



COLLEGE OF
DENTAL HYGIENISTS
OF MANITOBA

INTERPRETATION GUIDELINE: Clients with Cardiac Pacemakers

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The College of Dental Hygienists of Manitoba is responsible for developing professional resource documents for dental hygienists and in serving the public interest. Council approves these documents, of which, the purpose is to explain, enhance, add, or guide dental hygiene practice in accordance with The Dental Hygienists Act and Regulation. It is the responsibility of the dental hygienist to understand and comply with these documents.

College of Dental Hygienists of Manitoba's Interpretation Guideline: Clients with Cardiac Pacemakers

Purpose

To provide current guiding principles for care of clients with a cardiac implanted electrical device (CIED), such as a pacemaker or an implantable cardioverter defibrillator (ICD).

Background

- The presence of a CIED, such as a pacemaker or ICD, indicates a compromised heart condition. CIEDs can provide cardiac resynchronization therapy (CRT).
- Clients who have a CIED are provided with a device identification card by their cardiologist which contains information on the model, mode of operation, serial number, manufacturer, and date of implantation, as well as medical contacts.
- Pacemakers and ICDs are sensitive to strong electromagnetic signals that may temporarily interfere with function.
- Most CIEDs are now designed with safeguards that include electronic filters or shields that insulate in the presence of electromagnetic interference (EMI). However, there is evidence, although limited, that some equipment used in dental and dental hygiene care may cause interference for patients or staff who have implantable cardiac devices.
- Some evidence exists that cellphones, and other personal electronic devices such as fitness trackers, wearable smart devices, and even electronic cigarettes, may interfere with CIEDs¹.
- Consideration should be given to the possible effects ultrasonic or electronic devices could have on dental patients or staff who have implantable cardiac devices. Some manufacturers (Apple²) offer recommendations on use of their devices in the vicinity of such implants.
- One ICD and pacemaker manufacturer, Boston Scientific³, suggests dental chairs with magnetic headrests, may need to be avoided for patients/staff with CIEDs.

Requirements

- Dental hygienists perform a thorough medical and health history, including information contained in the CIED identification card, along with underlying disease condition(s).
- Dental hygienists consult with a client's treating cardiologist, when necessary, for clients reporting having a pacemaker, or any other implanted cardiac device, prior to initiating dental hygiene care.
- The American Heart Association (AHA)⁴ has classified the pacemaker and ICD as a negligible risk factor for infective endocarditis and does not recommend prophylactic

¹ The US Food and Drug Administration (FDA) (2021)

² *Apple published warning Oct 4, 2023; potential interference with medical device*

³ *Boston Scientific Electromagnetic Compatibility Guide (2017), Page 25*

⁴ *American Heart Association, CIED and antibiotic prophylaxis for dental procedures*

antibiotic coverage for dental hygiene treatment, unless, upon medical consultation with the client's cardiologist, it is recommended.

- Epinephrine or other vasoconstrictors are contraindicated in all intractable arrhythmias and should be used with caution (reduced dose with careful monitoring) in clients with pacemakers and ICDs.
- Current evidence suggests that a distance of at least 15 centimeters (approx. six inches), should be maintained between a CIED and any dental or other device⁵ that may cause interference, such as ultrasonic scalers, ultrasonic baths, apex locators, Transcutaneous Electrical Nerve Stimulators (TENS), cell phones, fitness trackers, wearable smart devices, etc., and the associated cords or chargers for these devices.
- Guidelines from the British Heart Rhythm Society (2022)⁶, suggests dental hygienists should consider using dental devices, such as ultrasonic scalers, for short bursts to minimize any potential risk.

*This interpretation guideline reflects current knowledge and is subject to periodic review and revisions with on-going research.

⁵ The US Food and Drug Administration (FDA) (2021) and Apple (2023) issued a precaution for clients [or dental staff] with pacemakers and other implanted medical devices, to keep any consumer electronic devices, including cell phones, fitness trackers, wearable smart devices, wireless earbuds, and even electronic cigarettes (including charging cords/devices), a minimum of 15 centimetres (6 inches) away from pacemakers and implanted cardiac devices. There has been some limited evidence that these devices “contain magnets that can produce magnetic fields with sufficient strength to affect CIED performance”.

⁶ Guidelines for the peri-operative management of people with cardiac implantable electronic devices. Guidelines from the British Heart Rhythm Society

References

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3. College of Dental Hygienists of Ontario. (2016). *CDHO Factsheet: Cardiac Implantable Electrical Devices*. Retrieved from: <https://cdho.org/factsheets/cardiac-implantable-electronic-devices/>
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