ACT High School CPR & AED
Student Manual
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To show skills clearly, rescuers in the illustrations in these modules are not wearing or using personal protective equipment (PPE), such as gloves, masks and barrier devices. However, personal protective equipment is important for your safety. Please refer to the Heart and Stroke Foundation of Canada’s guidelines regarding personal protective equipment. You should also consult public health guidelines for your province/territory and community, as recommendations do change.

During this unprecedented time of the COVID-19 pandemic, the Heart and Stroke Foundation of Canada has released recommendations based on expert opinion to reduce the risk of virus transmission for public responders while performing CPR or using an AED during a cardiac arrest. Click the link below for these recommendations and information from the Heart and Stroke Foundation.

www.heartandstroke.ca/articles/modification-to-hands-only-cpr-during-the-covid-19-pandemic

Acknowledgments

The ACT High School CPR & AED Program training is based on the Heart & Stroke 2020 Guidelines for CPR and Emergency Cardiovascular Care (ECC). The evidence behind the guidelines comes from a global process coordinated by the International Liaison Committee on Resuscitation (ILCOR), of which Heart & Stroke is a founding member and the Canadian representative.


The ACT High School CPR & AED Student Manual presents an introduction only to the hands-on practical skills of CPR. To complete the program, students will need to receive practical hands-on skills training from their teacher at school.

Refresher training is important, and guidelines can change over time. CPR agencies recommend refresher training every 1-3 years from the previous training, depending on the agency. The Heart and Stroke Foundation recommends regular training and/or practice of CPR skills and annual refresher training.

Training in how to administer NARCAN® Nasal Spray (Naloxone) is based on the recommendations of the manufacturer, Emergent BioSolutions Canada Inc. For further information, indications, and important safety information, see narcannasalspray.ca/en/.

“A Healthy Diet Includes” was borrowed from www.heartandstroke.ca/get-healthy/healthy-eating/healthy-eating-basics published by the Heart and Stroke Foundation of Canada. The Chain of Survival™ logo is a registered trademark of the American Heart Association. Illustrations of the heart and lungs were reproduced with the permission of St. John Ambulance, Canada.

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Introduction

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.

4 ‘Rs’ of CPR

This CPR course teaches the 4 ‘Rs’ of CPR:

**Risk:** factors in your life for developing heart disease or having a stroke;

**Recognize:** how to recognize a developing emergency;

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

**Resuscitate:** how to do CPR, how to use an AED and, how to help someone who is choking.

Chain of Survival

Why learn this? Don’t paramedics look after pre-hospital 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 activation of emergency response
- Performing early CPR
- Providing early defibrillation with an AED

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. It will provide you with the knowledge and skills you can take home to your family now, and carry with you throughout 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, and without oxygen, these organs start to die.

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. The blood vessels include a network of arteries and veins. When one of these arteries becomes blocked (e.g. by plaque, which is junk like fat or cholesterol), the area of the heart muscle that the artery nourishes is suddenly deprived of circulation... no blood circulating, so no oxygen... the person experiences chest pain.

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

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

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

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.

This can occur when the 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 rhythmic pumping action and may start to fibrillate. This is a squirmy 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 with defibrillation.
What is CPR?

CPR stands for Cardiopulmonary Resuscitation. It is an emergency lifesaving procedure, performed when someone’s heart stops beating.

CPR is often taught as Compression-Only CPR. You will learn more about this when you come to the 4th ‘R’ – Resuscitate.

What is Defibrillation?

An automated external defibrillator (AED) is a small computerized device that delivers a special kind of shock to the heart.

When the heart is in ventricular fibrillation, the AED is trying to stop the squirmy action and kick start it. It is trying to reset the heart muscle and restore its smooth pumping action. When you deliver the shock and the heart stops fibrillating, you have de-fibrillated it. This is called defibrillation.

PAD: Public Access Defibrillation

Look for new, small, easy-to-use defibrillators hanging on walls in lots of places, just like fire extinguishers. Lifeguards, security guards, even hotel desk clerks and the server 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.

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 the 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. An artery can become blocked by junk, like fat or cholesterol. When the area of the brain nourished by that artery has no oxygen, it gets damaged. As a result, a person may have slurred speech, vision problems, or sudden weakness of the face, arm or leg. That is a stroke.

