



**NationalCPRFoundation™**

# Healthcare Professional (HCP) – CPR / AED Certification Course

In this Healthcare (HCP) CPR Certification Course you'll learn how to perform CPR and how to use an Automated External Defibrillator (AED).





## Introduction

The leading cause of death in the US according to the **Center for Disease Control (CDC.gov)** is cardiovascular disease. Risk factors for heart disease are smoking, high blood pressure, high cholesterol, lack of exercise, stress, and obesity. Factors which are unavoidable are age, sex, hereditary and diabetes. Death is most likely to occur after **10 minutes** of a loss of oxygen to the brain. From **6 to 10 minutes** brain damage is expected. From **4 to 6 minutes** brain damage is very possible and from **0 to 4 minutes** brain damage is virtually non-existent. However, CPR should still be performed.

### CPR for 2 Rescuers

**Compression-ventilation ratio *without advanced airway*** For Adults and Adolescents: compression over breathing 30:2 and for Children and Infants: 15:2.

**Compression-ventilation ratio *with advanced airway*** For Adults, Adolescents, Children, and Infants: Continuous compressions at a rate of 100-120/min while providing one breath every 6 seconds.

### When to stop CPR

If the patient regains a pulse, if the area becomes unsafe, if cardiac arrest last longer than 30 minutes, if the rescuer(s) is too exhausted or ordered to stop. Or, if these complications arise: Fractures, punctures, lung ruptures or collapses, rib separation, bruises of the heart or lungs.

### Recommendation

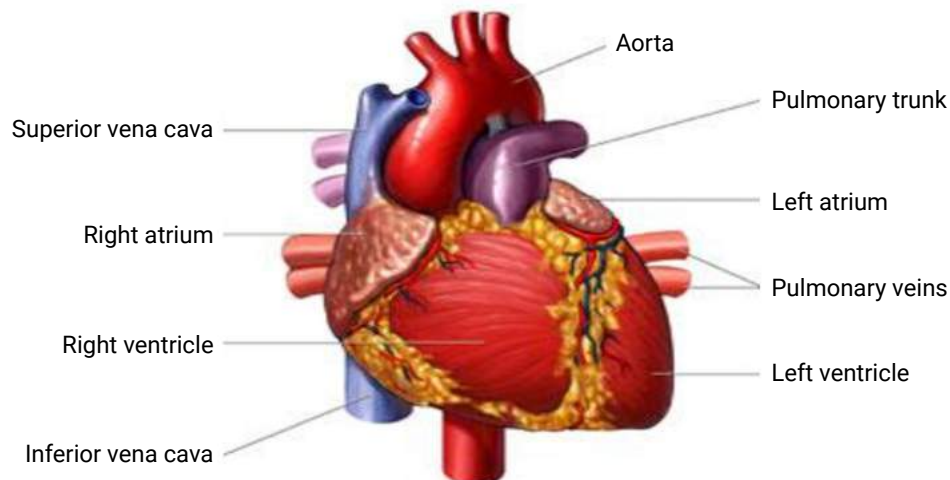
Untrained rescuers should provide Compression-only CPR since it's easy for an operator (dispatcher) to provide and guide instructions over the telephone. **Remember, it is a priority to activate the Emergency Response System immediately and to provide chest compressions.**

The expectation is that Health Care Providers (HCP's) are properly trained in CPR and efficiently able to perform both compressions and ventilation. Priority for the HCP (especially if alone) should be to activate the Emergency Response System as well as perform compressions. Priority may change sequence depending on circumstances (i.e., AED availability).

#### Bloodborne Pathogens to be aware of:

Hepatitis B and C (HBV / HCV), Human Immunodeficiency Virus (HIV) and Tuberculosis (TB).

### Human Heart





## The Good Samaritan

**The Good Samaritan Law protects all who assist those who are injured, ill or in peril.** As long as they're acting voluntary, without expectation of reimbursement or compensation while performing such aid, on-site—they'll have legal protection. Remember, when performing CPR every second counts so unless required otherwise, don't hesitate to call 911, perform CPR or external chest compressions immediately.

