



HEART &  
STROKE  
FOUNDATION  
OF MANITOBA

# Public Access to Defibrillation

## Community AED Toolkit



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Heart and Stroke Foundation of Manitoba, 2011



# HEART &<sup>™</sup> STROKE FOUNDATION OF MANITOBA

## **Our Mission**

The Heart and Stroke Foundation, a volunteer-based health charity, leads in eliminating heart disease and stroke and reducing their impact through the advancement of research and its application, the promotion of healthy living, and advocacy.

## **Shocking Statistics**

Combined, heart disease and stroke is the leading cause of death in Manitoba. Approximately 40% of Canadians will die from heart disease or stroke.

## **Foundation-supported programs**

Thanks to research funded by donations to the Foundation, we are now able to look into the beating heart, the living cell, and the functioning brain. Over the past 50 years, Foundation-supported programs have cut the number of premature deaths from heart disease and stroke by 70%.

Since the Heart and Stroke Foundation of Manitoba's inception in 1957, we have:

- disbursed over \$50 million locally to research;
- far surpassed the provincial government when it comes to funding heart and stroke research;
- been recognized as a major authority on heart disease, stroke and resuscitation; and
- become a national community-based organization supported annually by approximately 6,500 Manitoban volunteers.

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# Preface

## Introduction

Placing an Automated External Defibrillator (AED) in your organization or community can potentially save lives. If you are thinking about, or are required to purchase an AED, you may find yourself overwhelmed with questions.

To assist you, the Heart and Stroke Foundation of Manitoba (HSFM) is pleased to provide you with this informational toolkit, designed as a practical guide to help you through the entire process of placing an AED in your community and to answer any questions you may have.

There are many ways to implement a Public Access to Defibrillation (PAD) program. Each community's needs and resources are unique; this toolkit will help you develop a PAD program that is right for your situation.

The goal of all PAD programs is to save lives through increased accessibility to AEDs in our community.

## Aims of the Toolkit

- To provide information about sudden cardiac arrest (SCA) and AEDs
- To share best practices for PAD placements
- To provide a generic "how-to" placement model for all PAD programs; offering step-by-step guidance and advice where applicable

## Note:

Information published in this toolkit is correct at time of print and may be subject to change.

**For additional information about AEDs or to arrange CPR training,  
please contact the HSFM Resuscitation/AED Program Manager  
(204) 949.2033, toll-free 1.888 473.4636, ext 2033  
[resuscitation@heartandstroke.mb.ca](mailto:resuscitation@heartandstroke.mb.ca).**

# Glossary of Terms

<b>AED</b>	An automated external defibrillator is a portable electronic device that can be used to treat a victim of cardiac arrest. An AED evaluates a cardiac arrest victim's heart rhythm, determines if shock is needed and delivers an electric shock through the chest to the heart. Audible and/or visual prompts guide the user through the process. <i>(AED is used in this resource to refer to semi-automatic external defibrillators).</i>
<b>Arrhythmia</b>	It is a disturbance in the rhythm of the heart beat that can cause the heart to beat too fast, too slow, or irregularly.
<b>BLS</b>	Basic Life Support
<b>CPR</b>	Cardiopulmonary Resuscitation – an emergency procedure involving special physical techniques used to pump oxygen rich blood to the brain and other vital organs in the body.
<b>CPR Friends &amp; Family™</b>	Mini-Anne Self-Instructional Training Kit – designed to teach core CPR skills and AED usage.
<b>Defibrillation</b>	The controlled delivery of an electric shock to the heart in order to restore a regular heartbeat.
<b>ECG</b>	Electrocardiogram – a visual tracing of the electrical currents in the heart which initiate the heartbeat. The heart rate is recorded using an electrocardiograph and electrodes attached to the chest.
<b>EMS</b>	Emergency Medical Services
<b>HSFC</b>	Heart and Stroke Foundation of Canada
<b>HSFM</b>	Heart and Stroke Foundation of Manitoba
<b>ICD</b>	Implantable Cardioverter Defibrillator – a small device that is surgically implanted in the chest and functions like an AED to administer a shock when an irregular heart rhythm is detected.
<b>PAD</b>	Public Access to Defibrillation
<b>SCA</b>	Sudden Cardiac Arrest – a condition in which the heart abruptly and without warning, stops beating. In this state, the heart fails to pump blood to the brain and other vital organs in the body.
<b>VF</b>	Ventricular Fibrillation – is a type of abnormal heart rhythm which causes the heart to beat rapidly and chaotically. The heart stops pumping blood effectively and requires a shock to stop it and return the heart to a normal rhythm. Abnormal heart rhythms like VF cause most cardiac arrests.

# Chapter 1: Knowledge

This chapter will provide you with information on the following:

- The function of the heart
- Sudden cardiac arrest (SCA)
- The difference between sudden cardiac arrest and a heart attack
- How SCA is treated
- The Chain of Survival™
- Automated External Defibrillators (AEDs)
- The Good Samaritan Protection Act (Bill 214)



# The Function of the Heart

## Anatomy of the heart

A normal heart is a strong muscular pump. It weighs between 200-425 g (7 and 15 oz) and is a little larger than the size of your fist. During an average lifetime, the human heart will beat more than 2.5 billion times. The average heart beats about 100,000 times each day and pumps about 7,200 litres (1.900 gallons) of blood.

Your heart sits between your lungs in the middle of your chest, behind and slightly to the left of your breastbone. A double-layered membrane called the pericardium surrounds your heart like a sac. Blood loaded with oxygen comes from your lungs and enters your heart. To function, your heart needs a continuous supply of oxygen and nutrients, which it gets from the blood that is pumped through the coronary arteries.

## Function

Your heart and circulatory system make up your cardiovascular system. Your heart pumps blood to the organs, tissues, and cells of your body, delivering oxygen and nutrients to every cell and removing carbon dioxide and waste products made by those cells. Oxygen-rich blood is carried from your heart to the rest of your body through a complex network of arteries, arterioles and capillaries. Oxygen-poor blood is carried back to your heart through veins.

## How it works

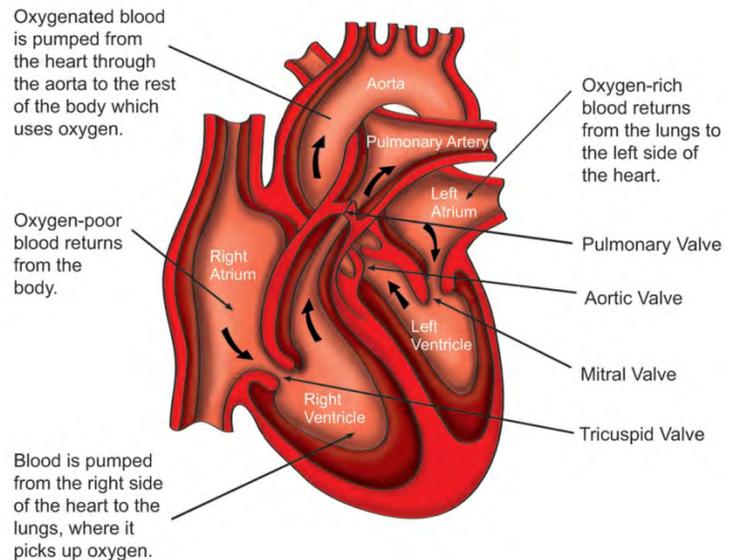
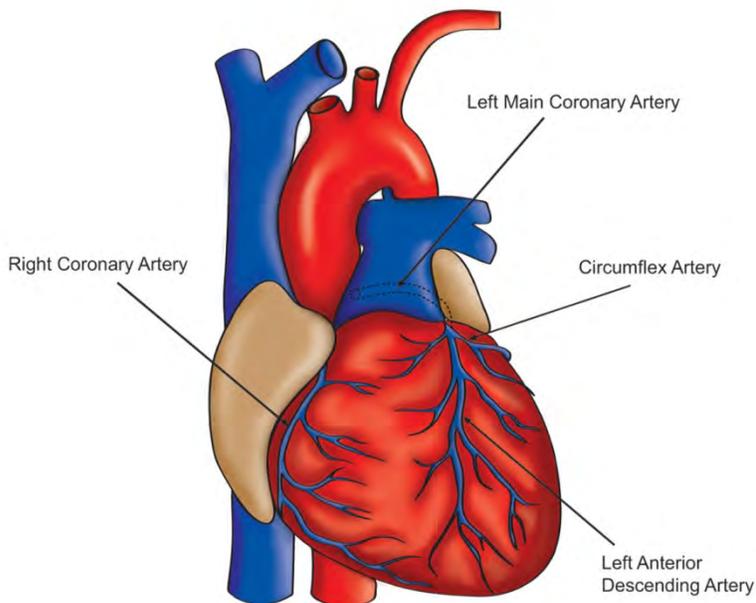
Your heart is a pump with four chambers. The upper chambers are called the left and right atria, and the lower ones are the left and right ventricles. A wall of muscle called the septum separates the left and right atria and the left and right ventricles.

