



# SaveWithCPR

## Student Manual

The Life Saving Manual

January 2025

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# Preface

## Introduction

Welcome to the Save With CPR student manual - your guide to life saving education. In this manual you will explore the latest guidelines and techniques in lay rescuer lifesaving, tailored to be easily understood by individuals of all backgrounds. Your journey will take you through the basics of recognizing an emergency, calling for help, and responding appropriately while also remaining as safe as possible.

**This manual supplements our instructional videos as not all aspects are able to be accurately reproduced in text. This manual is designed to be paired with our training videos and instruction.**

## Copyright



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## Disclaimers

The information in this manual is intended for educational purposes only, nor is it a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified healthcare provider with any questions you may have regarding a medical condition. The techniques and advice described in this manual, and by Save With CPR, are not guaranteed to prevent injury or death. The author and publisher disclaim any liability for any injury or damage resulting from the use of this information.

## Acknowledgements

I would like to extend my heartfelt gratitude to my colleagues, mentors, and students in the field of emergency medical services, whose insights and feedback have been invaluable in the creation of this manual. Special thanks to my wife Emma Toma!

## Abbreviations

- AED: Automated External Defibrillator
- CPR: Cardiopulmonary Resuscitation
- EMS: Emergency Medical Services
- BVM: Bag-Valve-Mask
- PPE: Personal Protective Equipment
- ILCOR: International Liaison Committee on Resuscitation
- OSHA: Occupational Safety and Health Administration
- CV Ratio: Compression-Ventilation Ratio

# Foundations

## Your Safety

Rescuer safety is paramount in CPR (Cardiopulmonary Resuscitation) and must be prioritized to ensure effective aid is provided without compromising the well-being of the rescuer. Before initiating CPR, rescuers should assess the scene for potential hazards such as fire, toxic substances, electrical risks, or unstable structures. Ensuring personal safety first allows the rescuer to help the victim without becoming a victim themselves. During the CPR process, using protective barriers like gloves and face shields minimizes the risk of transmitting infectious diseases between the rescuer and the victim. It is also vital for the rescuer to maintain proper body mechanics while performing chest compressions to avoid physical strain or injury. Mental health is another crucial aspect; providing CPR, especially in critical situations, can be emotionally taxing. Therefore, rescuers should be aware of the psychological impact and seek support if needed. You should never attempt CPR if you feel your wellness or safety is at risk.

## Recognizing an Emergency

While you are unable to effectively respond to an emergency if you are not managing your own personal safety, you are equally unable to respond to an emergency if you do not recognize an emergency.

Recognizing an emergency is a critical skill that involves identifying unusual or dangerous situations that require immediate action. Key indicators of an emergency include obvious signs of distress. This can include, but is not limited to, unresponsiveness, difficulty breathing, severe bleeding, or signs of a heart attack such as chest pain and shortness of breath. Additionally, sudden changes in behavior, such as confusion or loss of consciousness, can signal an emergency. Environmental cues also play a role; smoke, fire, the sound of a crash, or the presence of hazardous materials can indicate danger. It's important to trust your instincts – if something feels wrong, it likely is. However, not all emergencies are obvious. Subtle signs like unusual silence, especially in children, or a person clutching at their throat, could also indicate a crisis. In any case, if you suspect an emergency, it's crucial to act quickly and call for professional help, as prompt response can significantly affect the outcome of the situation. Being aware and prepared to recognize these signs can make a significant difference in providing timely assistance and potentially saving lives.

## Calling For Help

Immediately upon recognizing or suspecting an emergency it's critical to call for help. In the United States you should dial 911 from any phone to be connected to emergency dispatchers. It takes time to dispatch first responders which requires immediate activation without delay. You will not be charged for reporting an emergency in good faith even if it turns out not to be an emergency. This is not a time to be polite if you feel or sense something is wrong with a situation or a person. The best thing you can do is activate first responders including EMS or Emergency Medical Services.

## Age Ranges

### **Adult**

Adults are 18 years and older.

### **Child**

Children are 1 to 17 years old.

### **Infant**

Infants are ages 0 to 1 years old.

## Consent

Consent is a concept that an adult who is capable of making their own decisions and understanding the risks of those decisions should be allowed to do so. If your victim is capable of making their own decisions and understanding the risks involved, you should first obtain permission or consent from them. For example, if you encounter a choking patient you should ask "Are you choking?" and if they indicate they are you should ask "I know how to help, is that okay?". While it may feel awkward it would otherwise be inappropriate to start doing things to someone without consent.

Another concept within the law exists called implied consent. Implied consent becomes relevant when a person is unresponsive or otherwise unable to understand risks of an intervention. If a person is unresponsive it's implied that they would want you to help them. With this unresponsive person it's implied that you have consent to treat them and may do so without fear of punitive measures.



## Good Samaritan Laws

Good Samaritan laws vary across states, but they typically provide legal protection to individuals who voluntarily assist those in distress during emergencies. These laws are designed to encourage bystanders to render aid without fear of legal repercussions. Generally, if you act in good faith and within the scope of your training or abilities, you are shielded from liability for any injuries or damages that may occur while providing assistance. However, it's important to familiarize yourself with the specific provisions of Good Samaritan laws in your state to understand the extent of your protection. It is also important to understand that you are not protected if you become injured during the delivery of medical aid.

## Review

**What three things will help you stay protected during a rescue?**

**What key indicators might help you recognize an emergency?**

**After calling 911 what should you do?**

**What age range does this training consider a child to be?**

**Can you help someone who is unresponsive?**

# CPR, AED, and Choking

## What is CPR?

CPR or Cardiopulmonary Resuscitation is a set of life saving skills utilized when a victim's heart has stopped circulating blood throughout their body. Our cells require oxygen and other resources to produce energy and keep us alive. Our cells receive oxygen and resources via our circulating blood. In cardiac arrest, the heart is no longer circulating blood through the body and cells quickly starve of the resources they need to survive. By initiating CPR, we are externally taking over these failed body systems. This window provides rescuers time to identify and attempt to reverse the initial cause of cardiac arrest.

In most lay rescuer resuscitations, you will be performing chest compressions until first responders arrive. Performing adequate chest compressions is physically intense and exhausting. If you are unable to perform adequate chest compressions or are becoming fatigued, you should hand the task off to another able person. It is good practice to change compressors every two minutes or when the AED is analyzing for a cardiac rhythm.

## Recognizing Cardiac Arrest

Recognizing cardiac arrest is one of the first steps to responding. As a lay rescuer it is acceptable to use responsiveness as an indicator for the need of CPR. As you approach the victim look for signs of life. If you do not see the patient moving, responding to being called, and you do not see their chest moving up and down indicating breathing, you should immediately initiate chest compressions and activate EMS by calling 911 and place them on speaker phone.

**Do not spend more than ten seconds looking for signs of life/responsiveness.**

If you mistakenly identify cardiac arrest and activate EMS and/or start chest compressions and the victim did not need CPR that is okay. You are unlikely to cause significant harm by initiating CPR. However, if you do not initiate CPR and the victim is in cardiac arrest their chance of survival is unlikely.

If you are alone, you should call 911 and place them on speaker as you initiate CPR. Stay with the victim and perform CPR.

If you are not alone, initiate CPR, then direct a bystander to call 911 and place them on speaker. If you have an additional bystander, direct them to look for an AED and return it to you.

1. Spend under 10 seconds looking for signs of life.
2. Immediately start CPR.
3. Activate EMS by calling 911 and placing them on speaker phone.

## Chest Compressions

Chest compressions allow you to externally squeeze a failed heart to restore some blood flow. In most lay rescuer resuscitations, you will be performing chest compressions until first responders arrive. Performing adequate chest compressions is physically intense and exhausting. If you are unable to perform adequate chest compressions or are becoming fatigued, you should hand the task off to another able person. It is good practice to change compressors every two minutes or when the AED is analyzing for a cardiac rhythm.