**It's important to note:** that the AHA guidelines recommend in-confident performers should, at least, perform chest compressions upon the patient, since studies show chest compressions can be as effective as the combination of CPR.





# Adult and Adolescent – CPR

## When to Activate Emergency Response System

If possible, send someone to activate the Emergency Response System, and begin CPR immediately. As soon as it's available to use an AED. If you're not with someone (and you do not have a mobile phone), leave the patient to activate the Emergency Response System while also retrieving an AED.

**Team Resuscitation:** HCP's can use flexibility when activating the emergency response to fit the provider's clinical setting, for better management.

## Adult and Adolescents CPR

**Scene Safety and Recognition of Cardiac Arrest:** Check for safety and responsiveness, no breathing, gasping, check pulse for more than 5 seconds but within 10 seconds (breathing and pulse check can occur simultaneously).

**Check Pulse:** You can test the pulse by placing two fingers on the carotid artery (press your index and 3rd finger on the side of the neck, against the windpipe). You can also check the wrist by placing the same two fingers on the inside of the wrist below the thumb.



## C is for Circulation – Adult and Adolescent Compressions

**Circulation** - chest compressions circulate the blood within the patient. It's important to place your hands correctly upon the patient's chest. Chest Compression Tempo: perform CPR while matching the tempo of the song, "Staying Alive" while making sure to push hard and fast.

### Compression-ventilation ratio *without Advanced Airway*

Make sure the adult or adolescent is resting upon a firm, solid surface. Perform chest compressions on the lower half of the breastbone (sternum). Once in position, lock your elbows and use your body's weight to compress at least 2 inches (5 cm) upon the patient's chest. **Do not lean on the patient's chest in between compressions and make sure the chest ultimately recoils.** Limit all interruptions to less than 10 seconds while performing CPR.

**It's important to note:** that when performing chest compressions on an adult or adolescent you should compress at least 2 inches (5 cm). The compression rate is 100-120/min. **2 Rescuers:** Perform tasks simultaneously. Administer compressions over breathing 30:2.

**Chest Compression Fraction:** is the total percentage of resuscitation time when performed by the rescuer(s) during cardiac arrest. Whether intended or unintended interruptions (such as real-world delays) occur Chest Compression Fraction aims to minimize pauses in chest compressions. **Chest Compression Fraction Goal:** target of at least 60%.

### Compression-ventilation ratio *with Advanced Airway*

- Continuous compressions at a rate of 100-120/min
- One breath every 6 seconds (10 breaths/min)

**Obese:** yes, perform Chest Compressions

**Pregnant:** yes, perform Chest Compressions and a modification if the pregnant woman's fundus height (baby-bump) is at or above the level of the umbilicus. If the woman's fundus height is at or above the umbilicus, then High-quality CPR with manual left uterine displacement will be beneficial for relieving aortocaval compression during, the chest compression task. **To perform manual left uterine displacement:** push the uterus to the patient's left side with 1 hand while still providing CPR.



# Adult and Adolescent – CPR

## A is for Airway - Clear the Airway

**Airway** - Make sure the patient is on a solid surface (on the backside). Next, kneel next to the patient's neck and shoulders. Open the patient's airway by tilting the head back with the palm of one hand while gently lifting the chin with your other hand. For no more than 10 seconds, check for life: listen for any sounds, put your cheek next to the patient's mouth to feel any breaths while also looking for any motion. Rescuers can check steps simultaneously. If the patient is assumed lifeless begin Mouth-to-Mouth procedure.

**Jaw-Thrust Maneuver:** 1. Kneel above the patient's head. 2. Rest your elbows on the surface. 3. Place one hand on both sides of the patient's jaw. 4. Stabilize the patient's head with your forearms. 5. Use your index finger to lower the patient's jaw as you use your thumb to retract the patient's lower lip. If the patient is assumed lifeless, perform mouth-to-mouth.

