

ACT High School CPR & AED  
Student Manual



Saving people  Touching lives

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## Acknowledgments

The guidelines for CPR are based on guideline recommendations from the 2010 International Consensus on CPR and ECC Science with Treatment Recommendations (CoSTR).

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## INTRODUCTION :CHAIN OF SURVIVAL

Welcome to the world of CPR...Cardiopulmonary Resuscitation. You are going to learn how to help someone who chokes or someone whose heart stops. CPR is the "heart" of any first aid program. (Sorry for the pun).

This CPR course teaches the 4 "Rs" of CPR :

**RISK**: factors in your life that predispose you to developing heart problems or a stroke;

**RECOGNIZE**: how to recognize a serious developing emergency;

**REACT**: what to do when you see a developing emergency;

**RESUSCITATE**: how to do CPR and how to help someone who is choking.

Why learn this? Don't panic edit's book after prehospital cardiac arrests and other serious emergencies? Why you? Well, the key to surviving these emergencies is a chain reaction.

It's the CHAIN OF SURVIVAL, the emergency response system we need if we are going to improve survival from emergencies:

Early Healthy Choices

Early Recognition

Early Access

Early CPR

Early Defibrillation

Early Advanced Care

Early Rehabilitation

Someone's life may depend on what you learn in this course. Don't forget that for a minute. But learning it will be fun too. There is a lot of information here. It's wisdom you can take home to your family now, and carry with you through your life. So let's get into it.

## THE HEART AND WHEN IT BREAKS

### What is a Heart Attack?

Oxygen is carried by blood through a network of blood vessels, nourishing the organs of the body. Without circulating blood, without oxygen, these organs start to die.

Without oxygen, serious damage to the brain starts in 4 to 6 minutes. Other organs like the heart last longer without oxygen, but only minutes longer.

Like any tough muscle, the heart needs oxygen delivered to its tissues.

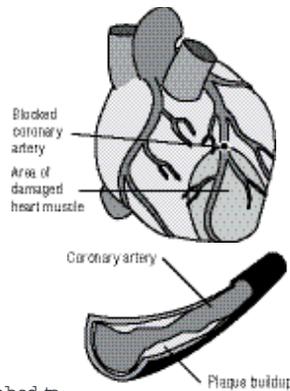
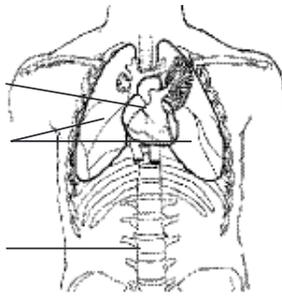
The heart has its own blood vessels that supply its muscle. When one of these arteries gets blocked (e.g. by plaque, which is junk like fat or cholesterol) the area of heart muscle that the artery nourishes is suddenly deprived of circulation... no blood circulating, so no oxygen... the person experiences chest pain.

If the blockage opens up after a little bit, the pain goes away (until next time). This is what is called angina.

If the artery stays blocked, the pain remains and the area of affected heart muscle starts to die. This is what most people call a heart attack. (Trivia... doctors call this an infarction).

Other organs like the heart last longer without oxygen, but only minutes longer.

Many people take nitroglycerin spray when they get angina. It helps open up the circulation and relieves the pain.



### What is Cardiac Arrest?

When a heart stops beating, it is no longer pumping blood to the rest of the body. That heart is in "cardiac arrest."

When heart muscle is suffering because it can't get oxygen, it gets irritable. (If you choke and can't get air, you'll get irritable too!) The heart's main muscles, the ones around the ventricles, lose their rhythm in pumping action and may start to fibrillate. This is a squiggly kind of muscle contraction that doesn't pump blood called ventricular fibrillation (because it is a ventricle and it is fibrillating). This most common kind of cardiac arrest is also the most treatable.

## What is CPR?

Starting Cardiopulmonary Resuscitation on a person whose heart has stopped, means two things:

1. Pushing on the person's chest forces blood to flow through the body.
2. Mouth-to-mouth breathing provides oxygen to the lungs.

## What is Defibrillation?

When you call 911 and start CPR on someone, paramedics or firefighters will be there in a few minutes. They attach a small computerized device (an automated external defibrillator, otherwise known as an AED) to that person. It delivers a special kind of shock to the heart, trying to kickstart it, trying to reset the heart muscle and restore its smooth pumping action. This is called defibrillation... ZAP!

When you deliver the shock and the heart stops fibrillating, you have defibrillated it.

## WHAT IS A STROKE?

If you understand heart attacks, you can figure this out. Remember how arteries to the heart can get blocked by junk, like fat or cholesterol? The area of heart muscle that the artery nourishes suddenly receives no circulation (no blood circulating, so no oxygen) and the person experiences a heart attack.

It is the same in the brain. After a lifetime of burgers and fries, an artery gets blocked up by all that cholesterol. When the area of the brain nourished by that artery has no oxygen, it gets damaged. As a result, a person may have a sudden headache, slurred speech, vision problems or sudden weakness of the face, an arm or leg. That is a stroke.