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’.
I. Risk Factors — Heart Disease and Stroke

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 definitely do something about most other risk factors. Let’s talk about these other risk factors and about being heart healthy.

Smoking

Smoking is a major risk factor for heart disease and stroke. It causes lung cancer and stinky breath. It is the worst, most direct, most 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

High blood cholesterol means lots of fat in the blood. This Risk factor has a lot to do with what we eat. Some cholesterol 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

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.

A Healthy Diet Includes:

1. Eating lots of vegetables and fruit.
2. Choosing whole grain foods.
3. Eating protein foods.
4. Limiting highly processed foods.
5. Making water your drink of choice.

For more tips and info: www.heartandstroke.ca/get-healthy/healthy-eating/healthy-eating-basics
**Diabetes**

Diabetes affects the level of sugar 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 a healthy diet, practice regular physical activity, and follow their doctor’s instructions.

**Obesity**

When a person is obese, their heart has to pump harder all the time to move blood around.

**Lack of Exercise**

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

**Excessive Stress**

Excessive stress over a long period of time can affect your body. Heart problems can be one of the results.

**You Were Going to Ask...**

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, weightlifters do a workout, hit the showers, rest a day and come back for more. The well-conditioned muscles that an athletic person builds are generally healthy.

The athletic person may gain weight, but those muscles help the rest of the body’s circulation and functioning. When someone gains weight from lack of exercise and poor diet choices, their heart has to work harder. It does not get the help it needs to manage the circulation required to deliver oxygen to the rest of the body. Over time, the heart may fail.

**Lifestyles, Risk Factors — Some Thoughts**

Many adults in your life may be overweight or smoke. It can be really tough to lose weight or stop smoking.

Now, many of those adults have health problems. Today we know so much more about healthy living habits. You can reduce your Risk of developing heart disease and stroke by developing heart-healthy habits now, to last a lifetime. Don’t be afraid to go and tell the folks at home what you have learned about Risk factors.

Now, let’s move on to Recognition.

**We Are Not Just Talking About Heart Attacks!**

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.
MODULE 3

II. Recognize

Early Recognition means recognizing someone may be having a heart attack, a stroke or a cardiac arrest. It means understanding the signs that someone is in trouble and being prepared to act!

Signs of a Heart Attack — Look for the 5 ‘Ps’

Pain: pain or discomfort, heaviness, tightness, squeezing, burning or pressure in the chest that may spread to the neck, jaw, shoulders, arms, or back.

Pale: skin may appear pale and is often sweaty.

Puffing: shortness of breath or trouble breathing.

Pooped: feeling very tired and/or light-headed.

Puking: feeling sick to the stomach or actually vomiting.

A person may experience some or all of the 5 ‘Ps’. Signs can vary and may be different from person to person. But if the person looks sick and you recognize any or all of the 5 ‘Ps’, call 911 or the local emergency number immediately.

Signs of a Stroke

If you recognize what might be a stroke: sudden numbness, tingling or weakness of the face, an arm (or a leg), or speech problems, time is critical. New treatments for strokes (e.g. clot busters) must be given within a few hours to work. Call 911 for an ambulance that will take you to the right hospital. No driving to the hospital!

Learn the signs of stroke

Face is it drooping?
Arms can you raise both?
Speech is it slurred or jumbled?
Time to call 9-1-1 right away.

Act FAST because the quicker you act, the more of the person you save.

© FAST Graphic from Heart and Stroke Foundation of Canada
Denial and Fear

People often have trouble accepting that they might be experiencing a heart attack or stroke. You might see reactions like:

**Denial:** "I'm too young"; "I'm fine"; "It will go away with a little rest"; the thought,"It can't be happening to me"

**Fear:** the person may be terrified and afraid to go to the hospital.

Be firm. If the signs 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 signs of a heart attack and the signs of a stroke and don't let yourself be paralyzed by denial and fear.

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**Signs of a Possible Cardiac Arrest**

If the person is unconscious, unresponsive, and not breathing, assume they are 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, gasoline, hostile animals or people).

Holler for help if you are alone. Call 911 for an ambulance. If someone hears you holler, get that person to call 911 and send someone for an AED. Ask someone to get the first-aid kit if you are at school, at work, or at home. First-aid kits usually have personal protective equipment, like gloves and masks, to protect you.

