



# Automated External Defibrillators (AEDs) – A Life-Saving Investment

Paramedic David Goodman explains why an AED is a must-have for every dental office.

Dentists are no strangers to medical emergencies occurring in their practices. As a paramedic, I have dealt with numerous medical emergencies in dental clinics ranging from mild problems to severe and life-threatening ones. According to an American study published in JADA<sup>1</sup>, an incidence rate of 7.5 medical emergencies per dentist occurred over a 10-year span. Due to the increasing age of our population and the increasing number of patients with health issues, dentists are being exposed to a much higher-risk population than ever before.

## Shocking Statistics

One of the most devastating medical emergencies a dentist and his/her staff will face is sudden cardiac arrest or SCA. Sudden cardiac arrest is one of the leading causes of death in Canada and the United States. It does not discriminate against age, gender, race or fitness level. More people die from SCA each year than from breast cancer, prostate cancer, colorectal cancer, traffic accidents, gun-related deaths and AIDS combined.

Approximately 40,000 Canadians experience SCA each year, with 10,000 of those occurring in Ontario

alone. Seventy percent of all SCAs occur outside of a hospital setting. Children are not immune either; an estimated 5,000 to 7,000 children in the U.S. succumb to SCA annually. Consider the following statistics:

- A dentist will experience, on average, 7.5 medical emergencies every 10 years in his/her practice.
- An individual experiencing an out-of-hospital SCA, has only a three to five percent chance of surviving.
- Brain cells begin to die between four to six minutes post-SCA, with irreversible brain damage occurring between eight and 10 minutes.
- The average response time for Emergency Medical Services (EMS) in urban centres is between nine to 11 minutes, with even longer response times in rural settings.
- If an AED is attached to a SCA patient within five minutes and effective CPR is administered immediately, there is a 73 percent or greater chance of survival.

## Investing in Your Patients' Health

An AED is a small portable device that analyzes the non-beating heart to determine whether or not administering a shock will be beneficial. Ninety per-

cent of heart attack patients first experience an irregular heart rhythm or arrhythmia, of which 50 percent are life-threatening. If these life-threatening arrhythmias are not treated quickly the patient will go into cardiac arrest. The most common arrhythmias are ventricular fibrillation (VF) and pulseless ventricular tachycardia (PVT). The only way to treat either one of these lethal arrhythmias is with a shock from a defibrillator.

If a patient is found to be unconscious and not breathing (no vital signs), or unconscious and gasping, an AED may be used to quickly determine, based on the heart's electrical activity, whether a shock is or is not advised. If a shock is indicated, the device will charge up, within eight to 28 seconds (depending on the brand and model of defibrillator). After charging, the AED operator will depress the flashing shock button which will send energy through the patient's chest, in an attempt to reset the patient's heart into a normal and perfusing heart rhythm.

AEDs are essential additions to any dental office, particularly for practices performing a high volume of extractions and endodontic treatment. These practices have been shown to

have a greater incidence of medical emergencies occurring both during and after such procedures.<sup>2</sup> Several American states, including Florida and Washington, have passed laws requiring the placement of AEDs in dental offices as a “minimum standard of care”.

**Legal Matters**

Liability is often a concern for dentists and other potential buyers of AEDs. *The Chase McEachern Act, 2007*,<sup>3</sup> protects health-care providers, such as dentists, from civil liability.

In the Act, it describes persons covered in the following manner:

(2) Subsection (1) applies to,

(a) a health-care professional, if the health-care professional does not use the defibrillator at a hospital or other place having appropriate health-care facilities and equipment for the purpose of defibrillation; and

(b) an individual, other than a health-care professional described in clause (a), who uses a defibrillator at the immediate scene of an emergency.


**Nuts and Bolts**

AEDs are a technological marvel. These devices are smart and maintenance-free, using the same battery technology as in a camera. One push of a button turns the device on and activates audible voice instructions. Instructions are paced to the users’ actions; the pads are the eyes of the device and determine whether a shock is indicated. If indicated, the device directs you to push the flashing shock button. AEDs can be used on anyone, including children, over the age of one. According to the American Heart Association, “Children over the age of eight can be treated with a standard AED. For children ages one to eight, the AHA recommends the pediatric attenuated pads that are purchased separately”.<sup>4</sup>

The Heart and Stroke Foundation of Canada states that “Currently there is evidence to support a recommendation to use AEDs for children over the age of one...”<sup>5</sup>.

**My Recommendations:**

- Make an educated and informed decision when purchasing a defibrillator — cheaper is not always better. They may range in price from \$2,000 to \$4,000, fully stocked with spare pads and battery.
- Most are sold with a five-year warranty, but always ask before purchasing.
- Establish a relationship with a reputable company. It should have a medical professional on staff who can develop, implement and maintain your AED program.
- Implement yearly CPR and AED certification for all the staff at your clinic, ensuring everyone is properly trained and ready to spring into action at a moment’s notice.

Are you doing everything you can to ensure the safety of your patients, your staff and yourself? 

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**References**

1. Fast TB, Martin MD, Ellis TM. Emergency preparedness: a survey of dental parishioners. *JADA*1986; 112:499-501.
2. Management of Medical Emergencies in the Dental Office: Conditions in Each Country, the Extent of Treatment by the Dentist. Daniel A Haas, Professor and Associate Dean, Head of Dental Anesthesia, Faculty of Dentistry, University of Toronto. *Journal of Japanese Dental Society of Anesthesiology* (2005;33:153–157). Copyright 2005, Japanese Dental Society of Anesthesiology
3. Chase McEachern Act (Heart Defibrillator Civil Liability), 2007: <http://www.canlii.org/en/on/laws/stat/so-2007-c-10-sch-n/latest/so-2007-c-10-sch-n.html>. This information can be found in the 2007 Health System Improvement Act, Bill 171 under Schedule N-Chase McEachern Act (Heart Defibrillator Civil Liability) 2006.
4. American Heart Association <http://www.americanheart.org/presenter.jhtml?identifier=1200000> <http://www.americanheart.org/presenter.jhtml?identifier=3011859>
5. Heart and Stroke Foundation of Canada: <http://www.heartandstroke.com/site/c.ikiQLcMWJtE/b.2796497/k.BF8B/Home.htm?src=home>