## Automated External Defibrillator (AED)

An AED, or Automated External Defibrillator, is a portable device designed to treat people experiencing cardiac arrest, a condition where the heart stops beating. An AED works by checking the heart rhythm and sending an electric shock to the heart to try to restore a normal rhythm. This device can significantly increase the chance of survival if used promptly and correctly.

AEDs are designed to be simple to use for the layperson, with clear instructions, voice prompts, and visual guides. When activated, the AED will instruct the rescuer to place electrode pads on the victim's chest. The device then assesses the heart's rhythm and, if necessary, prompts the rescuer to deliver a shock. The shock momentarily stuns the heart, stopping all activity, giving the heart the chance to resume beating effectively.

One of the key advantages of an AED is its ability to be used by non-medical people. They are commonly found in public places like airports, shopping centers, and community centers. Quick access and use of an AED, along with CPR, are critical in the chain of survival for cardiac arrest victims.

When an AED becomes available it is appropriate to utilize during your resuscitation efforts. AEDs have been designed for ease of operation by lay rescuers in an emergency. It is a good idea to become familiar with any AEDs you may be expected to use. Each AED may operate slightly different, however, they all follow the same basic principles:

1. Turn AED On
2. Place Pads on Victim
3. Follow AED Prompts

## Turn AED On

Turning the AED on may be as simple as opening the lid or pressing the power button. Each AED will provide instructions on how to power on the AED. You will know it is on when it begins to issue verbal commands.

## Place Pads on Victim

All modern AEDs will clearly explain where and how to place the AED pads on the victim. We will also go into further detail in each relevant section.

In no case should a pad be placed on breast tissue or over clothing/garments. Additionally, pads should not be placed over medicine patches or implanted medical devices such as pacemakers.

If the victim is wet, you will want to quickly wipe them dry before placing AED pads or delivering a shock. If the victim is in water or a puddle you will need to move them to a dry surface before placing pads or delivering a shock.

## Follow AED Prompts

Once the AED is powered on and pads are placed, the AED will instruct you. The AED will tell you to stop touching the victim so it can analyze the cardiac rhythm. This is the perfect opportunity to switch out compressors for a less fatigued rescuer. After analyzing one of two things will happen:

- The AED will charge up and request you make sure that nobody is touching the victim and to deliver a shock. Immediately after delivering a shock, you should resume chest compressions.
- The AED will instruct you to immediately resume chest compressions.

## Rescue Breathing

Our blood is oxygenated by our breathing, so if we are not breathing we are not oxygenating. In this section we will discuss several techniques for rescue breathing to help oxygenate our victim.

Note: Rescue breathing is not required from a lay rescuer but may be optionally performed with mouth-to-mouth or if present a Bag-Valve-Mask. Rescue breathing will help to replace depleted oxygen in the victim's blood.

## Mouth-to-Mouth

Mouth-to-mouth comes with a risk of disease so it is important to use appropriate PPE. You should use a mouth-to-mouth barrier device when performing mouth-to-mouth. If using a barrier device, follow its operating instructions.

First, start by tilting the patient's head backwards to open their airway. Pinch the victim's nose, take in a full breath, place your mouth over the victim's mouth, and deliver a breath stopping when you see the victim's chest rise. Repeat these steps to deliver two breaths.

## Mouth-to-Mask

Mouth-to-mask ventilations reduce your risk of disease by utilizing a mask barrier between you and your victim. You place the mask over the victim's mouth and nose, and breath through a one-way valve to deliver breaths.

Start by tilting the patient's head backwards to open their airway. Place the mask over the victim's mouth and nose forming a secure seal. Then provide one breath over one second or until their chest rises. Release your breath for one second to allow the air to escape from their lungs. Finally, deliver one more breath over one second into the victim or until their chest rises.

## Bag-Valve-Mask

In some cases, you may have a Bag-Valve-Mask (BVM) as an option to deliver rescue breaths. A BVM is a device that allows you to form a seal with the victim's mouth and deliver rescue breaths by squeezing the bag which automatically inflates with air. This device, when used properly, allows you to control the amount of air being delivered to the person while also providing the best level of protection and body substance isolation for you.

Note: It is very easy to over inflate someone's lungs, causing damage with a BVM. Pay special attention when operating a BVM and stop the breath once you notice chest rise.

## Compressions to Ventilation Ratios

The standard CV or compression-ventilation ratio is 30:2. This means that for every thirty compressions the victim should receive two rescue breaths. If you are going to perform rescue breathing once thirty compressions are reached, the compressor should pause for no more than ten seconds, while rescue breaths are performed.

## Choking

Choking occurs when an object becomes lodged in the throat, obstructing airflow. It is a potentially life-threatening emergency that requires immediate action. Choking relief involves performing maneuvers to dislodge the obstruction. If the person becomes unconscious, CPR should be initiated while ensuring that the airway remains clear. It is crucial to seek medical help even after successfully relieving the obstruction to ensure there are no underlying issues or complications.

## Review

**What does CPR stand for?**

**Do you have to perform mouth-to-mouth if you do not want to?**

**What do you look for to indicate starting CPR?**

**What is an AED?**

**What are the three steps of using an AED?**

**What does rescue breathing do?**

# Adult CPR, AED, and Choking

## Adult Chest Compressions

Chest compressions on an adult require you to place both of your hands directly over the lower half of the victim's breastbone. You will need to lock your arms and push down two inches. You will then release all of the pressure off of the victim's chest. This should be performed 100 to 120 times per minute.

Note: It is important to make sure you are not resting on the chest between compressions because that will prevent the heart from fully refilling with blood.

## Adult Rescue Breathing

Rescue breathing for an adult will allow you to replace depleted oxygen in the victim's blood. Two options of rescue breathing exist: mouth-to-mouth and bag-valve-mask. With either technique, you will want to provide two breaths stopping once you notice chest rise for every thirty chest compressions.

### Adult Mouth-to-Mouth

- Pinch the victims nose closed
- Tilt their head back
- Place your mouth over their mouth forming a seal
- Exhale one breath over one second into their mouth watching for chest rise and stopping when you see the chest rise
- Remove your mouth allowing the victim to exhale over one second
- Exhale one more breath into their mouth watching for chest rise and stopping when you see the chest rise

### Adult Mouth-to-Mask

- Place the mask over the victims mouth and nose
- Tilt their head back
- Form a seal around the mouthpiece with your mouth
- Exhale one breath over one second into their mouth watching for chest rise and stopping when you see the chest rise
- Remove your mouth allowing the victim to exhale over one second

- Exhale one more breath into their mouth watching for chest rise and stopping when you see the chest rise

## Adult BVM

- Place the mask over the victim's nose and mouth with your thumb and index finger with enough pressure to form a tight mask seal
- Tilt the victim's head back while keeping a tight mask seal
- Deliver one breath over one second (stopping when you note chest rise)
- Release the bag for one second allowing the victim to exhale
- Deliver one more breath over one second (stopping when you note chest rise)

## Adult AED

AED's are to be implemented immediately upon availability during your chest compressions and rescue breaths. The person delivering the AED should be directed to work around the chest compressor to deploy the AED.

Some cardiac arrests are caused by disorganized electrical activity within the heart. In these specific cases, resetting the electrical system of the heart can restore organized and coordinated electrical activity restoring the circulation of blood. The AED is able to determine these types of cardiac arrest, and restart the heart by sending a large impulse of electricity through the heart.