Helping in an emergency may mean getting physically close to someone. This can be worrisome, but you can still help. If COVID-19 is still active, wear a mask and have the person apply one to their face and wash your hands after any physical contact. Call out to the person to assess responsiveness from at least 2 metres or 6 feet away, call for help, call 911, and send someone for an AED.

Before helping a conscious person, you must ask for and get permission to help. Explain that you have had CPR training and 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. Provide care just as you would want someone to care for you. Do your best.

If a person has chest pain or discomfort, be aware that many people take nitroglycerin when they get angina. It helps to open up the circulation and relieves the pain. Ask the person if they take nitroglycerin. If yes, then help them by getting it and suggest they take their normal dosage.

If a person with chest pain, which might be a heart problem, has Aspirin tablets nearby, suggest chewing or swallowing 2 low-dose (81 mg) pills, or just a regular Aspirin while waiting for the ambulance. If the person already took Aspirin or has been told not to take it in the past, wait for the paramedics instead.

If you think the person may be suffering a stroke, no Aspirin.

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

Position the person so they are 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 them know help is on the way. Remember, as much as possible, stay with the person. If the person becomes unconscious, they will need your help even more.
What if the Person is in Cardiac Arrest?

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

What to do Until the Ambulance Gets There

Paramedics are trying to find you. Be visible with information. Get out front. Wave and/or flash a light when you see them. What information should you give them about the person?

**Medications:** Gather any medications and put them in a bag if you can.

**Allergies:** Are there any allergies? Ask. Write them down.

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

**So, Hazards and Holler, a little PLT, and be visible for the paramedics. Remember that, and you know how to React when you see an emergency develop. Now, let's move on to Resuscitation.**
IV. Resuscitate

Important information for students learning this program online

For students learning this program online, you have now learned about the first 3 ‘Rs’ of CPR (Risk, Recognize, React). Even without the 4th ‘R’ Resuscitate, this is important learning which may guide you to Recognize a potential health emergency and React, controlling the scene, and calling 911.

Regarding the 4th ‘R’ (Resuscitate), the following Module 5 (pages 15-25) is offered as an introduction ONLY to the practical hands-on skills as an overview. To complete the program, you will need to be taught the hands-on skill of CPR with practice on a training mannequin and assessed by your teachers in school. Please touch base with your classroom teacher at school to learn the hands-on CPR skills and to receive your course completion card.

Remember: COVID-19 requires special care. When helping someone, remember to wear a mask and wash your hands after any physical contact.

A. Resuscitate – CPR

Often, people stand around in an emergency waiting for someone else to do something, hopefully someone trained and capable. Hey! ... If that is you, focus! Act now! “I’ve been trained. I can do this.”

Say something. Do something. Act now! Others will help.

Modification to Performing CPR during the COVID-19 pandemic
Guidance for the public to reduce the risk of virus transmission

During this unprecedented time of the COVID-19 pandemic, the Heart and Stroke Foundation of Canada has released recommendations based on expert opinion to reduce the risk of virus transmission for public responders while performing CPR or using an AED during a cardiac arrest. They include recommending the rescuer place a cloth, towel or clothing over the person’s nose and mouth when performing CPR and using an AED on them to help prevent any potential spread of the virus through contaminated air or saliva.

Click the following link for full recommendations and information from the Heart and Stroke Foundation: www.heartandstroke.ca/articles/modification-to-hands-only-cpr-during-the-covid-19-pandemic

In order to show skills clearly, rescuers in the illustrations in these modules are not wearing or using personal protective equipment, such as barrier devices like pocket masks, masks, and gloves. However, personal protective equipment is important for your safety. Please refer to the Heart and Stroke Foundation of Canada’s guidelines regarding personal protective equipment. You should also consult public health guidelines for your province/territory and community, as recommendations do change.
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, gasoline, hostile animals or people).

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 emergency number, 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.

**Reminder:** Due to the COVID-19 pandemic, it is recommended for the rescuer to place a cloth, towel or clothing over the person’s nose and mouth when performing CPR on them.

4 **Landmark for chest compressions.**

Make sure the person is lying on their back on a firm, flat surface.

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 teacher will show you how.
5 Give chest compressions.