The left ventricle is the largest and strongest chamber in your heart. It can push blood through the aortic valve and into your entire body.

The right two chambers of your heart (right atrium and right ventricle) pump blood from the heart to the lungs, so blood cells can pick up a fresh load of oxygen in exchange for the waste they've collected during their trip around the body. The oxygen-rich blood returns to the left chambers of the heart (left atrium and left ventricle), which then pump it around the rest of the body.

As the heart muscle relaxes, the two top chambers (the atria) fill with blood. These chambers then contract, squeezing blood down into the ventricles. The ventricles also then contract and send blood flowing out of the heart, either to the lungs or throughout the body.

# The Function of the Heart



## What happens during a heartbeat

In a normal heart, the electrical impulse that starts the heartbeat begins in a group of cells called the sinus node (or the SA node for short), in the right atrium. The SA node is often called the pacemaker of the heart. It works something like the spark plug in a car engine, producing the electrical signals that make the heart pump. The SA node generates a number of signals each minute in response to the body's needs. The resting heart rate is usually about 60 to 80 beats per minute.

After a burst of electricity is generated, it spreads out through the top half of the heart (the atria), almost like ripples spreading out from a stone dropped into a pond. This signal makes the upper chambers or atria contract. As they do, the blood inside them is squeezed out into the lower chambers of the heart – the ventricles.

Meanwhile the electrical signal that made the atria contract has reached the AV (atrioventricular) node, in the lower part of the right atrium. The AV node is the electrical connection between the atria and the ventricles. It holds the electrical signal for a moment, like a relay station, so the blood from the atria can be pumped into the ventricles. Then, it sends the signal to the lower chambers of the heart, making them contract. As the ventricles contract, they send blood pumping out with great force. The electrical signal has now passed through the upper and lower chambers of the heart, making them contract. This is one heartbeat. This electrical activity produces electrical waves that can be measured using a heart test called an electrocardiogram (ECG or EKG).

# Sudden Cardiac Arrest

## What is sudden cardiac arrest?

Sudden cardiac arrest (SCA) occurs when the heart unexpectedly stops beating effectively. SCA is a major cause of death in Manitoba. It can happen at any age. It can happen anywhere and anytime, but it usually happens in the home, workplace, or community, away from the advanced life support available in the hospital environment.

In sudden cardiac arrest, the heart no longer pumps blood to the brain. Without the oxygen and nutrients supplied by the blood, brain cells begin to die within minutes, and death soon follows. Cardiopulmonary resuscitation (CPR) can help maintain oxygenation and blood circulation, but unless defibrillation is performed quickly, survival is unlikely.

For a few minutes before the heart stops completely, it usually goes into a rhythm called ventricular fibrillation (VF), a fluttering of the heart muscle. During VF, it is often possible to shock the heart back into a normal rhythm with a device called an Automated External Defibrillator (AED). The AED analyzes the heart's electrical activity through pads applied to the chest and determines if a shock is needed. The window of opportunity for using an AED is small – defibrillation is more successful if performed within three minutes of the cardiac arrest. Studies show that the chances of survival decrease 7-10% with every minute that passes after the arrest.

## Cardiac arrest is not a heart attack.

Many people confuse cardiac arrest with having a heart attack, but they are different. When a person has a heart attack, the blood supply to the heart is slowed or stopped due to a blockage. In cardiac arrest, however, a person's heart stops beating and breathing stops as well.

Cardiac arrest doesn't discriminate. It can strike anyone at any time in any place. Even people who are healthy and fit can succumb to a cardiac arrest, and without an AED, they are unlikely to survive.

## Causes of cardiac arrest can include:

- heart disease
- stroke
- electrocution
- motor vehicle accident
- a heart defect (often undetected)
- heart attack
- drowning
- suffocation
- other types of injury
- unknown reasons

# Sudden Cardiac Arrest

## Who is affected by sudden cardiac arrest?

SCA strikes without warning, killing 35-45,000 Canadians each year - that's one person every 12 minutes.

## What are the survival rates of sudden cardiac arrest?

In Canada, less than 5% of individuals survive out-of-hospital cardiac arrest.

There is a strong correlation between SCA survival and immediate defibrillation; the sooner the defibrillation occurs, the more likely the SCA victim is to survive. In fact, survival rates fall by 7-10% with every minute that passes without defibrillation.

Since 85% of cardiac arrests occur outside the hospital and most are witnessed by a family member or friend, PAD programs can increase the chances of survival of out-of-hospital cardiac arrests.

While a heart attack is caused when the blood supply to the heart is slowed or stopped due to a blockage, a SCA is caused when the heart's electrical system malfunctions and a person's heart stops beating and they stop breathing.

<p><b>SUDDEN CARDIAC ARREST (SCA)</b></p> <ul style="list-style-type: none"> <li>• is caused by an abnormal heart rhythm (in most cases Ventricular Fibrillation)</li> <li>• is always sudden</li> <li>• has no warning signs</li> <li>• victims always lose consciousness</li> </ul>	<p><b>HEART ATTACK</b></p> <ul style="list-style-type: none"> <li>• is caused by a blockage in an artery that supplies blood to the heart</li> <li>• causes heart muscle to die due to lack of oxygen</li> <li>• is preventable</li> <li>• victims are typically awake and alert</li> </ul>
<p><b>SCA symptoms include:</b></p> <ul style="list-style-type: none"> <li>• unresponsive</li> <li>• loss of consciousness</li> <li>• no pulse</li> <li>• breathing has stopped</li> <li>• ventricular tachycardia</li> <li>• ventricular fibrillation (irregular heart rhythm)</li> </ul>	<p><b>Heart Attack symptoms include:</b></p> <ul style="list-style-type: none"> <li>• pain in chest, neck, jaw, shoulder, arms or back</li> <li>• shortness of breath</li> <li>• nausea</li> <li>• sweating</li> <li>• fear</li> </ul>

**Sudden cardiac arrest can strike anyone at any time in any place.  
 Less than 5% of individuals who suffer a SCA out of hospital survive.  
 Survival rates fall by 7-10% for every minute that passes without defibrillation.**

# How is SCA treated?

## **CPR Immediately, AED A.S.A.P.**

When a person is in cardiac arrest, the only way to correct the electrical rhythm of their heart is to provide an electric shock with an AED, which causes the heart to resume its natural rhythm.

Often, an AED is a few minutes away from the victim, and someone will have to go retrieve it. If there is more than one person present, one person should immediately begin cardiopulmonary resuscitation (CPR), while the other goes to get the AED.