To operate an AED follow these three steps:

1. Turn AED On
2. Place Pads on Victim
3. Follow AED Prompts

**Make sure to avoid touching the patient while the AED is analyzing and during shock delivery.**

For an adult patient, place one pad on the right chest as pictured and place the other pad below the left armpit. Make sure to avoid placing the pads on breast tissue, over clothing, over medical patches, or over bulges in the skin.

## Adult Team CPR



If you have multiple rescuers one person should establish themselves as a team coach. The role of the team coach is to ensure all important steps are being taken effectively and to promote effective communication. An effective team coach will:

- Identify and designate a person to activate 911 and ensure responders have access to the area
- Identify and designate a person to perform chest compressions and switch them every two minutes
- Provide encouragement and coaching to the chest compressor if/when necessary
- Identify and designate a person to retrieve the closest AED and deploy it

All of the steps of CPR need to be performed and having a team with a team coach allows a resuscitation to happen quicker and with greater efficiency.

## Adult Choking

Adults may choke for any number of reasons. It is important to quickly identify a choking adult and respond appropriately. A choking adult may or may not appear in distress as the first few moments can be filled with confusion and panic. Pictured is an international sign of choking, which may or may not be present.

You will need to determine if the victim has a complete airway obstruction or a partial airway obstruction. Is their airway completely blocked preventing any airflow or is it just partially blocked allowing some airflow. For a victim with a complete airway obstruction you will want to attempt to dislodge the object and relieve the choking. Victims with partial obstructions that are able to move air and speak should be monitored until first responders arrive.

**Do not forget to introduce yourself as a first responder and obtain permission to intervene.**

Complete Obstruction	Partial Obstruction
<ul style="list-style-type: none"> <li>● No ability to speak</li> <li>● No ability to scream</li> <li>● No ability to breath</li> </ul>	<ul style="list-style-type: none"> <li>● May be able to speak</li> <li>● May be able to scream/screech</li> <li>● May be able to move some air</li> </ul>
Attempt Choking Relief and Call 911	Call 911 and Monitor

Adult choking relief may be performed with one of two methods: abdominal thrusts or chest thrusts. The most effective and ideal technique is abdominal thrusts, but requires you to be able

to wrap your arms around the patient's abdomen. In cases where this is not possible and pregnancy opt for chest thrusts.

**If choking relief fails and the person becomes unresponsive, start CPR.**

## Adult Abdominal Thrusts

To properly perform abdominal thrusts wrap both hands around the abdomen just above the belly button. Form one hand into a fist with your thumb facing up and into their abdomen and your second hand wrapped around your fist. Pull in firmly and brisk repeatedly until the object becomes dislodged.

## Adult Chest Thrusts

Chest thrusts should only be performed on pregnant people or people you are unable to effectively wrap your arms around their abdomen.

To properly perform chest thrusts wrap both hands around the chest under their armpits and your hands over the lower half of their breastbone. Form one hand into a fist with your thumb facing into their chest and your second hand wrapped around your fist. Pull in firmly and brisk repeatedly until the object becomes dislodged.

## Review

**Where do you place your hands in adult CPR?**

**How deep do you compress in adult CPR?**

**How many times in one minute do you compress in adult CPR?**

**How many compressions are performed before delivering two breaths in adult CPR?**

**What is a team coach?**

**What should you do if a choking person becomes unresponsive?**

# Child CPR, AED, and Choking

## Child Chest Compressions

Chest compressions in a child require you to place one or both of your hands directly over the lower half of the victim's breastbone. You will need to lock your arm and push down about 1/3 of their chest or about 2 inches. You will then release all of the pressure off of the victim's chest. This should be performed 100 to 120 times per minute.

Child chest compressions are very similar to adult chest compressions however you may perform one handed chest compressions if you are more comfortable or to prevent yourself from going too deep. Make sure to ensure adequate chest recoil after each compression and not to rest on the victim's chest between compressions.

## Child Rescue Breathing

One of the main reasons children and infants go into cardiac arrest is respiratory failure. That is to say, rescue breathing in children and infants is extremely important. This rescue breathing allows you to replace depleted oxygen in the victim's blood. Two options of rescue breathing are mouth-to-mouth and bag-valve-mask. With either technique, you will want to provide two breaths stopping once you notice chest rise for every thirty chest compressions.

## Compression-to-Ventilation (CV) Ratios

If you're acting as a single rescuer you should perform a compression-to-ventilation or CV ratio of 30:2. That means after 30 chest compressions you should perform two rescue breaths. However children and infants have a higher baseline demand for oxygen and low oxygen is a leading cause of pediatric cardiac arrest. That means if you have multiple rescuers and can effectively do it you should utilize a CV ratio of 15:2. \*\*That means if you have multiple rescuers you should deliver 2 breaths after every 15 chest compressions.

## Child Mouth-to-Mouth

- Pinch the child's nose closed
- Tilt their head back being careful not to extend too far
- Place your mouth over their mouth forming a seal

- Exhale one breath into their mouth watching for chest rise and stopping when you see chest rise
- Take in a breath and exhale once more into their mouth same as before

## Child BVM

- Place a child sized BVM mask over the victim's nose and mouth with your thumb and index finger with enough pressure to form a tight mask seal
- Tilt the child's head back while keeping a tight mask seal without expending too far
- Deliver one breath over one second (stopping when you note chest rise)
- Release the bag over one second allowing the child to exhale
- Deliver one more breath over one second (again stopping when you note chest rise)

## Child AED

AED's are to be implemented immediately upon availability during your chest compressions and rescue breaths. The person delivering the AED should be directed to work around the chest compressor to deploy the AED.

**Most AEDs have separate pads or modes for children and infants to deliver a lower energy. If present and able use the child pads or child AED mode. If unavailable, you may use adult pads/mode on a child or infant.**

Some cardiac arrests are caused by disorganized electrical activity within the heart. In these specific cases resetting the electrical system of the heart can restore organized and coordinated electrical activity restoring the circulation of blood. The AED is able to determine these types of cardiac arrest, and restart the heart by sending a large impulse of electricity through the heart.

To operate an AED follow these three steps:

1. Turn AED On
2. Place Pads on Victim
3. Follow AED Prompts

**Make sure to avoid touching the patient while the AED is analyzing and during shock delivery.**

For a child, place one pad on the center of their chest over the breastbone with the other pad placed on the center of their back opposite of the first pad. Make sure to avoid placing the pads on breast tissue, over clothing, over medical patches, or over bulges in the skin.

## Child Team CPR

If you have multiple rescuers, one person should establish themselves as a team coach. The role of the team coach is to ensure all important steps are being taken effectively and to promote effective communication. An effective team coach will:

- Identify and designate a person to activate 911 and ensure responders have access to the area
- Identify and designate a person to perform chest compressions and switch them every two minutes
- Provide encouragement and coaching to the chest compressor if/when necessary
- Identify and designate a person to retrieve the closest AED and deploy it

All of the steps of CPR need to be performed and having a team with a team coach allows a resuscitation to happen quicker and with greater efficiency.

## Child Choking

Children may choke for any number of reasons. It is important to quickly identify a choking child and respond appropriately. A choking child may or may not appear in distress as the first few moments can be filled with confusion and panic. Pictured is an international sign of choking, which may or may not be present.

You will need to determine if the child has a complete airway obstruction or a partial airway obstruction. Is their airway completely blocked preventing any airflow or is it just partially blocked allowing some airflow. For a victim with a complete airway obstruction you will want to attempt to dislodge the object and relieve the choking. Victims with partial obstructions that are able to move air and speak should be monitored until first responders arrive.

