

## What should I do after my pacemaker implantation?

- 1 You should watch for fever, excessive pain, redness or swelling over the wound. Inform your doctor immediately if you have these symptoms.
- 2 On the side of the pacemaker, avoid excessive movement of the arm, lifting the arm above your head and lifting more than 5kg load for 2 weeks after implantation.
- 3 Complete the course of antibiotic medication prescribed on discharge.
- 4 Remember to inform all your attending doctors that you have a permanent pacemaker:

- a) Avoid the use of short-wave diathermy (electrically induced heat) for the treatment of rheumatism close to the pacemaker site during surgery
- b) Avoid magnetic resonance imaging (a medical diagnostic imaging technique) although newer pacemakers can be MRI safe.

- 5 Ensure that you return for regular check-up at the appointed dates so that you derive the greatest benefits from the pacemaker.

If you have any query regarding these instructions, please contact your doctor.

## What are the potential risks/complications of the procedure?

The procedure is extremely safe, with a low risk of complications. Most complications are minor and easily treated, such as pain, bleeding and bruising at the implant site. An infrequent complication is pneumothorax – a condition where the lung is accidentally punctured during the insertion of the wire, and air leaks into the chest cavity, causing the lung to collapse. This condition is reversible and can be treated with insertion of a chest tube to allow the air to escape and the lung to re-expand. A rare but serious complication is the infection of the implant site, requiring antibiotic therapy and removal of the pacemaker system.

## Location



- A** Linkway @ Level 1 Via MRT station (Exit A)
- B** Linkway @ Level 1
- C** Linkway @ Level 4
- Drop off only
- Bus Stop
- P Carpark
- Taxi Stand / Drop off
- MRT Kent Ridge MRT Station @ Level 1



**National University Hospital**  
5 Lower Kent Ridge Road, Singapore 119074  
Tel: 6779 5555 Fax: 6779 5678 Website: www.nuh.com.sg

### Contact Information

#### National University Heart Centre, Singapore

1 Main Building of NUH, Angiography Centre, Level 2.

**Opening Hours:** 8.30 am - 5.30 pm (Monday - Friday)

Closed on Weekend & Public Holidays

**Website:** [www.nuhcs.com.sg](http://www.nuhcs.com.sg)

### Getting to NUH

#### Circle Line Kent Ridge MRT Station

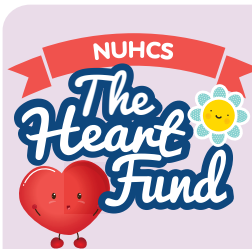
Commuters can transit at the Buona Vista MRT Interchange and alight two stops after at the Kent Ridge Station. The station is served by three exit-entry points.

**Exit A:** Right at the doorstep of National University Heart Centre, Singapore.

**Exit B:** Along South Buona Vista Road, which links to Singapore Science Park 1.

**Exit C:** Leads to NUH Medical Centre.

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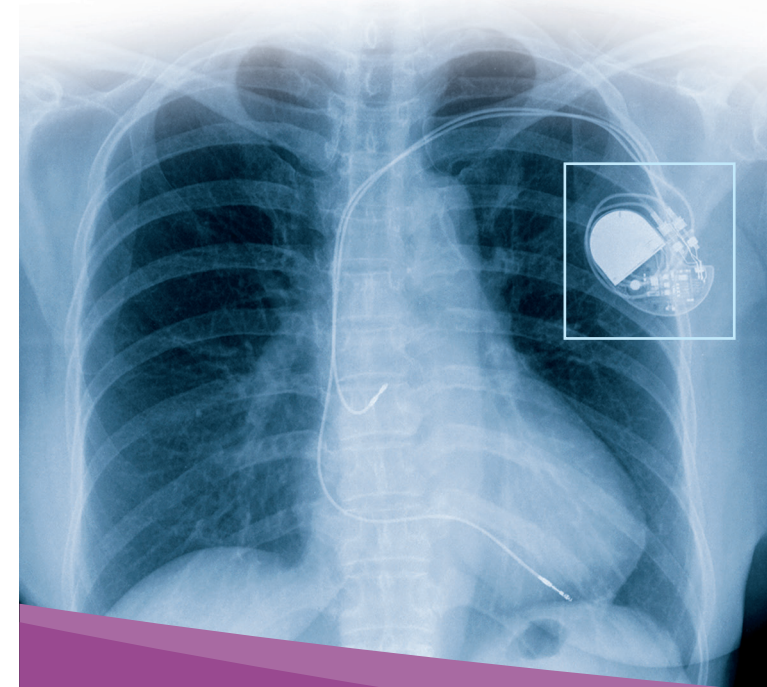
Every day, we save lives by providing financial relief to needy patients, funding groundbreaking research and giving training to our medical specialists. This is why the support we receive is essential.

**Make a donation and help us continue the fight for every heartbeat!**

To make an online donation, log on to <http://www.nuhcs.com.sg/make-a-gift.html>

## National University Heart Centre, Singapore

A member of the NUHS



# Cardiac Implantable Device

## Permanent Cardiac Pacemaker Insertion (PPM)

View patient education videos on **NUHCS YouTube** page!

STEP 01



STEP 02



Download a FREE QR Reader on your smartphone and scan the QR code.

