

LEVEL 3

Save-A-Life

THE A-B-C'S OF SAVING A LIFE





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Dear Teacher,
Welcome to Level 3 of the Save-A-Life program.

Level 3 is ideally taught to 5th and 6th grade students and covers various important First Aid topics. The program consists of a Student’s Guide and a Teacher’s Guide.

In the Student’s Guide, the typical lesson has a paragraph describing the subject and related symptoms, followed by clear and concise instructions. However, it is understood that there are many more ‘what-ifs’ surrounding each situation, and many questions arise when a person is faced with these emergencies. This program is designed to give the students basic knowledge and to teach them when emergency services must be called. It does not teach students to be paramedics. In an emergency situation, it is crucial for these preliminary instructions to be followed so the ‘ball can start rolling’ and treatment can begin effectively. What appears to be a few short instructions may actually save a life.

Included in the Student’s Guide and the Teacher’s Guide is the Always/Never lesson. This lesson covers instructions that are constant – some that should be done in all circumstances and some that should never be done. **These instructions are of utmost importance for everyone’s safety.**

The Teacher’s Guide comprises the Student’s Guide lessons, as well as supplementary information. There are many frequently asked questions on each topic, as well as answers to each question. We also included more detailed information which might be helpful and interesting for the students. The supplemental information can also help when dealing with more complicated scenarios. By including this information in the Teacher’s Guide, we give you, the teacher, the discretion to use this added material as you see fit. Depending on the age of the students you are teaching, and how the students accept the program, the individual teacher can decide to teach more, or less, of the ‘extended’ information.

Please note that some instructions mentioned in the first few lessons are not taught until later in the program. For example: Performing CPR is one of the steps in the treatment of someone who becomes unconscious, but the CPR lesson is taught later in the school year. You can tell the students that they will be learning the actual instructions in a later lesson.

We hope you and your students will benefit greatly from this program and welcome your suggestions and comments.

With our blessings for much success,
Vaad Refuah and the Save-A-Life Committee

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A special thank you to **MOSHE HAINIC EMT-P, CIC** for sharing his expertise and knowledge with us during the creation of this book.

ALWAYS/NEVER

STUDENT LESSON

ALWAYS:

- ✓ **Call 911 in the event of an emergency.**
Call even if you’re not sure it’s an emergency.
Calling 911 is the most important thing you can do to save a life.
- ✓ Make sure your surroundings are safe before trying to help the patient. Some examples of unsafe surroundings are: electrical dangers (exposed wires, high voltage, frayed cords), fire, traffic, etc. If you don’t feel safe, don’t put your life in danger! Move to a safe area and call for help.
- ✓ If there’s an emergency and someone is with you, tell that person to call 911 and to get an AED (Automated External Defibrillator) while you help the patient. Look directly at the person, call them by name or say, “*You in the blue shirt, call 911 and get an AED.*” Describe the emergency. Instruct them to stay on the phone until the dispatcher tells them to hang up.
- ✓ If there’s an emergency and you’re alone and don’t have a phone, yell for help. Hopefully, someone will hear and come.
- ✓ If you are sending someone to call 911, tell them to come back to you so they can let you know that help is coming and they can also assist you if necessary.
- ✓ When calling 911:
 - It’s best to use a landline phone. If you don’t have an easily accessible landline phone, use a cell phone.
 - Give the dispatcher your call back phone number and your exact address. Sometimes, you will have to give more detailed instructions on how to get to your exact location (apartment number, etc.).
 - Leave the phone on speaker so the dispatcher hears what’s going on and can instruct you while help is on the way.
 - **Don’t hang up until the dispatcher tells you to.**
- ✓ If you are indoors, unlock the door so 911 can get in. If someone is with you, have that person wait outside to guide 911 to the patient. If it’s dark outside, have them take a flashlight along if they have one.
- ✓ If you suspect the patient has a spinal injury:
 - Share this information with 911 when you contact them.
 - Do not move the patient unless they are in immediate danger, in which case keep their head, neck, and spine in alignment to prevent further damage.
- ✓ Keep calm. Speak calmly to the patient and tell them that help is on the way. Talk as if they can hear you even if they seem to be unconscious. They probably can hear you.
- ✓ Keep monitoring the patient for any changes in breathing or consciousness.
- ✓ The only reason to leave a patient is to go for help when you’re alone and don’t have a phone. If you have to leave, tell the patient that you are getting help and will be right back. Then, run to get help.
- ✓ If the patient is an infant and you have to leave to get help, take the infant with you.



STUDENT LESSON

- ✓ Protect the patient's privacy as much as possible.
- ✓ Use gloves whenever providing patient care. When you're finished with the gloves, take them off by turning them inside-out to avoid exposing yourself to any saliva or blood.
(see below, 'HOW TO REMOVE DISPOSABLE GLOVES')
- ✓ Wash your hands very well with soap and water after the emergency is over.

HOW TO REMOVE DISPOSABLE GLOVES

- 1** Pinch glove at palm or near wrist. Avoid touching skin.
- 2** Pull glove down past palm & off fingers slowly.



- 3** With gloved hand, wad removed glove into palm of gloved hand.
- 4** Insert ungloved finger into cuff of gloved hand. Pull glove down, turning glove inside-out.



- 5** Dispose in waste bin & wash hands immediately.



STUDENT LESSON

NEVER:

- ✗ **NEVER** hesitate to call 911 in an emergency – even if you're not sure it's an emergency.
- ✗ **NEVER** try to help the patient if the area is not safe for you. Move away from the dangerous area and call for help.
- ✗ **NEVER** leave the patient alone except to go get help. If you must leave, come back as quickly as possible.
- ✗ **NEVER** put anything in the mouth of someone who is unconscious, or having a seizure or a stroke.
- ✗ **NEVER** do a finger sweep in a patient's mouth unless the object is visible and can be easily removed.
- ✗ **NEVER** put ice or hot packs directly on the patient's skin. Wrap the ice/hot pack in something first.
- ✗ **NEVER** shake an infant.

IMPORTANT GENERAL SAFETY RULES FOR EVERYONE

- ▶ When riding a bike or a scooter, always wear a helmet.
- ▶ When riding in a car, always wear a seat belt – even when sitting in the back seat.
- ▶ When crossing the street, always look both ways – even on a one-way street.
- ▶ If you sneeze, the best way not to spread germs is to sneeze into a tissue. If you don't have a tissue, sneeze into your sleeve.

ASSESSING A PATIENT IN THE EVENT OF AN EMERGENCY

STUDENT LESSON

You come across someone who seems to be injured or needs help. You don’t know what happened or what is wrong with them. What do you do?

1. CHECK IF THE AREA IS SAFE

- If the area is not safe, go to a safe area and call 911.
- If the area seems safe, stay aware of your surroundings while you take care of the patient. The safety status of an area can change.

2. CHECK IF THE PATIENT IS CONSCIOUS – TAP AND SHOUT

- Tap the patient’s shoulder and shout, “Are you OK?” or “Open your eyes.”
People respond by speaking, moving, blinking, or otherwise reacting. If they don’t respond, pinch their earlobes or gently shake their shoulders.
- For an infant (less than 1 year old), try tickling their fingers and toes.
Infants respond by moving, blinking, crying, or otherwise reacting.

3. IF THE PATIENT RESPONDS, THEY ARE CONSCIOUS

Proceed to page 7, ‘EMERGENCY CARE FOR A PATIENT WHO IS CONSCIOUS’.

4. IF THE PATIENT DOES NOT RESPOND, THEY ARE UNCONSCIOUS

Proceed to page 8, ‘EMERGENCY CARE FOR A PATIENT WHO IS UNCONSCIOUS’.

EMERGENCY CARE FOR A PATIENT WHO IS CONSCIOUS

STUDENT LESSON

A patient is considered conscious if they are responsive.

1. GATHER INFORMATION FROM THE PATIENT

- Ask the patient what happened.
- Ask whether they have any allergies.
- Check for a medical alert bracelet or necklace.
- Remember any information the patient volunteers about their medical conditions.
- Give the information to 911 when they arrive.

2. CALL 911

- If someone is with you, tell them to call 911.
- If you’re alone and have a phone, call 911.
- If you’re alone and don’t have a phone, yell for help. If someone comes, tell them to call 911.

3. IF YOU SUSPECT THE PATIENT HAS A SPINAL (NECK/BACK) INJURY (page 11, ‘WHEN TO SUSPECT A SPINAL INJURY’), INSTRUCT THE PATIENT NOT TO MOVE

If possible, immobilize their head and neck by placing rolled up towels or clothes on either side for support.

4. IF THE PATIENT IS VOMITING WHILE LYING DOWN, POSITION THEM ON THEIR SIDE TO KEEP THEIR AIRWAY CLEAR (page 12, ‘HOW TO GET A PATIENT INTO RECOVERY POSITION’)

5. IF 911 HAS NOT YET BEEN CALLED, LEAVE THE PATIENT AND GET HELP – COME BACK AS SOON AS POSSIBLE

6. STAY WITH THE PATIENT - REASSURE THEM AND KEEP THEM COMFORTABLE UNTIL HELP ARRIVES

7. KEEP MONITORING THE PATIENT FOR ANY CHANGE IN THEIR CONDITION



EMERGENCY CARE FOR A PATIENT WHO IS UNCONSCIOUS

STUDENT LESSON

When a patient is unconscious, they look like they are asleep but they do not respond to sound or touch. They may be breathing or not breathing. People can lose consciousness for a few seconds, like when someone faints, or for a longer period of time.

1. CALL 911

- If someone is with you, tell them to call 911 and to get an AED.
- If you're alone and have a phone, call 911 and get an AED if it's easily accessible.
- If you're alone and don't have a phone, yell for help. If someone comes, tell them to call 911 and to get an AED.

2. IF THE PATIENT IS BREATHING (page 9, 'HOW TO CHECK IF A PATIENT IS BREATHING')

- Position the patient on their side to keep their airway clear. (page 12, 'HOW TO GET A PATIENT INTO RECOVERY POSITION')

EXCEPTION: IF YOU SUSPECT THE PATIENT HAS A SPINAL INJURY (page 11, 'WHEN TO SUSPECT A SPINAL INJURY'), **DO NOT MOVE THE PATIENT UNLESS THEY ARE VOMITING**, in which case turn the patient onto their side, keeping the patient's head, neck, and spine in alignment.

- Check the patient for a medical alert bracelet or necklace. Share the information with 911 when they arrive.
- If 911 has not yet been called, leave the patient and get help - come back as soon as possible.
- Stay with the patient - reassure them and keep them comfortable until help arrives.

3. IF THE PATIENT IS NOT BREATHING (see page 9, 'HOW TO CHECK IF A PATIENT IS BREATHING')

- Position the patient on their back on a firm, flat surface.
If you suspect a spinal injury (page 11, 'WHEN TO SUSPECT A SPINAL INJURY'), keep the patient's head, neck, and spine in alignment when positioning them.
- If an object is visible in the patient's mouth, remove it only if it is easy to remove.
- If 911 has not yet been called:
 - Perform CPR (Lesson 8) for two minutes.
 - If an AED is available, use it as soon as possible and press the 'Shock' button if advised.
 - Leave the patient and get help.
 - Come back as soon as possible.
- Perform CPR until help arrives or the patient starts breathing.
 - If an AED is available, use it immediately and follow the AED instructions (page 39, 'AED'). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

STUDENT LESSON

HOW TO CHECK IF A PATIENT IS BREATHING

This should take 5-10 seconds.