Someone thought, "Hmm, if it happens in the heart and we call it a heart attack, why not call this a brain attack?"

One kind of stroke is different. Instead of getting clogged up like a usual stroke, a blood vessel bursts. You can't tell without tests at the hospital which kind of stroke it is. No matter which kind of stroke it is, you have to help in the same ways you will learn here.

That part was tough. You learned about blood circulation and oxygen, about hearts that stop when they fibrillate and start when someone defibrillates them. And you learned a little about strokes or "brain attacks."

Now you are ready to learn the 4 "Rs" of CPR. Knowing them lets you make the system move when an emergency occurs.

Let's tackle those 4 "Rs."

Look for new and easy-to-use defibrillators hanging on walls in lots of places, just like fire extinguishers.

Lifeguards, security guards, even hotel desk clerks and the waiter in your favourite restaurant are being trained to use them. Seriously!

These are for the general public to use. That is how they get their name.

## THE 4 "RS" OF CPR

### I. Risk Factors – Heart Disease and Stroke

Cigarette smoking  
High blood cholesterol  
High blood pressure  
Diabetes  
Obesity  
Lack of exercise  
Excessive stress  
(for some people).

A risk factor is something that increases the chance of heart disease or stroke. If you have several relatives who have heart trouble, you too may be at risk. This, and simply getting older, are two risk factors you can't do much about.

But you can do something about most risk factors. Let's talk about these and about being "Heart Healthy."

#### Smoking

Smoking causes lung cancer and stinky breath. It is also the leading cause of heart disease in Canada. It is the worst, most direct, very personal, kind of air pollution. Even if you don't smoke, those smokers around you are offering you second-hand air pollution.

#### High Blood Cholesterol

Eat partly skimmed  
mozzarella instead  
of cheddar cheese

High blood cholesterol means bits of fat in the blood. Some is produced by our body, while other fat comes from our food. Too much cholesterol can cause heart disease or stroke. To help reduce your chances of having high cholesterol, eat more vegetables, fruits and grain products, limit the amount of fat in your diet and get plenty of physical exercise.

#### High Blood Pressure

Eat apple crisp rather  
than apple pie  
  
Eat yogurt instead  
of ice cream

High blood pressure can damage your heart and blood vessels, increasing your chances of having a heart attack or stroke. It means your heart has to work harder to pump blood through those pipes, your blood vessels. It can run in families, but diet and stress may affect it too. Your blood pressure can be too high and you might not know it. You may feel pretty normal but it is still dangerous. Blood pressure should be checked regularly.

#### Diabetes

Remove skin  
from chicken

Diabetes affects the level of sugar and fat in your blood. It is a problem, but it can be managed. People with diabetes will do better and have fewer complications like heart trouble or stroke if they eat properly and follow their doctor's instructions.

#### Obesity

For more tips like  
these, look in The Canadian  
Heart Foundation's  
"The Light Hearted  
Cookbook."

Obesity is not good. Your heart has to pump harder all the time to move blood around.

## Lack of Exercise

Lack of exercise is another risk factor. Remember, your heart is a muscle. It works better if you keep fit and active.

## Stress

Stress affects the body in very physical ways. If you are nervous, if your hands are shaking, you can be sure things inside of you are also being affected. If you are stressed for a long period of time, your body may break down. Heart problems can be one of the results.

## Lifestyles, Risk Factors – Some Thoughts

You never find parents encouraging kids to smoke. They learned the little things about smoking, like the expense and the bad breath! Some have learned about the bigger costs, about wheezing, heart disease or lung cancer.

And what overweight adults wouldn't love to be fit and thin? Yet, unlike smoking, you still find adults who don't know what a healthy diet is. Some kids are growing up with poor diet habits they pick up at home. There is more work to do here.

If some adults in your life smoke or are overweight, it may not be totally their fault. It can be really tough to lose weight or stop smoking. Now, many of those adults have health problems. You can be smarter, developing healthy living habits. You are able to learn more about what to do... and about what not to do. Set your own course.

Well, that is one "R" out of the way. Don't be afraid to go and tell the folks at home what you have learned about Risk factors. You may help someone make wiser choices.

Now let's move on to Recognition...

So what's the difference if your heart works hard because you are overweight or because you exercise? Why is one good and the other not? Well, a sweaty weightlifter does a workout, hits the showers, rests a day and comes back from one. His muscles get stronger. If he had to lift weights 24 hours a day, his body odour might get stronger, but his muscles, well, they would just wear out.

Remember, emergencies needing CPR happen for various reasons. People of all ages drown, get electrocuted, or bleed from injuries. With your CPR training you will be able to assess if a person with one of these problems needs CPR.

## II. Recognize

“Early Recognition” means realizing someone may be having heart trouble, a stroke or a cardiac arrest. If a person is having a heart attack, there is a risk of cardiac arrest. If it is a stroke, the person may become paralyzed. These people need help right now and then they need to go to the hospital quickly.

