers a shock or multiple shocks, please seek medical attention or call 000.



Admission

You will be admitted to the cardiac ward or cardiac catheter laboratory prior to your procedure. Your nurse will assist you in completing the required admission paperwork and necessary pre-operative preparations.

Bring all of your normal medications, including insulin in its **original packaging**.

Certain **anticoagulants/antiplatelets (blood thinners)** may need to be stopped prior to your procedure. Consult your cardiologist regarding cessation of your blood thinners prior to your procedure. Examples of blood thinners include:

- Warfarin
- Dabigatran (Pradaxa)
- Apixaban (Eliquis)
- Rivaroxaban (Xarelto)
- Clopidogrel (Plavix)

Your cardiologist will advise on your **fasting time** prior to admission or your nurse will let you know when to commence fasting.

If you are a **diabetic**, your doctor will provide advise regarding insulin doses and diabetic tablets required whilst you are fasting.

Your cardiologist will discuss the procedure with you and clarify any concerns that you may have regarding the procedure before signing your informed consent form.

Care in Hospital

Post Procedure Care in Hospital	
Immediately Post Procedure	• Rest in bed for 4 hours before you can mobilise. • Avoid stretching your arm (the side of the pacemaker) higher than your shoulder. • Your blood pressure, heart rate/rhythm and wound site will be closely monitored. You will be attached to a heart rate monitor overnight. • **Please report any pain/discomfort to your nurse.**
Day 1 Post Procedure	• The pressure dressing will be removed (if present). • A pacemaker technician/nurse will check your pacemaker to ensure it is functioning as required. • To avoid risk of infection, antiobiotics may be given to you either intravenously or tablets.
Discharge	You will receive: • A temporary pacemaker card. • A home remote monitoring device or mobile application. • An outpatient cardiac rehab referral.

Depending on usage, the pacemaker generator (battery) lasts for 7 – 10 years.

Your cardiologist will arrange a new generator change at the appropriate time.

Care At Home

Wound

Monitor for signs and symptoms of **infection** around the wound site:

- **Redness, swelling, unrelieved pain, fever.**
- See your GP immediately if you have concerns about your pacemaker wound.
- If your cardiologist prescribes antibiotics upon discharge, please take them as instructed.
- Prior to discharge, please seek advice from your cardiologist regarding post procedure pain management (e.g. Paracetamol). Consult your GP if pain persists or pain level increases.

Monitor for signs of **bleeding** at the wound site:

- **New blood/discharge or swelling under/below the wound site.**
- See your GP or nearest emergency department immediately if you are concerned of bleeding at the wound site.

Wound dressing

Your pacemaker wound site is covered by a **waterproof dressing.** You can shower however **avoid direct waterflow** over the pacemaker site and avoid immersing in a bath for 2 weeks.

Carefully remove the dressing after **10 – 14 days**. If you are not confident removing the dressing yourself, your GP will be able to assist you.

Once the dressing has been removed, keep the wound site clean and dry.
Avoid applying body lotion, perfume or powder to the wound site while it is still healing.

Activity

As your wound site is healing and tissue around the pacing leads are growing, daily activities must be done with caution to avoid dislodging the pacing leads from the heart.

- **Avoid raising the affected arm over your head and heavy lifting** (nothing more than 2 kilograms) for **4 – 6 weeks**. Gentle arm exercises are allowed to avoid a stiff shoulder.
- Avoid activities that require **'push and pull'** movements (e.g. lawn mowing, vacuuming) for **4 – 6 weeks**.
- Avoid playing sports requiring repetitive **stretching and movement** (e.g. swimming, golf) for at least **5 – 6 weeks**.
- Sexual activity can be resumed once your pacemaker site has healed.

Driving

You are required to notify VicRoads of your heart condition as it may affect your ability to drive safely. A **conditional licence** may be considered by the driving licensing authority subject to periodic review. Please refer to VicRoads for a full list of non-driving period advice. Below is a brief summary of non-driving advisory period.