- ▶ **LOOK** if their chest is rising and falling
- ▶ **LISTEN** over their mouth and nose for breath sounds
- ▶ **FEEL** their breath against your cheek

NOTE: Occasional gasps are NOT considered breathing.

ASSESSING A PATIENT IN THE EVENT OF AN EMERGENCY – additional information

WHAT DOES UNCONSCIOUS MEAN?

When someone looks like they are asleep but they are unable to respond to sound or touch, they are unconscious. This state can last for a few seconds (like fainting) or for a longer time. People who become unconscious may even stop breathing.

WHAT CAUSES UNCONSCIOUSNESS?

Unconsciousness can be due to many reasons, including major illness or injury, drug or alcohol abuse, head injury, or severe blood loss.

IS IT POSSIBLE TO BE UNCONSCIOUS AND STILL BE BREATHING?

Yes.

WHAT CAUSES FAINTING?

Fainting is a brief loss of consciousness caused by reduced blood flow to the brain. There are many

reasons for fainting, including low blood sugar, dehydration, seizures, irregular heartbeat, and hyperventilating.

WHAT IS THE DIFFERENCE BETWEEN FAINTING AND UNCONSCIOUSNESS?

Fainting is a brief loss of consciousness. If a person who has fainted does not quickly regain consciousness, they are considered unconscious.

WHAT SHOULD YOU DO IF SOMEONE FEELS FAINT?

Have them lie down. If there are no signs of injury and the movement does not cause the person any pain, raise the patient's legs to improve blood flow to the brain.

HOW LONG SHOULD IT TAKE TO DETERMINE IF THE PERSON IS BREATHING?

Look, Listen and Feel for NO MORE THAN 5-10 SECONDS.



ASSESSING A PATIENT IN THE EVENT OF AN EMERGENCY – *additional information*

SHOULD YOU TRY TO TALK TO A PERSON WHO IS UNCONSCIOUS?

Yes. Talk to the person to reassure them. Even though they might not respond, they may still be able to hear what is going on.

WHEN SHOULD YOU MOVE A PATIENT?

AS A RULE, IT'S BEST NOT TO MOVE A PATIENT. This is especially important if you suspect the patient has a spinal injury.

Some exceptions to this rule are:

- When the patient is in immediate danger, for instance: an unstable accident scene, a traffic hazard, fire, risk of explosion, or a collapsing structure. Even then, **IF THERE'S A RISK OF HARM TO YOURSELF, LEAVE THE PATIENT AND GET HELP.**
- When it's necessary for emergency care: if the patient needs CPR and must be moved to a firm, flat surface.
- When the patient is vomiting and must be turned onto their side so they can better maintain their airway.

HOW CAN A CHILD MOVE A PATIENT – ISN'T IT TOO DIFFICULT FOR THEM TO DO SO?

They should try their best. If there are adults or other children around, they should ask for help.

WHAT IF A CHILD WAS IN AN ACCIDENT AND YOU JUST WANT TO PICK THEM UP TO COMFORT THEM?

You have to think about the consequences of moving an injured child. Don't give in to your instinct to pick them up or move them. Just reassure them and speak to them calmly.

WHY DON'T YOU LEAVE AN UNCONSCIOUS PATIENT ON THEIR BACK?

When a patient is unconscious, their muscles, including their swallowing muscles, relax. If the patient is left on their back, they can aspirate their own fluids, or their tongue can fall back and block the airway.

WHAT IS YOUR MAIN FOCUS WHEN DEALING WITH AN UNCONSCIOUS PATIENT WHO IS BREATHING?

Your main focus is to keep the patient's airway clear so they can continue to breathe. This is accomplished by turning the patient onto their side (known as Recovery Position). The Recovery Position ensures that any fluids – or anything else in their mouth – can drain out so the patient will not choke. It also prevents the most common airway obstruction, the tongue, from getting in the way and blocking the airway.

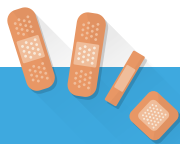
The exception to this rule is when you suspect that the patient has a spinal injury. In that case, you don't turn the patient unless they are vomiting.

WHEN TO SUSPECT A SPINAL INJURY

STUDENT LESSON

SUSPECT A SPINAL INJURY IF A PATIENT HAS

- ⊕ neck or back pain
- ⊕ difficulty moving the neck
- ⊕ unusual shape or twist in the normal curve of the spine
- ⊕ soreness and/or bruising in the skin over the spine
- ⊕ weakness or paralysis of their arms or legs
- ⊕ loss of feeling or abnormal feeling (burning, tingling, numbness)
- ⊕ loss of bladder and/or bowel control
- ⊕ fallen from a height
- ⊕ sustained a diving accident



HOW TO GET A PATIENT INTO RECOVERY POSITION

STUDENT LESSON

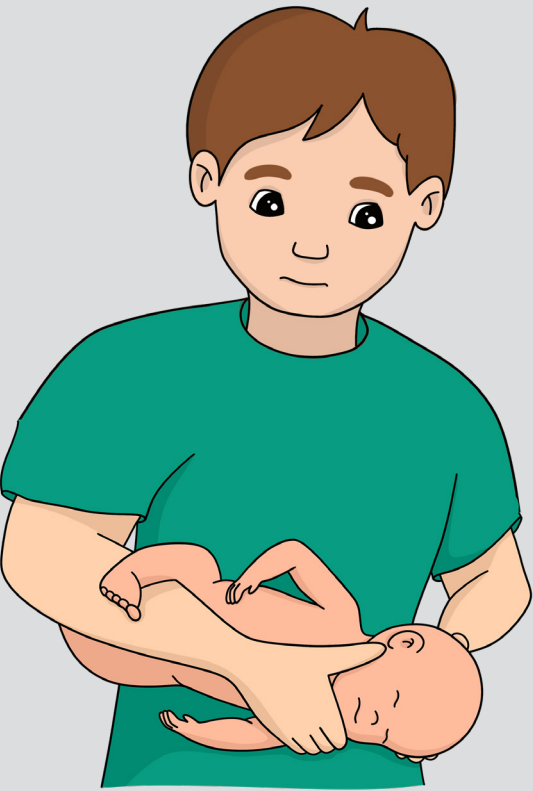
NOTE: If you suspect a spinal injury, make sure to keep the patient’s head, neck and spine in alignment when moving them.

FOR AN ADULT OR A CHILD *(chart, page 13)*

- With the patient on their back, kneel at their side.
- Raise the arm closest to you at a right angle to the patient’s body, with their palm facing up.
- Bend the patient’s further arm at the elbow and bring it across the patient’s face. Place the back of their hand against the cheek nearest you.
- Bend the patient’s further knee, putting their foot flat on the floor.
- Hold the patient by the further elbow and knee. Roll the patient towards you, resting their head on their hand.
- Adjust the patient’s top leg so it’s at a right angle.

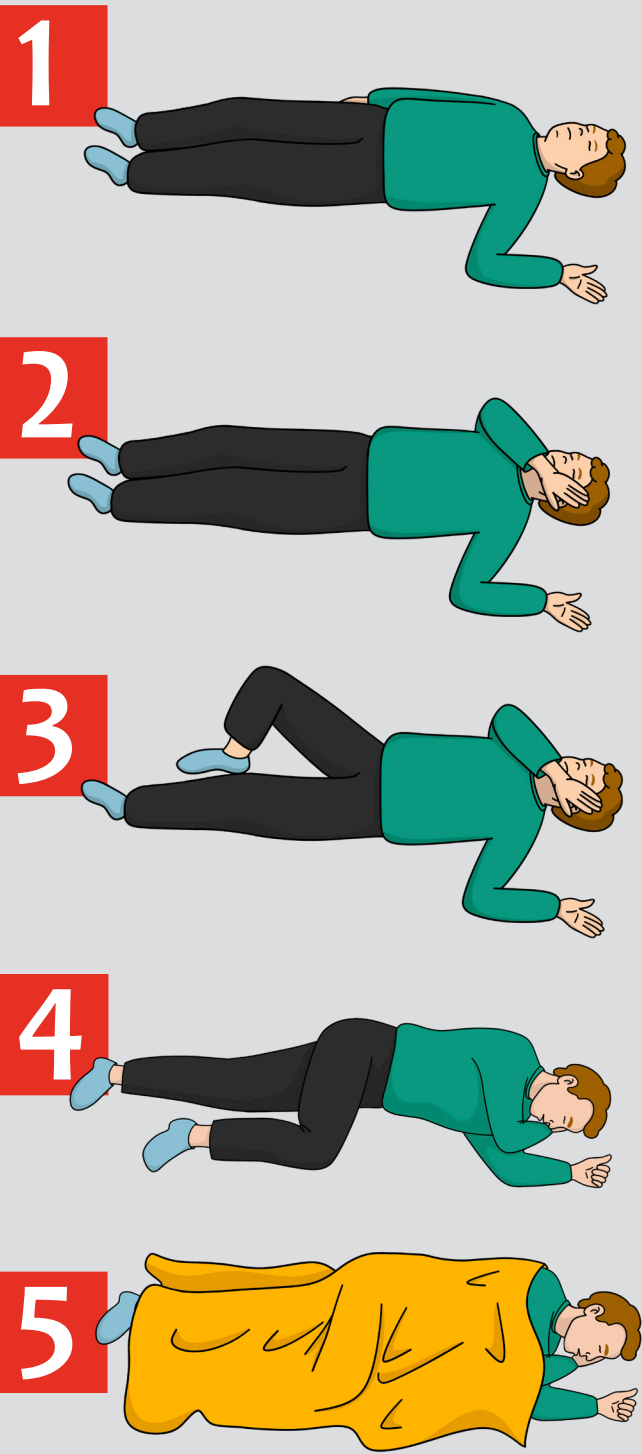
FOR AN INFANT

- Bring the infant’s back close to your chest, supporting the infant along the length of your arm.
- Keep the infant’s head and neck slightly lower than their chest.
- Feel for the infant’s breaths against your hand.
- Support the back of the infant’s head with your other hand.



STUDENT LESSON

HOW TO GET A PATIENT INTO RECOVERY POSITION



THE SPINE, THE SPINAL CORD, AND SPINAL INJURY – *additional information*

WHAT IS THE SPINE MADE UP OF?

- the spinal cord, which is protected by connective tissue (meninges) and cerebrospinal fluid (CSF), a clear colorless fluid that cushions the spinal cord against jarring shock
- vertebrae, which are the bones that protect the spinal cord
- intervertebral discs, which are the discs of tissue between the vertebrae
- muscles, which support the spine
- nerves, which branch off the spinal cord – they carry messages between the brain and the rest of the body

WHAT IS THE FUNCTION OF THE SPINE?