## B is for Breathing - Mouth-to-Mouth

**Rescue Breathing** is widely known to be performed mouth-to-mouth—it can also be performed mouth-to-nose but in rare cases. While still performing the Airway technique pinch the patient's nose shut. With a complete seal over the patient's mouth, with your mouth, breathe until you see the chest inflate. If the chest does not rise, repeat the Airway technique. Once the chest swells, breathe into the patient a second time (30:2).

Once the breathing technique is applied, continue **Circulation, Airway, Breathing (C-A-B's)**.

### Rescuers Should Never

- Compress slower than 100/min or faster than 120/min
- Compress in-depth less than 2 inches (5 cm) or more than 2.4 (6 cm)
- Lean on victim's chest during compressions
- Allow interruption during compressions more than 10 seconds
- Provide excessive ventilation during breathing task, ie., excessive breathing with force or too many breaths







# Child (Age 1 Year to Puberty) – CPR

## When to Activate Emergency Response System

**Witnessed Collapse:** Follow steps for Adults and Adolescents

**Unwitnessed Collapse:** Provide 2 minutes of CPR. Leave victim to activate the Emergency Response System and retrieve an AED (unless you can have someone else activate the response). Return and resume CPR and use an AED if it is available.

**Team Resuscitation:** HCP's can use flexibility when activating the emergency response to fit the provider's clinical setting, for better management.



## Child CPR (Age 1 Year to Puberty)

**Scene Safety and Recognition of Cardiac Arrest:** Check for safety and responsiveness, no breathing, gasping, check pulse for more than 5 seconds but within 10 seconds (breathing and pulse check can occur simultaneously).

**Check Pulse:** You can check the pulse by placing two fingers on the carotid artery (press your index and 3rd finger on the side of the neck, against the windpipe). You can also check the wrist by placing the same two fingers on the inside of the wrist below the thumb.



## C is for Circulation – Child Compressions

**Circulation** - chest compressions circulate the blood within the patient. It's important to place your hands correctly upon the patient's chest. Chest Compression Tempo: perform CPR while matching the tempo of the song, "Staying Alive" while making sure to push hard and fast.

### Compression-ventilation ratio *without Advanced Airway*

Make sure the child is resting upon a firm, solid surface. Before you begin, compressions determine if one hand could be used instead of 2 (depending on the size of the child, i.e., small children). Perform on the lower half of the breastbone (sternum). **Do not lean on the child's chest in between compressions and make sure the chest ultimately recoils.** Limit all interruptions to less than 10 seconds while performing CPR.

**It's important to note:** when performing chest compressions on a child, you should compress about 2 inches (5 cm) (at least one third AP diameter of the chest). Do not exceed 1/2 the depth of the child's circumference. It should be between 1/3 and 1/2. Make sure your hands are placed correctly upon the child's chest. Follow the same steps when performing CPR on an adult and adolescents. 30 compressions and two breaths equaling a ratio of 30:2.

**2 Rescuers:** Perform tasks simultaneously. Administer compressions over breathing 15:2.

### Compression-ventilation ratio *with Advanced Airway*

- Continuous compressions at a rate of 100-120/min
- One breath every 6 seconds (10 breaths/min)

## A is for Airway – Clear the Airway

Kneel beside the child the same way you would kneel beside an adult. Perform the 3 steps as you would with an adult—Tilt-chin and open mouth while listening and feeling for any breathing for less than 10 seconds. Make sure nothing is blocking the airway. **Proceed to the Breathing technique if the child isn't showing signs of life.**





## Child (Age 1 Year to Puberty) – CPR

### B is for Breathing – Mouth-to-Mouth

Make sure to perform the same Breathing task upon the child as you would upon the adults and adolescents. Children's lungs are much smaller than adults so make sure to give a lesser breath when performing this task upon a child. After tilting the head and chin, squeeze the nose shut. Seal your mouth over the child's mouth and perform the Breathing task.

**Remember**, give one breath into the child's lungs while making sure the child's chest inflates. If the child's chest doesn't rise, repeat the Airway technique. Once, the chest inflates, perform compressions.

Once the breathing technique is applied, continue **Circulation, Airway, Breathing (C-A-B's)**.

