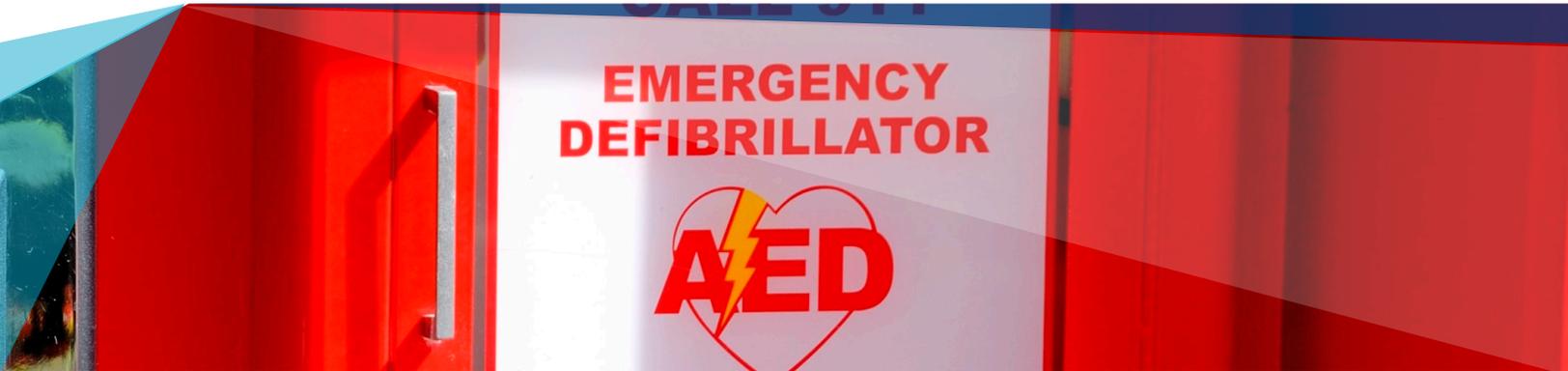


## ONSITE DEFIBRILLATORS: BENEFIT OR BURDEN?



According to Statistics Canada, nearly 40,000 cardiac arrests occur each year in Canada — one episode every 12 minutes<sup>1</sup> — which accounts for 29% of all deaths in Canada.

While studies have shown that the most common place for cardiac arrest to occur is within the home, public facilities such as private businesses, shopping malls, and sporting complexes have also been implicated as being high-incident areas.<sup>2</sup>

In Ontario, the Workplace Safety and Insurance Board (WSIB) reports that there has been an average of 200 claims of heart attack within the workplace over the last three years. This data shows that an organization with 200 employees at an average age of 40 can expect at least one cardiac arrest in the workplace annually.<sup>3</sup>

Since less than five percent of cardiac arrest victims<sup>4</sup> survive an out-of-hospital cardiac arrest, installing Automatic External Defibrillators (AEDs) is an effective strategy to help improve the chances of survival.

<sup>1</sup> Heart and Stroke Foundation. (2011). Position Statement: Public Access to Automated External Defibrillators (AEDs). Retrieved on April 5, 2013 from: <http://www.heartandstrokefoundation.com>

<sup>2</sup> Public Access Defibrillation Trial Investigators. (2004). Public Access Defibrillation and Survival after Out of Hospital Cardiac Arrest. *N Engl J Med* 2004;351:637-.

<sup>3</sup> Heart and Stroke Foundation Statistics. Retrieved on April 5, 2013 from: <http://www.heartandstrokefoundation.com>

### DEFINITION OF TERMS

**Cardiac Arrest:** Sudden and unexpected loss of heart function.

**Automated External Defibrillator (AED):** a small portable machine that can be used to identify cardiac rhythms and deliver a shock to correct the abnormal electrical activity in the heart. If a shockable rhythm is not detected, a shock can not be delivered.

**Cardiopulmonary Resuscitation (CPR):** emergency medical procedures for the purposes of restoring normal heartbeat and rhythm to victims of heart failure, near drowning, or any other untoward event resulting in cardiac (heart) or respiratory (breathing) arrest, in an effort to maintain circulation and oxygenation to the vital organs such as the brain.

**Arrhythmia:** Abnormal heart rhythm such as ventricular fibrillation, which is the most common cause of heart attacks.

**Chain of Survival:** refers to the series of actions that when put into motion, can reduce the risk of mortality associated with cardiac arrest. There are four independent links in the chain of survival:

- Early access
- Early CPR
- Early defibrillation
- Early advanced cardiac life support (ACLS).

**Bill 41:** also known as the Defibrillator Access Act (in Ontario), proposes mandatory AEDs in all public places.<sup>1</sup>

<sup>1</sup> Legislative Assembly of Ontario. (2010). Bill 41: The Act to provide for defibrillators in premises accessed by members of the public.

A 2004 study in the *New England Journal of Medicine* showed that training and equipping volunteers and personnel to “initiate early defibrillation in a structured response system can increase the number of survivors” following cardiac arrest in a public location.<sup>4</sup>

## LIABILITY CONCERNS

Not surprisingly, one of the greatest barriers of the installation of AEDs in the workplace is related to liability. In Canada, many provinces have instituted “Good Samaritan laws” that legally limit the types and scope of negligence lawsuits permissible in a court of law; by those laypersons who provide emergency medical care.

In Ontario, the Chase McEachern Act (2007) was introduced after the tragic death of an 11 year old boy. This act, also known as the Heart Defibrillator Civil Liability Act (2007), protects those individuals from liability in the process of providing assistance to someone using, or making available, a defibrillator in an emergency situation (under certain conditions). Other provinces, such as Manitoba, are taking things one step further by mandating the installation of AEDs in public places. Owners of the premises designated under the Manitoba Defibrillator Public Access Act will be required to install AEDs on their premises by January 31, 2014.

