

## Health and Safety Programs

# First Aid - Automated External Defibrillator (AED)

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## What is an Automated External Defibrillator?

An automated external defibrillator (AED) is a portable electronic medical device used on a person experiencing sudden cardiac arrest, a condition where the heart unexpectedly stops beating.

Please see the OSH Answers "[First Aid – General](#)" for more information on first aid requirements.

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## How does an AED work?

A sudden cardiac arrest happens when the heart has abnormal or irregular heart rhythms causing the individual to lose oxygen and blood flow to the brain and other vital organs. AEDs are programmed to automatically detect these abnormal rhythms and deliver a controlled electric shock, known as defibrillation, to reset the heart back into a normal rhythm.

According to the Heart and Stroke Foundation of Canada, the immediate use of an AED along with cardiopulmonary resuscitation (CPR) can increase the chance of survival by 75% or more.

There are various types of AEDs and manufacturers. Regardless of the manufacturer or the model, they function in the same manner once the unit is powered on.

The AED machine consists of sticky pads with electrodes (sensors) which are applied to the chest of the person having a cardiac arrest. The electrodes analyze the person's heart rhythm and sends this information to the processor in the AED to determine if an electric shock is needed. If it detects abnormal heart rhythms, the device sends an automatic controlled shock through the electrodes to the heart.

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## Is there legislation requiring AEDs in the workplace?

In Canada, currently there is no occupational health and safety (OHS) legislation that specifically requires employers to have AEDs installed in the workplace.

While it is not mandated, some jurisdictions may have guidance. For example, the Alberta OHS legislation requires the employer to do what is reasonably practicable to ensure the health and safety of employees at the worksite and encourages the use of AEDs for emergencies in the workplace. When considering the use of AEDs at the workplace, it is recommended that the employer conduct a hazard assessment to evaluate the appropriate location(s) for installation, the population at risk, and the existing emergency response plans.

Workplaces may opt to include the use of an AED as part of providing first-aid for workers. If an employer opts to offer additional first-aid measures, it is suggested that they first seek legal counsel so that they are aware of any liability issues, and to check with their local jurisdiction responsible for health and safety. It is also recommended to consult with your local public health agency or a first aid training organization for information and assistance in developing your AED program.

Many jurisdictions across Canada are working towards increasing access to AEDs in public places. If your workplace is also considered a public space (such as a community centre, arena, golf course, school, airport, etc.), these requirements may apply.

Currently, British Columbia, Manitoba and Ontario have legislation that requires employers who are owners of designated public places to have AEDs installed. The owner of the designated public place must ensure that AEDs are installed and registered including details of their location with the provincial 911 emergency services. The AEDs must be displayed in conspicuous unobstructed areas to alert the public about the location and use of the AED.

While we try to keep this information current and since legislation is amended from time to time, the AED legislation for your area should be consulted for the most up-to-date information.

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## What should a workplace do if they choose to have AEDs available at the workplace?

If an employer voluntarily chooses to install AEDs, they would be required to operate, inspect, and maintain the device according to the manufacturer's instructions.

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As part of their emergency preparedness and response plan, the employer should have a training program by an approved training agency to make sure that employees are trained in the proper use of the AED. If you have employees who are trained in first aid and cardiopulmonary resuscitation (CPR), they would be the most appropriate candidates for operating the AED.

In a situation where a person unexpectedly collapses, is unresponsive, and not breathing, it is likely that the person is experiencing cardiac arrest. In this case, you should:

1. Immediately call 911 or your local emergency services and ask a bystander to grab the nearest AED
2. Start performing CPR to keep the blood circulating
3. Use the AED as soon as it is available to restart the heart

Performing CPR is essential because it keeps the blood circulating to the vital organs but it does not restart the heart. Only the AED can restart the heart.

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## What are the maintenance requirements for AEDs?

AEDs must be appropriately stored and maintained to make sure they are readily accessible and functional during an emergency. Employers and workers must follow the manufacturer's instructions for use, care, and maintenance checks.

Proper maintenance requires a combination of regular inspection and testing, which includes:

- Inspecting the AED's working status and physical condition
- Checking the AED pads and accessories
- Checking that the batteries are charged
- Cleaning the AED

Review the manufacturer's manual for instructions on how often the battery needs to be replaced. This requirement also applies to rechargeable batteries which lose energy even when the device is not in use. Contact the manufacturer if the device warns you that servicing is needed or if there are any device defects or discrepancies in performance.

Most manufacturers provide a maintenance checklist and testing schedule. It is highly recommended to create a checklist and schedule if your AED manual does not have one. It is also recommended to keep documented records of maintenance checks, repairs, or replacements.

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