**Do not forget to introduce yourself as a first responder and obtain permission to intervene.**

<b>Complete Obstruction</b>	<b>Partial Obstruction</b>
<ul style="list-style-type: none"><li>● No ability to speak</li><li>● No ability to scream</li><li>● No ability to breath</li></ul>	<ul style="list-style-type: none"><li>● May be able to speak</li><li>● May be able to scream/screech</li><li>● May be able to move som air</li></ul>
Attempt Choking Relief and Call 911	Call 911 and Monitor

**If choking relief fails and the child becomes unresponsive, start CPR.**

## Child Abdominal Thrusts

Child choking relief may be performed with abdominal thrusts. To properly perform abdominal thrusts wrap both hands around the abdomen just above the belly button. Form one hand into a fist with your thumb facing up and into their abdomen and your second hand wrapped around your fist. Pull in firmly and brisk repeatedly until the object becomes dislodged.

## Review

**Where do you place your hands in child CPR?**

**How deep do you compress in child CPR?**

**How many times in one minute do you compress in child CPR?**

**How many compressions are performed before delivering two breaths in child CPR?**

**How should the AED pads be placed on a child?**

**Can you use adult pads on a child?**

# Infant CPR, AED, and Choking

## Infant Chest Compressions

Chest compressions in an infant can be done with two thumbs or two fingers depending on your need to move the infant.

If the infant is on a hard flat surface, and does not need to be moved, wrap both of your hands around the chest of the infant with your thumbs resting on the lower half of their breastbone. At the same time press both of your thumbs into the infant's chest about 1/3 the depth of their chest at a rate of 100-120 compressions a minute fully releasing pressure between compressions.

If you need to move the infant, rest them on your arm supporting their head in the palm of your hand. With your other hand place your index and middle finger over the lower half of their breastbone. Compress their chest about 1/3 the depth of their chest at a rate of 100-120 compressions a minute fully releasing pressure between compressions.

## Infant Rescue Breathing

One of the main reasons children and infants go into cardiac arrest is respiratory failure. That is to say, rescue breathing in children and infants is extremely important. This rescue breathing allows you to replace depleted oxygen in the victim's blood. Two options of rescue breathing are mouth-to-mouth and bag-valve-mask. With either technique, you will want to provide two breaths stopping once you notice chest rise for every thirty chest compressions.

**For every 30 compressions perform 2 rescue breaths.**

### Infant Mouth-to-Mouth

- Place your mouth over the infant's mouth and nose forming a seal
- Tilt their head slightly back without going too far
- Exhale while watching for and stopping when you notice chest rise
- Allow the infant to exhale and deliver one more breath while watching and stopping for chest rise

## Infant BVM

- Place the infant BVM mask over the nose and mouth to form a seal without excessive pressure which could compress the infant's airway
- Tilt their head slightly back without going too far. You may consider placing some padding under the infant's shoulders instead.
- Deliver one breath over one second (stopping when you note chest rise)
- Release the bag over one second allowing the infant to exhale
- Deliver one more breath over one second (stopping when you note chest rise)

## Infant AED

AED's are to be implemented immediately upon availability during your chest compressions and rescue breaths. The person delivering the AED should be directed to work around the chest compressor to deploy the AED.

**Most AEDs have separate pads or modes for children and infants to deliver a lower energy. If present and able, use the child pads or child AED mode. If unavailable, you may use adult pads/mode on a child or infant.**

Some cardiac arrests are caused by disorganized electrical activity within the heart. In these specific cases resetting the electrical system of the heart can restore organized and coordinated electrical activity restoring the circulation of blood. The AED is able to determine these types of cardiac arrest, and restart the heart by sending a large impulse of electricity through the heart.

To operate an AED follow these three steps:

4. Turn AED On
5. Place Pads on Victim
6. Follow AED Prompts

**Make sure to avoid touching the patient while the AED is analyzing and during shock delivery.**

For an infant, place one pad on the center of their chest over the breastbone with the other pad placed on the center of their back opposite of the first pad. Make sure to avoid overlapping the pads.



## Infant Team CPR

If you have multiple rescuers one person should establish themselves as a team coach. The role of the team coach is to ensure all important steps are being taken effectively and to promote effective communication. An effective team coach will:

- Identify and designate a person to activate 911 and ensure responders have access to the area
- Identify and designate a person to perform chest compressions and switch them every two minutes
- Provide encouragement and coaching to the chest compressor if/when necessary
- Identify and designate a person to retrieve the closest AED and deploy it

All of the steps of CPR need to be performed and having a team with a team coach allows a resuscitation to happen quicker and with greater efficiency.

## Infant Choking

Infants may choke for any number of reasons. It is important to quickly identify a choking infant and respond appropriately. A choking infant may or may not appear in distress. You may not hear breathing sounds or crying in an infant that is choking. You may notice their skin changing to a blue color especially around the lips and fingernails.

**If choking relief fails and the infant becomes unresponsive, start CPR.**

### Infant Back Thrusts

To rescue a choking infant you should place your arm along their chest supporting their head without blocking their airway. Tilt the infant downwards and slap their back between their shoulder blades five times using a forceful and brisk movement. Then roll the infant supporting their body with your arm and tilting their head downward to provide five chest compressions. You will repeat this process until the object becomes clear. If the infant becomes unresponsive, you should start CPR immediately.

**Don't forget to call 911 when possible!**

## Review

**Where do you place your hands in infant CPR?**

**How deep do you compress in infant CPR?**

**How many times in one minute do you compress in infant CPR?**

**How many compressions are performed before delivering two breaths in infant CPR?**

**How should the AED pads be placed on an infant?**

**Can you use adult pads on an infant?**

# Opioid Overdose

## Introduction to Opioid Overdoses

Opioid overdoses represent a critical medical emergency with profound implications for public health and safety. Defined by the excessive consumption of opioids, these overdoses can result in life-threatening complications if not promptly recognized and addressed. From prescription painkillers to illicit substances like heroin and fentanyl, opioids encompass a broad range of drugs that exert powerful effects on the central nervous system.

Despite efforts to curb opioid misuse and abuse, the prevalence of overdoses remains alarmingly high, affecting individuals of all ages, backgrounds, and socioeconomic statuses. The opioid crisis has become a pressing concern worldwide, prompting concerted efforts from healthcare providers, policymakers, and communities to mitigate its impact.

By gaining a better understanding of opioid overdoses and equipping ourselves with the necessary knowledge and skills to respond effectively, we can play a vital role in saving lives and combating the opioid crisis.

## Opioids and Their Effects on the Body

Opioids are a class of drugs that act on the body's opioid receptors, primarily located in the brain and spinal cord. These receptors play a crucial role in regulating pain perception, pleasure, and mood. When opioids bind to these receptors, they can produce a range of effects, including pain relief, euphoria, and sedation. When opioids bind to opioid receptors central nervous system (CNS) depression occurs.

This CNS depression causes a decrease in a person's alertness, causing drowsiness and potential unresponsiveness. Additionally, the patient's respiratory rate, or how many times in one minute you breathe, also goes down. Your body requires oxygen to maintain normal function and we receive oxygen everytime we breathe in. So what you get in an opioid overdose is someone who loses awareness and experiences a decrease in oxygen intake. Their body continues to function until it is ultimately starved of oxygen and bodily systems start to fail.

A person overdosing will have a period where the overdose can be reversed and they can be saved. At the onset of the overdose they will lose alertness and their breathing will slow/stop.

Without intervention their body will starve of oxygen and their heart will stop. It is in this period you can save them.

## Recognizing an Opioid Overdose

A person experiencing an overdose may still have a pulse and exhibit any combination of pinpoint pupils, slow or stopped breathing, blue skin, or unresponsiveness.