Treatment in hospital for heart attack or stroke must be given very early. Call 911!

### Signals of a Heart Attack – Look for the 5 “Ps”

#### The 5 “Ps”

Pain often described as a heaviness, tightness, squeezing or pressure. It may spread to the neck, jaw, shoulders or arms.

Pale skin (that is often sweaty).

Puffing – trouble breathing.

Pooped – feeling very tired.

Puking – feeling sick to the stomach or actually vomiting.

### Signals of a Stroke

Signs and symptoms  
especially,

Sudden paralysis of the face, arm or leg.

Sudden speech problems.

Paralysis of the face,  
arm or leg.  
Speech problems.

Other signs might include weakness, numbness, or tingling in the face, arm or leg, dizziness, and/or sudden headache.

#### Something else...

Don't be surprised if the person having trouble is also having some trouble accepting they might be experiencing a heart problem or stroke. You might see:

Denial – “I'm too young!” “I will go away with a little rest!” The thought, “It can't be happening to me” is pretty common.

Fear – the person may be terrified inside and afraid to go to the hospital.

Can you smile?

Can you raise  
both arms?

Can you speak a  
simple sentence?

Be firm. If the signals are there suggesting a heart attack or stroke, the person needs to be taken by ambulance to a hospital quickly.

It is important that you recognize that what is happening in front of you may be a real emergency. Remember the signals for heart attack and the signals for stroke and don't let yourself be paralyzed by Fear and Denial.

### Signals of a Possible Cardiac Arrest

Occasional gasps?  
Treat as if there is no  
breathing.

If the person is unconscious, tap the shoulder and shout, “Are you all right?” If there is no response and no breathing, assume the person is in cardiac arrest. If the person still has occasional gasps, treat that as if there is no breathing.

### III. React

#### What if it might be a Heart Attack or Stroke?

Check for hazards— make sure there is nothing around that can hurt you (e.g. electric wires, traffic, fire, glass, gas).

Call for help if you are alone. If you are still alone, call 911 for an ambulance. If someone hears your call, get that person to call 911 and send someone for an AED.

While waiting for the ambulance there are several things you can do to make a person more comfortable:

Then...stay with your patient and offer a little PLT  
Position — P  
Loosen clothing — L  
Talk, reassure — T

Position the person so he/she is most comfortable. Usually sitting or lying down will be best but the person will usually tell you what works best.

Loosen tight clothing at the neck or waist.

Talk to the person. Let him or her know help is on the way. Remember, as much as possible, stay with the person. If the person becomes unconscious, he/she will need your help even more.

#### What if the person is in cardiac arrest?

Shout for help, call 911, send someone for an AED and start CPR.

#### What to do until the ambulance gets there?

People who have been ill often wear a "MediAlert" bracelet or necklace. It will often have information about the person's allergies, past medical history and medications.

Paramedics are trying to find you. Be visible with information. Get out front. Wave and/or flash lights when you see them.

What information should you give them about the person?

Medications — Gather any medications. Bag them if you can.  
Allergies — Are there any? Ask. Write them down.

So, Hazards and Call, a little PLT, and flash the paramedics. Remember that and you know how to React when you see an emergency develop.

Now let's move on to Resuscitation...

HOLD IT! Stop everything! Did they really just say you were supposed to "Flash the paramedics?"

NO! NO! They meant to say "Flash the lights!"

...the porch lights

...the house lights

...any lights

## IV. Resuscitate (CPR)

The purpose of CPR is to keep alive a person who has stopped breathing and who has no circulation until either the person is breathing and circulation returns, or until medical help takes over... and how do you do that?

Compressions  
Airway  
Breathing  
Defibrillation

CPR is as simple as CAB-D!

- C - Compressions. Start chest compressions to help blood circulate.
- A - Airway. Something in the mouth blocking air from getting in? Get it out of there.
- B - Breathing. Not breathing? Do mouth to mouth. Breathe for this person.
- D - Defibrillation. If you started CPR, make sure help is coming, especially someone with a defibrillator.

Well, you remember your CAB-D, and just do what you are trained to do on the next pages!!!

The High School CPR & AED program offers two options for teaching adult/teen CPR. One option is the Heartsaver Level CPR course in which the CPR technique includes giving breaths. The other option is the Compression-Only CPR course in which the CPR technique does not include giving breaths.

"I've been trained. I can do this."<sup>TM</sup>

Lots of people stand around in an emergency waiting for someone else to do something, hopefully someone trained and capable. Hey!... that is me! Focus. "I've been trained. I can do this."<sup>TM</sup> Say something. Do something. Act now! Others will help.

### Ask permission to help ...

Before touching a person who needs help but who is still conscious, you must ask for and get permission to help. Say you know first aid and offer to help.

Ask, "May I help you?"

If the person is unconscious or is a young child who is alone, go ahead and help; the law assumes the person wants help. Care for that person the same way you would want someone to care for you if you were in the same difficulty. Do what you are trained to do. Do your best.