The spinal cord is connected to the brain by the brain stem. The spinal cord and the brain constitute the central nervous system. The spinal nerves relay signals to muscles to control movement (motor function). They also relay sensory information, like touch, pain, and heat to the brain by way of the spinal cord (sensory functions).

WHAT COULD CAUSE A SPINAL INJURY?

- a bullet or stab wound
- a traumatic injury to the face, neck, head, chest, or back (for example, a car accident)
- a diving accident
- electric shock
- landing on the head during a sports injury
- a fall from a great height

WHAT SYMPTOMS WOULD INDICATE A SPINAL INJURY?

INJURY TO VERTEBRAE:

- pain in the neck or back
- inability to move neck
- unusual shape or twist in the normal curve of the spine
- soreness and/or bruising in the skin over the spine

INJURY TO SPINAL CORD:

- loss of control over limbs – inability to move arms or legs
- loss of sensation or abnormal sensation (burning, tingling)
- loss of bladder and/or bowel control

WHAT HAPPENS WHEN THE SPINE IS INJURED?

The spinal cord is very sensitive to injury. Unlike other parts of your body, the spinal cord does not have the ability to repair itself. Damage to the spinal cord interferes with its ability to relay messages between the brain and the rest of the body. The greatest risk to someone with a spinal injury is temporary or permanent paralysis from the point of injury down.

WHAT IS MOST IMPORTANT TO CONSIDER WHEN DEALING WITH A PATIENT WHO HAS A SUSPECTED SPINAL INJURY?

PERMANENT PARALYSIS AND OTHER SERIOUS LIFE-THREATENING COMPLICATIONS CAN RESULT FROM MOVING A PERSON WITH A SPINAL INJURY – EVEN IF IT’S INITIALLY A MILD SPINAL INJURY. If you are unsure if the person has a spinal injury, you should proceed as if they do.

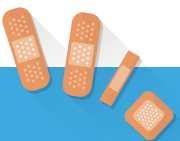
THE SPINE, THE SPINAL CORD, AND SPINAL INJURY – *additional information*

WHAT ARE SOME VERY IMPORTANT THINGS TO DO AND THINGS NOT TO DO FOR A PATIENT WHO HAS A SPINAL INJURY?

- DO NOT MOVE THE PATIENT UNLESS IT IS ABSOLUTELY NECESSARY. If the person is not in immediate, life-threatening danger, wait for 911 to arrive. If the patient MUST be moved (*see page 10, ‘WHEN SHOULD YOU MOVE A PATIENT?’*), do your best to keep the patient’s head, neck, and spine in alignment when you move them.
- AIRWAY MANAGEMENT ALWAYS TAKES PRECEDENCE OVER ANY SUSPECTED SPINAL INJURY.
 - If a patient is vomiting, they need to be on their side (Recovery Position). If they are not already in the Recovery Position, turn them

onto their side, making sure to keep the patient’s head, neck, and spine in alignment while turning them.

- If the patient is not breathing, they must be positioned on their back so that CPR can be performed. If they are laying on their side, turn them onto their back, making sure to keep the head, neck, and spine in alignment when turning them.
- TRY TO KEEP THE PATIENT’S HEAD AND NECK IMMOBILIZED BY PUTTING TOWELS OR PILLOWS ON BOTH SIDES OF THEIR HEAD/NECK. If the patient is conscious, tell them not to move.
- IF THE PATIENT IS WEARING A HELMET, DO NOT TAKE IT OFF. Removal of the helmet could cause the spine to move.



RECOVERY POSITION – additional information

WHAT IS RECOVERY POSITION?

Putting a patient into Recovery Position is when you turn the patient onto their side.

WHY DO WE PUT A PATIENT INTO RECOVERY POSITION?

We put a patient into Recovery Position so their airway can be kept clear.

WHEN DO WE PUT A PATIENT INTO RECOVERY POSITION?

This position is used when the patient is:

- Vomiting, compromising their airway.
- Unconscious/breathing and you are waiting for help to come.
- A drowning victim who is breathing and you are waiting for help to come.
- A drowning victim who is not breathing and you are leaving the patient so you can get help.

IS RECOVERY POSITION USED FOR A PATIENT WITH A SPINAL INJURY?

A patient with a spinal injury is only placed into Recovery Position if their airway is compromised, such as when they are vomiting. It is of utmost importance to use extreme caution when moving a patient who is suspected of having a spinal injury. You must make sure to keep the patient's head, neck, and spine in alignment whenever they are moved.

IF A PATIENT IS NOT BREATHING AND YOU ARE GETTING THE PATIENT READY FOR CPR, DO YOU PUT THE PATIENT IN RECOVERY POSITION?

No, you would position them on their back so they are ready for CPR.

DOES IT MATTER ONTO WHICH SIDE YOU ROLL THE PATIENT?

Ideally, the left side position has been preferred for the Recovery Position. However, there doesn't seem to be a specific advantage to this position. Sometimes, it depends on the surroundings. For example, if the patient collapsed next to a wall, it may only be possible to roll them in one direction. Remember, your main goal when placing a patient in the Recovery Position is to keep the patient's airway clear so they can continue to breathe. This is the absolute priority and should take precedence over other actions. Do not waste unnecessary time deciding which side might be better to roll the patient onto.

In a case where the unconscious patient is in late stages of pregnancy, roll them onto their left side. This prevents the baby from compressing one of the main blood vessels in the abdomen.

HEART ATTACK

STUDENT LESSON

A Heart Attack occurs when the blood flow to part of the heart muscle is blocked by a clot. This can damage the heart muscle and prevent the heart from pumping blood to the vital organs effectively. Typically during a Heart Attack, the heart continues to pump blood, but it doesn't do its job adequately. The longer the patient experiencing a Heart Attack goes without treatment, the greater the possible damage to the heart muscle. Occasionally, the damaged heart muscle triggers an abnormal rhythm that can lead to Sudden Cardiac Arrest (SCA).

SYMPTOMS

- ⊕ The patient may have very strong, gripping chest pain.
- ⊕ They may have pain in their arms, neck, jaw, back, or stomach.
- ⊕ They could have nausea, sweating, lightheadedness, difficulty breathing, or milder pain in the center of the chest when walking or exerting themselves.
- ⊕ Women, the elderly, and people with diabetes can have these symptoms but are more likely to have the less typical symptoms of heartburn or indigestion.

1. CALL 911

- If someone is with you, tell them to call 911 and to get an AED.
- If you're alone and have a phone, call 911 and get an AED if it's easily accessible.
- If you're alone and don't have a phone, yell for help. If someone comes, tell them to call 911 and to get an AED.

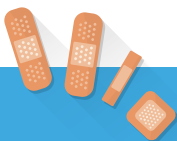
EVEN IF YOU'RE NOT SURE THE PATIENT IS HAVING A HEART ATTACK, IT'S CRITICAL TO CALL 911 AS SOON AS POSSIBLE!

2. HAVE THE PATIENT CHEW AND SWALLOW 4 UNCOATED BABY ASPIRINS – 81 mg. each

- This is ONLY if the patient is responsive and says they're allowed to have aspirin. Also, the patient has to be able to chew and swallow.
- Blood tries to clot when it's not flowing. Aspirin prevents blood from clotting in a blocked or partially blocked artery. Uncoated aspirin is best because it gets absorbed into the system most quickly.

3. POSITION THE PATIENT AND KEEP THEM COMFORTABLE

- Ideally, the best position for a Heart Attack patient is to sit on the floor with their knees bent and their head and shoulders supported. You can place cushions behind them or under their knees. If the patient is uncomfortable in that position, help them into a position that is more comfortable.
- It's best to loosen the patient's clothing.



STUDENT LESSON

4. IF 911 HAS NOT YET BEEN CALLED, LEAVE THE PATIENT AND GET HELP – COME BACK AS SOON AS POSSIBLE

5. STAY WITH THE PATIENT – REASSURE THEM AND KEEP THEM COMFORTABLE UNTIL HELP ARRIVES

6. IF THE PATIENT STOPS BREATHING, PERFORM CPR UNTIL HELP ARRIVES OR THE PATIENT STARTS BREATHING AGAIN

- If an AED is available, use it immediately and follow the AED instructions (page 39, 'AED'). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

HEART ATTACK – additional information

HOW DOES THE HEART WORK?

The heart is complex. It has intricate 'plumbing' and 'electrical' systems which keep it beating. If there is a problem with the 'plumbing' or the 'electricity', the person can experience a Heart Attack or a Sudden Cardiac Arrest.

Think of when there's a plumbing problem in your house. This usually happens when there is a clogged or blocked pipe. The same is true when a person has a Heart Attack – one or more of their coronary arteries (pipes) are blocked. Over time, a buildup of various substances, including cholesterol, will narrow the artery and create the blockage, and the person will have a HEART ATTACK. The blockage results in the blood not being able to flow through the heart muscle. This can cause the heart muscle to be damaged. Generally, during a Heart Attack, the patient will feel a variety of symptoms, but they will still be conscious. If the blood flow is totally blocked, the patient can die.

When there's an electrical problem in a house, wires short circuit, and then BOOM! – there's no electricity throughout the house. The same is true for the heart. The cause of SUDDEN CARDIAC ARREST (SCA) is usually an abnormality in the heart rhythm (arrhythmia). This arrhythmia can result in the heart beating too quickly or too slowly

or in an irregular fashion. Often, these changes in rhythm are momentary and harmless, but if the heart suddenly goes from one rhythm to another and can't get back on track, it can lead to Sudden Cardiac Arrest – the heart just completely stops. The scary thing about Sudden Cardiac Arrest is that there are no symptoms. During Sudden Cardiac Arrest, the person will collapse and is no longer conscious. There is no pulse or breath.

You need both the 'plumbing' and 'electrical' systems to be working properly in order to have a healthy heart. The doctor who takes care of the 'plumbing' system is known as a Cardiologist, while the doctor who takes care of the 'electrical' system is known as an Electrophysiologist.

HEART ATTACK – additional information

MOST IMPORTANT:

What if you think the person might be having a Heart Attack but you're not sure?

CALL 911 IMMEDIATELY. DO NOT WASTE ANY TIME MAKING AN APPOINTMENT WITH THE PATIENT'S DOCTOR AS TIME IS OF THE ESSENCE AND A HEART ATTACK PATIENT NEEDS TO BE IN THE HOSPITAL AS SOON AS POSSIBLE. EVEN IF YOU'RE NOT SURE THE PERSON IS HAVING A HEART ATTACK, LET THE EXPERT PERSONNEL DECIDE. IT'S BETTER TO ERR ON THE SIDE OF CAUTION!

WHEN DOES A HEART ATTACK HAPPEN?

A Heart Attack happens when there is a buildup of fat or cholesterol which forms plaque in the arteries. Small plaques produce only partial blockages and are the ones most likely to rupture. When they rupture, they attract platelets to their surface. Platelets are tiny blood cells that trigger blood clots. A clot, also called a thrombus, builds up on the ruptured plaque. As the clot grows, it blocks the artery. If it blocks the entire artery, that portion of the heart muscle doesn't get oxygen. As a result, the muscle cells die.