Compress straight down on the breastbone. Compress at 5 cm (2 inches) at a rate of 100-120 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.).

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:** Push hard! Push fast! 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.

6 **Continue CPR** even when someone brings an AED. Stop when the AED is ready to use or when you see signs of life, breathing, movement, or Emergency Medical Services (EMS) personnel take over.

**Getting Tired?** 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.
B. Resuscitate – Defibrillation

REMEMBER: Ventricular fibrillation is when the heart’s main muscles, the ones around the ventricles, lose their rhythmic pumping action and may start to fibrillate. This is a squirmy kind of muscle contraction that does not pump blood. It is called ventricular fibrillation because it is a ventricle, and it is fibrillating. By Reacting quickly, you may be able to fix this.

The combination of early CPR and early defibrillation saves lives.

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.”

1. Call 911 or your local emergency number, 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...

   - Turn it on and follow the voice prompts.
   - Continue CPR while setting up the AED.
   - Expose the chest, dry skin, and remove excess hair or medical patches from the person’s chest prior to applying the pads.
   - Apply the electrode pads to the 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.)
   - Start CPR again when the AED tells you. Follow the voice prompts. If you see signs of life, breathing, and/or movement, place the person in the recovery position.
C. Resuscitate – 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, or 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, or 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.”

   Ask, “Are you choking? Can I help you?”

2 Holler for help. Reassure the person and explain what you are going to do. Call 911 or your local emergency number, or have someone call for you if the person is having difficulty breathing.

3 Give abdominal thrusts (sometimes called the Obstructed Airway Manoeuvre) if the choking person cannot speak, cough, or breathe. Stand behind the person and wrap your arms around their 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.
Choking Person Who Becomes Unconscious

If the choking person becomes unconscious, carefully support the person to the ground, and make sure to do all the steps linked to CPR (see Module 5A).

Recovery Position
(Your Teacher Will Show You How)

For an unconscious person who is breathing, place them 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 their breathing carefully. The person may stop breathing again. Stay with the person until medical help takes over.
D. Resuscitate – Opioid Overdose Response Training

The 4 ‘Rs’ and Opioids

In the previous modules, you learned about the 4 ‘Rs’ of CPR: Risk, Recognize, React, and Resuscitate. We talked about heart attack, stroke, and cardiac arrest emergencies.

In this module, you are going to learn about how to help a person in a suspected opioid overdose.

Remember, any collapsed person with no signs of life needs CPR. You still follow the Recognize, React, Resuscitate sequences regardless of the cause.

For a suspected opioid overdose, aside from CPR, you can also provide Naloxone, a medication that can temporarily reverse the effects of opioids.

This topic may trigger emotions depending on the experiences some of you or those close to you may have had with opioids. It is important that you recognize those emotions and thoughts. At the end of this lesson, you can ask your teacher to provide you with resources and contacts that can assist you.

What are Opioids?

Opioids are drugs prescribed to treat pain.

Opioids may cause the person to feel “high”. Sometimes this has led to problematic use of these drugs.

Opioids you may have heard of include: Codeine, Fentanyl, Heroin, Hydrocodone, Hydromorphone, Morphine, Methadone, Oxycodone, Percocet, and Tylenol with Codeine.

Opioids may be taken by injecting with a needle, by mouth in pill or liquid form, through a skin patch, by smoking, or by snorting in powder form.

The strength of illegally obtained drugs may vary, making them particularly dangerous.

What is Fentanyl?

Fentanyl is a powerful opioid that is prescribed to treat severe pain. When prescribed, or given at the right dose, it is a safe drug. However, it can be found in illegally obtained drugs and is often mixed in with other drugs.

Fentanyl can be in any form of pill or compound. Sometimes there is no pill, just something in which Fentanyl powder has been mixed into.

Any pills or powder “laced” with Fentanyl, or some of the other newer opioids, may look like any other pill or powder, but their effect is often immediate collapse.
How do Opioid Overdoses Happen?

Most people who are prescribed opioids take them with no problem.

However, an opioid overdose can happen in a number of ways. For instance:

- A person who is prescribed an opioid medication for severe pain may accidentally take too many pills, or may become confused and take the wrong pills.
- A person may unknowingly take opioids that are in a drug they are using recreationally.
- A person may try opioids or even unknown pills to get high and take too many pills.
- A child may find some in a cupboard and think they are candy.