#### Rescuers Should Never

- Compress slower than 100/min or faster than 120/min
- Compress in-depth less than 2 inches (5 cm) or more than 2.4 (6 cm)
- Lean on victim's chest during compressions
- Allow interruption during compressions more than 10 seconds
- Provide excessive ventilation during breathing task, ie., excessive breathing with force or too many breaths





# Infant (Age Less than 1 Year, Excluding Newborns) – CPR

## When to Activate Emergency Response System

**Witnessed Collapse:** Follow steps for Adults and Adolescents

**Unwitnessed Collapse:** Provide 2 minutes of CPR. Leave victim to activate the Emergency Response System and retrieve an AED (unless you can have someone else activate the response). Return and resume CPR and use an AED if it is available.

## Infant CPR (Age Less than 1 Year, Excluding Newborns)

**Scene Safety and Recognition of Cardiac Arrest:** Check for safety and responsiveness, no breathing, gasping, check pulse for more than 5 seconds but within 10 seconds (breathing and pulse check can occur simultaneously).

**Check Pulse:** You can check the infant's pulse by placing 2 fingers on the brachial artery (press your index and 3rd finger on the inside of the infant's upper arm between the elbow and shoulders).



## C is for Circulation – Infant Compressions

**Circulation** - chest compressions circulate the blood within the patient. It's important to place your hands correctly upon the patient's chest. **Chest Compression Tempo:** the correct tempo that should be performed matches the song "Staying Alive." Make sure to push hard and fast to that song's tempo. Use **EXTREME** caution when providing CPR on infants.

**Infant CPR - 1 Rescuer:** Just below the infant's nipples, in the center of the chest, just below the middle horizontal line, place two fingers for compression. Remember, 100-120/min compressions while maintaining the same ratio 30:2 Compression to Breathing. Perform five reps of Compressions and Breathing or about 2 minutes, and then call 911 (or have someone else activate the emergency response system). Continue CPR until help arrives or until the infant breathes again. Press Compressions at about 1/3 of the chest circumference (At least one-third AP diameter of chest About 1.5 inches [4 cm]).

**Infant CPR - 2 Rescuers:** One Rescuer should use two hands holding the infant facing up while positioning the fingers (encircling hands) in the middle of the infant's chest as the other rescuer uses a one-way valve—placing it over the infant's mouth and nose. One rescuer will perform compressions while the other uses the rescue valve. You can also apply a ratio of 15:2 compressions to breathing. You can give one breath every 6 seconds (10 breaths/min) if an Advanced Airway is used.

### Compression-ventilation ratio *with Advanced Airway*

- Continuous compressions at a rate of 100-120/min
- One breath every 6 seconds (10 breaths/min)

## A is for Airway – Clear the Airway

Make sure to lay the infant on a firm, solid surface, as you would with Children and Adults. Make sure to kneel beside the infant's shoulder while placing one hand on the infant's forehead as your other hand gently lifts the chin. Next, listen and feel for any breathing for 10 seconds. Remember, place your cheek just in front of the infant's mouth while checking for pulse under the upper arm. **If the infant isn't showing any signs of life, begin the Breathing technique.**







# Infant (Age Less than 1 Year, Excluding Newborns) – CPR

## B is for Breathing – Mouth-to-Mouth

**Breathing into an infant is different than breathing into an adult or child.**

Place your entire mouth over the infant's mouth and nose when you breathe into the infant. Make sure to perform this task with less breath than you would with children or adults. If the chest fully recoils complete the second breath, each for 1 second. Check for anything blocking the Airway if the chest doesn't rise completely, and then repeat the process.

Once the breathing technique is applied, continue **Circulation, Airway, Breathing (C-A-B's)**.

### Rescuers Should Never

- Compress slower than 100/min or faster than 120/min
- Compress in-depth less than 1 and 1/2 inches (4 cm)
- Lean on victim's chest during compressions
- Allow interruption during compressions more than 10 seconds
- Provide excessive ventilation during breathing task, ie., excessive breathing with force or too many breaths





## Choking, Hypothermia & Dehydration

**Choking** is caused when an object is blocking the throat or windpipe. Adults often choke by large pieces of food, however, children often swallow small toys or other objects.