WHAT'S THE BEST POSITION FOR THE HEART ATTACK PATIENT?

Ideally, the best position for a conscious Heart Attack patient is NOT LYING DOWN. Lying down fills the heart with a bit more blood, straining it. The best position is on the floor leaning against a wall with knees bent and head and shoulders supported. This should ease the pressure on the heart and stop the person from hurting themselves if they collapse. An exception is if the person is light-headed, which might indicate low blood pressure. In that case, lay the person down.

WHAT'S THE DIFFERENCE BETWEEN A HEART ATTACK AND A SUDDEN CARDIAC ARREST (SCA)?

A Heart Attack is when blood flow to the heart is blocked, and a Sudden Cardiac Arrest is when the heart malfunctions and suddenly stops beating. A Heart Attack is a "circulation/plumbing" problem; a Sudden Cardiac Arrest is an "electrical" problem.

WHAT IS ANGINA AND HOW IS IT DIFFERENT THAN A HEART ATTACK?

Angina is a tightness of the chest where blood flow to the heart is restricted. This might be due to exercise where there is more of a demand of oxygen-rich blood to the heart muscle. Unlike a Heart Attack, symptoms usually ease with rest and by taking the prescribed medication.

HOW DO MEDICATIONS LIKE ASPIRIN AND NITROGLYCERIN WORK, AND HOW ARE THEY GIVEN?

Blood tries to clot when it's not flowing. Aspirin prevents blood from clotting in a blocked or partially blocked artery. Many people take a low-dose aspirin daily to prevent a Heart Attack. If someone is having a Heart Attack, it's best to take the uncoated version of aspirin - chew and swallow it so it can work much faster.

Nitroglycerin is a vasodilator – It causes the muscles in the wall of the coronary artery to relax and dilate so more blood can flow through the artery. It is taken under the tongue and is used to treat Angina symptoms, such as chest pain or pressure, which happen when there is not enough blood flowing to the heart, or when someone is having a Heart Attack.

HEART ATTACK – additional information

WHAT ARE TIPS FOR PREVENTING HEART DISEASE?

- Don't smoke: Smoking damages the arteries, leading to Angina, Heart Attack, or Stroke.
- Exercise regularly: 30 minutes of moderate daily activity improves blood flow and heart strength.
- Improve diet: Eating a nutritious diet prevents plaque buildup in the arteries.
- Know your heart health numbers: Healthy cholesterol, blood pressure, and blood sugar levels reduce your risk for heart disease.
- Maintain a healthy weight: Excess weight can put a strain on the heart as it makes it more challenging to pump blood throughout the entire body.
- Cut down on caffeinated and alcoholic beverages: Consuming excessive amounts of these beverages can lead to AFib (Atrial Fibrillation – quivering or irregular heartbeat) which can lead to blood clots, Stroke, heart failure, and other cardiac problems.

MYTHS AND FACTS ABOUT HEART DISEASE

MYTH: Heart disease is a man's problem.

FACT: Heart disease is the #1 killer of both men and women in the United States.

MYTH: Heart disease only happens to older people.

FACT: Heart disease can affect anyone, no matter how old they are.

MYTH: Heart disease always causes symptoms so you would know if you have it.

FACT: High blood pressure, high cholesterol, and diabetes — three major risk factors for heart disease — have no symptoms.

MYTH: Heart Attack symptoms are the same for everyone.

FACT: Heart Attack symptoms can differ for men and women. Diabetics may have atypical Heart Attack symptoms.

MYTH: Heart disease runs in your family so there's nothing you can do.

FACT: Even if heart disease runs in your family, you can take control by learning about your risk factors, making healthy choices, and getting regular checkups to catch any problems early.

MYTH: Diabetes won't affect your heart if you take your medicine.

FACT: Diabetes is a major risk factor for heart disease so it's important to control it with medicines and healthy lifestyle choices.

MYTH: You're in good shape so it's not possible for you to have heart disease.

FACT: Some conditions, like high cholesterol and diabetes, can be passed down in families so no matter how fit you are, you may be at risk. Knowing your family history and keeping regular appointments with your doctors are both important parts of your overall health.

STROKE

STUDENT LESSON

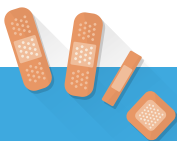
A Stroke occurs when blood flow to the brain is blocked or a blood vessel in the brain ruptures. These two types of Strokes may result in the same symptoms.

Strokes can happen suddenly and can affect movement, speech, vision, and balance.

STROKE SYMPTOMS CAN INCLUDE

- | | |
|-----------------------|----------------------------------|
| ⊕ Facial droop | ⊕ Sudden severe headache |
| ⊕ Numbness | ⊕ Difficulty maintaining balance |
| ⊕ Blurred vision | ⊕ Difficulty expressing oneself |
| ⊕ High blood pressure | ⊕ Slurred speech |

A STROKE REQUIRES IMMEDIATE ATTENTION. The faster a patient receives medical assistance, the more likely treatment can be started quickly, resulting in less damage to the brain.



STUDENT LESSON

1. B.E.F.A.S.T.

BALANCE

ASK THE PATIENT IF THEY CAN WALK

Is there a sudden loss of **BALANCE** or coordination, is the patient dizzy, or are they unable to walk?

EYES

ASK THE PATIENT IF THEY CAN SEE YOU

Is there a sudden loss of vision in one or both **EYES**?

FACE

ASK THE PATIENT TO SMILE

Does one side of the **FACE** droop (uneven smile) or is the **FACE** numb?

ASK THE PATIENT TO STICK OUT THEIR TONGUE

Does the tongue appear straight or does it droop or slant to one side?

ARMS

ASK THE PATIENT TO RAISE BOTH ARMS

Does one **ARM** drift downward? Is it weak or numb?

SPEECH

ASK THE PATIENT TO REPEAT A SIMPLE SENTENCE

Can the patient repeat the sentence correctly or is their **SPEECH** slurred?

TIME

IF THE ANSWER IS YES TO ANY OF THE ABOVE QUESTIONS, IT'S TIME TO CALL 911

It's very helpful if you can report when the symptoms started.
If you don't have access to a phone, make the patient comfortable and go get help.
Before you leave, tell the patient where you're going and that you'll be back very soon.

STUDENT LESSON

2. DON'T GIVE THE PATIENT AN ASPIRIN

It's impossible to tell if it's a bleeding type of Stroke. If it is, aspirin could make things worse.

3. DON'T GIVE THE PATIENT ANYTHING TO EAT OR DRINK

The patient may not be able to swallow properly – they might aspirate/choke.

4. STAY WITH THE PATIENT

Reassure them and keep them comfortable until help arrives.

5. IF THE PATIENT STOPS BREATHING, PERFORM CPR UNTIL HELP ARRIVES OR THE PATIENT STARTS BREATHING AGAIN

If an AED is available, use it immediately and follow the AED instructions (page 39, 'AED'). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

MOST IMPORTANT: Even if you're not sure the patient is having a Stroke, it's better to err on the side of caution and call 911 right away. **DON'T DELAY FOR ANY REASON.**

STROKE – additional information

WHAT IS A STROKE?

A Stroke happens when blood flow to the brain is blocked or a blood vessel in the brain ruptures. These two types of Strokes may result in the same symptoms.

WHAT'S THE MOST IMPORTANT THING FOR YOU TO KNOW IF YOU THINK SOMEONE IS HAVING A STROKE?

A STROKE REQUIRES IMMEDIATE ATTENTION. The faster a person receives medical assistance, the more likely that treatment can be started and damage to the brain minimized.

Patients who arrive at the emergency room within the first few hours after a Stroke often have less

disability 3 months after a Stroke than those who received delayed care. For certain types of Strokes, tPA (tissue plasminogen activator), a drug that reverses Strokes, can be administered if it's within 3 – 4.5 hours from the onset of the Stroke symptoms. tPA works by dissolving the clot and improving blood flow to the affected part of the brain.

IF YOU'RE NOT SURE THE PERSON IS HAVING A STROKE, IT'S BETTER TO ERR ON THE SIDE OF CAUTION AND CALL 911 RIGHT AWAY. IT'S CRITICAL TO GET THE PERSON TO THE HOSPITAL IMMEDIATELY. DON'T WASTE TIME WAITING FOR THINGS TO GET BETTER – GET EMERGENCY CARE RIGHT AWAY. ANY DELAY IN TREATMENT CAN NEGATIVELY AFFECT THE PATIENT'S RECOVERY.



STROKE – additional information

HOW CAN YOU HELP THE PATIENT IF THEY ARE FRIGHTENED OR ANXIOUS?

Keep yourself calm so you can think more clearly and help the patient who's having the Stroke. Help them sit or lie down and reassure them that assistance is on the way.

WHAT IF YOU CAN'T UNDERSTAND WHAT THE PATIENT IS SAYING?

Somebody who is having a Stroke may have difficulty speaking clearly, but they can probably understand what you are saying. Speak slowly and reassure them that help is coming.

WHY DO PEOPLE HAVE SYMPTOMS LIKE A DROOPING FACE, A WEAK ARM AND SLURRED SPEECH WHEN THEY HAVE A STROKE?

Strokes are caused by an interruption of the blood supply to the brain. Brain cells become damaged and begin to die, which affects the body's functions. This may result in facial or limb weakness (sometimes only in one limb and sometimes down one side of the body).

WHY DOES A STROKE TEND TO AFFECT ONLY ONE SIDE OF THE BODY?

Each half of the brain controls the opposite side of the body. Since disruption of blood flow in the brain generally involves only one side of the brain, only one side of the brain and body is affected. In addition, for most people the language area is associated with the left side of the brain near the area that controls motor function for the right side of the body. Therefore, it is common for a Stroke to cause problems with speech and movement of the right hand.

WHAT IS THE BEST WAY TO AVOID A STROKE?

The best way to avoid a Stroke is through prevention. Live a healthy lifestyle: Eat right – don't eat processed foods, cut down on sugar, and eat plenty of fruits, vegetables, and whole grains; get enough sleep, and exercise routinely. Also, remember to be seen by a doctor regularly.

WHO IS AT HIGHER RISK FOR STROKE?

People with high blood pressure or a bad cholesterol profile, people who smoke, people who are obese or who have diabetes, or people who are physically inactive are at higher risk for a Stroke.

MYTHS AND FACTS ABOUT STROKE

MYTH: Stroke cannot be prevented.

FACT: Up to 80 percent of Strokes are preventable by losing weight, controlling blood pressure, having a healthy, nutritious lifestyle, controlling diabetes.

MYTH: There is no treatment for Stroke.

FACT: At any sign of Stroke, call 911 immediately. Treatment is often available. It's critical to be seen by a medical professional immediately.

MYTH: Stroke only affects the elderly.

FACT: Stroke can happen to anyone at any time.

MYTH: Stroke happens in the heart.

FACT: Stroke is a "brain attack."

MYTH: Stroke recovery only happens for the first few months after a Stroke.

FACT: Stroke recovery is a lifelong process.

MYTH: Strokes are rare.

FACT: Stroke is the 5th leading cause of death in the USA. There are nearly 7 million Stroke survivors in the USA.