**The most powerful sign of an opioid overdose is pinpoint pupils**

## Responding to an Opioid Overdose

**Be mindful that there may be drug paraphernalia that could injure you.**

When responding to an opioid overdose remember the following:

- Call 911!
- Check for a pulse as you may need to start CPR
- Look for the four signs of an opioid overdose
  - Pinpoint Pupils
  - Apnea (Not Breathing/Very Slow Breathing)
  - Altered Mental Status/Unconscious
  - Cyanosis (Blue Skin Especially Around the Lips/Fingertips)
- If comfortable provide rescue breathing with one breath every six seconds
- If available provide Naloxone/Narcan

## Rescue Breathing

Rescue breathing will allow you to replace depleted oxygen in the victim's blood. Two options of rescue breathing exist: mouth-to-mouth and bag-valve-mask. With either technique you will want to provide two breaths stopping once you notice chest rise for every thirty chest compressions.

## Mouth-to-Mouth

- Pinch the victims nose closed
- Tilt their head back
- Place your mouth over their mouth forming a seal
- Exhale one breath into their mouth watching for chest rise and stopping when you see the chest rise
- Take in a breath and exhale once more into their mouth same as before

## BVM

- Place the mask over the victim's nose and mouth with your thumb and index finger with enough pressure to form a tight mask seal
- Tilt the victims head back while keeping a tight mask seal
- Deliver one breath over one second (stopping when you note chest rise)
- Release the bag for one second allowing the victim to exhale
- Deliver one more breath over one second (stopping when you note chest rise)

## Mouth-to-Mask

Mouth-to-Mask ventilations reduce your risk of disease by utilizing a mask barrier between you and your victim. You place the mask over the victims mouth and nose and breath through a one-way valve to deliver breaths.

Start by tilting the patient's head backwards to open their airway. Place the mask over the victims mouth and nose forming a secure seal. Then provide one breath over one second or until their chest rises. Release your breath for one second to allow the air to escape from their lungs. Finally, deliver one more breath over one second into the victim or until their chest rises.

## Common Myths

Common myths about opioid overdoses persist despite efforts to educate the public. Let us address and dispel some of these misconceptions:

**Myth 1: Opioid overdoses only happen to people who use opioids regularly or are addicted.**

- Reality: Opioid overdoses can occur in individuals who use opioids infrequently or even for the first time. Anyone who consumes opioids, whether prescribed or obtained illicitly, is at risk of overdose, regardless of their level of use or addiction.

**Myth 2: Opioid overdoses are always fatal.**

Reality: While opioid overdoses can be life-threatening, they are not always fatal, especially if prompt medical intervention is provided. The timely administration of naloxone, along with appropriate medical care, can reverse the effects of an overdose and save lives.

**Myth 3: It is safe to consume opioids with alcohol or other drugs.**

Reality: Combining opioids with alcohol or other central nervous system depressants significantly increases the risk of overdose and death. Mixing substances can potentiate the sedative effects of opioids, leading to respiratory depression, coma, and even death.

**Myth 4: Naloxone (Narcan) can harm someone if administered unnecessarily.**

Reality: Naloxone is a safe and effective medication used to reverse opioid overdoses. It only works to reverse the effects of opioids and has no adverse effects if administered to someone who is not experiencing an overdose. When in doubt, it is better to err on the side of caution and administer naloxone if an overdose is suspected.

**Myth 5: Once someone has been revived with naloxone, they are out of danger.**

Reality: While naloxone can temporarily reverse the effects of opioids and restore breathing, its effects may wear off before the opioids fully metabolize, putting the individual at risk of re-entering overdose. It is essential to seek emergency medical attention after administering naloxone to ensure the person receives comprehensive care and monitoring.

Dispelling these myths is crucial for raising awareness about the realities of opioid overdoses and empowering individuals to take appropriate actions to prevent and respond to these emergencies effectively. Education, coupled with access to naloxone and comprehensive treatment services, is essential in addressing the ongoing opioid crisis and saving lives.

## Review

**What is the most powerful sign of an opioid overdose?**

**If you do not have Naloxone/Narcan what else can you do?**

# First Aid

First Aid is the initial care provided to a person suffering from a sudden illness or injury, with the primary goal of preserving life, preventing the condition from worsening, and promoting recovery. First Aid is typically administered by a layperson until professional medical assistance becomes available. The principles of First Aid include remaining calm, assessing the situation, protecting oneself and the victim from further harm, and providing appropriate care for injuries or conditions. Knowledge of First Aid is invaluable, as it equips individuals with the skills to respond effectively in emergencies, potentially saving lives and reducing the severity of an emergency situation.

## Working With Stress

In an emergency, stress is an inevitable reaction, often accompanied by fear and panic. These intense emotions can cloud judgment, impair decision-making, and interfere with the ability to perform necessary tasks effectively. Recognizing and managing these reactions is crucial for effective emergency response.

During a crisis, the body's natural "fight or flight" response kicks in, releasing adrenaline and other stress hormones that prepare you to act quickly. However, this heightened state of alert can also lead to panic, which might result in freezing, rushing, or making hasty decisions without considering the consequences. It's important to understand that these reactions are normal physiological responses to high-pressure situations.

### Strategies to Overcome Fear and Panic

- **Stay Trained and Prepared:** Regular training and drills can make the steps you need to take during an emergency a matter of routine. Familiarity with emergency procedures reduces uncertainty—one of the primary triggers of panic.
- **Breathing Techniques:** Simple breathing exercises can help manage panic and stress on the spot. Taking slow, deep breaths helps regulate the nervous system and promotes a calmer state of mind, allowing for clearer thinking.
- **Focus on the Task at Hand:** Concentrate on one task at a time instead of getting overwhelmed by the overall situation. Breaking down tasks into manageable steps can make them seem less daunting and more achievable.
- **Use Positive Self-Talk:** Encourage yourself with reminders that you are trained and capable of handling the situation. Positive self-talk can counteract the negative thoughts that often accompany panic.
- **Visualize Success:** Before and during an emergency, visualize yourself handling the situation competently. Visualization is a powerful tool used by professionals, including first responders and athletes, to improve performance under pressure.

- **Teamwork and Communication:** Rely on your team members and communicate effectively. Knowing you are not alone in handling the situation can significantly reduce stress and anxiety.
- **Aftercare:** Post-emergency debriefings and talking through what happened can help process the event, reduce ongoing stress, and prepare better for future situations. Consider professional support if you find your stress reactions persist.

## Prevention

Prevention is the best strategy in first aid, aimed at mitigating risks before they escalate into emergencies. By adopting preventative measures, individuals and organizations can significantly reduce the frequency and severity of accidents. It's better to prevent an accident than respond to one.

- **Safety Equipment:** Ensuring you are using safety equipment properly when appropriate.
- **Workplace Safety Protocols:** Follow all workplace safety protocols, and ask questions without guessing a possible incorrect answer.
- **Environmental Adjustments:** Making environmental adjustments, such as securing loose rugs, installing railing, and ensuring adequate lighting are all examples of tasks you can perform to make your environment adapt to minimizing hazardous conditions.

## Calling 911

Calling 911 is a critical step in any emergency situation, as it connects you with professional medical responders who can provide life-saving assistance. When you dial 911, stay calm and speak clearly. Provide the dispatcher with your exact location, including any landmarks or cross streets that can help emergency services find you quickly. Describe the nature of the emergency and any specific conditions of the patient, such as unconsciousness, severe bleeding, or difficulty breathing. Consider the need for respiratory protection for example in a confined space or an otherwise toxic environment. Follow the dispatcher's instructions carefully, as they can offer vital guidance while help is on the way. Remember, timely communication with 911 can significantly improve the chances of a positive outcome in an emergency.