Some people keep taking opioids, maybe as pills, or maybe in a stronger form. They may start to inject them with a syringe.

When a person keeps using opioids, the body may get “used to them”. They may develop a strong physical need for more opioids.

Their body may have strong reactions if they can’t get more. They may develop an addiction.

Anyone who takes opioids can develop an addiction to them.

Anyone can experience an opioid overdose.

Opioid use, problematic use, and addiction are not limited by sex, gender, or age, and can affect anyone.

Many overdoses are not intentional.

They can be due to experimentation with known or unknown substances and frequent or infrequent use.

As you React in an emergency situation and start Resuscitation, you will look for clues about why the person is unconscious. For example, seeing obvious opioid drugs nearby, an opioid overdose history, a witness who saw the overdose, etc. These clues can guide your treatment to include Naloxone.

But remember, opioid overdoses can occur in other situations. There may be missing pills from the pill bottle of an older, confused, or forgetful person who has taken too many, or suspicion that a child ate pills that looked like candies. If there is good evidence, these people may benefit from Naloxone as well.

What Happens in an Opioid Overdose?

Opioid drugs affect how your brain controls your breathing.

In an opioid overdose, a person may become sleepy, dopey, fall unconscious, and may stop breathing. A person can die from an opioid overdose.

You can do something about that! Remember the 4 ‘Rs’ from your CPR training: Risk, Recognize, React, Resuscitate! Remember, you can do this. You’ve been trained.
What is Naloxone and How Does it Work?

Naloxone (also known as NARCAN®) is a fast-acting medication that can temporarily reverse the effects of an opioid overdose. Naloxone and NARCAN® are different names for the same medication.

Naloxone can restore normal breathing within minutes to a person whose breathing has slowed or stopped due to an opioid overdose.

Naloxone is safe to administer and only works if the person has opioids in their system.

Naloxone kits have been made available through many pharmacies for free.

The kits typically contain gloves, alcohol wipes, a face shield, and nasal Naloxone to squirt into the person’s nose. Some kits have a needle and syringe for injecting the Naloxone.

Naloxone is not a replacement for emergency medical care.

Always call 911 if any overdose is suspected before you do anything.

**NOTE:** For more information on Naloxone, see Health Canada’s website: [www.canada.ca/en/health-canada/services/opioids/naloxone.html](http://www.canada.ca/en/health-canada/services/opioids/naloxone.html)

For some myths and facts about opioids, see the Canadian Mental Health Association fact sheet: [CMHA-Naloxone-Toolkit-Fact-Sheets-Myth-ENG-Final.pdf](http://CMHA-Naloxone-Toolkit-Fact-Sheets-Myth-ENG-Final.pdf)

**Example:**

**Myth:** If I administer Naloxone incorrectly, I could seriously injure someone.

**Fact:** There are no reported cases of injury or death from giving Naloxone.

When someone overdoses, doing nothing is the most dangerous thing you can do. Although some side effects can occur, such as nausea, vomiting, diarrhea, and dizziness (symptoms similar to withdrawal), serious side effects from Naloxone are very rare.

Recognizing a Suspected Opioid Overdose

In responding to an emergency, you may suspect an opioid overdose, but it may not be immediately clear.

Ask bystanders if they know what happened. You might ask if there is drug paraphernalia around, like needles, injection supplies, powder, or pill bottles.

You might ask if there are any other reasons to suspect an overdose.

Helping a Person

There is a risk of infection if, while helping a person, you contact body fluids (blood, saliva, vomit, etc.). Use personal protective equipment, such as barrier devices like pocket masks, masks, and gloves. Disposable gloves are typically in first-aid and Naloxone kits.

If barrier devices are not available, it is a personal choice to proceed without them.

Wash your hands well after any physical contact.

There is a risk of being pricked with a used needle when helping a person who has used one to inject opioids. Care must be taken around used needles and you should never attempt to recap a needle.
REMINDER: Due to the COVID-19 pandemic, it is recommended for the rescuer to place a cloth, towel, or clothing over the person’s nose and mouth when performing CPR on them.

Really worried about the infection risk? As a minimum, just shout for nearby help if you are alone and call 911.