While administering CPR cannot restart the heart, it can help to support circulation and ventilation in a victim of cardiac arrest. The pumping action pushes blood and oxygen to the brain and other vital organs in the body, allowing them to continue functioning for a short period of time.

CPR alone is not enough. While CPR can help sustain the brain and organs until an AED arrives, the best method is to employ a combination of CPR with defibrillation. CPR alone has a 5% survival rate compared with a 75% survival rate when coupled with an AED in the first few minutes.

**CPR alone = 5% success rate**

**CPR + AED = 75% success rate**

Further information on AED usage and CPR guidelines are available from HSFC by visiting [www.heartandstroke.ca\CPR guidelines](http://www.heartandstroke.ca\CPR guidelines).



# The Chain of Survival™



## The Chain of Survival™

The Heart and Stroke Foundation of Canada (HSFC) established the Chain of Survival to depict a systems approach to Emergency Cardiac Care. The seven links in the Chain of Survival are:

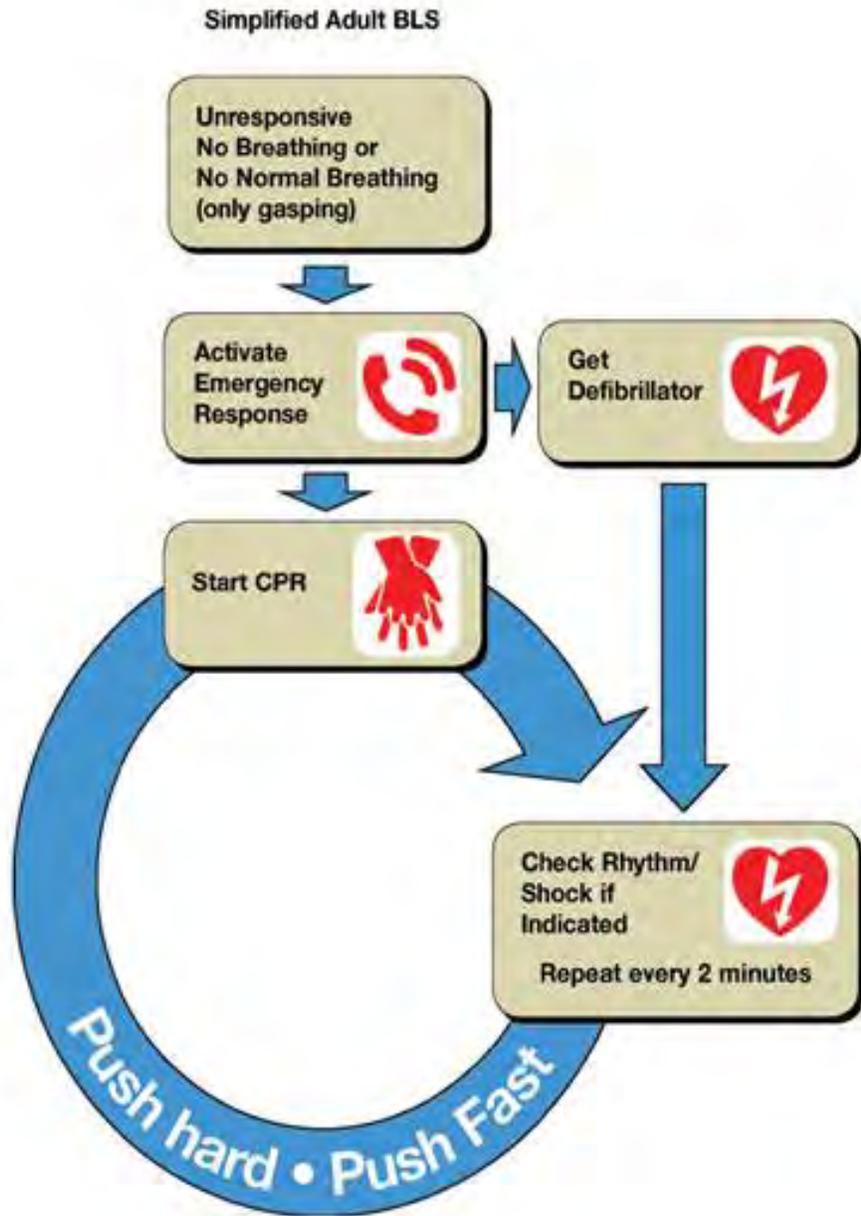
- **Healthy choices** in lifestyle can help reduce the risk of heart disease, stroke, and injury. Eight out of ten Canadians have at least one risk factor for heart disease or stroke, and one in ten have three or more.
- **Early recognition** of the warning signs for heart disease and stroke, and of illness and injury in infants and children, can reduce delays to treatment.
- **Early access** to emergency medical services (EMS) by calling 911 or the local emergency phone number brings trained medical help to the scene.
- **Early CPR** is started as soon as possible on a person who does not have visible signs of circulation (normal breathing, coughing, or movement) and has no pulse, to ensure that the vital organs receive oxygen until trained professionals arrive.
- **Early defibrillation** shocks a heart that has stopped beating effectively and allows the heart to re-set to a normal rhythm.
- **Early advanced care** by trained health care professionals may be provided at the scene, on the way to the hospital, or at the hospital.
- **Early rehabilitation** following a critical event such as a heart attack or stroke may help the survivor, caregivers, and family face new challenges and returns the survivor to a productive life in the community.

The Chain of Survival provides Canadian citizens with the best chance at preventing diseases that affect the blood supply to the heart and brain, and of surviving a heart attack or stroke should one occur. Early defibrillation is the most effective link in the Chain of Survival, but it is only one link in the Chain. An AED program should be part of a larger program to promote healthy lifestyle choices and support community initiatives to strengthen the other links in the Chain.

Early defibrillation is a safe, simple, and effective way to save lives. The likelihood that a person will survive a cardiac arrest decreases 7 to 10% with every minute that defibrillation is delayed. With increased access to AEDs, survival from sudden cardiac arrest can be increased by 75% or more over the use of CPR alone if the AED is used in the first few minutes after the arrest.

**Strengthening each link in the chain helps to prevent Sudden Cardiac Arrest from becoming Sudden Cardiac Death.**

# SCA – CPR - AED



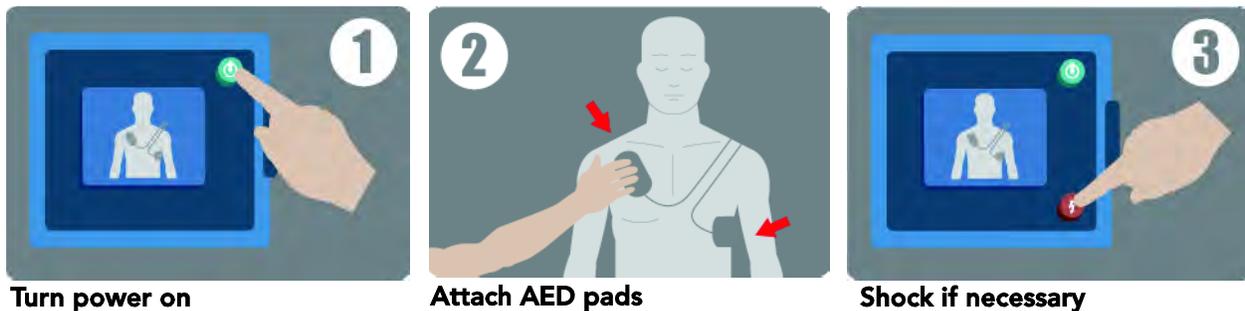
# Automated External Defibrillator

## What is an Automated External Defibrillator?

An AED is an electronic device that can monitor heart rhythms. It can tell if the heart has stopped beating effectively. If required, the machine can then deliver an electric shock to the heart. Most of the time, this shock will restart the heart.