MYTH: Strokes are not hereditary.

FACT: A family history of Stroke increases your chance of Stroke.

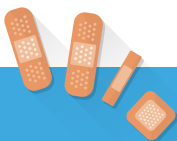
MYTH: If Stroke symptoms go away, you don't have to see a doctor.

FACT: Temporary Stroke symptoms are called Transient Ischemic Attacks (TIA). They are warning signs prior to an actual Stroke and must be taken seriously.

FACT: Almost 1 out of 4 Strokes affect people who have had a previous Stroke.

FACT: Strokes cost the United States an estimated \$35 billion each year. This amount does not include the cost of unemployment, missed work days, and premature death. When these are added to the equation, the cost is up to \$68 billion.

FACT: Stroke is a leading cause of serious long-term disability. Stroke reduces mobility in more than half of Stroke survivors age 65 and over.



INTRODUCTION TO CPR

STUDENT LESSON

WHAT DOES CARDIOPULMONARY RESUSCITATION MEAN?

- + CARDIO = heart
- + PULMONARY = lungs
- + RESUSCITATE = to revive
- + CARDIO-PULMONARY RESUSCITATION = compressing the chest and getting breaths into the lungs, manually reviving the heart’s function

CARDIO

The heart is a big, strong muscle that expands and contracts more than 60 times a minute without you even thinking about it. It is automatically driven by electrical impulses and runs 24 hours a day, 7 days a week, with no vacation time. That’s around 32 million beats a year!

The heart has a simple but extremely important job. It pumps oxygen-rich blood from the lungs to the rest of your body. If the heart stops pumping, oxygen does not reach vital organs and they stop working.

PULMONARY

We breathe about 12 to 20 times each minute and every breath we take brings oxygen into our lungs and gets rid of carbon dioxide. Our lungs function automatically just like our hearts – you don’t have to think about breathing - it just happens.

Oxygen is critical for life. It’s used for energy in every cell in your body. There is very little oxygen stored in your body’s tissues so it needs to be replenished often. Without oxygen, a person can only survive for a short time.

CARDIOPULMONARY RESUSCITATION (CPR)

CPR is a combination of manually pumping the heart by performing chest compressions, and giving breaths to the lungs by breathing into the mouth.

CHEST COMPRESSIONS (PUMPING OF THE HEART)

You manually compress the heart by pressing down on the chest. When you let up on the chest (recoil), the heart fills with blood. The hope is that by compressing the chest and allowing a recoil, the heart refills with blood, which is pumped throughout the body.

STUDENT LESSON

BREATHS (OXYGEN TO THE LUNGS)

You exhale air from your lungs into the patient’s lungs so they can absorb oxygen. When you breathe into a patient’s mouth while you close the patient’s nose, the air is forced into their lungs and you can see the chest rise. This means you have successfully gotten some oxygen into their system.

CPR uses chest compressions and breaths to make oxygen-rich blood circulate throughout the brain and other vital organs until the patient revives. Keeping oxygenated blood circulating helps prevent death or brain damage, which can occur within a few minutes.

The AHA’s (American Heart Association) previous recommendation for CPR was to do Compressions with Breaths. In 2015, the AHA officially changed its CPR recommendations for non-professional responders to Compressions-Only CPR. Reasons for this change are:

- Compressions with Breaths is difficult to master so it’s recommended to be performed by professional responders. Bystanders who are not professionals can save a life by doing Compressions-Only CPR.
- By making it easier to perform CPR, it is expected that many more untrained bystanders will get involved, ultimately saving many more lives.
- Non-professional responders don’t usually have breathing barrier masks with them. Without this mask, there is a risk of being infected by the patient when breathing directly into the patient’s mouth.

IS COMPRESSIONS-ONLY CPR ENOUGH TO SAVE SOMEONE’S LIFE?

In many cases, the answer is yes. When a patient has Sudden Cardiac Arrest (SCA), they become unresponsive and stop breathing. The patient’s body is still loaded with oxygen, but the heart has stopped beating and the oxygen is not being circulated. The compressions circulate the blood throughout the body and should be able to tide the patient over until emergency personnel arrive and take over.

If you are not performing CPR with Breaths, you can still save a life by giving Compressions-Only CPR.

IMPORTANT: IN CASES WHERE YOU SUSPECT THE PATIENT HAS A SPINAL INJURY, USE COMPRESSIONS-ONLY CPR. THE PATIENT’S AIRWAY MUST BE OPENED USING THE JAW-THRUST TECHNIQUE WHICH CAN ONLY BE DONE BY PROFESSIONALS.

IF COMPRESSIONS-ONLY CPR WORKS, WHY ARE WE INCLUDING A LESSON ON COMPRESSIONS WITH BREATHS?

If you are proficient in giving CPR with Breaths, and you are willing to use this method, it is still the best way to treat a patient who needs CPR. It ensures that oxygenated blood is circulated throughout the body. This is especially important when the patient’s airway has been compromised for a while. If the patient has not taken in any breaths for some time, there is no oxygen-rich blood being circulated around the body.



STUDENT LESSON

As an example, you can perform CPR with Breaths when faced with the following scenario:

- ▶ You are a bystander administering CPR.
- ▶ The patient does not have a spinal injury.
- ▶ The patient is an immediate family member.
- ▶ You know the basics of administering CPR With Breaths and are proficient in the technique.
- ▶ You are willing to use this technique.

CPR WITH BREATHS IS ALSO INDICATED IN THE FOLLOWING SITUATIONS:

- **Child and Infant CPR:** Most causes of pediatric Cardiac Arrest are related to respiratory failure because children are generally healthy and don't have cardiac issues. When a child or infant needs CPR, it's usually because of a severe breathing problem. Once a child or infant is in Cardiac Arrest, the oxygen level is already severely depleted, making Compressions with Breaths very important.
- **Respiratory failure which can lead to Cardiac Arrest:** Drowning, overdose, choking, trauma, exposure to smoke or inhalants, and sudden illnesses like a severe allergic reaction, an asthma attack, or other respiratory problems cause some Cardiac Arrests. In these cases, the oxygen level is also severely depleted. Breaths are needed along with Chest Compressions.
- **Unwitnessed Cardiac Arrest:** When you come upon a patient who is in Cardiac Arrest and you did not see when it happened, the patient may have been down for a while. The body is probably oxygen-depleted, and the patient will benefit more from Compressions with Breaths than from Compressions-Only CPR.

YOU WILL DECIDE WHICH FORM OF CPR TO USE AT THE SCENE. REMEMBER THAT WHATEVER DECISION YOU MAKE IS THE RIGHT ONE. **THE MOST IMPORTANT THING IS TO ACT – CALL 911 AND GIVE CPR CARE UNTIL EMERGENCY PERSONNEL ARRIVE.**

CPR (CARDIOPULMONARY RESUSCITATION)

Compressions Only (without breaths)

STUDENT LESSON

CPR is a rescue procedure we use for an unconscious patient who is not breathing.

A person must have oxygen to live. Our body gets oxygen from the air we breathe, and we carry this oxygen in our blood. The heart pumps the oxygenated blood to all the vital organs in the body. If the heart stops pumping, manual chest compressions force blood from the heart to the vital organs.

1. POSITION PATIENT

Position the patient on their back on a firm, flat surface.

2. POSITION YOURSELF

Position yourself beside the patient's upper chest.

Exception: When using the TWO THUMBS ENCIRCLING TECHNIQUE for an infant (*see below*), position yourself at the infant's feet.

FOR AN ADULT

TWO-HANDED COMPRESSIONS:

- Position the heel of one hand in the center of the patient's chest between the nipples.
- Position the heel of your other hand on top of your first hand.
- Lace your fingers together, keeping them raised off the chest.

FOR A CHILD

ONE-HANDED COMPRESSIONS:

- Position the heel of one hand in the center of the patient's chest between the nipples, keeping your fingers raised off the chest.

If you cannot push down at least 1/3 the depth of the child's chest using One-Handed Compressions, use Two-Handed Compressions.

FOR AN INFANT (LESS THAN 1 YEAR OLD)

FINGER COMPRESSIONS:

- Position your two fingers (index and middle) in the center of the chest, putting your index finger on the nipple line and your middle finger just below the index finger.

Alternative Method

TWO THUMBS ENCIRCLING TECHNIQUE:

- Position your thumbs side by side in the center of the infant's chest right below the nipple line.
- Encircle the infant's chest so that the fingers of both your hands support the infant's back.



STUDENT LESSON

3. PERFORM COMPRESSIONS

- Push down hard and fast in the center of the chest.

FOR AN ADULT OR CHILD

- Lean over the patient with your arm/arms straight and elbows locked, using your body weight to assist compressions.

Compressions for adults and children are done only with the heel of your hand – remember to keep your fingers off the patient’s chest.

FOR AN INFANT

- Use your two fingers (index and middle)
If using alternative method, Two Thumbs Encircling Technique:
- Use your two thumbs.

- Compress at the rate of:
100-120 beats per minute (Hint: You can do this to the tune of ‘Row, Row, Row Your Boat’ - sing it at a fast pace.)
 - FOR AN ADULT 2-2.4 inches deep
 - FOR A CHILD 1/3 depth of chest
 - FOR AN INFANT 1/3 depth of chest

4. CONTINUE COMPRESSIONS UNTIL HELP ARRIVES OR THE PATIENT STARTS BREATHING AGAIN

- If an AED is available, use it immediately and follow the AED instructions (page 39, ‘AED’). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

IMPORTANT

- Each complete compression should consist of a compression and a recoil. The chest should rise completely before you compress again.
- Make sure the compressions are deep enough and fast enough.
- While doing CPR, **interruptions should be kept to an absolute minimum.**
- Since it’s very tiring to do CPR, if there are additional trained people available, switch quickly with another person every two minutes.
- Don’t be afraid of injuring the patient while compressing their chest. It’s better to push hard than not hard enough. **Remember, you’re trying to save a life!**

CPR (CARDIOPULMONARY RESUSCITATION)

Compressions with Breaths

STUDENT LESSON

CPR is a rescue procedure we use for an unconscious patient who is not breathing.

A person must have oxygen to live. Our body gets oxygen from the air we breathe, and we carry this oxygen in our blood. The heart pumps the oxygenated blood to all the vital organs in the body. If the heart stops pumping, manual chest compressions force blood from the heart to the vital organs.

CPR with Breaths combines compressions with breaths. You breathe into the patient’s lungs to supply their blood with oxygen.

1. POSITION PATIENT

Position the patient on their back on a firm, flat surface.

2. POSITION YOURSELF

Position yourself beside the patient’s upper chest.

Exception: When using the TWO THUMBS ENCIRCLING TECHNIQUE for an infant (see page 32), position yourself at the infant’s feet.

FOR AN ADULT

TWO-HANDED COMPRESSIONS:

- Position the heel of one hand in the center of the patient’s chest between the nipples.
- Position the heel of your other hand on top of your first hand.
- Lace your fingers together, keeping them raised off the chest.

FOR A CHILD

ONE-HANDED COMPRESSIONS:

- Position the heel of one hand in the center of the patient’s chest between the nipples, keeping your fingers raised off the chest.