## Prioritizing Care

In situations with multiple casualties, effective triage is critical to efficiently allocate resources and deliver necessary care. The primary objective is to maximize the overall benefit for the largest number of people. This process begins with a swift and decisive assessment to identify



and prioritize those in the most critical condition. Initially, you should direct anyone who can walk to gather in a designated safe area away from the immediate scene. This action helps to focus your attention on those who are immobile. Next, instruct the injured who are unable to move but can still respond to signals by raising an arm or making a visible gesture. Start by assisting those who do not respond to your commands, indicating the most severe conditions. Proceed to help those who are immobile yet responsive, and finally, attend to those who were able to walk to the safe area. Each step should be approached with calm and methodical care to ensure effective treatment is given where it is most needed.

## Assessment

A structured approach to patient assessment is critical for identifying, managing, and communicating all injuries and immediate life threats. The key assessment areas include:

- **Responsiveness:** Check if the victim is awake, alert, and able to respond to verbal commands or physical stimuli. This helps in identifying those who are unconscious or in a potentially life-threatening state. A victim that does not respond is in critical condition and requires immediate help.
- **Airway Patency:** Ensure that the airway is clear. If the victim is unconscious or has difficulty breathing, quickly check for obstructions and be prepared to clear the airway if necessary.
- **Breathing:** Observe the victim's breathing status. Is the victim breathing normally, gasping, or not breathing at all? This will dictate immediate actions, such as administering rescue breathing or continuing to check for other injuries.
- **Circulation:** Look for signs of circulation such as movement, breathing, and abnormal skin color. Check for a pulse if able. Immediate CPR may be required if there are no signs of life.
- **Medical Alert Jewelry:** Check for any medical alert tags or bracelets that can provide critical information about pre-existing medical conditions, which can influence the priority and type of care administered.
- **A Head-to-Toe Injury Check:** Conduct a thorough assessment from head to toe to identify any injuries such as bleeding, fractures, or burns. This comprehensive check helps in prioritizing medical intervention and ensuring that no significant injuries are overlooked. Make sure to touch the victim as you perform a head to toe assessment as some injuries may only be felt such as broken bones.
- **Pregnancy:** It's important to recognize that additional caution and care should be provided for a pregnant victim. Any abnormalities or complaints should not be dismissed especially in the presence of pregnancy.

## Staying With the Victim

It's important to remain with the victim as long as it's safe to do so, which allows you to render continuous aid, closely monitor any changes in their condition, and provide vital emotional

support. Staying by the victim's side enables you to quickly detect and respond to potential complications such as shock, respiratory issues, or uncontrolled bleeding, which can be crucial for their survival. Moreover, your presence can significantly alleviate the victim's anxiety and panic, offering reassurance during a traumatic time. Always prioritize safety; if the environment becomes unsafe, immediately seek a safer location for both yourself and the victim.

## Moving Victims

You may find it necessary to reposition the ill or injured to prevent further injury - you should do so if safe. If they are able to walk, provide assistance in walking the person to a new safer location. If they are unable to walk you need to consider the urgency of the relocation and the resources available to you. It may be critical to move the victim in which case you may need to grab under their arms and drag them to safety. If you have additional time it may be appropriate to wait for first responders to utilize their lifting and moving equipment. When considering moving a victim you need to balance the urgency, with your resources, and the riskiness of the move. You should become familiar with the moving equipment available to you (if applicable).

## Medical Emergencies

### Altered Mental Status (AMS)

Altered mental status is any change from a person's normal baseline such as confusion, drowsiness, or unresponsiveness. The causes of AMS are numerous but may involve diabetic emergencies, shock, or hazardous environments. If a person presents with AMS you should:

1. Call 911
2. Stay with the person
3. Investigate possible causes

### Allergic Reactions

An allergic reaction is the body's immune system response to a substance that it perceives as harmful, even though it may not be harmful to others. When an individual with allergies comes into contact with an allergen, such as certain foods, medications, insect stings, pollen, or animal dander, their immune system reacts by releasing chemicals such as histamine. These chemicals trigger allergic symptoms, which can range from mild to severe and may affect the skin, respiratory system, gastrointestinal tract, or cardiovascular system.

### Recognizing Allergic Reactions

- Symptoms may include hives, itching, swelling (especially of the face, lips, tongue, or throat), difficulty breathing, wheezing, nausea, vomiting, or dizziness.
- The reaction may be triggered by foods, medications, insect stings, or other allergens.
- Check if the victim has any known allergies
- Check if the victim has an epinephrine auto-injector
- Check if the victim may have been exposed to an allergen

### **First Aid Steps**

- If the person has an epinephrine auto-injector, help them use it immediately according to the instructions provided.
- Call 911 to start first responders.
- Stay with them and provide reassurance until help arrives.

## Diabetic Emergencies

### **Recognizing Diabetic Emergencies**

- Symptoms of low blood sugar (hypoglycemia) may include weakness, confusion, sweating, trembling, rapid heartbeat, or loss of consciousness.
- Symptoms of high blood sugar (hyperglycemia) may include excessive thirst, frequent urination, weakness, nausea, or confusion.
- Check if the victim has a history of diabetes

### **First Aid Steps**

- If the person is conscious and experiencing symptoms of low blood sugar, suggest they check their blood sugar levels.
  - If their blood sugar is low and they are able to swallow, give them a fast-acting carbohydrate such as fruit juice, candy, or glucose tablets.
- If the person is unconscious or unable to swallow, do not give them anything by mouth.
- Call 911 and stay with the victim

## Difficulty Breathing

### Recognizing Difficulty Breathing

- Symptoms may include shortness of breath, wheezing, coughing, chest tightness, or bluish discoloration of the lips or fingernails.
- Difficulty breathing may be caused by asthma, allergies, respiratory infections, or other medical conditions.

### First Aid Steps

- Help the person sit upright and lean forward to assist with breathing.
- If the person has a prescribed inhaler or respiratory medication, assist them in using it according to the instructions provided.
- If the person's condition worsens or they show signs of severe respiratory distress (e.g., inability to speak, gasping for air), call emergency services immediately.

## Fainting

### Recognizing Fainting

- Fainting, also known as syncope, is a temporary loss of consciousness typically caused by a temporary decrease in blood flow to the brain.
- Symptoms may include dizziness, lightheadedness, nausea, sweating, or pale skin.

### First Aid Steps

- If the person feels faint, encourage them to lie down.
- Loosen tight clothing.
- If the person faints, check for responsiveness and breathing.
  - If they are not breathing, start CPR and call 911 immediately.

## Heart Attacks

### Recognizing Heart Attacks

- Symptoms may include chest pain or discomfort (pressure, squeezing, fullness, or pain), pain or discomfort in other areas of the upper body (such as the arms, back, neck, jaw, or stomach), shortness of breath, nausea, or lightheadedness.

- Women and older adults may experience atypical symptoms such as fatigue, weakness, or indigestion.

### **First Aid Steps**

- Call 911 immediately if someone is experiencing symptoms of a heart attack.
- Help the person sit or lie down in a comfortable position.
- If the patient is not allergic, encourage them to take 324 mg of Aspirin by chewing it.
- If the person is prescribed nitroglycerin and their symptoms persist, assist them in taking it as directed.

## Seizures

### **Recognizing Seizures**

- Seizures can manifest as convulsions, muscle stiffness, loss of consciousness, staring spells, or involuntary movements.
- Seizures may be caused by epilepsy, fever, head injury, stroke, or other medical conditions.

### **First Aid Steps**

- Keep the person safe from injury by moving objects out of their way and cushioning their head with a soft object.
- Do not restrain the person or put anything in their mouth.
- After the seizure ends, help the person into a safe position and provide reassurance.
- Call 911.

## Stroke

### **Recognizing Stroke**

- Remember the acronym FAST:
  - Face: Ask the person to smile. Does one side of the face droop?
  - Arms: Ask the person to raise both arms and close their eyes. Does one arm drift downward?
  - Speech: Ask the person to repeat a simple phrase. Is their speech slurred or strange?
  - Time: If you observe any of these signs, call 911 immediately.