These days, you don't have to be a medical professional to save a life. Automated external defibrillators (AEDs) make it possible for even non-medical personnel to restore heart rhythm and life. When a person is in cardiac arrest the closest AED is always the best one. Rapid defibrillation is essential because during a cardiac arrest, a shock must be administered while the victim's heart is in a shockable rhythm; this is usually only for the first few minutes of SCA.

**You CAN use an AED. It's as easy as 1,2,3!**

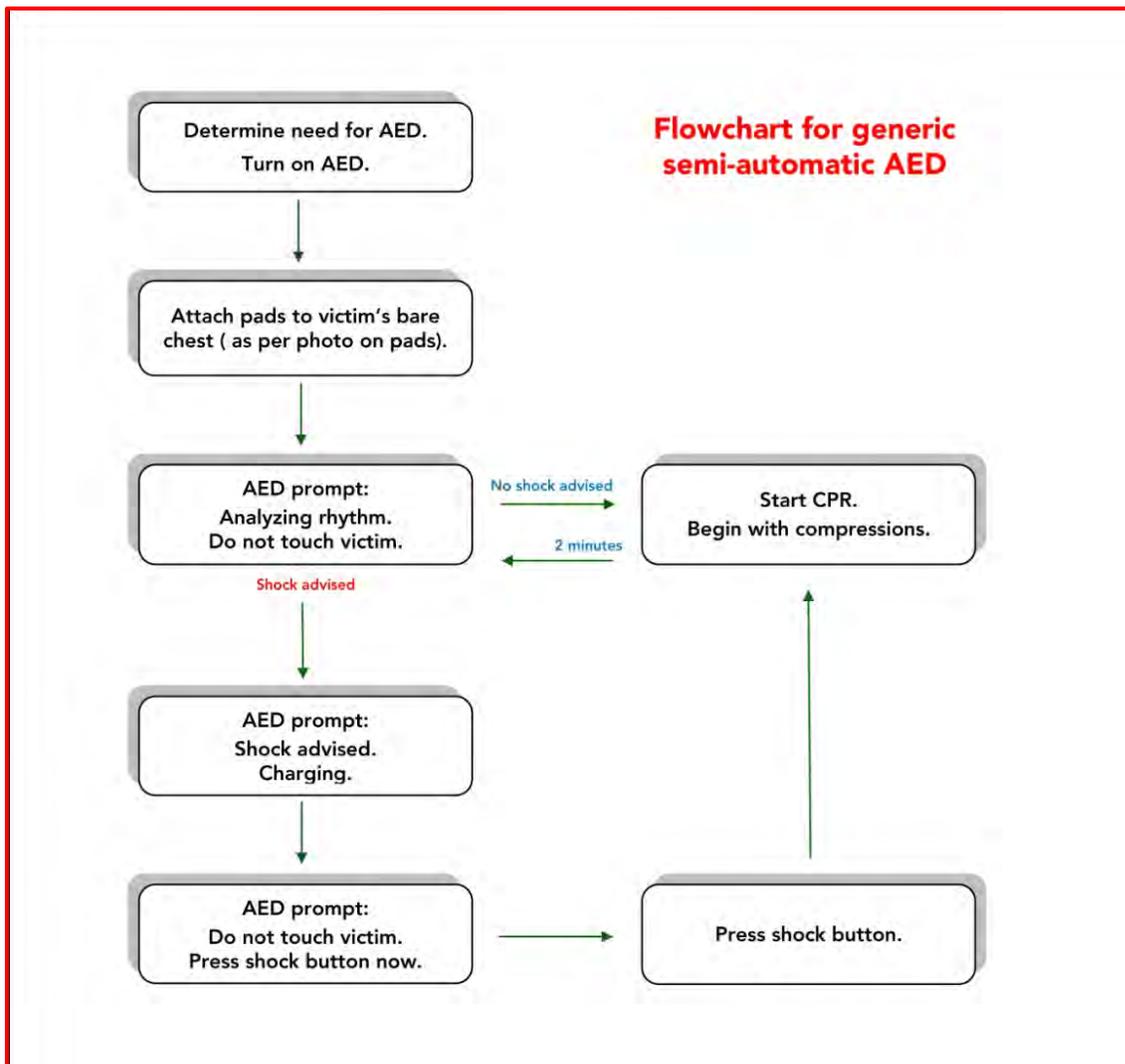


**There are three main universal steps for operating an AED:**

- 1. Turn power on.** Either open the lid or press the power button, depending on the model.
- 2. Attach AED pads to bare chest.** Look at the picture on the AED pads; place them exactly as shown in the picture.
- 3. Shock if necessary.** The machine will tell you to press the flashing button if necessary, or continue CPR if no shock is advised.

AEDs are available in different models, although all AEDs operate in basically the same way. Once the AED is turned on, the unit will coach you through all of these steps.

# Automated External Defibrillator



## What to look for in an AED

- Safe and easy to use
- Automatically determines whether defibrillation is appropriate and analyzes heart rhythm
- Guides user step-by-step and advises if a shock is required
- Portable and effective
- Advises user when to perform CPR



**AEDs are completely safe.** The device gives bystanders step-by-step instructions on what to do in an emergency situation and will only deliver a shock if the heart is in a rhythm that can be corrected by defibrillation. **You cannot hurt anyone with an AED, but you can save a life!**

# The Good Samaritan Protection Act

## You can do it

Physician oversight to use a semi-AED is not necessary in Manitoba, however most provinces and territories have legislation that permits public access programs and legally protects anyone using an AED in an emergency situation. The Legislative Assembly of Manitoba passed Bill 214, The Good Samaritan Protection Act, on December 6, 2006.

This Bill protects a person who voluntarily provides emergency services, aid or advice to a victim of an accident or medical emergency unless gross negligence is a factor.

## The Good Samaritan Protection Act (Bill 214)

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of Manitoba, enacts as follows:

### No liability unless gross negligence

A person who voluntarily provides emergency medical services, aid or advice to the victim of an accident or medical emergency at the immediate scene of the accident or emergency is not liable in damages for injury or death to the victim caused by the person's acts or omissions in providing the medical services, aid or advice unless that person is grossly negligent.

\* For exceptions and to review the Act in full, please visit: <http://web2.gov.mb.ca/laws/statutes/ccsm/g065e.php>.

In June 2011, HSFM was successful in advocating for the introduction of new legislation requiring AEDs be available in high-traffic public places across Manitoba, ensuring citizens have early access to life-saving defibrillation in a sudden cardiac arrest situation.