If you cannot push down at least 1/3 the depth of the child’s chest using One-Handed Compressions, use Two-Handed Compressions.

FOR AN INFANT (LESS THAN 1 YEAR OLD)

FINGER COMPRESSIONS:

- Position your two fingers (index and middle) in the center of the chest, putting your index finger on the nipple line and your middle finger just below the index finger.

STUDENT LESSON

Alternative Method

TWO THUMBS ENCIRCLING TECHNIQUE:

- Position your thumbs side by side in the center of the infant's chest right below the nipple line.
- Encircle the infant's chest so that the fingers of both your hands support the infant's back.

3. PERFORM 30 COMPRESSIONS

When there are 2 rescuers and the patient is a child or an infant, perform 15 compressions.

- Push down hard and fast in the center of the chest.

FOR AN ADULT OR A CHILD

- Lean over the patient with your arm/arms straight and elbows locked, using your body weight to assist compressions.

Compressions for adults and children are done only with the heel of your hand – keep your fingers off the chest.

FOR AN INFANT

- Use your two fingers (index and middle)
If using alternate method, Two Thumbs Encircling Technique:
- Use your two thumbs.

- Compress at the rate of:
100-120 beats per minute (Hint: You can do this to the tune of 'Row, Row, Row Your Boat' - sing it at a fast pace.)
 - FOR AN ADULT 2-2.4 inches deep
 - FOR A CHILD 1/3 depth of chest
 - FOR AN INFANT 1/3 depth of chest

IMPORTANT

- ▶ Each complete compression should consist of a compression and a recoil. The chest should rise completely before you compress again.
- ▶ Make sure the compressions are deep enough and fast enough.
- ▶ Don't be afraid of injuring the patient while compressing their chest. It's better to push hard than not hard enough. **Remember, you're trying to save a life!**

STUDENT LESSON

4. IF YOU SUSPECT A SPINAL INJURY, CONTINUE WITH COMPRESSIONS-ONLY CPR (page 29)

NOTE: For a patient with a suspected spinal injury, the correct technique used for opening the airway is the Jaw-Thrust Technique described below. **Since this technique should only be done by professional rescuers, in these cases students should continue with Compressions-Only CPR.**

5. OPEN PATIENT'S AIRWAY

If you don't suspect a spinal injury, use the

HEAD-TILT/CHIN-LIFT TECHNIQUE:

- Put one hand on the patient's forehead.
- Hold the patient's chin with the fingers of your other hand.
- Tilt the head back while lifting the chin.

IMPORTANT:

Do not put pressure on the patient's neck. This can obstruct the airway. For an infant or a small child, tilt the head back just a little, while lifting the chin slightly. This is called the 'sniffing' or 'neutral' position.

FOR INFORMATIONAL PURPOSES ONLY

JAW-THRUST TECHNIQUE

- ▶ Position yourself behind the patient's head, looking down at the patient.
- ▶ Hold the patient's head in your hands, with your thumbs on the cheekbones and your fingers under the patient's jaw.
- ▶ Lift the patient's jaw upward, while pushing down gently on the patient's cheekbones with your thumbs. Don't press down too hard with your thumbs as that would cause the jaw to close.

When done properly, this will open the airway without moving the cervical spine.

6. GIVE 2 BREATHS

- **FORM A SEAL**

FOR AN ADULT OR A CHILD

- Close the patient's nose with your thumb and forefinger.
- Inhale normally and cover the patient's mouth with your mouth.



STUDENT LESSON

FOR AN INFANT

- Cover the infant’s nose and mouth with your mouth.

If you are using a CPR breathing barrier mask, put it over the patient’s mouth and nose, and apply gentle downward pressure, forming a complete seal. The CPR mask comes in sizes for adults, children, and infants. Use the appropriate size.

● **EXHALE INTO THE PATIENT’S MOUTH (OR INTO THE MASK) FOR ONE SECOND**

Your breath should be delivered slowly, smoothly, and evenly. As you’re blowing, look to see if the chest is rising. Each breath should visibly raise the patient’s chest.

For an infant, just blow in whatever air is in your cheeks. Give gentle puffs.

- If the patient’s chest rises, give a second breath using the same method.
- If the patient’s chest does not rise, it might mean:
 - the seal is not tight – create a tighter seal and try again.
 - the head is not properly tilted – retilt the head and try again.
 - the airway is blocked - continue with compressions. After compressions, check the mouth. If an object is visible, remove it only if it can be taken out easily.

ALWAYS ALLOW THE CHEST TO DEFLATE COMPLETELY BEFORE GIVING ANOTHER BREATH.

7. ALTERNATE COMPRESSIONS WITH BREATHS UNTIL HELP ARRIVES OR THE PATIENT STARTS BREATHING AGAIN

- If your breaths don’t inflate the chest, continue Compressions-Only CPR until help arrives or the patient starts breathing again.
- If an AED is available, use it immediately and follow the AED instructions (page 39, ‘AED’). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

IMPORTANT

- ▶ While doing CPR, interruptions should be kept to an **ABSOLUTE MINIMUM**.
- ▶ If two people are doing CPR with Breaths, one person compresses the chest, while the other gives the breaths. They alternate their roles every two minutes.
- ▶ Since it’s very tiring to do CPR, if there are additional trained people available, switch quickly with another person every two minutes.

CPR – additional information

WHEN ADMINISTERING CPR, MAKE SURE YOU

- give compressions at an adequate rate
- give compressions of adequate depth
- allow full chest recoil between compressions
- minimize interruptions

HOW MUCH GOOD DOES IT DO TO BREATHE INTO SOMEONE’S LUNGS?

Your exhaled breath contains 16.4% oxygen which is a good amount of oxygen to be absorbed into a patient’s lungs. The carbon dioxide you exhale (4.4%) into the patient will come right back out of the patient, too. The patient will not get as much oxygen as they would receive with normal breathing (21%), but it’s definitely better than getting no oxygen at all.

WHAT IS THE CURRENT AMERICAN HEART ASSOCIATION GUIDELINE FOR THE PERFORMANCE OF CPR?

- For CPR with Breaths, the guideline is: 30 chest compressions alternated with 2 breaths
Exception: When there are 2 rescuers, the guideline changes for children and infants to: 15 chest compressions alternated with 2 breaths
- For Compressions-Only CPR, the guideline is: chest compressions only

HOW IS 2-PERSON CPR DONE?

If you are doing Compressions with Breaths, one person does Compressions and the other does Breaths. If you are doing Compressions-Only CPR, you trade off with the other person every two minutes so that nobody gets too tired.

WHY WOULD YOU USE THE 2-THUMBS ENCIRCLING TECHNIQUE FOR INFANT CPR?

This technique allows for more consistent chest compressions and superior blood flow compared to the 2-finger technique. It’s also easier for the rescuer to do.

If there are two rescuers and you are giving CPR with Breaths, this position allows the second rescuer to give the breaths without getting in the way of the rescuer performing chest compressions.

WHAT IS THE MOST COMMON CAUSE OF CARDIAC ARREST?

The most common cause of Cardiac Arrest is when the heart goes into Ventricular Fibrillation (VF). Ventricular Fibrillation is a heart rhythm problem that occurs when the heart beats with rapid, erratic electrical impulses. This causes pumping chambers in your heart (the ventricles) to quiver uselessly instead of pumping blood. A patient with this problem needs CPR, which should be performed in a regular fashion, as well as a defibrillator to shock the heart back into the proper rhythm. If CPR begins quickly, and if a defibrillator arrives quickly, this patient has an excellent chance of survival.

WHAT SHOULD YOU DO FOR A PATIENT WHO HAS BEEN ACCIDENTALLY SHOCKED BY ELECTRICITY?

A patient with electric shock (assuming the shock doesn’t severely damage the body) often dies because the heart goes into Ventricular Fibrillation (VF). Such a patient needs CPR, as well as a defibrillator, to shock the heart back into the proper rhythm. If CPR begins immediately, and if a defibrillator arrives quickly, this patient has an excellent chance of survival. HOWEVER, IT IS OF UTMOST IMPORTANCE THAT YOU ADMINISTER HELP ONLY IF THE SCENE IS SAFE FOR YOU.



CPR – additional information

WHAT IS THE CORRECT ACTION WHEN SOMEONE NEEDS TO BE MOVED IN ORDER TO PERFORM CPR? DOES THE RISK OF CAUSING ADDITIONAL HARM (FOR EXAMPLE, IF YOU SUSPECT THE PATIENT HAS A SPINAL INJURY) OUTWEIGH THE BENEFITS OF DOING CPR?

If the patient is in need of CPR and must be moved, move the patient and begin CPR. Whenever you move a patient with a possible spinal injury, it is very important to keep the head, neck and spine in alignment.

The spinal injury may pose a problem, but if you don't do CPR, the person will die.

WHAT IF YOU MAKE A MISTAKE AND DO CHEST COMPRESSIONS WHILE THE PERSON IS STILL BREATHING?

It is better to give CPR to someone who doesn't need it than not to give CPR to someone who does need it. Performing chest compressions on an unresponsive person who is breathing will not create life-threatening injuries.

CAN YOU KILL SOMEONE IF YOU DO CPR INCORRECTLY WHEN THE PATIENT IS NOT BREATHING?

No. The person in Cardiac Arrest is already clinically dead. CPR can only help. Even if it's not done perfectly, it will probably provide some benefit to the patient.

WHAT IF YOU CRACK A RIB WHEN YOU DO CPR?

Frequently, ribs are broken from the pressure CPR places on the sternum. Some studies have found that up to 30% of Cardiac Arrest victims have broken ribs as a result of CPR. This happens more frequently when the patient is older since the cartilage is less compliant and the bones can crack more easily. BUT REMEMBER, IT'S BETTER TO HAVE A CRACKED RIB THAN TO BE DEAD.

WHAT IF THE PATIENT VOMITS?

Vomit is obviously unpleasant. If the patient vomits (which happens every so often while someone is in Cardiac Arrest), turn the patient onto their side and wipe out the vomit as best you can with your finger. If the patient has a spinal injury, keep the head, neck, and spine in alignment while turning the patient.

IF A PATIENT IS WEARING CLOTHING AND YOU NEED TO ADMINISTER CPR, SHOULD YOU LEAVE THE CLOTHING ON?

Quickly remove any clothing to expose the chest area.

WHAT ARE AGONAL RESPIRATIONS?

When a person is in Cardiac Arrest, the heart stops beating. The breathing center in the brain is still alive for a couple of minutes and will cause the victim to take a few abnormal breaths. These abnormal breaths associated with dying are called agonal respirations. They may appear like snoring, gasping, or snorting and will disappear in a couple of minutes. DON'T LET ABNORMAL BREATHING STOP YOU FROM STARTING CPR!

WHEN SHOULD YOU STOP CPR?

You should stop CPR when:

- the patient shows signs of life
- help arrives to take over
- the AED is in use – only while it's analyzing and delivering a shock
- the scene becomes unsafe

CPR – Additional Information

DURING CPR, HOW EFFICIENTLY DOES THE HEART PUMP?