## ONE RESCUER CPR ADULT

If someone collapses...



Remember say to yourself: "I've been trained. I can do this."

- 1 Check for hazards. Make sure there is nothing around that can hurt you (e.g. electric wires, traffic, fire, glass, gas).
- 2 Assess responsiveness and check for breathing. Tap shoulders, call out to the person. Look at the face and chest for signs of breathing.

Note: You are checking an unconscious person for breathing and suddenly the person takes a breath or two - a sort of gasp or sigh. Sometimes this happens, especially if a person's heart has just stopped. It will not look like normal breathing. The person is in cardiac arrest.



- 3 Call 911 or your local EMS, or have someone call for you, if the person is not moving, is not responsive and is not breathing (or there is only an occasional gasp of air). Send someone for an AED.

- 4 Landmark for chest compressions.

Compress the lower half of the person's breastbone in the centre of the chest, between the nipples.

Place the heel of your hand on the breastbone in the centre of the chest between the nipples. Place the heel of your second hand on top of the first so that your hands are overlapping and parallel.

Interlock your fingers off the chest. Position your shoulders directly above the heels of your hands. Keep your arms straight, with your elbows locked in position. Your instructor will show you how.

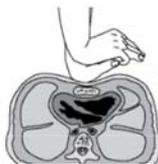
- 5 Give chest compressions.

Compress straight down on the breastbone. Compress at least 5 cm (2 inches) at a rate of at least 100 compressions per minute.

Push hard, push fast.

It helps if you count aloud (e.g. 1 and 2 and 3 and 4 and 5 and 1 and 2 and 3 and 4 and 10 and 1 and 2 and 3 and 4 and 15 and etc. on up to 30).

Without losing contact with the chest, allow the chest to return to its normal position between compressions. Find your landmark with each new cycle of compressions.



Note: If you do it right, hard enough and fast enough, your chest compressions squeeze the heart and all the big blood vessels in the chest. That is how CPR circulates blood. It only provides about 30% of normal circulation but studies show early CPR is the most important thing to save someone whose heart has stopped.



Note: If your teacher is teaching you the 'Compression-Only CPR' course (CPR technique without giving breaths), proceed from Step 5 directly to Step 8. If your teacher is teaching you the HeartSaver CPR course, continue with Steps 6, 7 and 8.

6 After 30 chest compressions, open the airway using the head-tilt chin-lift method.

7 Give 2 breaths\* if the person is not breathing.

Maintain the head-tilt chin-lift. Pinch the person's nose, take a normal breath and cover their mouth with your mouth (assuring a good seal at the nose and mouth).

Give 2 breaths, 1 second for each breath. Watch the person's chest to make sure it rises and falls with each of your breaths.

If your breaths do not go in, reposition the head to open the airway, check your seals at the mouth and nose, and try again.

Continue CPR at a rate of 30 compressions to 2 breaths.

\*Note: You are learning how to do mouth-to-mouth breathing, but some people may be nervous to do it as part of CPR. That is OK, but it is important to do something! If you are reluctant to perform mouth-to-mouth, just do the chest compressions (Compression-Only CPR). It's better to do something than nothing!

8 Continue CPR until someone brings an AED, or you see signs of life, breathing, movement, or Emergency Medical Service (EMS) personnel take over.



If you get tired while doing CPR and there are others around who know how to do it, ask for someone to take over. Do your best until help arrives.

## DEFIBRILLATION

Remember: The most common kind of cardiac arrest is due to ventricular fibrillation. The heart's main muscles, the ones around the ventricles, lose their rhythm in pumping action. They fibrillate - a squimpy kind of muscle contraction that doesn't pump blood.

Work quickly and you may be able to fix this. Do CPR and use an AED.

An AED placed where everyone can see and use it.

Look for them in airports, health clubs, arenas, city swimming pools... and in your school.

### What is an AED?

It is a device that automatically analyzes heart rhythm and, if necessary, gives an electric shock to return a heart to its normal rhythm.

Sticky pads are placed on the chest to allow the AED computer chip to see if the heart's electrical rhythm is in ventricular fibrillation. If it is, the computer tells you to stand back. Then it sends a type of electrical shock through the pads to the heart, trying to reset the heart. If the person's heart starts to beat normally again - if it is no longer fibrillating - you have defibrillated someone ... and saved a life.

### How do I use an AED?

If you find someone in cardiac arrest, this is what you do...

Remember say to yourself: "I've been trained. I can do this."<sup>TM</sup>

- 1 Call 911 or your local EMS, or have someone call for you, if the person is not moving, is not responsive and is not breathing. Send someone for an AED.
- 2 Start CPR.
- 3 If there is an AED...



Expose, dry skin, and remove excess hair or medical patches from the person's chest prior to applying the pads.

Apply the electrode pads to person's bare chest.