In the US, all 50 states have instituted Good Samaritan laws giving at least some immunity to lay people who engage in lifesaving situations. At the federal level, the Cardiac Arrest Survival Act (2000) is the first legislation in the US that recognizes the lifesaving role of AEDs. It highlights the importance of utilizing these devices by laypersons and augments the Good Samaritan laws by providing federal liability protection for those who have been trained in AED use.

By 2010, all jurisdictions in the United States had enacted laws for public access defibrillators.<sup>5</sup> The American Hospital Association recommended that all states provide civil liability immunity to lay rescuers who “act in good faith, without specific compensation, as a reasonable and prudent person, with the same level of training would respond in an emergency.” Interestingly, when analysing the legal implications and liability exposures associated with AEDs, issues have risen primarily from not having readily accessible AEDs and trained staff on the premises when faced with a cardiac arrest situation.<sup>6</sup>

4 Weisfeldt, M.L., Everson-Stewart, S., Sitlani, C., Rea, T. et al. Ventricular Tachyarrhythmias after Cardiac Arrest in Public versus at Home. *N Engl J Med* 2011;364:313-21.

5 Gilchrist, S., Schieb, L., Mukhtar, Q., Valderrama, A., Yoon, P., Sasson, C., et al. A Summary of Public Access Defibrillation Laws, United States, 2010. *Prev Chronic Dis* 2012;9:110196.

6 Konig, B., Benger, J., & Goldworthy, L. Automatic external defibrillation in a 6 year old. *Arch Dis Child* 2005;90:310-311.

## WHAT TO CONSIDER WHEN INSTALLING AN AED

Making the decision to install AEDs on the premises demonstrates an organization’s commitment to — and value of — its employees and patrons by ensuring their safety, security, and wellness. Making this decision is nonetheless, multifaceted. It requires the undertaking and consideration of several key points:

### WHERE TO INSTALL THE UNIT?

While there is no hard and fast rule about the placement of AEDs, there are some recommendations. Location should consider the “three-minute rule.” Both the American Hospital Association and American Red Cross recommend placement so that the AED can be retrieved, returned to the person with the first shock delivered within three minutes of collapse. This is also known as the “collapse-to-shock” cycle.

### WHAT KIND OF SIGNAGE IS REQUIRED?

The Sudden Cardiac Arrest Association recommends that AEDs should be placed in highly visible and clearly marked locations, for example, near or close to elevators, exits, telephones, fire extinguishers, or highly populated areas. Signage should clearly stipulate the presence and location of the devices as well as give visual cues to the location.

### HOW MUCH WILL IT COST?

The cost of AEDs has decreased significantly in recent years. With multiple manufacturers, models, and devices to choose from, most can be purchased for well below \$2,000. Models selected should be semi-automated and suitable for use in both adults and children since there have been case studies that have demonstrated that the use of an AED on children as young as six years old has proven to save lives.<sup>7</sup> One additional cost to consider: it is advisable to have an extra set of both paediatric and adult pads on hand at all times.

### HOW MANY AEDS SHOULD BE INSTALLED?

While there are no current regulations that stipulate the number of or quantity of AEDs on the premises, as a general rule, quantity should be determined by the “three-minute rule.” This may mean that more than one AED will need to be installed to maintain this critical turnaround time.

## HOW ARE UNITS INSTALLED?

Unit installation is straightforward and minimally cumbersome. Given the nature of the devices, security cabinets can be purchased for added protection and security.

## WHO IS RESPONSIBLE FOR THE MAINTENANCE OF AEDS?

It is the responsibility of the owners of the premises to inspect and maintain AEDs in good working order. As per the regulations and manufacturer's instructions, inspection should be done monthly with daily spot checks. All inspections should be kept on record for at least one year.

## IS SPECIAL TRAINING REQUIRED FOR AEDS?

According to recommendations by the Heart and Stroke Foundation, organizations should ensure that all employees, if possible, have the necessary skills to perform CPR and use an AED. Each province has its own legislation that mandates the number of personnel who must have formal training in first aid and or CPR.

## OTHER NOTEWORTHY POINTS

Having an AED installed on the premises requires action plans and procedures that will allow for the seamless activation, deployment, and action required to manage these critical events – this often requires coordination with external resources including local Emergency Medical Services (EMS). Registering the devices with the local EMS database will allow emergency dispatchers to note the presence of the device on the premises and can inform the callers and potentially provide direction or instructions on its use prior to the arrival of EMS.

## CONCLUSION

Sudden cardiac arrest can occur anywhere, anytime. The availability and early deployment of AEDs on premises have been proven to save lives and improve the survival rate of those who experience a sudden myocardial infarct or cardiac arrest.

Although it has been mandated by some provinces that all designated public places have AEDs on the premises, not all provinces or states have similar mandates. An organization can, with minimal exposure to liability, take the step to improve the health and safety of its employees and patrons by installing an AED on their premises. However, it is critical to understand that installing these devices is only the first step. Organizations must take an active role to ensure that the appropriate policies and procedures are in place, and that they are in full compliance with the regulatory requirements as determined by local legislation and manufacturer's instructions.

By installing on-premise AEDs, organizations offer a clear demonstration to their employees and patrons of the critical priority they place in the health, safety, and well-being of their most valuable assets: their human capital.



For more information, please contact your local Marsh representative or visit [www.marsh.ca](http://www.marsh.ca)

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