



**Standard Letter**  
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## **TRANSCUTANEOUS ELECTRICAL NERVE STIMULATORS (TENS)**

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### **PACEMAKER (IPG – IMPLANTABLE PULSE GENERATOR)**

The use of a TENS device is not generally recommended because the following may occur:

- Inhibition of pacing if the TENS has a frequency equal to or less than 30 Hz.
- Asynchronous pacing caused by noise if the TENS has a frequency greater than 30 Hz.

If a TENS device is medically necessary, consider the following:

- Continuous medical observation for pacemaker dependent patients.
- Avoid the use of the TENS unit in the thoracic, cervical, shoulder, lumbar and chest areas due to the close proximity of the pacing system (pacemaker/leads).
- Use of bipolar sensing makes interference less likely.
- Place the TENS electrodes as close together as possible.
- Interference to the pacemaker will end when the TENS unit is turned off or disconnected.

Test the pacemaker by connecting the patient to a cardiac monitor or programmer. Activate the TENS unit at the prescribed settings for use. Observe the marker channel or monitor for a changed heart rate.

### **DEFIBRILLATOR (ICD – IMPLANTABLE CARDIOVERTER DEFIBRILLATOR)**

The use of a TENS device is not generally recommended because the following may occur:

- If TENS stimulation is sensed by the ICD at a rate which meets the detection criteria for a tachyarrhythmia, the patient will receive an inappropriate therapy.
- The pacemaker function of an ICD may be inhibited if it senses TENS stimulation. This function will return to normal operation if the TENS unit is turned off or disconnected.

If a TENS device is medically necessary, consider the following:

- Use of a TENS on an ICD patient should be done under medical supervision.
- The risk of an ICD sensing a TENS output may be reduced by placing stimulation electrodes as distant as possible from the implanted leads and device, and by placing the TENS electrodes as close together as possible.
- Avoid the use of the TENS unit in the thoracic, cervical, shoulder, lumbar and chest areas due to the close proximity of the ICD system (defibrillator/leads).

Testing can be performed to determine if detections can be left on. This testing can be done using a Medtronic programmer. Suspend detections for this test and program sensitivity to a more sensitive value than the current permanent setting. View the Marker Channel for inappropriate sensing while TENS stimulation is being delivered. Return to original settings after test if needed.