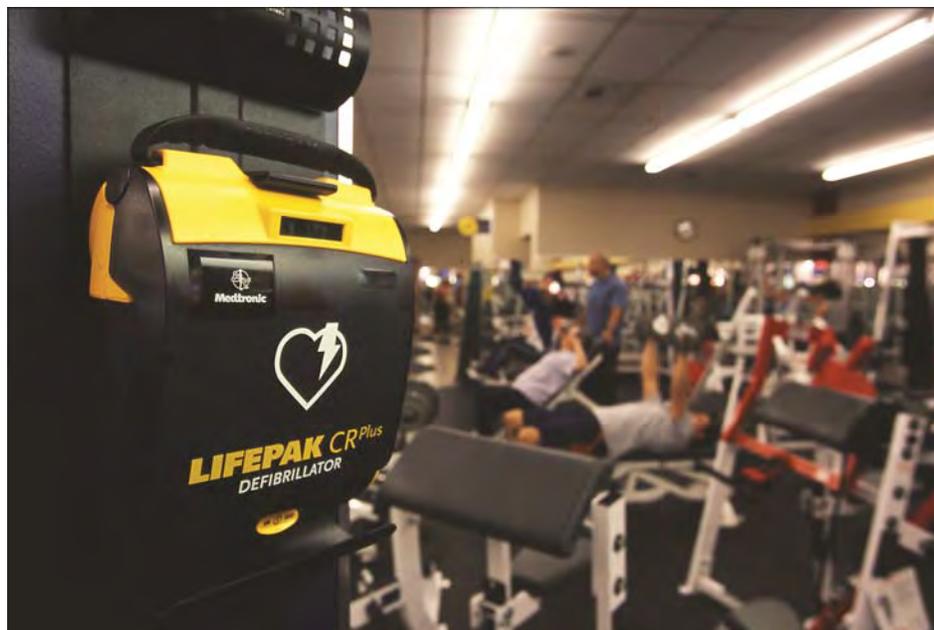
On June 16, 2011 Bill 20, The Defibrillation Public Access Act, became law in Manitoba. This law requires all public places to have a publicly accessible AED on site, and that all AEDs be maintained and registered with the AED Main Registry (currently HSFM). To learn more about Bill 20, visit: <http://web2.gov.mb.ca/bills/39-5/b020e.php>.



# Chapter 2: Implementing a PAD program

This chapter is designed to walk you through the process of getting an AED into your facility or community:

- Selecting an AED
- AED costs
- Long-term costs
- AED cases and wall-mount solutions
- AED signage
- CPR/AED training
- Family & Friends CPR Anytime™ Kit
- Common questions about AEDs



# Selecting an AED

## The process of selecting an AED

Selecting an AED can be overwhelming. There are many different types of AEDs and a number of different distributors to choose from. When researching your AED purchase, keep in mind that the person using the AED will most likely have little or no training. For this reason, you should be looking for an AED that comes with clear and easy-to-understand verbal commands and visual instruction.

Please note: HSFM does not promote any particular make or model of AED.

## Some common features of AEDs:

- Safe and easy to use
- Automatically determines whether defibrillation is appropriate and analyzes heart rhythms
- Guides user step-by-step and advises if a shock is required
- Portable and effective
- Advises user when to perform CPR



## Considerations when purchasing an AED:

- Is the AED distributor a Canadian distributor in good standing with HSFM?
- What is the distributor's warranty for the AED?
- What after sales support does the distributor offer?
- Is the AED semi- or fully-automatic? (In Manitoba, only semi-automatic AEDs are approved for use in public/no medical director.)
- What is the battery life? Are batteries warranted? What are the replacement costs?
- What options are available for pediatric/child needs? (Important for facilities used by individuals under eight-years-old).
- What level of maintenance is required?
- How often must pads be replaced? What is the cost?

To further assist you, check the HSFM Best Practices Form in the Forms and Tools section at the back of this manual.

# AED Costs

## How much does an AED cost?

When starting an AED program, ensure you research all costs involved. The price of an AED varies by make and model. Most AEDs, without accessories, cost approximately \$1,500-\$2,000.

To have a quality PAD program in place, you will also need some accessories. These may include a cabinet, extra pads (adult and pediatric), rescue ready kit (scissors, razor, gloves, mask), signage, training and software tools. Ensure you get pricing on these items as well. Long-term costs should also be considered for your PAD program.

## Long-term costs

AED pads need to be replaced. The length of time between replacements varies from two to five years, depending on the model. However, if you have used the AED pads, you will need to replace the set that was used, regardless of the model. Pads can range in cost from \$50-\$200 per set.

AED batteries also need to be replaced. Length of time between battery replacements will vary depending on the model but ranges between two to seven years. This range of time also depends on the frequency with which the AED is used. Battery costs can range from \$120-\$350.

## AED wall-mount solutions

AEDs are always more effective if everyone knows where they are, and can access them in an emergency. For PAD programs, the most effective way to store your AED is in a secure location on the wall. The easiest way to do this is by placing your AED in a wall cabinet or bracket.

Brackets are simple metal frames that hold your AED on the wall. Surface-mount cabinets are specifically designed to hold AEDs. These sturdy, metal-construction wall cabinets protect and prominently display your AED. A door-activated, audible alarm alerts everyone the AED has been deployed for rescue. Approximate costs: Brackets - \$100, Cabinets - \$325.

## AED wall signs

AED wall signs are an easy way to show individuals where an AED is located. These 3D signs are hung in direct proximity to the AED cabinet or bracket. They are normally hung close to the ceiling to direct anyone to the correct location of the unit. Approximate cost: \$40.

## Pelican case

If your AED will be used in a facility that will not allow the unit to be stationary, a great option is to store it in a Pelican-type case. These cases are made of hard, moulded plastic and are designed to protect the AED from water, dust, and accidental damage. Approximate cost for Pelican-style cases: \$350.

# AED Costs

## CPR/AED training

It is important that there are individuals within your facility or community that are trained on how to use the AED. The units are simple enough for anyone to use but it is important to have someone available that is comfortable with the entire process of the AED in the event there is a problem.

General instructor-led training ranges in price from \$50/person and up. Some organizations choose to use programs such as the Heart and Stroke Foundation *Family & Friends CPR Anytime™ Kit* as a refresher. The kits are \$40 each and include a personal manikin, DVD, book and replacement “lung”.



# CPR Anytime™ for Family and Friends™ Kit

## The Heart and Stroke Foundation CPR Anytime™ for Family and Friends™ Kit

This kit is a personal learning product that teaches lay people, in the comfort of their own homes, the core skills to perform adult and child CPR in just 20 minutes - providing families, friends and communities the skills to save lives.

The Heart and Stroke Foundation's CPR Anytime™ Personal Learning Program allows families, friends and the general public - those who most likely would never attend a traditional CPR course - to learn the core skills of CPR for adults and children in just 20 minutes. The kit also includes an AED demonstration and information on how to help someone who is choking.



## Who should buy a kit?

All Canadians should learn life-saving skills. This kit is an excellent way for anyone to learn CPR but may be especially helpful for you if you are:

- A family member of patients at high risk for cardiac arrest
- A senior, especially those with family members with heart disease
- A parent with young children (not infants)
- Someone who participates in demanding sports such as recreational hockey, basketball and soccer
- An organization that wants to coordinate a training event for your staff

## Each Heart and Stroke Foundation CPR Anytime™ Kit provides:

- A personal, inflatable CPR manikin - "Mini Anne"
- CPR Anytime Skills Practice DVD
- A CPR for Family and Friends booklet
- Accessories for the program
- Features both English and French languages

Learn more at [www.heartandstroke.ca/cpranytime](http://www.heartandstroke.ca/cpranytime).

# Common questions about AEDs

## How will we get the money to purchase an AED?

Community and workplace AED programs have the potential to save lives. Before such programs can be implemented, the issue of funding has to be addressed. Many organizations have budgets for health and safety initiatives that may cover the expense. Other options that should be considered include:

- Local corporations and industries sponsorships/grants
- Local civic organizations (i.e. Lions Club, Kiwanis Club, Legions, Elks Club)
- Private foundations
- Public charities
- Potential government funding programs
- HSFM waiting list program

## Which unit should we buy? From whom?

The Heart and Stroke Foundation of Manitoba does not endorse any particular brand of AED. All AEDs are designed to operate in the same fashion: 1 – Turn on, 2 – Analyze the heart, 3 – Shock if necessary. The best AED will always be the closest one. Each AED offers something unique that distinguishes them from each other.

HSFM keeps an updated list of all AEDs currently approved by Health Canada for use in Canada, as well as a list of local and national distributors that follow the best practices for PAD placement in Manitoba. You may contact HSFM's Resuscitation/AED Program Manager for the most current listings.