**Remember**, the universal sign for choking is mimicking choking yourself. Make sure to ask the patient if he/she is choking because, many times, the person is merely coughing. If the patient is unconscious make sure to call 911.

**Infants 12 months or younger:** rest the patient on your forearm (face-down), while also resting your forearm, on your thigh. Perform 5 thumps with the heel of your hand upon the infants back. If the patient is still choking turn the infant over, face-up, and with 2 fingers upon the breastplate perform 5 chest compressions. Repeat the process until the object is lodged.

**Children and Adults:** when performing the Heimlich maneuver make sure to stand behind the person. Lean the person slightly forward and wrap your arms around his/her waist. Next, press hard with a closed fist into the abdomen than grab your fist with your other hand. Perform 5 quick thrusts. If the object still hasn't cleared the patient's throat/windpipe, repeat the cycle.

**Unconscious Person:** when performing the Heimlich maneuver on an unconscious person lay the patient on his/her back. Make sure to clear the patient's airway, if needed, finger swipe the patient's mouth to pick out any foreign objects. If you can't see or can't take the object out of the patient's mouth, make sure to perform CPR. Chest compressions will most likely clear the patient's airway.

If you're still unable to clear the patient's airway and/or if the patient still isn't showing signs of life, make sure to call 911 and continue performing chest compressions.

**Hypothermia** is when the body temperature is below 95 F. Hypothermia occurs when the body loses heat faster than the body can produce energy. Hypothermia often occurs when the body is immersed in cold water. If the patient is left untreated the nervous system will not be able to work properly which will result in organ damage and possibly death.

**Treatment:** Make sure to remove the patient's wet clothing and replace it with something warm and dry. Make sure to perform rescue breaths if the patient is unconscious. If rescue breaths aren't accessible make sure to perform chest compressions. If possible, give the patient a warm beverage and a warm, dry compress (hot water in a bag to hold or cover the patient with). **Do NOT** apply direct heat.

**Exertional Dehydration** – usually dehydration occurs with vigorous exercise in hot and humid environments. Dehydration occurs when you lose fluids more than you take in. If loss fluids aren't replaced dehydration will occur.

**Treatment:** Have patient orally re-hydrate with carbohydrate-electrolyte (CE) drinks. Ingestion of fluids: 5-8% will facilitate hydration. Other drinks: coconut water and 2% milk. Alternatively, if drink aren't available then potable water may be used.

**Severe Dehydration Treatment:** If the patient is severely dehydrated or is in a life-threatening situation activate the EMS. EMS will be able to provide an Intravenous hydration that consists of essential nutrients.





# Automated External Defibrillator (AED)

## Fibrillation

**Ventricular Tachycardia** is a rapid heartbeat that begins at the bottom chambers of the heart, named Ventricles. Ventricles are the main heart's main chambers which pump. Ventricular Tachycardia can be very life-threatening because it can lead to Ventricular Fibrillation.

**Ventricular Fibrillation** is when the cardiac muscles quiver rather than contract. Ventricular Fibrillation requires immediate medical response. If the patient receives no attention he/she will fall degenerate with no blood circulation. After 4 minutes serious brain damage can occur and after 8 minutes brain damage is likely to be severe and can result in death.

### Automated External Defibrillator (AED) Guidelines

## When should an AED be used?

**CPR is a very important action when saving a patient's life.** However, an AED is crucial towards regaining the natural rhythm of the heartbeat as well as restarting the patient's heart. After performing CPR and if the patient is still non-responsive an AED should be implemented. If the AED does not bring the patient back to consciousness CPR should be re-administered. It's crucial to call 911 or any Emergency Medical Service (EMS) before performing CPR or applying an AED.