### **First Aid Steps**

- Stay with the person and keep them calm.
- If the person is conscious, help them sit or lie down in a comfortable position.
- Do not give the person anything to eat or drink.

**Remember, these first aid steps are intended to provide immediate assistance until professional medical help arrives. Always prioritize safety and seek medical attention when necessary.**

## Poisoning

According to the Occupational Safety and Health Administration (OSHA), poisoning is an illness that can be caused by exposure to certain chemicals, fumes, debris, or particles in the atmosphere. These poisons may be ingested, inhaled, or injected into the victim. Common poisons are: carbon monoxide, hydrogen sulfide, opioids, and smoke. If you suspect a person has been poisoned immediately call 911, stay with the person, and contact poison control at (800-222-1222).

While not technically poisoning a victim may suffocate (asphyxiation) from a limited supply of oxygen within a confined space without appropriate respiratory protection. Additional training is required if first-aid personnel will assist in the rescue from the confined space.

Remember, these first aid steps are intended to provide immediate assistance until professional medical help arrives. Always prioritize safety and seek medical attention when necessary.

## Traumatic Emergencies

Traumatic emergencies result from physical injuries or accidents and require immediate medical attention to prevent further harm and promote healing. Common traumatic emergencies include bleeding, broken bones, burns, and wounds. Knowing how to recognize and provide first aid for these injuries can make a significant difference in the outcome for the affected individual.

## Shock

Shock is a term used to describe a person with inadequate flow of oxygenated blood to the cells. As such anytime oxygen isn't making it to the blood (i.e. breathing difficulty, anaphylaxis, asthma), or a person isn't adequately able to circulate blood (i.e. hemorrhage, low blood pressure, loss of vascular tone). It's important to identify anytime a person isn't circulating oxygenated blood and to take the following approach:

1. Identify Shock

2. Call For Help
3. Fix the Problem
4. Keep Them Warm (if from trauma)

## Bleeding / Wounds

Bleeding, also called hemorrhage, typically originates from wounds that are any damage to the skin such as abrasions, cuts, lacerations, punctures, avulsions, amputations, and crush injuries.

### Recognizing Bleeding

- Bleeding can occur externally from a wound or internally from damaged blood vessels.
- Signs of external bleeding may include blood flowing from a wound, soaking through clothing or bandages, or pooling on the ground.
- Signs of internal bleeding may include swelling, bruising, pain, or tenderness in the affected area, along with signs of shock (pale skin, rapid pulse, rapid breathing).

### First Aid Steps

- Protect yourself with the appropriate level of PPE such as gloves and eye protection
- Apply direct pressure to the wound using a clean sterile dressing or a gloved hand.
- If bleeding persists, apply a tourniquet 2 to 3 inches above the wound.
- Call 911.

## Bites and Stings

Bites and stings can cause a range of symptoms from minor irritation to severe allergic reactions. Prompt and appropriate first aid is crucial to manage these injuries effectively.

### Insect Stings

For insect stings, such as those from bees or wasps, the first step is to safely remove the stinger if it's visible. Use a flat object, like a credit card, to scrape it off. Avoid using tweezers or pinching the stinger directly, as this can release more venom. After removal, cleanse the area with soap and water to reduce the risk of infection. Applying ice or a cold pack can help minimize swelling and relieve pain. Monitor the individual closely for signs of an allergic reaction, which may include difficulty breathing, hives, swelling of the lips or throat, dizziness, or a rapid pulse. If any of these symptoms develop, seek emergency medical attention immediately.

### Animal Bites

Animal bites, particularly from unknown or wild animals, need careful handling to prevent infection and assess the risk of rabies. First, if the wound is bleeding, apply gentle pressure with a clean cloth to control the bleeding. Rinse the bite thoroughly under running water with mild soap for several minutes to cleanse the wound. Avoid sealing the wound immediately with ointments or bandages, as this can trap bacteria. After cleaning, apply an antibiotic cream and cover with a sterile bandage. It's important to seek medical advice for all animal bites to evaluate the need for tetanus shots, rabies vaccination, or further medical treatment. In the case of severe bites, or if the bite is from a high-risk animal like bats, raccoons, or stray dogs, seek immediate medical attention.

For both insect stings and animal bites, keeping a first aid kit accessible and maintaining calm can help manage the situation effectively until medical help is available or the incident is resolved.

## Musculoskeletal Injuries

Musculoskeletal injuries are any damage to muscles, tendons, or bones. They typically present after a traumatic event and present as pain, swelling, and deformities to the affected part of the body.

*Don't forget to wear appropriate PPE*

### **Recognizing Musculoskeletal Injuries**

- Symptoms of a broken bone (fracture) may include pain, swelling, bruising, deformity, difficulty moving the affected limb, or a grating sensation at the injury site.
- Open fractures occur when the broken bone protrudes through the skin, while closed fractures do not break through the skin.
- Any pain/tenderness after a traumatic event indicate a musculoskeletal injury

### **First Aid Steps**

- Immobilize the injured limb to prevent further movement and minimize pain.
- Apply ice packs or cold compresses to reduce swelling and alleviate pain.
- Seek medical attention promptly for evaluation and treatment of the fracture.

## Burns

### **Recognizing Burns**

- Burns can result from exposure to heat, chemicals, electricity, or radiation. Consider identifying the source.



- Burns are classified into three categories: first-degree (superficial), second-degree (partial thickness), and third-degree (full thickness).
- Symptoms may include redness, swelling, pain, blistering, charred skin, or difficulty breathing (in the case of inhalation burns).

### First Aid Steps

- Remove the person from the source of the burn and cool the affected area with cool running water to stop thermal burning.
- Remove any clothing or jewelry from the burned area unless it is stuck to the skin.
- Cover the burn with a clean, dry dressing or sterile gauze to protect it from infection.
- Seek medical attention for severe burns, burns involving the face, hands, feet, or genitals, or burns larger than the size of the palm.

You should review corrosive chemicals and other burn sources at your specific workplace.

### Impaled Objects

Impaled objects should never be removed, unless they are causing an airway obstruction and you can see the complete object. Impaled objects are to be stabilized with supportive material such as gauze to minimize movement. Don't forget to control any bleeding with direct pressure.

### Eye Injuries

Eye injuries can be serious and require immediate attention to prevent lasting damage. Here are some common types of eye injuries and how to respond:

**Foreign Objects:** Small particles like dust or sand can irritate the eye. If the object is on the surface, you can try to flush it out with clean water or saline solution. Instruct the person to blink several times or pull the upper eyelid over the lower eyelid to stimulate tears, which can help remove the particle. If the object is embedded, do not attempt to remove it. Cover both eyes to prevent movement and seek professional medical help immediately.

**Chemical Burns:** Immediate action is crucial. Flush the eye with clean water or a saline solution for at least 15-20 minutes. Make sure to hold the eyelids open while flushing, and do not neutralize the chemical with other substances. After flushing, cover both eyes with a sterile dressing or clean cloth and seek emergency medical treatment.

**Blows to the Eye:** Blunt trauma can cause bruising, bleeding, or more severe damage like a ruptured globe (breakage of the outer membrane of the eye). Apply a cold compress to control

swelling, but do not put pressure on the eye. Seek medical attention to ensure there is no internal damage.

**Cuts and Punctures:** Do not wash out the eye with water or try to remove any objects stuck in the eye. Avoid rubbing the eye. Cover the eye with a rigid shield without putting pressure on the eye itself (e.g., the bottom half of a paper cup taped in place). Seek immediate medical attention.

**Impaled Objects:** If an object is impaled in the eye, do not attempt to remove it. Stabilize the object by placing a protective cover around it, like a cup, to prevent any movement. Cover the unaffected eye as well to minimize eye movement that could cause further injury. Call for emergency medical assistance immediately.