### **Important Note:**

Please use caution when shopping online for an AED. AEDS **cannot** be purchased in the United States and imported to Canada. All AEDs in Canada must be purchased from a local Canadian distributor. At the time of this publication, Manitobans have approval for semi-automatic AEDs (SAEDs). Please ensure you are purchasing only these units for use in PAD programs.

# Common questions about AEDs

## How many AEDs will we need?

The number of AEDs needed will differ from facility to facility. In order to achieve the greatest chance of survival, it is the Heart and Stroke Foundation's recommendation that AEDs be within three minutes reach of anyone in the facility. This means that should an arrest occur, a person could recognize the need for the AED, get to the AED and then back to the victim, get the AED on the victim, and be ready to shock them (if applicable) – all within three minutes.

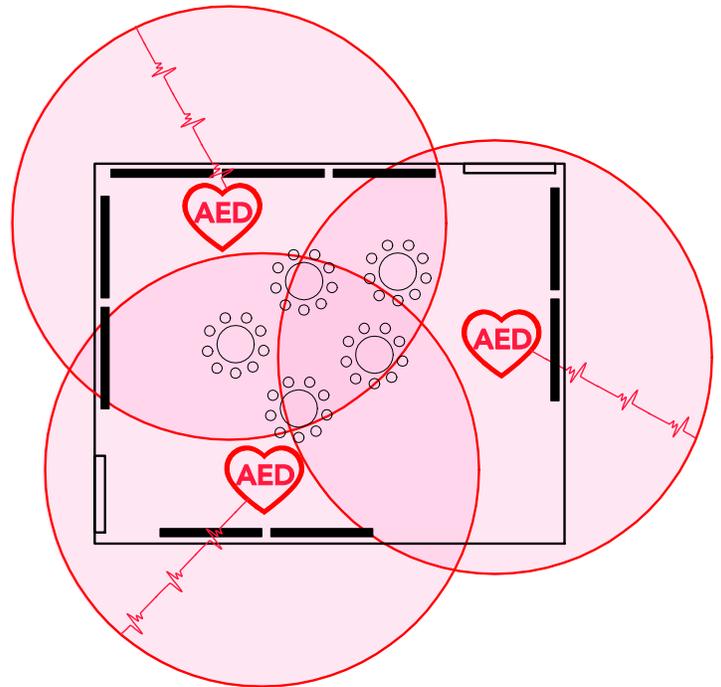
Using the HSFM Site Survey Tool (page 35) will help you determine the number of AEDs your facility will need. See **figure 1** (right) for an example of proper placement of AEDs.

## Who will be responsible for the AED once we purchase it?

In Manitoba, the use of an AED is not considered a medical act, and does not require a medical director. HSFM does recommend that all PAD sites without a medical director designate an on-site AED program coordinator.

This person will be responsible for overseeing the unit – weekly or monthly checks of the unit are completed, registering the unit with HSFM, reporting any changes to the program are reported to HSFM, ensuring any recalls or update notifications are adhered to, contacting the distributor for replacement parts, AED use and training. Some organizations may choose to have these tasks overseen by their maintenance department or healthy and safety personnel.

Figure 1. AED Proximity Diagram



## LEGEND



Automated External Defibrillator



Distance accessible within 3 minutes



Most highly populated public area

Place AEDs within 3 minutes of each other. When possible, create an overlap so that the most highly populated public areas are within reach of several AEDs.

# Chapter 3: Maintaining a PAD program

Now that you have your AED(s), this chapter provides the details to keep your PAD program going successfully. Learn about:

- Getting the word out
- Registering your AED
- Maintenance and training



# Getting the word out

## Announcing to the community... an AED is here!

What good is an AED if no one knows it's there? Once an AED is installed, it's important to let all those who may have accessibility where the unit is located and that they can use it in an emergency situation.

## Signage is important.

Once you have registered your AED(s) with HSFM, you will be supplied with window clings and posters that you can post around your facility to direct individuals to the AED(s).

Some distributors will sell large plastic signs that are hung by the AED to increase its visibility.

If you have a facility map, try adding an AED mark on the map – be sure to add it to the legend of the map as well.

## Getting the word out

Letting individuals know about the AED, its location and its use can be as simple as holding a staff meeting/public forum/town hall meeting, sending out a mass e-mail, adding it to a website, or putting an announcement in a newsletter or local publication.

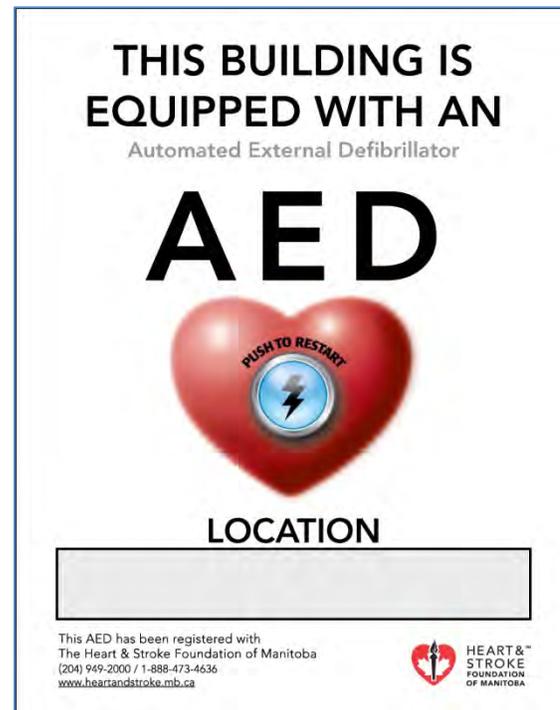
Remember to add the AED information to your staff training program, facility tour or facility rental information.

If you move your facility's AED for any reason, you must let everyone involved know, including HSFM.

## Policy and procedure manual development

A simple policy and procedure manual is important as it ensures everyone understands the overall AED program. From the members on your AED team, to where it is located, what needs to be done to maintain your unit, and what happens if your AED is used, etc. This manual should cover much of the information but a policy and procedures document will summarize it as it pertains to your specific AED program.

Keep your policy and procedures manual accessible and with this resource. In the event the AED program coordinator changes, this will guarantee minimal interruption in the quality of your PAD program.



# Registering your AED

## Manitoba AED Main Registry



### A free service connecting community AEDs with EMS...

The AED Main Registry is a free service provided to all Manitobans who have taken the initiative to place an Automated External Defibrillator (AED) in their facility. By registering your AED with the Heart and Stroke Foundation of Manitoba's AED Main Registry, you are ensuring the information needed by Emergency Medical Services during a cardiac arrest is available to them and your community members. This information could mean the difference between life and death.

The Heart and Stroke Foundation of Manitoba (HSFM) has worked with Winnipeg and Rural EMS services, and has developed a system that allows HSFM to keep track of where AEDs are located as well other important information that can help EMS lead community members to these potentially life-saving machines in an emergency.

When an AED is purchased in Manitoba, the facility AED coordinator will complete a registration form and return it to HSFM via fax or online. The information is then entered into Manitoba's Main Registry and then forwarded to Winnipeg and Rural EMS. Access to this information allows EMS or 911 to direct anyone calling during an emergency to the on-site AED if they are not aware of its location. This could mean the difference to a victim's survival.

HSFM uses volunteers to ensure all information on the Registry is kept current by completing an annual phone survey with the registered AED coordinators. This helps ensure that any changes made to the facility's AED program is communicated with EMS as well.

All information received from the registration of AEDs is held in the utmost confidence, and numbers are shared only with Heart and Stroke Foundation of Canada for statistical purposes, and more complete information with Winnipeg Fire and Paramedic Services and Rural EMS.



