

---

## Effect of Dental Equipment on St. Jude Medical Implantable Cardiac Rhythm Devices

### Background

The following information discusses dental equipment that patients with pacemakers and implantable cardioverter defibrillators (ICDs) commonly encounter at dental offices, as well as any possible effects to the pacemaker or ICD from using such dental equipment.

**Ultrasonic scalers:** During normal dental hygiene, the ultrasonic cleaner should have no effect on a pacemaker or ICD. The “Cavitron” brand ultrasonic cleaner has been used on pacemaker and ICD patients uneventfully. Older ferromagnetic ultrasonic scalers and Cavitron branded scalers may cause single beat inhibition on pacemakers programmed to a unipolar sensing mode. Piezoelectric scalers have no effect. Activity rate responsive devices may exhibit increased pacing rates. Single beat inhibition and temporary rate increases are not considered clinically significant. Medical journal articles have not reported specific clinical complications with the ultrasonic cleaners. In addition, verbal reports from dentists who have used the ultrasonic cleaner unit on patients with pacemakers and ICDs reported no effect on the pacemaker or ICD. The ultrasonic transducer (working end) and cabling should be kept at least six inches away from the implanted device and any associated cords should not be draped over the patient’s chest or near the implant site.

**X-rays:** Traditional dental X-ray equipment should not interfere with pacemakers or ICDs; however, the standard procedure of covering the patient’s chest with a lead vest is recommended.

**Drills:** Neither air-powered nor electrically operated drills should interfere with pacemakers or ICDs, but care should be taken to keep the patient’s chest and implant site free of electrical cords.

**Electrosurgery unit:** Like electrocautery, electrosurge units inject electrical signals into the patient’s tissue that could be sensed by the device. The electrical signals can either be interpreted as “noise,” resulting in asynchronous pacing in a pacemaker or a noise reversion in an ICD that temporarily disables tachycardia therapy, or as cardiac events, which can result in possible temporary pacing inhibition in pacemakers and ICDs and/or the delivery of an inappropriate therapy in ICDs. Again, avoid draping cords over the patient’s chest. If inhibition should occur, switching the test equipment to “Off” will stop the interference and the device will automatically pace as usual. The patient should be alert for symptoms like those before the device was implanted (e.g. dizziness, light-headedness, etc.). For ICDs, a magnet can be placed over the device to prevent inappropriate therapy. Once the treatment session is completed, the magnet should be removed.

**Apex Locator:** The Apex locator is battery operated and should not interfere with pacemakers or ICDs.

If you have any questions on this topic, please contact St. Jude Medical Technical Services at 800-722-3774.