Stop CPR when the AED tells you and DON'T LET ANYONE TOUCH THE PERSON. If the AED prompts you to press the shock button, do it. (Some AEDs shock automatically, but most will tell you to press a button to shock the person.)

signs of life, breathing, movement, place the patient in the Recovery Position.

## CHOKING

When a person chokes on food or a small object that is lodged in the throat, air cannot reach the lungs. The person may die if help is not given immediately. Recognize that a person is choking by the universal distress sign of choking – hands to the throat.

When a person chokes, the throat or airway can be either mildly or severely blocked.

A mildly blocked airway allows some air to get in. If a choking person can still speak, cough and breathe, you know the blockage is not complete. Encourage the person to cough to try to clear the obstruction themselves.

With a severely blocked airway, there is no air getting in. If that person can't speak, cough and breathe, you have to react quickly. This is a serious emergency.



### Adult Conscious

- 1 Assess the airway blockage. Remember say to yourself: "I've been trained. I can do this."<sup>10</sup> Ask, "Are you choking?"
- 2 **Call for help.** Reassure the person and explain what you are going to do. Call 911 or your local emergency Medical Service (EMS), or have someone call for you if the person is having difficulty breathing.



- 3 Give abdominal thrusts (sometimes called the Heimlich manoeuvre) if the choking person cannot speak, cough or breathe. Stand behind the person and wrap your arms around his/her waist. Make a fist with one of your hands and place the thumb side of that fist in the belly button area, slightly above the belly button and well below where the ribs meet. Grasp your fist with your other hand and press inward and upward with a sudden forceful thrust.
- 4 Repeat abdominal thrusts in rapid sequence until either the obstruction is removed or the person becomes unconscious. When the obstruction is removed, the person should see a doctor to rule out complications from the obstruction or the abdominal thrusts.

## If the Choking Person Becomes Unconscious

(Carefully support the person to the ground, you have already activated EMS. Begin CPR.)



- 1 You have already called 911 or your local Emergency Medical Service (EMS), or had someone call for you. You have already sent someone for an AED.
- 2 Landmark and give 30 chest compressions. This may remove the obstruction.
- 3 Open the mouth and look for the obstruction. If you can see the obstruction, try to remove it with a hooked finger.
- 4 Open the airway using the head-tilt chin-lift. Even though you may not be able to see the obstruction, it may have loosened enough to let some air pass by it and enter the lungs.



- 5 Try to give a breath. If air won't go in, reposition the head, check your seals at the mouth and nose and try to give another breath.
- 6 Repeat sequence of chest compressions, looking in the mouth, opening the airway and attempting to ventilate until you are successful, or until medical help takes over.

## Adult Found Unconscious

- 1 Remember say to yourself: "I've been trained. I can do this."<sup>EM</sup>  
Check for hazards. Make sure there is nothing around that can hurt you (eg. electric wires, traffic, fire, glass, gas).
- 2 Assess responsiveness and check for breathing. Tap shoulders, call out to the person. Look at the face and chest for signs of breathing.

3 Call 911 or your local EMS, or have someone call for you if the person is not moving, is not responsive, and is not breathing. Send someone for an AED.

4 Landmark and give 30 chest compressions.

5 Open the airway using the head-tilt chin-lift method.

6 Try to give a breath if the person is not breathing. If air won't go in, reposition the head, check your seals at the mouth and nose and try to give another breath. If the chest still does not rise, conclude that the airway is blocked by something.

7 Open the mouth and look for the obstruction. If you can see the obstruction, try to remove it with a hooked finger. Open the airway and attempt to ventilate again. If air still won't go in...

8 Repeat sequence of chest compressions, looking in the mouth, opening the airway and attempting to ventilate until you are successful, or until medical help takes over.

#### Follow-Up Care (Your Teacher will show you how)

When the person starts to breathe, place him/her into the recovery position if injuries permit. The person may gag or vomit, and the recovery position will help keep the airway open and allow fluids to drain from the mouth. Monitor the breathing carefully. The person may stop breathing again. Stay with the person until medical help takes over.

For information on different rescue scenarios you may encounter, as well as new information relating to the world of CPR (including guideline updates), check out ACT's website at [www.actfoundation.ca](http://www.actfoundation.ca)!

So you thought this CPR course was all about learning CPR. Well OK, that is understandable. But wait! Think of what you have learned. Think about the 4 "Rs."

You now know about Risk factors, that a life of burgers and fries and stinky cigarette breath can be a short one. Lots of overweight adults and parents who struggle to quit smoking would have loved to know what you know when they started out.

Maybe you will never see anyone collapse. Maybe you won't ever have to do CPR. But chances are greater that you will be around someone who falls ill. You have learned to Recognize if that person might be having a heart attack or stroke.

Seeing someone in your family having chest pain, looking pale and sweaty (remember your Ps) should push you to help them get to the hospital. If your dad has chest pain, he may not know about chestbusters. But you do. You were not trained to be shy. Step up! React!

