

Medical and Dental Procedures in Patients with Implantable Cardiac Defibrillators

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- 1. I'm having a medical or dental test or procedure. What should I be concerned about?**

Once someone has a defibrillator, two important issues need to be remembered when undergoing medical or dental procedures. **First**, implantable cardiac defibrillators can detect or be affected by outside electromagnetic signals that might cause it to withhold therapy or these signals could be interpreted by the device as an abnormal heart rhythm, causing it to deliver an unnecessary shock or arrhythmia therapy. In the case of radiation therapy, the presence of the device can interfere with proper radiation therapy delivery. **Secondly**, newly-implanted devices (within three months) on rare occasions have become infected in people who underwent "dirty" dental or surgical procedures (like dental teeth cleaning, tooth extraction, procedures involving the urinary tract or upper GI tract like endoscopy with biopsy, etc.). For such "dirty" procedures, antibiotic prophylaxis (preventative antibiotics before and immediately after) are thought to reduce this risk and might be necessary.
 2. Levels of interference of implantable defibrillators during medical and dental procedures are classified into three categories:
 1. Procedures that are *safe from interfering*
 2. Procedures that can cause *possible interference*
 3. Procedures where *interference is likely*
 3. Procedures that are *safe from interfering*:
 1. **Dental procedures and equipment** such as dental drills, ultrasonic probes to clean the teeth, and dental x-rays
 2. **Diagnostic x-rays, CT (or CAT) scans, mammograms.** If the defibrillator is placed in the upper chest area, the xray equipment may be adjusted to lessen pressure on the defibrillator.
 3. **Fluoroscopy**
 4. Procedures where *interference can be reduced when safety measures are taken*:
 1. **Ultrasound for diagnostic purposes**, including bone density tests
 2. **Ultrasound for therapeutic purposes**: keep the transducer head 10 inches (25 cm) from the defibrillator

3. **Transcutaneous Electrical Nerve Stimulation (TENS)** - uses electrical current to reduce chronic pain
5. Procedures where *interference is LIKELY*:
 1. Before undergoing any of the following procedures, talk with your regular doctor and your heart doctor. The three of you need to determine the risks versus benefits.
 2. **MAGNETIC RESONANCE IMAGING (MRI) IS CONTRAINDICATED** for a person with a defibrillator, meaning it is not safe. Even when the MRI scanner is turned off, a strong magnetic field surrounds it. When you are in or near an MRI room, your defibrillator may be affected.
 3. For the following procedures, your doctor may be able to minimize the interference:
 1. **External defibrillation** (strong electrical shock to the heart) - If this is needed, the medical worker should not place the paddles directly over the defibrillator.
 2. **Electrocautery** (stops bleeding using electrical current during surgery)
 3. **Diathermy** (heat treatment during surgery)
 4. **Lithotripsy** (crushing of stones using electricity, usually in the gall bladder or urinary tract)
 5. **Radiation Therapy** (often used in cancer treatment)
6. *If at any time you have questions, please consult your regular doctor or heart doctor for further information.*

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