Permanent Pacemaker Implantation

What is it?
A pacemaker is an electronic device that continuously monitors the heart rhythm and prevents your heart from beating too slowly. It consists of two parts: a generator (battery and electronic microchip) and one or more insulated electrodes.

The battery is usually placed under the skin beneath the collar bone on one or other side of the body and the electrodes pass through a nearby vein into the appropriate part of the heart that requires stimulation via electrical impulses transmitted by the electrodes. This makes your heart beat consistently, and the battery lasts an average of eight years.

Preparation
Pacemaker implantation is usually performed with conscious sedation but you should not eat or drink anything for six hours before your procedure. If you have diabetes you should talk to your cardiologist about your food and medication intake at the time of the procedure to preserve your blood sugar level. Other medications, especially blood thinning medications, may need to be ceased prior to the procedure.

The procedure is performed using analgesics and sedatives and with antibiotic cover. The area of the implantation may be shaved and cleaned prior to implantation as necessary to reduce the chance of infection. During the procedure an ECG and blood pressure monitor will allow your heart rate and blood pressure to be recorded while you lie on the table in the cardiac catheter laboratory.

In addition to the conscious sedation, local anaesthetic will be injected under the skin in the area of the pacemaker insertion.

A 5-10cm incision will then be made below the collar bone and a small pocket under the skin or muscle will be made for the pacemaker battery, and one or more leads will be inserted into a nearby vein so they can be passed to the heart using x-ray control. The cardiologist will then close the incision with sutures and apply a dressing to the skin over the wound.

New pacemaker implants require one nights stay in hospital and the pacemaker is checked by a technician the next day prior to discharge. Simple generator replacements may be done as a day case.

Risks of permanent pacemaker implantation
There is a 2% chance of one or more of the following occurring during implantation
• Collapsed lung
• Bleeding/bruising
• Infection
• Lead detachment
• Blood clots in veins
• With a remote possibility of heart attack, stroke or death

Following the procedure
You will be instructed as to appropriate care of the wound following discharge from hospital, and the dressing will be waterproof. If you notice any problems with the healing of the wound you must contact your cardiologist immediately, particularly if there is any redness, swelling or pain around the incision site, fever or ooze/bleeding from the site.

Activities
Since it takes a few weeks for the pacemaker electrodes to firmly attach themselves inside the heart, it is recommended that you limit arm movement on the side of the pacemaker implantation to below shoulder activities for the first two weeks. You cannot drive a motor vehicle for two weeks after the implantation of a pacemaker. These restrictions do not usually apply to a simple generator change.

Home appliances
Any electrical appliance at home that is in good working order is safe to use with your pacemaker. However caution should be exercised with strong magnetic fields (eg. arc welding) or unshielded ignition systems particularly if your heart beat is dependent on the pacemaker function for most of the time.

Mobile phones may be used on the opposite side of the body to the pacemaker.

Identification and travel
You will receive a temporary pacemaker identification card before leaving the hospital which will be replaced by a permanent laminated card in due course. Pacemakers may set off security devices in airports and you should show your card to security rather than pass through the security devices, so that you can have an appropriate scan performed.