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# Maintenance and training

## **Manufacturer's directions for upkeep**

All AEDs come equipped with an instruction manual specific to your AED. Keep this manual with this document and your policy and procedures manual. HSFM strongly suggests you follow all recommendations per the manufacturer guidelines.

## **Monthly checks**

AEDs require minimal maintenance. Always ensure you follow the directions per your manufacturer's instructions. In general, the monthly checks are simple and are meant to ensure your unit is operating at its optimal level. Please refer to the sample checklist under Tools.

## **Replacement parts**

Your AED distributor should be able to supply you with any replacement parts for your AED. Generally the only replacement needs for your AED will include pads, batteries, and supplies for your rescue-ready kit.

## **Recalls and updates**

As with all manufactured products, there are times when an imperfection occurs. AED manufacturers require approval by Health Canada as well as the FDA in the United States. There are strict regulations and in the event of an AED recall, all manufacturers are required to inform all owners affected by the recall and the steps being taken to rectify the problem.

Every five years, the Heart and Stroke Foundation releases the most current and up-to-date resuscitation and AED guidelines. If there are changes or updates that need to be made to the software of an AED (to ensure they are compliant with recent guidelines), you will be notified by the manufacturers.

## **Ongoing training**

Scientific studies have shown that CPR skills can begin to degrade as quickly as six months from their training. If you have individuals trained in CPR, it is strongly recommended that their training is updated according to the certificate level they hold. This may be annually or every two years.

## **Drills**

We all practice fire drills to ensure we are ready in case of a fire – so we are as prepared and as safe as we can be. The same type of drill can be implemented for your AED. AED drills can ensure everyone is prepared and more comfortable with their role should an event occur.

# Chapter 4: You've used your AED...

Organizations purchasing an AED to protect their community members from sudden cardiac arrest hope they will never have to use their AED. The fact is you may have to.

Once an AED is used, there are some important steps to take. You may need to provide vital information about the incident to the medical personnel taking care of the victim. You will also need to prepare the AED to go back into a "ready state" in the event it is needed again.

## What to do after an event:

- Event information download
- After-event maintenance
- Critical incident stress debriefing
- HSFM rescue award nomination



# Event information download & After-event maintenance

## Event information download

All AEDs store event information that is communicated during an emergency. This information can be of great assistance to the medical team involved in the care of the victim, whether the event ended positively or negatively.

Your distributor can either prepare you for this process in your training or they may be available to download the event information for you, if a download is needed.

If you are responsible for the event information download, you will need the required software. Many manufacturers offer a free online version, as well as the appropriate cable to connect your AED to a computer. Check with your distributor or within your instruction manual regarding these items. These items should be kept in an accessible area should an event occur.

Once you have downloaded the event information and printed it out, you may need to forward it to your medical director (if applicable) or EMS may request a copy to continue patient care. Check with the responding EMS personnel if they require the information prior to departure from the event site.

### **Note:**

This information is considered personal and private medical information and should therefore be treated as such.

## After-event maintenance

When an AED is used in an event, it is important that the pads are replaced, the unit cleaned if needed, and returned to a "ready state" as quickly as possible.

Contact your distributor after an event to order new pads and replacement rescue-ready kit supplies.

# Critical incident stress debriefing

## Critical incident stress debriefing

Being involved in an emergency situation can cause feelings of stress, anxiety, or fear. Sometimes a stress debriefing is needed.

Many organizations have access to Employee Assistance Program (EAP) services through their workplace benefits. For those individuals or organizations that do not, there are other options available.

### Other Resources:

**Health care professionals (nurses, paramedics, firefighters, police, and doctors) involved in critical incidents:**

### **Manitoba Critical Incident Stress Management Network**

The Manitoba Critical Incident Stress Management Network provides timely, effective assistance to responders involved in critical incidents, thereby minimizing symptoms of critical event stress, and mitigating or perhaps preventing, the development of Post Traumatic Stress Disorder.

This service is provided on a “no charge” basis only to those receiving assistance through the Network via trained volunteers and mental health professionals.

**Manitoba Critical Incident Stress Management Network: 24-hour emergency hotline 1-888-389-3473**

### **Non-medical professionals involved in critical incidents:**

Anyone who wants to discuss a problem can call. You do not have to be in crisis to call. The Crisis Line is open to anyone who needs help. Calling the Crisis Line can be a good place to start when trying to sort out a problem. They can also refer you to another service. This service is provided on a no charge basis.

**Crisis Line . . . . . 786-8686**  
**Toll Free . . . . . 1-888-322-3019**

# HSFM rescue awards

## HSFM rescue awards

The Heart and Stroke Foundation feels it is vital for all Manitobans to recognize and react to emergency situations including heart attack, stroke and choking.

Each year at its annual general meeting (AGM), the Heart and Stroke Foundation of Manitoba presents rescue awards. These awards are presented in recognition of unselfish, humanitarian efforts by individuals who provide assistance in emergency situations.

The Heart and Stroke Foundation of Manitoba believes that the most important link in the Chain of Survival™ is the person who recognizes an emergency and acts immediately. We commend both their initiative to become trained in CPR/AED and their willingness to provide assistance when it was needed.

To nominate an individual for this award, please contact the HSFM Resuscitation/AED Program Manager at 949-2033, toll-free (888) 473-4636, ext 2033, or [resuscitation@heartandstroke.mb.ca](mailto:resuscitation@heartandstroke.mb.ca).



**CPR/AED rescuers recognized at HSFM's 2010 AGM**

# Appendix: Forms and Tools

To make the process easier, these documents are provided for you on the following pages:

- HSFM Quick-Reference Checklist for AED Purchase
- HSFM AED Placement Tool
- HSFM AED Registration Form (HSFM AED Main Registry)
- HSFM AED Maintenance Checklist
- HSFM Rescue Award Nomination Form



# HEART AND STROKE FOUNDATION OF MANITOBA

## QUICK-REFERENCE CHECKLIST FOR AED PURCHASE



HSFM DOES NOT ENDORSE OR AUTHORIZE DISTRIBUTORS. ALL DISTRIBUTORS ON OUR “GOOD STANDING” LIST HAVE STATED THEY FOLLOW HSFM-RECOMMENDED BEST PRACTICES IN SELLING AND PLACING AN AED. BELOW IS A QUICK CHECKLIST THAT HSFM RECOMMENDS USING WHEN SEARCHING FOR AN AED DISTRIBUTOR.