## How to use an AED

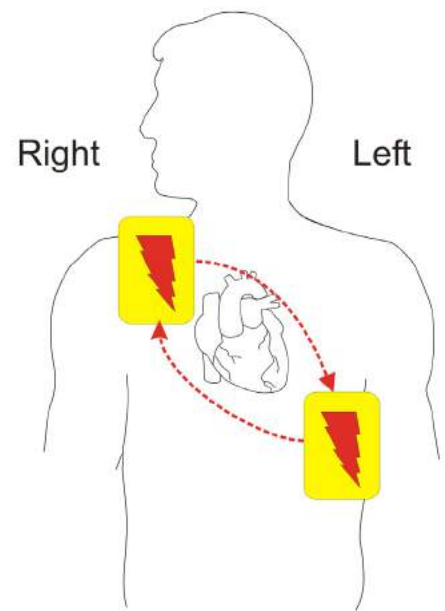
Turn on the AED – Usually, there will be an "On" button but in some cases, there might be a lever. Remove all clothing from the patient's arms, chest, and abdomen—whether male or female. Attach pads to bare skin on the chest. Make sure to use the appropriate system for the child or adult (Do not use an AED on an infant). Place the left pad under the left armpit—to the left of the nipple and right pad under the collarbone on the right side of the chest. Make sure to place the pads at least one inch away from any implanted devices. Next, connect the wiring. Analyze the patient's heart rhythm. Make sure you DO NOT touch the patient during the defibrillator process. If the AED does not begin analyzing automatically, make sure to press the analyze button. When advised, press the "shock" button.

Clean the patient and area of any debris such as metal, significant amounts of water, etc., before using an AED.

## For Infants

**Newer AED's only shock once;** however, some models do shock up to 3 times. If the patient is shocked but doesn't regain a pulse immediately, perform CPR for 2 minutes. If not advised, continue CPR. Make sure to shave the patient, if needed, when using an AED. Make sure to place the pads at least one inch away from any implanted devices or Transdermal medication patches (or remove patch). If the pads are able to touch make sure to place one pad directly on the back of the infant.

**Note:** Before using an AED, physical training is recommended.





# Automated External Defibrillator (AED)

## Resuscitation (special circumstances)

**Drowning:** make sure to remove the patient's wet clothing and replace it with something warm and dry. Make sure to perform rescue breaths if the patient is unconscious. If rescue breaths aren't accessible, make sure to perform chest compressions.

**Trauma:** make sure to use the jaw-thrust maneuver when performing the airway task. Make sure to check for any injuries, such as head, spinal and neck, to maintain patient's protection.

**Electroshock:** make sure to check for safety before attempting any performance on the patient. Verify that the patient isn't near any electrical currents or fuse boxes. CPR is priority 1 for Cardiac arrest patients. If the patient is unresponsive or pulse-less, perform CPR.

Rescuers should be physically & mentally fit as well as skillfully prepared and readied for emergency responses. Rescuers should be knowledgeable of all equipment necessary for usage, beforehand.





# Healthcare Professional – CPR / AED Review

**Make sure to ask the patient if he/she is okay, before performing any tasks.** Also, remember the ratio of chest compressions over breathing 30:2. Don't forget to Look, Listen and feel for breathing. Make sure to check for anything blocking the patient's airway. Rescuers may perform tasks simultaneously.

## CPR for Infants (Age Less Than 1 Year, Excluding Newborns)

- Witnessed Collapse: call 911 or have someone call
- Un-Witnessed Collapse: perform CPR (for 2 minutes), call 911 or have someone call
- Chest compressions - 100-120/min
- Perform CPR - Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 1½ inches (4 cm) - 1/3 AP diameter of chest
- 30:2 compressions over breaths (seal infant's mouth and nose) - 2 Rescuers 15:2
- 2 Rescuers: 2 thumbs compression
- Use AED as soon as it's available



### CPR - Components for Infants (Age Less Than 1 Year, Excluding Newborns) Scene safety

1. Check the environment - making sure it's safe for rescuers and victims

### Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
3. Within 10 seconds - no positive pulse
  - A. (You can check for a pulse and breathing simultaneously in less than 10 seconds)

### Activation of emergency response system

- **Witnessed collapse** 1. Leave the victim, if you're alone without a mobile phone, and activate the emergency response system while retrieving an AED before performing CPR
- **Unwitnessed collapse** 1. Give 2 minutes of CPR 2. Activate the emergency response system, get an AED and return to the victim 3. Resume CPR; use the AED as soon as it is available