The "CPR thing" is only part of this course. Resuscitate is only one of the 4 "Rs." Not everyone who falls sick has a cardiac arrest, but you can still help them. The sequences of CPR are important to remember. However, it is more likely you will need to remember the "5 Ps of chest pain" than how to do CPR. You need to remember "Hazards and Holler and a Little PLT." You need to be Visible with information for the paramedics.

Be a champion! You have the knowledge. You know the "Risks." Help others avoid trouble. But if there is trouble, you know "Recognize." You know "React." And yes, sometimes you will need to "Resuscitate" and do CPR.

SO ,LET'S TEST YOUR 4 R I/Q ...

## SCENES FROM LIFE

- 1 You are on a field trip to a local museum. You notice that Mrs. Jones, one of your teachers, is standing very quietly. She does not look well. Speaking with Mrs. Jones you recognize her pain might be cardiac.

(The 5 Ps of Chest Pain)

You react, getting someone to look for another teacher. If there is none, you get someone to call 911. You sit Mrs. Jones down and open a window so she can get some air.

(Hazards and Ho!ler and a little PLT)

Now that the paramedics are coming, ask Mrs. Jones about medications, allergies, etc... While you are doing that, ask someone else to go to the front door of the museum to guide the paramedics to where you are.

(Visible with Information)

- 2 Your allergic brother comes home from a friend's house wheezing badly. He played with a dog there and his asthma is severe. He is using his inhaler too often and not getting better. You holler for your mom, who calls 911. You reassure him help is coming. You stay right with him. You tell your mom to bag his inhalers and go to the front to wave at the paramedics as they come down the street.

(Hazards and Ho!ler and a little PLT)

(Visible with Information)

Your brother gets sicker and suddenly you realize he is very quiet. He is unresponsive and is not breathing. You are scared, but you start CPR.

(Resuscitate)

- 3 You are hanging out with your friends at the mall when you hear a man yell that a woman has collapsed. Bystanders are already performing CPR and you know where the AED is located.

(CAB-D)

- 4 You are on the sidelines of a school basketball game when you see a player suddenly collapse on the court. Another player yells that he/she is not breathing.

(CAB-D)

Kasia Smetny-Sowa:

Seventeen-year-old

Kasia Smetny-Sowa was vacationing in Halifax when she saw a man collapse at a local tennis club. The Ottawa student

rushed to his side, where a crowd was already forming. The man had no

pulse and an ambulance had been called. It had

been two years since Kasia had learned CPR at

her high school, but she remembered what to do.

She began CPR and, with help from another

bystander, continued until the ambulance arrived.

Thanks to her, 60-year-old Nick Weatherston is alive

and well. And for that, his wife Pat is eternally

grateful. "I feel we were truly blessed by a

guardian angel."

## MORE SCENES FROM LIFE

Mark Zabacki:

Mark was watching television in his basement when his mother called him to hurry upstairs to help his 46-year-old father Joe, who was choking. He rushed upstairs to find his father standing in the kitchen, his face red and his hands at his throat. No sound was coming from his mouth. He couldn't breathe. Despite his shock, Mark sprung into action, performing the Heimlich manoeuvre, which he had learned in school. A piece of his father's chicken dinner shot across the room.

- 5 At a family dinner, you notice your grandmother is suddenly having trouble speaking. She drops a fork and can't pick it up. She looks ill. You recognize she might be showing signs of a stroke.

(The "P" Sign of a Brain Attack – Paralysis)

You react, pointing out to everyone that Granny is sick. You note this could be a stroke. Your mom calls 911 as you help carry Granny to bed.

(Hazards and Hoher and a little PLT)

While your dad checks Granny's pulse looking for medications, you ask your mom questions. You write the answers down for the paramedics. Your brother moves the car out of the driveway so the ambulance can get close to the house.

(Visible with Information)

- 6 You and your dad are alone watching TV. You suddenly notice he doesn't look comfortable. He says he has pain, which you recognize might be a heart problem.

(The 5 Ps of Chest Pain)

You react, urging him to call 911. You tell him you are afraid for him and you let him know about chest-busters. He says it is nothing, probably indigestion. He is sweaty and vomits. You decide to act on your own. You call 911. You help dad lie down.

(Hazards and Hoher and a little PLT)

You leave him for a second to turn the porch light on so the paramedics can see the address number. You ask your dad where his medications are. When the paramedics arrive, you tell them dad's medications are in the bathroom.

(Visible with Information)

- 7 At a party, a girl is found unconscious in the backyard pool. Someone has lifted her to the poolside. You step up and say "I know CPR." (Escapes you a little that people are suddenly listening to you and doing what you say). You recognize that this person is in cardiac arrest.

(CAB-D)

You react, yelling for someone to call 911.

(Hazards and Hoher and a little PLT)

And you resuscitate, starting CPR. Be careful to support her neck, because you don't know how she fell into that pool! You tell someone to get any information about this girl. Who is she? Does she have a wallet? Does it have any medical information in it? You send someone to the street to flag down the paramedics and guide them through the house to the backyard.

