NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Perioperative Management Cardiac Implantable Electronic Devices

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

GGC Guidelines for the Perioperative Management of Patients with Cardiac Implantable Electronic Devices[1]

CIED	Cardiac Pacemaker (PPM) including CRT-P	Implantable Cardioverter Defibrillator (ICD) including CRT-D	Implantable Loop Recorder (ILR)
Pre-procedural checks[2]	Ensure a device check has been carried out within 12 months (see under Cardiology on Clinical Portal)	Ensure a device check has been carried out within 6 months (see under Cardiology on Clinical Portal) Inform Cardiac Physiologist of surgery date. QEUH Ext. **83189/83197/83199**	No checks required
Pre-operative measure	Ensure pre-procedural checks have been carried out and accurately documented. No routine pre-operative re-programming is required for non-cardiac surgery	ICD / CRT-D deactivation in reception area[5] **NB Ensure patient remains connected to an ECG monitor & external defibrillator at all times with defibrillation pads attached.**	No action required
Intra-operative measures	Caution with diathermy (NB diathermy interferes with ECG monitoring, and there is potential for temporary pacemaker inhibition) [3,4]	**NB Ensure patient remains connected to an ECG monitor & external defibrillator at all times with defib pads attached.** Caution with diathermy (advice for intra-op use & monitoring as for PPM) [3,4]	No precautions required
Post-operative measures	No routine postoperative PPM / CRT-P check is required	**NB Ensure patient remains connected to an ECG monitor & external defibrillator at all times with defib pads attached.** Keep in high dependency area until ICD / CRT-D reactivated in recovery area.	No action required

1 Refer to British Heart Rhythm Society Guidelines for further information: https://bhrs.com/wp-content/uploads/2021/12/CIED-Surgical-Guidance-Dec21.pdf
2 Document the type of device (PPM vs ICD vs ILR), manufacturer and model, implanting & follow-up hospitals, date of last follow-up, device location (ie R vs L, infraclavicular?)
3 Diathermy use may render the ECG signal temporarily uninterpretable, so **use pulse oximeter or arterial trace to monitor cardiac output throughout the procedure**.
4 Diathermy may temporarily inhibit PPM function. **Use bipolar diathermy when possible.** Ensure that the return electrode is positioned so that the current pathway is far away from the device / leads to minimise the risk. **Apply in short bursts and watch for pacemaker inhibition**. **Apply a magnet to turn on asynchronous pacing if output lost.**
5 ICD's must be deactivated if diathermy use is anticipated as it may induce a shock. **In an emergency case out-of-hours, position a magnet over the ICD device (not the scar) and tape securely to the skin** (this inhibits shocks but not pacing mode). In QEUH General Theatre magnets are stored in the Theatre Coordinator Office opposite Theatre 14. **NB Normal ICD function may not return after the magnet is removed, so keep patient on a cardiac monitor in a high dependency setting until the device can be checked.**