Overdoses are a medical emergency.

Calling 911 and helping a person can save their life.

Visit the Good Samaritan Drug Overdose Act link for more information: www.canada.ca/en/health-canada/services/opioids/about-good-samaritan-drug-overdose-act.html

Responding to a Suspected Opioid Overdose

In responding to a suspected opioid overdose, remember your CPR training.

If you Recognize a person may need help or is unresponsive, React and Resuscitate just as you have been trained.
Remember, say to yourself, "I've been trained. I can do this." ©

- First you check for hazards.
- Assess responsiveness.
- Shout for nearby help.
- Call 911 or your local emergency number, or have someone call for you.
- Send someone for Naloxone, and an AED if available.

If the person is not responsive and is not breathing (or there is only an occasional gasp of air):

- Start Compression-Only CPR.
- Give nasal Naloxone spray if available.
- Use an AED.
- Make sure 911 was called.

In responding to a suspected opioid overdose, when performing CPR you may choose to provide rescue breathing in addition to chest compressions, if you are trained and comfortable to do so. Remember your safety precautions. You should only provide rescue breathing if you are trained and have a barrier device, like a pocket mask or a face shield with a one-way valve, or if transmission of COVID-19 or other infectious disease is not a concern to you (e.g. the person is known to you, such as a family member).
How to Give Nasal Naloxone Spray

How to give nasal Naloxone spray:

- Peel the package open. Tilt the person’s head back and support the person’s neck with your hand.
- Hold the nasal Naloxone spray device and place the tip in one nostril to give nasal Naloxone spray.
- Press firmly, squirting into one nostril.

If the Naloxone kit only contains a needle and syringe, rather than the spray, ask anyone who knows how to administer it to do so.

What if the person is still not responsive and not breathing (or there is only an occasional gasp of air):

- Continue CPR.
- Some overdoses require more than one dose of Naloxone.
- Give another dose of nasal Naloxone spray, if available, in the other nostril, using a new device 2-3 minutes after the first dose, if the person is still unresponsive and not breathing.
- Continue CPR until signs of life, breathing, movement, or EMS personnel take over.

What if the person is not responsive and is breathing:

- Place them in the recovery position by putting them on their side. Continue to observe the person’s responsiveness and breathing until EMS arrives.
- Sometimes when a person who has overdosed regains consciousness, they can be upset and agitated.
- Stand back. If EMS are present, let them control the scene.

**NOTE:** As with helping in any rescue situation, it is important that you talk about your experience and feelings following the rescue. Your teacher can guide you to a school counsellor or another appropriate resource.
It’s not just about CPR!

It’s about CP-R-R-R-R-R...

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

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 parent has chest pain, they may not know about clot busters. 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 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 ‘Rs’ IQ...
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 holler 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 holler 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 someone yell that a woman has collapsed. Bystanders are already performing CPR and you know where the AED is located.

  **Resuscitate**

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 the player is not breathing.

  **Resuscitate**
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 Granny into the recovery position.

Hazards and holler and a little PLT
While your dad checks Granny’s purse 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 clot 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 your dad lie down.

Hazards and holler 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, someone is found unconscious in the backyard pool. Someone has lifted them to the poolside. You step up and say, “I know CPR.” (It scares you a little that people are suddenly listening to you and doing what you say,) You Recognize that this person is in cardiac arrest.

You React, yelling for someone to call 911.

Hazards and holler and a little PLT
And you Resuscitate, starting CPR. Be careful to support their neck, because you don’t know how they fell into that pool! You tell someone to get any information about this person. Who are they? Do they 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.

Resuscitate

Visible with information
Lots of people die. They die from drowning, heart attacks, and 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, not everyone has to die in these situations. If only someone had known how to help, if they had rattled the Chain of Survival.

A person collapsing in cardiac arrest will have a much better chance of survival 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 how to use an AED. You are never going to be helpless if someone collapses in front of you.

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. Flashing a current CPR and AED card might look good when you apply for a job.

Congratulations! Stand up and say, “I’ve been trained. I can do this.” © No, shout it. Remember, you are CPR trained 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 33 to learn how to tell a rattle tale.
Questions? We Have Answers...