### Compression- ventilation ratio without advanced airway

- **1 rescuer** 30:2
- 2 or more rescuers 15:2







# Healthcare Professional – CPR / AED Review

## Compression- ventilation ratio with advanced airway

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)

## Compression rate

- 100-120/min

## Compression depth

- At least 1/3 AP diameter of chest
- About 1½ inches (4 cm)

## Hand placement

- **1 rescuer** Just below the nipple line - 2 fingers in center of chest
- **2 or more rescuers** 2 thumb-encircling hands in the center of the chest, just below the nipple line Just below the nipple line - encircling hands (2 thumbs) in center of chest

## Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression

## Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

## CPR for Children (Age 1 Year to Puberty)

- Witnessed Collapse: call 911 or have someone call
- Un-Witnessed Collapse: perform CPR (for 2 minutes), call 911 or have someone call
- Chest compressions - 100-120/min
- Perform CPR - Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 2 inches (5 cm) - 1/3 AP diameter of chest
- 30:2 compressions over breaths - 2 Rescuers 15:2
- 2 Rescuers: Perform tasks simultaneously
- Use AED as soon as it's available





# Healthcare Professional – CPR / AED Review

## CPR - Components for Children (Age 1 Year to Puberty) Scene safety

1. Check the environment - making sure it's safe for rescuers and victims

## Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
3. Within 10 seconds - no positive pulse
  - A. (You can check for a pulse and breathing simultaneously in less than 10 seconds)

## Activation of emergency response system

- **Witnessed collapse** 1. Leave the victim, if you're alone without a mobile phone, and activate the emergency response system while retrieving an AED before performing CPR
- **Unwitnessed collapse** 1. Give 2 minutes of CPR 2. Activate the emergency response system, get an AED and return to the victim 3. Resume CPR; use the AED as soon as it is available

## Compression- ventilation ratio without advanced airway

- **1 rescuer** 30:2
- **2 or more rescuers** 15:2

## Compression- ventilation ratio with advanced airway

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)

## Compression rate

- 100-120/min

## Compression depth

- At least 1/3 AP diameter of chest
- About 2 inches (5 cm)

## Hand placement

- 1 or 2 hands can be used (optional for small children)
- On the lower half of the breastbone (sternum)





# Healthcare Professional – CPR / AED Review

## Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression

## Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

## CPR for Adults & Adolescents

- Check for life
- Before performing CPR call 911 or have someone else call
- Chest compressions - 100-120/min
- 2 Rescuers: Perform tasks simultaneously
- Perform CPR – Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 2 inches (5 cm)
- 1 or 2 rescuers - 30:2 compressions over breaths
- Use AED as soon as it's available

## CPR - Components for Adults & Adolescents Scene safety

1. Check the environment - making sure it's safe for rescuers and victims

## Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
3. Within 10 seconds - no positive pulse
  - A. (You can check for a pulse and breathing simultaneously in less than 10 seconds)

## Activation of emergency response system

- If you do not have a mobile phone – leave the victim and activate the emergency response system while retrieving an AED before performing CPR.
- Have someone activate the emergency response system. Perform CPR immediately and use the AED as it becomes available.

## Compression- ventilation ratio without advanced airway

- **1 or 2 rescuers** - 30:2





#### Compression- ventilation ratio with advanced airway

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)

#### Compression rate

- 100-120/min

#### Compression depth

- At least 2 inches (5 cm)

#### Hand placement

- 2 hands on the breastbone (sternum) on the lower half

#### Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression

#### Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

#### Rescuers should never

- Compress slower than 100/min or faster than 120/min
- Compress in-depth less than 2 inches (5 cm) or more than 2.4 (6 cm)
- Lean on victim's chest during compressions
- Allow interruption during compressions more than 10 seconds
- Provide excessive ventilation during breathing task, ie., excessive breathing with force or too many breaths

**Congratulations!** You've just finished the Course. You can now take the Exam!





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**TAKE EXAM ONLINE →**