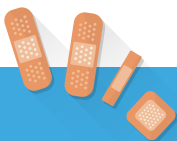
The best estimate of heart efficiency during CPR is 20-40% of normal circulation. This is not enough to sustain life indefinitely but will be sufficient to put off the start of cell death in the hope that revival tools will arrive soon. You should not expect CPR to restart a heart and have the victim pop back to life. Your goal of administering CPR is to buy a little time for an emergency rescue team to arrive and revive the patient.

IF YOU ARE GIVING CPR WITH BREATHS, HOW DO YOU KNOW IF IT'S WORKING?

You can tell the breaths are going into the patient's lungs if the chest rises with each ventilation. It is hard to determine if the chest compression results in a pulse. Do the best you can and don't stop. It's better to perform CPR imperfectly than not at all.

WHAT ARE SOME FACTORS WHICH MIGHT PREVENT OXYGEN FROM REACHING THE CELLS OF THE BODY:

- Choking – something blocks the path so air cannot reach the lungs
- Poisoning – some other gas, such as carbon monoxide, takes the place of oxygen
- Drowning – there is no room for air as the path is filled with water
- Suffocation – prevents air from getting into the lungs
- Electric Shock – an electric impulse disrupts the normal heart pattern and causes it to stop
- Cardiac Arrest – the heart stops beating



INTERESTING INFORMATION REGARDING CPR

1. Children as young as 9 years old have saved the lives of others by using CPR.
2. The Guinness World Record for the longest CPR Marathon performed is 151 hours (2 teams of 2 people in 2004).
3. 15 minutes of CPR training will burn an average of 165 calories. This is for the average person in average condition.
4. CPR was first started in 1740. However, in Iran, Compressions-Only CPR was practiced as early as the 15th century.
5. Over 70% of Cardiac Arrests happen in the home.
6. Compressions and breaths are both very important in drowning, choking, drug overdoses, and pediatric CPR.
7. Only 32% of people in Cardiac Arrest get CPR from bystanders.
8. If you perform CPR, you can triple the person's chance of survival.
9. Accidental injuries, including choking and drowning, are the primary cause of death in children.
10. Compressions should be performed at a rate of 100-120 per minute.
11. Each breath should be given for 1 second, with enough air to see the chest rise.
12. If someone is in Cardiac Arrest, CPR can only make the situation better.
13. It is normal to break ribs when doing compressions.
14. All AEDs (Automated External Defibrillators) will talk you through performing CPR.
15. About 350,000 Americans yearly are victims of Sudden Cardiac Arrest outside of hospital settings.
16. AEDs are available for home use without a prescription.
17. Becoming certified to save a life can be achieved in less time than watching a play.
18. CPR guidelines are updated every 5 years.
19. The more people standing around during an emergency, the less likely someone is to act. This is called the "bystander effect."
20. Many proactive high schools are requiring CPR certification prior to graduation.
21. CPR certification can be obtained in class, online, or through a combination of the two.
22. CPR certification is valid for 2 years, but skills are forgotten as early as 3 months after training if they are not continuously reviewed.
23. Without CPR, for every minute that someone is unconscious and not breathing, their chance of survival decreases by 10%.
24. The longest successful CPR save was 96 minutes long!
25. CPR breathing barriers (masks) are so small that you can carry them on a keychain.
26. If we would have widespread access to AEDs, at least 40,000 lives could be saved each year.
27. CPR is one of the simplest and most important skills you can ever learn. It's like insurance – you hope you never need it, but if you ever do need it, you will be very glad to have the knowledge.
28. The life you save with CPR will most likely be that of someone you love.

AED (AUTOMATED EXTERNAL DEFIBRILLATOR)

STUDENT LESSON

An Automated External Defibrillator is a portable device that detects the heart rhythm and, if needed, shocks the heart back into normal rhythm. AEDs are used to treat Sudden Cardiac Arrest (SCA), a condition in which the heart suddenly stops beating.

- ▶ Patient should be lying on their back on a firm, flat surface.
- ▶ It's best there should be no water under the patient when you use the AED. If the patient is lying in water, move them to a dry environment. If you cannot move the patient, just dry the chest as thoroughly as possible before you apply the AED pads.
- ▶ If two responders are present, CPR should not be interrupted while the AED pads are applied—one responder performs CPR while the other applies the pads.

1. TURN ON THE AED

Lift the lid and press the 'ON' or 'POWER' button.

2. FOLLOW THE VOICE AND VISUAL PROMPTS

PREPARE THE CHEST

- Remove, cut through, or unbutton clothing to bare the chest.
- Remove any medication patches. Be very careful not to touch the medication side of the patches with your bare fingers.
- Wipe the chest dry. Do not use alcohol pads to wipe the chest.
- If the chest is hairy, remove the hair: If the AED comes with a razor, shave the chest. If there is no razor and you have extra pads, put a pad on the chest and pull it off. If there's no razor and no extra pads, you can use tape to pull the hair off.

ATTACH THE PADS

- The AED includes a diagram (usually on the adhesive pads themselves) showing where each pad goes. Follow the diagram and attach the pads by pressing them firmly in place. Attach one pad on the upper right side of the patient's chest below the collarbone; the other pad goes on the lower left side of the patient's chest. Pads should not touch each other.

If the patient has an implanted device (pacemaker or defibrillator), you will see a small bump just below the skin, usually in the upper chest. Don't put the pad directly on the site of the device. Position it about one inch away.

STUDENT LESSON

- Adult pads are used for patients over 8 years old or weighing over 55 lbs.; pediatric pads are used for patients under 8 years old or weighing under 55 lbs. If you are unsure of the patient's age/weight, use adult pads for anyone who looks like an adult and pediatric pads for anyone who looks like a child.

If you need pediatric pads and they are not available, use one adult pad on the front center of the child's chest and one adult pad in the middle of the child's back - between the shoulder blades - to ensure the most effective defibrillation. If you can't reach the child's back, apply both pads as you would for an adult. Make sure the pads don't touch each other.

PLUG IN THE CONNECTOR

- The pads are wired to a connector that must be plugged into the AED.

STOP CPR WHILE THE AED ANALYZES THE PATIENT'S HEART RHYTHM

- No one should touch the patient while the AED is performing its analysis.
- The AED will decide whether the patient needs to be shocked.

IF THE AED ADVISES THAT A SHOCK IS INDICATED:

- Say loudly, **"Stand clear!"**

MAKE SURE NO ONE TOUCHES THE PATIENT to prevent injury from electric shock.

- Press the illuminated button to administer the shock to the patient.

3. CONTINUE TO FOLLOW THE AED PROMPTS

Do not remove the AED pads.

Continue to follow the AED prompts. You may be prompted to administer CPR and to stop CPR. Then, the AED will reanalyze the patient's heart rhythm. If necessary, it will instruct you to shock the patient's heart again. When the AED confirms that no additional shocks are recommended, take a moment to assess the patient. If the patient is breathing, position them onto their side (Recovery Position) unless you suspect a spinal injury, in which case don't move the patient. If the patient is not breathing, continue CPR until help arrives or the patient starts breathing again.

NOTE: As a safeguard, AEDs only activate the shock button when a shock is advised. It is not possible for rescuers to 'accidentally' shock a patient who should not be shocked. This is reassuring for the rescuers.

PEDIATRIC SETTING

- ▶ For a child, check if your AED has a pediatric setting. If so, use that setting.
- ▶ Sometimes, there is a special 'child key' which you have to insert.
- ▶ If there's no pediatric setting, use the regular setting.

AED (AUTOMATED EXTERNAL DEFIBRILLATOR) – *additional information*

WHAT IS AN AED AND WHEN IS IT USED?

An Automated External Defibrillator (AED) is a portable device that checks the heart rhythm and, if it deems necessary, it authorizes you to deliver a shock to the heart to try to restore a normal rhythm. AEDs are used to treat Sudden Cardiac Arrest (SCA). SCA is a condition in which the heart suddenly and unexpectedly stops beating. For such patients, the quick use of an AED gives them the best chance of survival.

WHAT PRECAUTIONS DO YOU NEED TO TAKE BEFORE AND WHILE USING AN AED?

- Make sure the patient's chest is dry.
- Do not use alcohol to wipe the patient's chest dry. Alcohol is flammable.
- Do not defibrillate someone when they are around flammable or combustible materials, such as gasoline or free-flowing oxygen.
- Do not touch the victim while the AED is analyzing. Touching or moving the patient may affect the analysis. Also, you could be shocked, too.
- Do not use an AED in a moving vehicle. Movement may affect the analysis.
- If a patient is wearing a nitroglycerin patch or other medical patch on their chest, remove the patch before attaching the device.

WHAT STEPS CAN YOU TAKE TO ENSURE THAT THE AED IS USED SAFELY AROUND WATER?

- Remove the patient from the water before defibrillation.
- Be sure there are no puddles of water around the patient or the AED.
- Remove any wet clothing in order to place the AED pads properly.

- Dry the patient's chest before attaching the AED pads.
- If it's raining, make sure the patient is as dry as possible and is sheltered from the rain.

AEDS RESTORE THE HEART TO A NORMAL RHYTHM VIA AN ELECTRICAL CURRENT SO WOULD IT BE SAFE TO USE AN AED IN A WET ENVIRONMENT?

AEDs are very safe, even if the patient is lying outside in the snow or rain. Ideally, it would be best to move the patient to a dry environment, but if you cannot move the patient, just dry the chest as thoroughly as possible before you apply the AED pads. Every AED instructs rescuers to stand clear of the patient. As long as the rescuer follows this instruction and doesn't touch the patient when they defibrillate, they will be safe from harm.

DO NOT DELAY DEFIBRILLATION WHEN TAKING STEPS TO CREATE A DRY ENVIRONMENT.

WHAT ARE PACEMAKERS AND IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS (ICDS)?

A pacemaker is a small device that's implanted under the skin usually in the area below the left collarbone, though it can be placed elsewhere. It helps control abnormal heart rhythms by using electrical pulses to prompt the heart to beat at a normal rate. Pacemakers are used to treat problems with the rate or rhythm of the heartbeat, known as arrhythmias.

An Implantable Cardioverter-Defibrillator (ICD) is a miniature version of an AED.

AED (AUTOMATED EXTERNAL DEFIBRILLATOR) – additional information

WHAT DO YOU DO IF YOU NEED TO USE AN AED AND THE PATIENT HAS A PACEMAKER OR DEFIBRILLATOR?

- If the implanted device is visible or you know that the patient has one, do not place the AED pads directly over the device as this may interfere with the delivery of the shock. Place pads one inch away in any direction and continue to follow the AED instructions.
- If you are not sure whether the victim has an implanted device, use the AED as needed. It will not harm the patient or the rescuer.
- Follow any special precautions associated with ICDs/pacemakers, but **DO NOT DELAY PERFORMING CPR AND USING AN AED.**

ARE THE PLACEMENT OF THE PADS SIGNIFICANT?

Yes. You should place the first pad on the upper right side of the chest just beneath the patient’s collarbone; the second pad should be placed on the patient’s left chest wall, just underneath the left breast. Follow the picture on pads or the AED which indicates where to place the pads.