1. Can I get infectious diseases from doing CPR?

Whether a family member at home collapses or a stranger collapses, you will be equipped to make a difference, to start CPR if necessary. But, it is your decision. Recognize what is happening, React by calling for help (911), and Resuscitate. You can perform Compression-Only CPR.

During this unprecedented time of the COVID-19 pandemic, the Heart and Stroke Foundation of Canada has released recommendations based on expert opinion to reduce the risk of virus transmission for public responders while performing CPR or using an AED during a cardiac arrest. They include recommending the rescuer place a cloth, towel or clothing over the person’s nose and mouth when performing CPR and using an AED on them to help prevent any potential spread of the virus through contaminated air or saliva.

Click the following link for full recommendations and information from the Heart and Stroke Foundation of Canada:
www.heartandstroke.ca/articles/modification-to-hands-only-cpr-during-the-covid-19-pandemic

2. If I just don’t want to do CPR on someone, do I have to?

Resuscitation emergencies usually happen at home, most often involving people close to you. Hopefully, you will react and help. If a stranger collapses in a public place, you will be equipped to make a difference, to start CPR if necessary. But, it is your decision.

3. Can I be sued for doing CPR?

In Canada, we have acts protecting bystanders who respond to health emergencies. While each province or territory names the act differently, it is most commonly known as the Good Samaritan Act. Visit actfoundation.ca/act-programs/teachers/good-samaritan-acts/ for information on your province or territory.

4. Does everyone whose heart stops need CPR?

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 the person has Aspirin tablets nearby and is not allergic or intolerant, suggest chewing or swallowing 2 low-dose (81 mg) pills, or just a regular Aspirin, while waiting for the ambulance. If the person already took Aspirin or has been told not to take it in the past, wait for the paramedics instead. If you think the person may be suffering a stroke, no Aspirin.
6. If someone has chest pain that might be a heart pain, (remember the 5 ‘Ps’?) should they take Nitroglycerin?

If a person has chest pain or discomfort, be aware, many people take nitroglycerin when they get angina. It helps to open up the circulation and relieves the pain. Ask the person if they take nitroglycerin. If yes, then help them by getting it and suggest they take their normal dosage.

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; or swelling along the neck or spine.

You have learned how to assess responsiveness and check for 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. Hearts stop for many reasons, not just because of heart problems. CPR can help in any of these cases.

10. What do I do if I suspect an unconscious person may have suffered a drug overdose?

There is an increase in overdoses in many communities, especially due to opioids like Morphine, Heroin or Fentanyl. Know the Risk that an unconscious person may have suffered an overdose of opioids. Recognize whether the person is in cardiac arrest. React by calling for help (911) and for someone who has and can administer Naloxone. Resuscitate if the person is not responsive but is breathing, place the person into the recovery position. If the person is not responsive and not breathing, start CPR.
Frequently Asked Questions About AEDs

1. **What if the person 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 a little wet or if the person is lying on snow. Just make sure you dry off the chest before trying to stick the pads on.

2. **What if the person 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 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 side of the 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 or move the pads a bit to a better area? Is there a second set of pads with the AED? If there is any delay, keep doing CPR.

7. **What if another person wants to take over?**

Ask if that person has been trained. If not, you are the best one to continue CPR and guide them on how to use the AED. If you become tired and if someone else knows CPR, you can take turns providing CPR. Move quickly when switching rescuers to keep any pauses in compressions as short as possible.

Be aware also that many 911 dispatchers offer CPR instructions over the phone to assist untrained people in performing CPR.
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 used an AED for someone? Something else?

If you ever use your skills, let us know:
Call us, toll free: 1-800-465-9111
Email: act@actfoundation.ca
Closing Notes

Your teacher will give you the ACT High School CPR & AED Program Student Course Completion Card 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 more advanced training in CPR and first aid. Remember, refresher training is important, and guidelines can change over time. CPR agencies recommend refresher training every 1-3 years from previous training, depending on the agency. The Heart and Stroke Foundation recommends regular training and/or practice of CPR skills and annual refresher training.

Follow us on social media for tips, updates on guidelines, rescue stories, and more.

Any other questions? Check out ACT’s website: www.actfoundation.ca
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 works with many partners to establish CPR and AED training programs in high schools across Canada.

ACT’s National Health Partners are:
AstraZeneca Canada
Amgen Canada

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