

Guidelines for Implanted Cardiac Devices and Anaesthesia North Shore Hospital

Advice pertaining to WDHB patients with an implanted Pacemaker or ICD is available by contacting **Pacemaker/ICD Physiologist On-call Mobile: 021 806 985**

Note: Out of normal working hours we are not 'on-site' but available to take your call or come in if necessary.

Backup contact if the phone above is unanswered

Cardiac Physiology Team Leader: liane.dawson@waitematadhb.govt.nz,

021 409 935 or extn: 3316

Background

Diathermy use with a pacemaker:

May result in noise detection by the pacemaker which may cause temporary inhibition of the device and in pacing dependant patients this will result in no cardiac output. On cessation of diathermy the pacemaker should return to normal function.

Pacemaker patients who have a good underlying rhythm and are deemed safe by a pacing physiologist prior to the procedure will not require the presence of a pacing tech and reprogramming.

Diathermy use with an ICD:

This may result in over-detection by the device and delivery of inappropriate shock therapy. Backup bradycardia pacing may also be inhibited.

All ICD patients require their device to be reprogrammed pre and post the procedure.

Pacemakers

Information should be obtained pre operatively using the attached form: "Pacemaker Information for Patients Undergoing Surgery"

Diathermy can cause pacemaker inhibition resulting in asystole and loss of cardiac output

- The patient must be monitored using ECG and pulse oximetry or an arterial line throughout the procedure with resuscitation equipment and knowledgeable medical personal available.
- During diathermy the pulse oximeter must be monitored to ensure cardiac output is maintained (the ECG trace will be unreliable for monitoring due to artefact during diathermy)
- Bipolar diathermy should be used (avoid monopolar whenever possible)
- Diathermy should be used in short, intermittent, irregular bursts at the lowest feasible energy levels

- Position the grounding pad as far away from the pacemaker as possible - usually on the opposite thigh to the implanted device (to ensure the current path does not pass through or near the implanted device and leads)
- Keep all diathermy cables well away from the implant site
- If asystole / no cardiac output is seen due to pacemaker inhibition, the surgeon should be informed immediately and diathermy discontinued until a clinical magnet has been placed on top of the pacemaker. This will cause asynchronous pacing at the programmed magnet rate as identified prior to the surgery.
- If the patient is identified prior to surgery as pacemaker dependant (has no underlying rhythm) a clinical magnet should be placed over the pacemaker prior and during diathermy use in anticipation of pacemaker inhibition.
- Magnets are available from the Pacemaker Service, North Shore Hospital

Note:

1. A routine pre surgery check is not required unless special circumstances exist. ie the patient is due for a routine check, or being followed for pacemaker or lead malfunction, or is near replacement time
2. A routine post surgery check is required only if abnormal pacemaker function is seen during the surgery
3. Rate Response only needs to be disabled in devices that use minute ventilation as the rate sensor
4. If the pacemaker is programmed to back up pacing at 40 or 50bpm, these patients can have their rates programmed up for the duration of the surgery to facilitate management
5. Defibrillators with transcutaneous (external) temporary pacing equipment should be available in the operating room for all pacemaker dependent patients.
6. **These guidelines apply to surgery >15cm from the pacemaker. If surgery is closer than this in a pacemaker dependent patient please contact the pacemaker clinic for further advice.**

Implantable Cardioverter Defibrillators (ICD's)

ICD physiologists must be advised of any scheduled date and time of surgery, cardioversion or procedures using diathermy. They must be present pre and post operatively to program the device.

The above pacing recommendations apply to ICD's where the pacing has been enabled.

- A magnet applied to an ICD will **not** result in asynchronous pacing.
- A magnet applied will result in temporary inhibition of detection and therefore therapy.

However it is recommended a Pacemaker/ICD Physiologist is notified prior to procedure and is present pre and post procedure.

Additionally:

- Tachycardia detection and therapy need to be disabled to prevent therapy being given for noise detection. Failure to program these will result in the patient receiving shock therapy
- This is usually performed prior to the induction of anaesthesia
- The patient should be monitored and an external defibrillator available with the pads applied
- Therapy must be programmed back on at the end of surgery

Cardioversion and Defibrillation of Pacemaker & ICD Patients

- A Pacemaker/ICD Physiologist must be present to check all pacemakers and ICDs for normal function pre & post procedure.
- Failure to capture, damage to the pacemaker or transient inhibition can occur.
- It is essential that the defibrillation pads should be placed in an anterior/posterior configuration (avoiding a shock pathway through the device) to prevent damage to the pacemaker and ICD.
- In pacing dependent patients reprogramming of the pacemaker/ICD will be required pre cardioversion.
- A defibrillator with transcutaneous temporary pacing ability should be available for all pacing dependent patients.

Pacemaker Information for Patients Undergoing Surgery

Contact details for where this form is to be returned to:		
Fax #:	Ph #:	Name:
Procedure Location/Hospital:		

Patient sticker	Pacemaker Clinic Northshore/Waitakere Hospitals Private Bag 93-503, Takapuna Ph: (09)486 8920 extn 2145 or 2612 Fax: (09)4470173 or extn 4173 Mobile: 021 806985
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Surgical Procedure	
Date and time	
Pacemaker technologists name	

All patients should be monitored with ECG and Pulse Oximetry throughout the procedure

1. Indication for pacing:

2. Underlying ECG rhythm (without the pacemaker):

3. a) Is a magnet required if diathermy is used?	Yes	No
Comment:		
b) Pacemaker response to magnet application:		

4. a) Date of last pacemaker check:
b) Findings at last pacemaker check:
c) Programming at last pacemaker check

5. Does the patient need to have a pacemaker check in the days following the surgery?
Yes No

For further information please phone the pacing team on 021 806985