(Visible with Information)

(Resuscitate)



## LAST WORDS...

### WE WANT YOU TO RATTLE THE CHAIN

Lots of people die. They die from drowning, from heart attacks, from all kinds of things. They are someone's mom or dad, someone's brother or sister, someone's child, someone's friend... you get the picture. Maybe someone in your family died of a heart attack – someone close to you? Was everything done that could have been done? The thing is, some of them didn't have to die. If only someone had known how to help, how to rattle the Chain of Survival.

I know Risks  
I know Recognize  
I know React  
I know Resuscitate

A person collapsing in cardiac arrest will have a much better chance if someone calls 911 fast and starts CPR fast, if someone defibrillates the person fast, and if paramedics arrive fast... all those things, FAST! These are links in the "Chain of Survival." The missing link? It's you! That is going to change now that you know CPR and AED. You are never going to be helpless if someone collapses in front of you.

I know CPR!  
I know how to  
use an AED  
"I've been trained."  
I can do this.<sup>TM</sup>

Not everyone is going to live just because you start CPR. But no cardiac arrest patient lives if you don't start CPR. The 911 system, defibrillators, paramedics... forget it all if you don't do CPR until someone helps arrives. You know how to "RATTLE THE CHAIN." You are the key link!

If you feel good about learning this new skill, tell your teacher. But also tell your family and friends. Show them what you have learned. Bug them to take a course as well.

You should refresh your CPR and AED skills over time. There will be changes in the course and you will want to stay on top of things. Flushing a current CPR and AED card might look good when you apply for a job, even babysitting.

Congratulations! Stand up and say "I've been trained. I can do this."<sup>TM</sup> No, shout it. Remember, you are CPR in your house. You are the one to make a difference, perhaps a difference between life and death for someone because of what you know. Be proud! When someone needs you, step up!

Finally, have you "RATTLED THE CHAIN" already? If so, turn to page 24 to learn how to tell a "Rattle Tale."

## GOT SOME QUESTIONS? GET SOME ANSWERS...

### 1 Can I get AIDS (HIV) or other infectious diseases from doing CPR?

You risk infection if you come in contact with someone's saliva. The risk is there, whether you kiss your date or perform CPR. Saliva has not been known to spread HIV. The real danger from HIV is from intimate sexual contact or sharing needles with an HIV-infected person.

Most people who suffer a cardiac arrest do so at home. We are talking about family. Infection? Unless you know the person has some serious infection ... Come onnnnnn! Your folks need you! Get in there!

### 2 If I just don't want to do CPR on someone, do I have to?

This course teaches you how to try to save someone's life in a resuscitation emergency. But no law says you have to. Some people worry about learning CPR. They are nervous about infection if they have to do mouth-to-mouth breathing. Don't worry. CPR is a personal skill. Resuscitation emergencies usually happen at home.

They will usually involve people close to you. Hopefully, you will react and help. If you are in a public place where someone stranger collapses, you will be equipped to make a difference. Hopefully, you will jump in and start CPR if necessary. But, you don't have to. It is your decision. Remember too, if you are hesitant to do full CPR, even performing chest compressions alone is still valuable. Just making that 911 call can still save a life!

### 3 Can I be sued for doing CPR?

Some provinces have a "Good Samaritan Act" or a law like it that protects people who just try to help (visit [www.actfoundation.ca](http://www.actfoundation.ca) for information on your province). Law suits just haven't happened if people meant well and tried their best to do CPR the way they were trained. Again, remember most people who suffer a cardiac arrest do so at home.

### 4 You don't have to start CPR on everyone whose heart stops.

It may be no surprise when a person suffering from a serious terminal illness, or extreme old age, has a cardiac arrest. Technically, everyone dies that way. The heart stops. Life ends. CPR is not usually meant for people whose death was anticipated and perhaps quite natural. CPR is meant for those people who have a sudden cardiac arrest – for whatever reason – when it wasn't expected.

### 5 Should people with a possible heart attack or stroke take Aspirin (ASA)?

If a person is having chest pain that might be cardiac, doctors often try to give the patient an ASA pill. It works as a sort of blood thinner, which may limit the damage done by a heart attack. You can't substitute Tylenol. It does not help for this. Also, some patients are allergic to ASA. But if the person with pain says, "ASA is no problem. I take it all the time," then OK. Just one is all that's needed. When the paramedics arrive, tell them ASA was given.

It's not so clear for patients who are suffering a possible stroke. Let the paramedics decide that one.

6 If someone has chest pain that might be a heart pain (remember the 5 Ps?) should they take Nitroglycerin?

Many patients take a medication called Nitroglycerin that helps open up those clogged blood vessels and relieves the pain of angina. If a person with a possible heart pain wants to take Nitroglycerin, help out. Check their pockets or purse. "Nitro" is usually in a little spray bottle. It is squirted under the person's tongue. If you see it, help the person use it.