<p><b>Prior to Purchase</b></p>	<p>All distributors should be willing to:</p> <p><b>Provide references of prior placements:</b> General practice is to provide three references from other locations that have used the distributor’s service.</p> <p><b>Quote:</b> A written quote for the AED, including all necessary equipment and training.</p> <p><b>Accessories:</b> HSFM recommends all AEDs have an extra set of adult pads and a rescue-ready kit. Other optional items include an alarmed wall cabinet or wall hanger, extra batteries, and pediatric capabilities if required for the placement of the AED.</p> <p><b>Medical Device Establishment license:</b> Distributor should have a Medical Device Establishment license in order to sell AEDs in Canada.</p> <p><b>Canadian equipment:</b> HSFM does not endorse the purchase of AEDs from outside of Canada. Health Canada only approves AEDs bought and sold in Canada.</p> <p><b>Semi-automated AED vs. Fully-automated AED:</b> Currently in Manitoba, only semi-automated AEDs are approved by the College of Physicians and Surgeons for use in public settings without the oversight of a Medical Director.</p>	<input type="checkbox"/>
<p><b>AED PURCHASE CHECKLIST</b></p>		
<p><b>Site Assessment</b></p>	<p>Most distributors will be willing to provide you with an onsite assessment to assist you with the best placement for your AED.</p>	<input type="checkbox"/>
<p><b>AED Training</b></p>	<p>All distributors should be willing to train purchaser on the AED. This will include instructions on monthly maintenance checks, changing accessories, event protocols, etc.</p>	<input type="checkbox"/>
<p><b>Registering your AED</b></p>	<p>All AEDs placed in Manitoba should be registered with the HSFM Main Registry. The registration form can be downloaded at <a href="http://www.heartandstroke.mb.ca/atf/ct/%7B8AA02216-F223-439E-B498-5229E02AF420%7D/AED_MainRegistry_form.pdf">http://www.heartandstroke.mb.ca/atf/ct/%7B8AA02216-F223-439E-B498-5229E02AF420%7D/AED_MainRegistry_form.pdf</a></p>	<input type="checkbox"/>
<p><b>CPR Training</b></p>	<p>Distributors should be able to train purchaser(s) in CPR that is in compliance with the most current guidelines according to the Heart and Stroke Foundation of Canada. If the distributor cannot provide the training, they should provide you with a list of CPR course providers, or contact HSFM.</p>	<input type="checkbox"/>
<p><b>Event Contact</b></p>	<p>The distributor should provide you with an emergency contact number to reach them for replacement parts and follow-up procedures in case of an event (use of the AED).</p>	<input type="checkbox"/>
<p><b>Event Follow-up</b></p>	<p>Once the AED has been used in an event, the distributor will have a process in place to download the event data from the AED, if necessary, and return to ready-to-use status.</p>	<input type="checkbox"/>
<p><b>Maintenance of your AED</b></p>	<p>Distributors should have a system in place to ensure your AED is always equipped with current pads and batteries.</p>	<input type="checkbox"/>
<p><b>Recalls</b></p>	<p>Distributors must have a plan in place to contact purchaser in the event of a recall.</p>	<input type="checkbox"/>
<p><b>Loaners</b></p>	<p>Distributors should have a plan in place to ensure purchasers are never left without an AED in the event of a recall or warranty issue.</p>	<input type="checkbox"/>
<p><b>Protocol Manual</b></p>	<p>Most distributors supply purchasers with a comprehensive protocol manual that outlines the use, care, and procedures of owning an AED.</p>	<input type="checkbox"/>

HSFM believes AEDs should be as commonplace as fire extinguishers. Our goal in informing purchasers of best practices is to ensure that all AEDs placed into the community are easily accessible and in proper working condition.

# AED Placement Tool



## AED Safety Placement Guidelines

While there is no single formula to determine the appropriate placement and access system for AEDs, there are several elements that should be considered:

- **Response time:** The optimal response time is three minutes or less.
- **Physical layout of the facility:** Response time should be calculated based upon how long it will take for a responder with an AED walking at a rapid pace to reach a victim. Be sure to take into consideration areas with difficult access (secured areas within a building, elevators, etc.).
- **Visitors:** Facilities that host large numbers of visitors may be more likely to experience an event.
- **Specialty areas:** Facilities where strenuous physical activity occurs may be more likely to experience an event therefore, specialty areas should be considered to have a higher risk.

## Site Survey Tool

### Step one

Use a written floor plan, and mark the most critical areas for AED:

- Areas where the largest number of people are present
- Near people with a history of SCA (sudden cardiac arrest)
- Areas difficult for EMS to get to (ie: confined spaces, tall buildings, and remote locations)

### Step two

Using your marked floor plan, calculate if an AED was placed in your marked location, would all occupants of the building have accessibility to the AED within the three-minute time frame?

Using the 3 minute goal of the HSFC do one of the following:

- Use a stopwatch and walk for 1½ minutes. This assumes the responder needs to walk to the AED, and return with the equipment. Some facilities will radio for help - in such a case, a three-minute direct walk should be sufficient.
- Knowing that the average person walks 300 feet per minute, measure out 450 feet from each AED location. Or, if they radio for help, 900 feet.

Were you able to reach the AED as you have it marked out on your floor plan? If the answer is no, you may need to consider adding an additional unit.

## AED Placement Tool

There are several characteristics that contribute to proper placement of AEDs. The major characteristics are:

- An easily accessible position (i.e..physically accessible, no barriers)
- A secure location that prevents or minimizes the potential for tampering, theft and/or misuse by unauthorized users. There are wall mounted cabinets that are available from the manufacturer for AED placement (similar to wall-mounted fire extinguisher cabinets). These cabinets can be alarmed.
- A location that is marked, publicized, and known to trained individuals
- A publicized location with information on how to initiate internal and external responses
- A location that is near a telephone, that can be used to call 911 and lay rescuers
- AEDs need to be highly visible
- Place it near expected responders such as security guards, lifeguards and first aid stations
- Must be easily accessible



# Automated External Defibrillator Maintenance Checklist



Date \_\_\_\_\_ Location \_\_\_\_\_

Inspection performed by \_\_\_\_\_

Criteria	Status	Corrective Action/Comments
<b>AED</b>		
Placement visible, unobstructed and near phone (if possible)		
Verify battery installation		
Check the status/service indicator light		
Verify absence of visual/audible service alarm		
Clean, no dirt or contamination; no damage present		
<b>Supplies</b>		
Two sets of AED pads in sealed package		
One set of pediatric pads (if necessary)		
Check expiration date on pad packages		
Pocket mask with one-way valve		
Examination gloves		
Scissors		
Razors		
Absorbent gauze or hand towels		
<b>Additional requirements from AED manufacturer</b>		

Please refer to manufacturer's User Manual for more information and proper annual maintenance procedures.

# Rescue Award Nomination Form

Thank you for taking the time to complete and submit this nomination form. The information you provide the Heart and Stroke Foundation of Manitoba will help recognize selfless humanitarian efforts of community members who attempt to help another person in their time of need.

Please submit the completed form to:

**Heart and Stroke Foundation of Manitoba • 6 Donald Street • Winnipeg, Manitoba • R3L 0K6**

It is important to recognize that a person may not survive in spite of best efforts. Feeling upset after a rescue attempt, even if it was successful, is a normal reaction. Providing assistance in an emergency is a very generous act.

Date nomination submitted to HSFM \_\_\_\_\_

Submitted by \_\_\_\_\_ Relationship to rescuer \_\_\_\_\_

## Rescuer information

Name \_\_\_\_\_ Age (optional) \_\_\_\_\_

Address \_\_\_\_\_  
(Street address/Box number, City/Town, Postal Code)

Phone (daytime) \_\_\_\_\_ E-mail address \_\_\_\_\_  
(Required field)

## Event information

Date of event \_\_\_\_\_

City/Town \_\_\_\_\_ Location \_\_\_\_\_  
(i.e. Airport, shopping mall, sporting event, home)

Rescuer's relationship to victim:  Family member  Friend  Unknown

The nominated rescuer was:  First on scene  Assisting another rescuer

The nominated rescuer was:  CPR trained  Assisted by 911/local EMS operator

Was an AED available?  Yes  No If Yes:  Used prior to EMS arrival  By EMS

## Event details

Please provide a description of the events which occurred: (Use back of form if additional space required)

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Victim information (if available): \_\_\_\_\_



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The Heart and Stroke Foundation of Manitoba is committed to protecting the privacy of personal information. Information gathered on this form will be used exclusively to maintain a record of rescue attempts and to distribute rescuer awards.

# Special Thanks

**The Heart and Stroke Foundation of Manitoba extends special thanks for:**

Cover photo, courtesy of the Brandon Sun, Brandon, MB

Page 7, AED photo, courtesy of Philips Medical

Page 12, office rescue, courtesy of Zoll Medical Corporation

Page 17, Good Samaritan, courtesy of Cardiac Science

Page 18, LifePak CR Plus in health club, courtesy of Medtronic

Page 29, construction site photo, courtesy of Zoll Medical Corporation

Page 33, AEDPlus on athletic field, courtesy of Zoll Medical Corporation



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