**Burns from Light Sources:** Exposure to bright light sources, like lasers or welding torches, can cause burns on the retina. In such cases, do not rub the eyes. Seek medical attention to assess the extent of the damage.

In all cases of eye injuries, it's crucial to seek professional medical help as soon as possible. Even injuries that seem minor can worsen without proper treatment or lead to complications such as infection or vision loss.

## Environmental/Temperature Emergencies

Exposure to extreme temperatures or environments can lead to significant emergencies.

Exposure to excessive heat can deplete the body's ability to self-regulate temperature, leading to hyperthermia, which can be fatal. If a person is still sweating and complains of heat exhaustion, remove them from the heat, loosen their clothing, allow them to cool down, and consider calling emergency medical services. If you notice they have stopped sweating, follow the previous steps with an emphasis on urgently calling emergency medical services, as ceased sweat production is a serious indicator of heat stroke.

Exposure to excessive cold can lead to hypothermia, which is also life-threatening. Remove the person from the cold environment, call 911, but do not actively rewarm them as this can cause complications. Instead, provide dry clothing and blankets to help stabilize their temperature while waiting for medical assistance.

## Maxillofacial Injuries

Maxillofacial injuries, involving trauma to the face and jaw, require prompt and careful handling to prevent further complications. If someone has sustained a maxillofacial injury, first ensure their airway is clear and they are breathing. If the person is conscious and there is no neck injury, gently assist them to a seated position to help reduce swelling and control bleeding.

Apply clean, damp cloths to manage bleeding and use ice packs to reduce swelling, but avoid direct pressure on the injury site if fractures are suspected. If there is any sign of broken bones, avoid moving the person's head or jaw. For severe bleeding, oral injuries, or if the person is unconscious, call emergency services immediately. Always handle the person with care to avoid aggravating potential spinal injuries.

**Remember, these first aid steps are intended to provide immediate assistance until professional medical help arrives. Always prioritize safety and seek medical attention when necessary.**

# Review

## Foundations Review

### **What three things will help you stay protected during a rescue?**

Gloves, pocket masks, and good hand hygiene are three things that will help you stay protected during and after a rescue attempt.

### **What key indicators might help you recognize an emergency?**

Some key indicators to help you recognize an emergency are: unresponsiveness, difficulty breathing, severe bleeding, abnormal changes in behavior, smoke, the sound of a car crash, and people yelling.

### **After calling 911 what should you do?**

After calling 911 you should place the phone on speaker mode to free your hands.

### **What age range does this training consider a child to be?**

A child is considered to be between the ages of 1 and 8.

### **Can you help someone who is unresponsive?**

Yes, you are welcome to feel safe helping someone who is unresponsive knowing you have good samaritan laws and implied consent reassuring your good deed.

## CPR, AED, and Choking Review

### **What does CPR stand for?**

CPR stands for Cardiopulmonary Resuscitation and is a set of life saving skills utilized when a victim's heart has stopped circulating blood through their body.

### **Do you have to perform mouth-to-mouth if you do not want to?**

No, if you are unwilling to perform mouth-to-mouth but willing to call 911 and perform chest compressions you are helping.

### **What do you look for to indicate starting CPR?**

You should look for lack of breathing and movement for no more than ten seconds to indicate the need for CPR.

### **What is an AED?**

An AED is an Automated External Defibrillator. It is a device that can analyze a person's heart rhythm and deliver a shock of electricity to restore the heart to working order.

### **What are the three steps of using an AED?**

1. Turn AED On
2. Place Pads on Victim
3. Follow AED Prompts

### **What does rescue breathing do?**

It replaces depleted oxygen in our blood for our body to use.

## **Adult CPR, AED, and Choking Review**

### **Where do you place your hands in adult CPR?**

In adult CPR place both hands over the center of the lower half of the victims breastbone.

### **How deep do you compress in adult CPR?**

In adult CPR you should compress two inches deep.

### **How many times in one minute do you compress in adult CPR?**

In all CPR you should compress at a rate of 100 - 120 compressions per minute.

### **How many compressions are performed before delivering two breaths in adult CPR?**

Adult CPR has a compression to ventilation ratio of 30 compressions and two breaths.

**What is a team coach?**

The team coach is a responder responsible for coordinating a rescue and delegating tasks to ensure a high quality resuscitation.

**What should you do if a choking person becomes unresponsive?**

Anytime a choking victim becomes unresponsive CPR should be started.

## Child CPR, AED, and Choking Review

**Where do you place your hands in child CPR?**

In child CPR you place one or both hands over the center of their breastbone.

**How deep do you compress in child CPR?**

In child CPR you compress to a depth of  $\frac{1}{3}$  the anterior posterior or about 2 inches.

**How many times in one minute do you compress in child CPR?**

In all CPR you should compress at a rate of 100 - 120 compressions per minute.

**How many compressions are performed before delivering two breaths in child CPR?**

Child CPR has a compression to ventilation ratio of 30 compressions and two breaths.

**How should the AED pads be placed on a child?**

For a child, place one pad on the center of their chest over the breastbone with the other pad placed on the center of their back opposite of the first pad. Make sure to avoid overlapping the pads.

**Can you use adult pads on a child?**

While you would prefer to use the child/infant pads on a child you may use adult pads/adult mode on a child or infant.

## Infant CPR, AED, and Choking Review

### **Where do you place your hands in infant CPR?**

Place two fingers on the center of the infant's breastbone.

### **How deep do you compress in infant CPR?**

In infant CPR you compress to a depth of  $\frac{1}{3}$  the anterior posterior or about 1.5 inches.

### **How many times in one minute do you compress in infant CPR?**

In all CPR you should compress at a rate of 100 - 120 compressions per minute.

### **How many compressions are performed before delivering two breaths in infant CPR?**

Infant CPR has a compression to ventilation ratio of 30 compressions and two breaths.

### **How should the AED pads be placed on an infant?**

For a child, place one pad on the center of their chest over the breastbone with the other pad placed on the center of their back opposite of the first pad. Make sure to avoid overlapping the pads.

### **Can you use adult pads on an infant?**

While you would prefer to use the child/infant pads on an infant you may use adult pads/adult mode on a child or infant.

## Opioid Overdose Review

### **What is the most powerful sign of an opioid overdose?**

Pinpoint pupils are one of the most powerful and convincing signs of an opioid overdose. Pair that with unconsciousness and slowed/stopped breathing and you need to act now.

### **If you do not have Naloxone/Narcan what else can you do?**

Narcan or Naloxone is not the only thing you can do, if you are able and willing to perform rescue breathing that will supply the victim with oxygen until the naloxone starts working and/or help arrives.



# Conclusion

Congratulations! By completing this life-saving student manual, you have taken a crucial step towards becoming a confident and capable responder in emergency situations. Your dedication to learning these life-saving techniques is commendable and may make a significant difference in the lives of those around you.

Your ability to perform CPR effectively can mean the difference between life and death for someone experiencing cardiac arrest. With each technique you have mastered and each scenario you have practiced, you have equipped yourself with the knowledge and skills necessary to make a positive impact when it matters most.

As you continue on your journey, always strive to stay updated on the latest CPR guidelines and techniques. Regular practice and ongoing education are essential to maintaining proficiency and confidence in your abilities. Additionally, do not hesitate to share your knowledge with others and encourage them to learn CPR as well. Together, we can create a community of life-savers ready to make a difference in any emergency.

Thank you for your commitment to saving lives. Your dedication to being prepared and proactive in emergency situations is truly inspiring. Keep up the great work, and never underestimate the impact you can have on someone's life.

**To learn more visit [savewithcpr.com](https://savewithcpr.com)**