7 When people fall down unconscious do I have to worry about their neck?

Sometimes when people collapse, they hurt their neck. Suspect a neck injury when the collapsed person has:

A head injury:

Fallen from a height or down stairs;

Been in a motor vehicle collision;

Bleeding from the mouth, ears, nose;

Swelling along the neck or spine.

You have learned how to assess responsiveness, the airway, breathing, and how to do mouth-to-mouth breathing. If you suspect either a head or neck injury, you must protect the head and neck from movement when you are doing these things to prevent further injury to the neck.

8 What if it is not a heart attack? Will I look foolish if it is a false alarm?

At the emergency department of the hospital, doctors will examine the person. They may do special tests. If there is an important problem the person may stay in the hospital. But often the problem is not caused by a heart problem and the person may get sent home. Did you make a mistake? No! It is OK to be wrong like this. Even doctors can't tell without tests. Doctors will say you did the right thing. No one should make you feel stupid. Do it again next time.

9 What if the emergency is not caused by a heart problem?

People who drown or choke on something have cardiac arrests, but for different reasons. They can't breathe. Oxygen can't get to their lungs and into their bloodstream. The brain stops working. Soon, they are unconscious. Other organs like the heart start to fail.

People who are badly injured and bleeding may "bleed to death." When they lose too much blood, there is no way oxygen can be delivered to various organs, which soon start to die.

CPR helps maintain the circulation and oxygen delivery for any of these people. By breathing for those people and pumping their hearts, the person doing CPR tries to keep them going until paramedics arrive.

Hearts stop for any reasons, not just because of heart problems. CPR can help in any of these cases.

## FREQUENTLY ASKED QUESTIONS ABOUT AEDS...

- 1 What if the patient is in water, is all wet or has vomited?  
Move the person away from the water. Dry the chest before applying the pads. Yes, even wipe away the vomit if you have to. It is OK to use the AED if the floor is just wet or if the patient is lying on snow. Just make sure you dry off the chest before trying to stick the pads on.
- 2 What if the patient might be pregnant?  
Use the AED as you would for anyone.
- 3 What if the person is young?  
Current CPR and AED guidelines allow you to use an AED on any size of person, including children (considered between 1 and 8 years old) and babies (considered as 1 year old or less). If child or baby pads or a child key or switch are available, use them. If not, use the adult pads. When you put the pads on the chest, make sure the pads don't touch each other. If there is less than 2.5 cm (1 inch) between the pads when they are placed on the chest, place one on the front of the chest (anterior) and one on the back (posterior).
- 4 What if a person has a medication skin patch?  
Don't stick the electrode pads over the patch. Either place the pads to one side or remove the patch and wipe the skin clean before applying the electrode pads.
- 5 What if the person has a pacemaker?  
When you expose the chest, you might see a scar and lump, usually on the left chest. Place electrode pads 2-3 cm away from that.
- 6 What if the AED says "Check pads"?  
Press firmly on the pads to make sure they are stuck on properly. If you had previously dried the chest because it was wet, dry it and try again. If the chest is hairy, is there a way to quickly shave the hair over the pads a bit to a better area? If there is any delay, keep doing CPR. Is there a second set of pads with the AED?
- 7 What if an older person wants to take over?  
Ask if that person has been trained. If not, you are the best one to run the AED. Say it. Have that person assist with CPR.
- 8 What if a player at a hockey game collapses near where you sit?  
What if you see people running around but not doing what you know needs to be done?  
Like anywhere else, stand up and say "I know CPR. Get the defibrillator!" Do it!

Any other questions? Check out ACT's website! [www.actfoundation.ca](http://www.actfoundation.ca)  
(ACT has experts...lots of experts).

## RESCUED SOMEONE? KNOW SOMEONE WHO HAS? TELL US A "RATTLE TALE"!

Rattled the Chain? Someday you may use some of the skills and knowledge you have just learned.

Someone in your family quit smoking because you spoke up? You helped someone recognize they might be suffering from a heart attack or stroke? You had to call for an ambulance for someone? You helped the situation by being Visible with Information? You helped someone who was choking on food? You provided CPR and/or AED for someone? Something else?

LET US KNOW! Phone (it's free!) 1-800-465-9111 or email us at [act@actfoundation.ca](mailto:act@actfoundation.ca).

## CLOSING NOTES...

Your teacher will give you the ACT High School CPR & AED Program Student Course Completion Card-Heartsaver Level at the end of this program. Wondering what to do with it? Present this card when applying for a job or put it in your portfolio! You've done a great thing by learning CPR and AED, so don't hesitate to let others know you have the skills to save a life! Think about taking more advanced training in CPR and First Aid, and remember to take a refresher course over time!



The ACT Foundation is a national, award-winning charitable organization that works alongside health professionals, governments and community groups in promoting health and empowering Canadians to save lives. ACT is working with partners to establish CPR and defibrillator training programs in high schools across Canada.

ACT's health partners are:

AstraZeneca Canada

Pfizer Canada

Sano fi