The QR code will decode instantly. You'll be brought to [www.youtube.com/user/NUHCS](http://www.youtube.com/user/NUHCS)



Scan the QR code

## Why is a Permanent Cardiac Pacemaker needed?

Excessively slow heart rhythms can severely affect the heart's ability to pump blood throughout the body. This may cause symptoms such as fatigue, dizziness, shortness of breath, fainting and, in extreme circumstances, death. In such cases, your doctor may recommend a permanent pacemaker to be implanted. In some patients with heart failure, a special pacemaker may be implanted to improve the heart function (cardiac resynchronisation therapy).



A pacemaker generator against a 50 cent coin for size comparison.

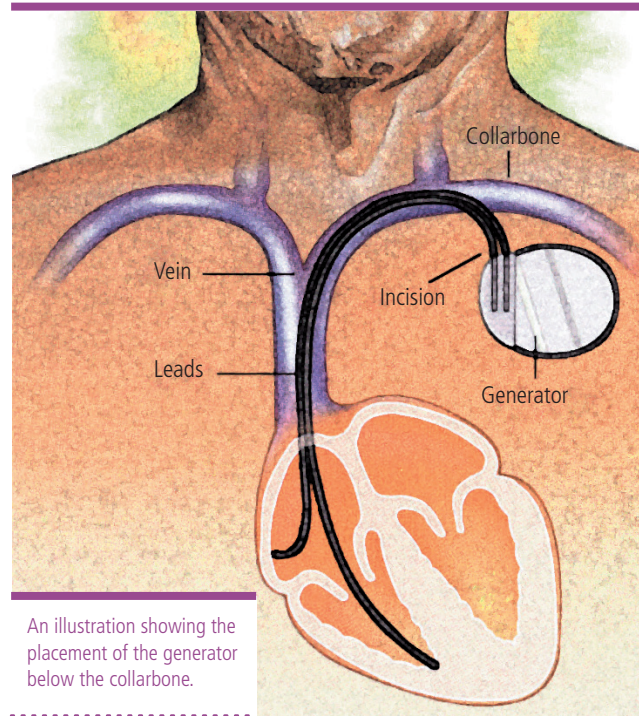
A pacemaker comprises two parts: the pacemaker box (also called the pacemaker generator) which is a sophisticated piece of equipment with microcomputers and a battery, and wires (also called leads) which are inserted in the heart. The pacemaker box is about the size of a small lighter and is made of an inert metal alloy. The battery usually lasts 7 to 10 years, after which the entire pacemaker box is changed. The wires are inserted into the heart via the veins from one of the arms. Modern pacemaker systems are extremely reliable and after implantation, are unobtrusive and do not affect your activities of daily living. Most patients notice an immediate improvement in their condition and symptoms after the insertion of a pacemaker.

## What can I expect before the procedure?

You will need to stay in hospital for 1 to 2 days for the pacemaker implantation and be asked to fast on the night before the procedure. Before the procedure, some routine blood tests and electrocardiograms may be performed and you are required to sign a consent form. A small needle is inserted in one of the veins in your hand to facilitate injection of medication. Just before the implantation, you will be given an injection of an antibiotic.

## What can I expect during the procedure?

The implant procedure usually lasts about 1 hour. After injection of local anaesthetic, a small incision (cut) is made in the upper left chest (if you are right-handed) and a small "pocket" is created under the skin to accommodate the pacemaker box. An insulated lead is then inserted through a vein in the upper chest and, guided by X-ray, is threaded until its tip lies snugly within the heart. The other end of the lead is then connected to the pacemaker. The incision wound is closed with stitches, cleaned and bandaged.

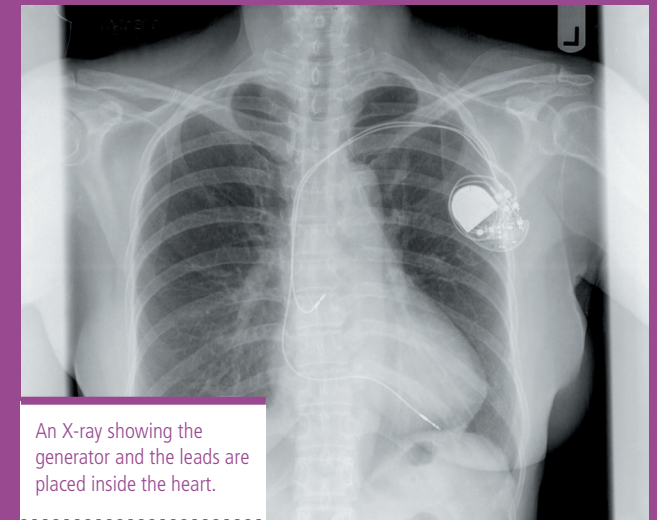


An illustration showing the placement of the generator below the collarbone.

## What can I expect after the procedure?

Upon returning to the ward, you will be given regular antibiotic injections to reduce the risk of infection. Please inform the attending nurse if you experience pain at the implant site; painkillers can be prescribed. The following day, you will be sent for a chest X-ray to check the position of the pacemaker and wire, and to look for potential complications. The pacemaker will also be checked and programmed by a technologist. Most patients can be discharged 1 to 2 days after the implantation.

On returning home, you can resume most daily activities within a few days. Your wound is to be kept dry. The waterproof dressing should not be removed or changed until you return to the clinic for review in about 10 to 14 days. The stitches need not be removed as they are absorbable. Your doctor will arrange a schedule of periodic checks and electronically program the pacemaker's behavior to suit your requirements.



An X-ray showing the generator and the leads are placed inside the heart.



Catch our video on Cardiac Implantable Devices on

YouTube

[www.youtube.com/user/NUHCS](http://www.youtube.com/user/NUHCS)