



COLLEGE OF
DENTAL HYGIENISTS
OF MANITOBA

INTERPRETATION GUIDELINE: Clients with Cardiac Pacemakers

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The College of Dental Hygienists of Manitoba, Professional Practice Committee is responsible for developing professional resource documents for dental hygienists. 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 Regulations. 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.

Applicable Legislation

According to the CDHM Competencies, registrants of the CDHM have the ability to:

- identify clients at risk for medical emergency (Assessment #8)
- assess the practice environment for safety risks (i.e., for clients, the dental hygienist and others) (Assessment #59)
- assess the practice environment for emergency measures (i.e., for clients, the dental hygienist and others) (Assessment #60)
- demonstrate awareness of and compliance with the policies of the practice environment (e.g., infection control procedures, safety guidelines, emergency preparedness, etc.) (Assessment #67)
- apply principles of risk management for client health and safety (e.g., universal precautions, considering latex allergies, etc.) (Implementation #56)
- ensure the provision of care in emergency situations (Implementation #58)
- document health and safety incidents (Implementation #59)
- advocate for practice policies that enhance safety and optimal provision of dental hygiene services (e.g., improved infection control protocols, zero tolerance, etc.) (Implementation #67)

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](#)

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

References

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