DROWNING

STUDENT LESSON

NEVER JUMP INTO THE WATER TO SAVE A PATIENT UNLESS YOU ARE TRAINED - DON'T PUT YOUR OWN LIFE IN DANGER!

1. SHOUT FOR THE LIFEGUARD

2. CALL 911

- If someone is with you, tell them to call 911 and to get an AED.
- If you’re alone and have a phone, call 911 and get an AED if it’s easily accessible.
- If you’re alone and don’t have a phone, yell for help.
If someone comes, tell them to call 911 and to get an AED.

3. REACH – THROW - ROW

- **REACH** out to the patient with a long pole or something they can grab. Make sure you don’t get pulled in.
- **THROW** the patient a lifeline - This might be a life raft, a safety ring, etc. – preferably something which floats.
- **ROW** - If you have a rowboat, you can try to ROW closer to the patient so you can throw them a lifeline. In this case, make sure not to bring the boat close enough so the patient can hang on to it because this might cause the boat to capsize, making it unsafe for you, too. **If you’re in a boat with a motor, make sure to cut the power when you get near the patient so they won’t get injured.**

4. IF A PATIENT IS PULLED OUT OF THE WATER AND IS BREATHING

- Turn the patient onto their side (Recovery Position) so any fluids can drain.

EXCEPTION: If you suspect a spinal injury, don’t move the patient unless they are vomiting, in which case do your best to keep the patient’s head, neck, and spine in alignment while turning the patient.

- Cover the patient, if you can, for warmth.
- If 911 has not yet been called, leave the patient and get help – come back as soon as possible.
- Stay with the patient and monitor them for any change in their condition.
- It’s very important for the patient to be examined by a doctor in a hospital setting to make sure there’s no water left in the patient’s lungs.

STUDENT LESSON

5. IF A PATIENT IS PULLED OUT OF THE WATER AND IS NOT BREATHING

- Position the patient on their back on a firm, flat surface.
- If 911 has not yet been called:
 - Perform CPR for two minutes.
 - If an AED is available, use it as soon as possible and press the ‘Shock’ button if advised.
 - Turn the patient onto their side (Recovery Position) so any fluids can drain.

EXCEPTION: If you suspect a spinal injury, don’t move the patient unless they are vomiting, in which case do your best to keep the patient’s head, neck, and spine in alignment when turning them.

- Leave the patient and go get help.
- Reposition the patient when you return.
- Perform CPR until help arrives or the patient starts breathing again.
 - If an AED is available, use it immediately and follow the AED instructions (page 39, ‘AED’). If two people are present, one person continues performing CPR while the other person applies the AED pads. Once the pads are applied, continue following the AED instructions.

NOTE: When performing CPR for drowning, it is ideal to give Compressions with Breaths. This is only done if you are proficient in the technique and are willing to do it.

IMPORTANT NOTES ABOUT WATER SAFETY

- ▶ Never swim alone.
- ▶ Always wear a life jacket on a boat.
- ▶ Beware of swim tubes for children. They must be watched very carefully as the tube can flip over at any time and the child could get stuck in the water under the tube.
- ▶ If you feel you are drowning, don’t panic. Try to relax and float.
- ▶ If you are in an ocean, a lake, or a pool, and a storm is approaching, get out of the water.
- ▶ If you have a pool, make sure it’s securely locked when not in use.
- ▶ Never operate electrical appliances near the pool.

DROWNING – *additional information*

THINKING ABOUT DROWNING CAN MAKE SWIMMING FEEL VERY SCARY. CAN SWIMMING BE A POSITIVE EXPERIENCE?

Swimming can be a wonderful experience. If you make sure to adhere to all the rules and do the right thing, you will have a most enjoyable time. Always listen to the lifeguard and comply with all the signs at the beach or at the pool.

HOW DEEP DOES WATER HAVE TO BE FOR A YOUNG CHILD TO DROWN?

Young children can drown in as little as 1 inch of water.

WHAT ARE THE MOST IMPORTANT GENERAL WATER SAFETY RULES WITH REGARD TO CHILDREN?

- Never leave children unattended around water in pools, spas, or other bodies of water
- Young children should never be left in bathtubs alone
- Always empty water buckets after use and use toilet locks

IF A CHILD KNOWS HOW TO SWIM AND IS CONFIDENT IN THE WATER, DOES THAT MEAN THEY DON’T NEED SUPERVISION IN A POOL OR IN ANY BODY OF WATER?

No. Children ALWAYS need supervision. Swimming lessons help children be more confident and safe in the water. They do not make children drown-proof. Always make sure there is an adult present when children are playing in or around water.

WHY ARE CHILDREN UNDER FIVE YEARS OLD AT SUCH A HIGH RISK OF DROWNING?

Young children don’t understand the hazard that water presents. They have no real sense of danger and, therefore, require a high level of supervision. They are naturally inquisitive and are attracted to

water. As children grow, they become more mobile and like to explore. This may mean they begin climbing over barriers that are designed to keep them away from the water. Young children are also at risk because of their physical build. They are ‘top heavy’ and prone to falling into the water due to a lack of balance.

CAN YOUNG CHILDREN BE LEFT UNDER THE SUPERVISION OF OLDER CHILDREN?

No. Never leave young children in the care of older children. Older children might confuse drowning with playing. They may not be mature enough to provide adequate supervision.

CAN CHILDREN DROWN EVEN WHEN ADULTS ARE NEARBY?

Many children have drowned when adults were nearby. It’s crucial to have a specific adult watch the children at all times. This means the adult cannot be reading a book, cannot be on the phone, cannot be talking to other people, etc. The adult must understand that it is their responsibility to watch the children at that time and must be solely focused on the job at hand. If the child is under five years old or a non-swimmer, the adult should be within arms’ reach at all times.

HOW OLD DOES SOMEONE HAVE TO BE TO WATCH ANOTHER PERSON WHILE THEY ARE IN THE POOL?

The person who is supervising should be at least 18 years of age and be able to swim well. The person can be 16 or 17 if they are certified lifeguards from the American Red Cross. If the person doesn’t swim well, it doesn’t matter how old they are, they should not be watching anybody else.



DROWNING – additional information

CAN AN ADULT OR CHILD WHO CAN SWIM VERY WELL GO INTO A POOL OR BODY OF WATER ALONE?

Anybody, adult or child, even if they can swim very well – even if they are a lifeguard - should always have a second person around when they are in a pool, lake, ocean, etc. This applies even if they are just in a shallow stream. There can be undercurrents that cannot be easily seen, and the person can get pulled along very quickly.

DOES THE PERSON WHO IS DROWNING USUALLY SCREAM AND MAKE A LOT OF NOISE?

No. Drowning usually occurs quickly and silently. Childhood drownings and near-drownings can happen in a matter of seconds and usually occur when a child is left unattended or during a brief lapse in supervision.

IS THERE A FLOTATION DEVICE THAT IS DESIGNED TO KEEP CHILDREN FROM DROWNING?

A life jacket approved by the U.S. Coast Guard is the only item that is designed to keep children from drowning. Air-filled toys, such as water wings or inner tubes, should never be substituted for life jackets. Sometimes tubes can be very dangerous as they can turn over, with the child falling into the water under the tube. Flotation aids are no substitute for constant active supervision when infants and children are in the water.

WHAT IS ELECTRIC SHOCK (ESD) DROWNING?

Electric Shock Drowning, or ESD, is a drowning event where the person is paralyzed as a result of an electric current in the water. If a person is paralyzed while swimming, the result is usually drowning.

If the electrical current through the body is high enough, it can directly affect the heart, resulting in Cardiac Arrest. There is seldom any physical evidence of electric shock unless a person actually comes in contact with something that could cause a mark on the skin. Usually, ESD is established because it is typically witnessed by friends and/or family members.

HOW CAN YOU TELL IF SOMEONE IS DROWNING?

Someone is drowning if they are face down in the water and barely moving. A person can also drown at the bottom of a pool, though this is less common. If you are unsure if someone is drowning, inform a lifeguard right away.

WHAT ARE OTHER SIGNS OF DROWNING?

- Gasping: Someone drowning can rarely call out for help. If the person is not breathing well, the mind is focused entirely on clearing the airway. They're not going to waste any of their breath to make a sound, so the only thing you'll hear from them is gasping, which is pretty quiet.
- Bobbing: Another reason a drowning person can rarely call out is because their nose and mouth aren't above the water long enough to expel air and water, inhale and shout for help. The person alternately rises above the surface and sinks below it – quietly.
- Arms out to the sides: The drowning response directs the person to spread their arms out to the sides and press down on the water, attempting to keep their nose and mouth above the water.

DROWNING – additional information

WHAT ARE DRY DROWNING AND SECONDARY DROWNING?

Dry Drowning is when someone takes in a small amount of water through their nose and/or mouth, and it causes a spasm in the airway. This causes the airway to close up.

Secondary Drowning is when a little bit of water gets into the lungs and causes inflammation or swelling which makes it difficult or impossible for the body to transfer oxygen to carbon dioxide and vice versa.

Dry drowning usually happens soon after coming out of the water. With Secondary Drowning, there can be a delay of up to 24 hours before the person shows signs of distress. Both can cause trouble breathing and, in worst-case scenarios, death.

These are also known as Submersion Injuries, and the most important thing to know about these injuries is how to prevent them and identify when someone is having trouble breathing after a swim.

WHAT ARE THE SYMPTOMS OF DRY DROWNING AND SECONDARY DROWNING?

Regardless of the person's age, be on the lookout for these symptoms:

Persistent coughing associated with labored breathing, rapid shallow breathing, nostrils flaring, sleepiness, forgetfulness, vomiting, or change in behavior.

WHAT DO YOU DO IF YOU SUSPECT DRY DROWNING OR SECONDARY DROWNING?

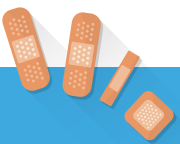
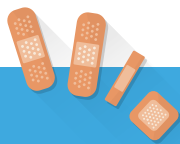
ANY PERSON PULLED FROM THE WATER NEEDS MEDICAL ATTENTION RIGHT AWAY. Call your doctor or emergency medical personnel. If the person is really struggling to breathe, call 911 immediately.

WHAT IS THE TREATMENT FOR DRY DROWNING AND SECONDARY DROWNING?

The doctor or emergency medical personnel will check the patient's vital signs and oxygen level and evaluate how they are breathing. Patients with milder symptoms just need careful observation. In more serious cases, the patient may need a chest x-ray and/or oxygen. In cases of respiratory failure, or when a patient can no longer breathe on their own, extra support is needed—such as intubating the patient - but this is very rare. The goal is to increase blood flow in the lungs and get the patient breathing well again.

HOW DO YOU PREVENT DRY DROWNING AND SECONDARY DROWNING?

Prevention is the same for Dry Drowning and Secondary Drowning as it is for any other kind of drowning or water injury. As long as you practice water safety and get the patient checked out as soon as you notice any signs of breathing trouble, you shouldn't have to constantly stress about Submersion Injuries. These problems are extremely rare.



To find out more information or
to be a part of the

SAVE-A-LIFE program
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