	Private Licence	Commercial Licence
Pacemaker	2 weeks 2 weeks - Generator change 6 months after cardiac arrest	4 weeks 4 weeks - Generator change 6 months after cardiac arrest
ICD	ICD as secondary prevention (e.g. post cardiac arrest) - Consult your cardiologist as this is medical condition specific. 2 weeks - ICD for primary prevention/prophylaxis 2 weeks - Generator change	Depending on the indication for an ICD insertion, you may not be fit to hold an unconditional or conditional licence. Please consult your cardiologist as this is medical condition specific.

Always check with your cardiologist if you should be driving or when you can recommence driving after a pacemaker/ICD insertion.

Flight

- Please refer to your airline's specific recommendations for travel after a pacemaker insertion.
- You are safe to travel with a pacemaker. Passing through a metal detector will not harm your pacemaker/ICD but it may sound the alarm. Keep your pacemaker ID card with you at all times.

Device	Recommendations
Magnet	• Avoid carrying or standing near magnets or devices that house strong magnets. Magnets may interfere with your pacemaker/ICD function. *Examples: stereos, Hi-Fi speakers.* If you come into contact with strong magnets and feel palpitations, dizziness or generally unwell, step away from the magnet/device and consult your cardiologist or pacemaker company. Alternatively, present yourself to the nearest emergency department.
Medical Equipment	• Medical equipment such as x-rays, ultrasound and mammograms will not cause any harm to your pacemaker/ICD. • MRI: Please inform the MRI department that you have a pacemaker/ICD. Your cardiologist or pacemaker company will be able to inform you if your pacemaker is MRI compatible.
Radiotherapy	• Please consult your cardiologist if you need to have radiotherapy as it may interfere with your pacemaker/ICD.
Household Devices	• Household devices in good working condition are safe to use and pose no risk to your pacemaker/ICD. *Examples: television, radio, computer, microwave, fridge.*
Mobile Phone	• Avoid placing your mobile devices close to your pacemaker/ICD. • Hold your mobile phone to your ear opposite the side of your pacemaker/ICD. • Avoid placing your mobile phone in your shirt pockets.
• Carry your **pacemaker card** with you **at all times**. • Bring your **pacemaker card** into hospital on **every admission**. • Inform your **doctor/dentist** of your pacemaker prior to any procedure.	

Smoking

We strongly advise that you do not smoke after surgery as this may delay the healing process and may cause complications. This is an opportunity to quit smoking for good.

Remote/Home Monitoring Device

- You may receive a remote/home monitoring device or an application based system installed in your mobile device.

  This device/application allows your healthcare team to remotely **access** and **monitor** your pacemaker/ICD as well as cardiac activity **automatically** as scheduled by your clinic or cardiologist.

- **Always refer to your pacemaker specific home monitor set up directions** enclosed in your home monitoring device or mobile application package.

  With most monitoring devices, you are only required to plug the device into an electrical outlet and the device will automatically start transmitting your pacemaker/ICD activity to your healthcare team.

- Remote monitoring of your pacemaker/ICD **does not replace your face-to-face appointments** with your cardiologist as any pacemaker setting adjustments cannot be performed remotely.

- Always leave your remote monitoring device **plugged into an electrical outlet** preferably at an area where you spend a considerable amount of time each day e.g. bedroom/bedside table, lounge room.

- If you are planning on **travelling** for an extended period, you may take your remote monitoring device with you however please consult your cardiologist or healthcare team prior to any travel.

- Your cardiologist will explain any further queries regarding home monitoring at your first appointment after discharge from hospital.

Important Contacts

For all medical and new cardiac related symptoms, please contact your cardiologist – contact details provided on discharge.

For all pacemaker device concerns including pacemaker device checks, please contact your pacemaker company.

If you are feeling unwell and concerned about your health, contact your general practitioner, nurse-on-call (1300 60 60 24) or present yourself to the nearest emergency department.

If you become terminally unwell with a condition unrelated to your heart, your pacemaker may prolong your life. Talk to your doctors if you have any questions about turning off your pacemaker when this situation arises. It is recommended that you involve your family in these conversations. The shock function of your ICD can be turned off separately while maintaining the pacemaker functions.

Notes

Notes

Developed in consultation with our patients

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UNDER THE STEWARDSHIP OF MARY AIKENHEAD MINISTRIES

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