



Basic CPR and AED Manual

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Basic CPR and AED General Concepts

- Chest Compressions are the most critical aspect of out of hospital CPR and if done properly can keep blood flowing to the victims brain which can keep brain tissue alive until advanced care arrives.
- Compressions for all victims should be done at a rate of 100-120 compressions per minute.
- Give 30 compressions. You must compress a victim's chest roughly 2 inches for an Adult or Child and about 1.5 inches for an Infant to cause adequate circulation.
- You must assess the victim for no longer than 10 seconds to determine if they are breathing or not. If they are not breathing or only gasping, or if you are not sure if they are breathing, you need to begin compressions.
- Give 2 breaths. You are not required to give mouth to mouth breaths to a person. If you do give breaths to a victim you need to make sure they are not too fast, large or forceful, as this will cause gastric inflation (stomach filling with air) which will make them vomit. Give normal gentle breaths and only enough to make the chest begin to rise.
- As soon as an AED arrives you must attach it by opening it, turning it on, and following the voice prompts. Note: if you cannot hear the AED look for visual cues. All AED's operate in the same manner: Open it, turn it on, attach the pads, clear the victim so the AED can analyze, shock if advised and resume compressions; if no shock is advised you resume compressions.

Adult and Child CPR Assessment

1. Our first step is to make sure the scene is safe and only if it is safe for us will we proceed to the victim. If it is not safe, call 9-1-1 and make sure you stay safe until help arrives.
2. Check for responsiveness by tapping on the victims collar bones or rubbing their sternum bone while shouting at them for a response.
3. If the victim is unresponsive, you must tell someone to call 9-1-1 and get an AED!
4. If you are alone you must activate 9-1-1 yourself and get an AED, if your facility has one and you know where its located. If an AED is not available, just stay with the victim and call 9-1-1.
5. Check the victim for breathing for 5-10 seconds. If the victim is not breathing or not breathing normally (only gasping) you must start CPR beginning with compressions.
6. Continue CPR until the victim is breathing again or gains consciousness, or advanced care providers arrive and take over, or if you become too tired. (Switch out on compressions if other people are present).

Adult and Child Compressions

- Give 30 compressions. Compressions need to be done hard/forceful to produce adequate circulation. Push the chest down at least 2 inches on an adult and 1/3rd the depth of the chest on a child which is about 2 inches. To do this you must push the chest down until the heart presses against the victim's back, hitting the bottom of their chest. Allow full chest recoil so the heart can refill with blood and then compress again.
- Get your knees up close to the side of the victim. Place the heel of your hand on the center of the victim's chest between their nipple line. Interlace your fingers and try to apply all the pressure to the heel of your bottom hand. Make sure you are leaning over the top of the victim with your elbows straight and push straight down.
- You must do compressions that are fast enough. Perform compressions at a rate of 100-120 compressions per minute.
- **KEY POINT:** You WILL cause the sternum to dislocate and may cause rib fracture on your first few compressions. You will hear/feel crunching and popping as this occurs. It is important to do this in order to be able to push the chest down the adequate depth.

Adult and Child Breaths

- First, open the victims airway with a head-tilt-chin-lift. You do this by providing pressure to the forehead with one hand, while grabbing the bony edge of the chin with the other hand. Pull the chin up to open the airway and relieve any airway obstruction. *Note: remove any objects in the mouth, if visible, before attempting breaths.
- Mouth-to-Mouth breaths: Pinch the victims nose closed and seal your lips around the victims mouth and give 2 breaths. If you do not have a barrier device and do not want to perform mouth-to-mouth breaths you should rest for no longer than 10 seconds after completing every set of 30 compressions, performing hands-only CPR.
- Pocket-Mask breaths: Place the pocket mask over the victims nose and mouth, use both hands to seal the mask against the victims face, open the airway, blow through the mouthpiece on the mask and give 2 breaths.
- When giving breaths you only want to give enough breath to see the chest rise. The volume of breath will depend on the size of the victims lungs. Deliver the breaths at a normal/gentle pace. WARNING! If breaths are delivered too fast or forceful you will cause air to enter the stomach and this will cause the victim to vomit. This will also occur if you give breath past the point of initial chest rise.
- If the breath will not go in then you must quickly readjust the head-tilt-chin-lift and attempt a second breath. Regardless of the outcome of your second attempt you must resume compressions after 2 attempts at breaths. Compression can only be stopped for 10 seconds.

AED use for Adult and Children over 55lbs

- An AED, which is the abbreviation for an Automated External Defibrillator, is a portable device that can significantly raise the victim's chances of survival. An AED will analyze a victim's heart to see if it is in an abnormal rhythm, and if it is, the AED will prompt you to push the shock button. The shock will eliminate that rhythm and a normal rhythm can hopefully be restored.
- All AED's have the same basic steps of operation.
 1. Turn it on and follow the AED prompts.
 2. Attach the electrode pads to the victims chest exactly as shown in the pictures.
 3. Clear the victim so the AED can analyze the victims heart rhythm.
 4. Press the shock button if advised and then resume CPR beginning with chest compressions.
 5. If the AED does not advise a shock you should immediately resume CPR starting with chest compressions.

AED Special Considerations

You should use an AED if you have one! The machine decides if the victim needs a shock or not, so you cannot mistakenly shock the victim. When using an AED, you want the AED to analyze properly. To help this process here are some things to look out for:

- Make sure no one else is touching the victim when you give the shock!
- Make sure the victim is not sitting in a pooled liquid. If the victim is wet you can still use the AED but try to wipe off any sitting fluid that is on the chest, you only need to dry of their chest.
- Do not put the AED pads directly over any implanted medical devices. You may put the pad directly below the implanted device if it happens to be on their right hand side where the pad goes.
- Put the pads on bare skin. They cannot be on clothing, dirt or mud, or thick chest hair as this can cause the AED to not be able to analyze or shock effectively.
- Remove chest hair if possible before attaching the AED pads. Most AED's will have a razor or hair removal pads. If you cannot remove the chest hair you should try to forcefully push the pads against the skin so the AED can analyze.
- Jewelry: Push necklaces aside so they are not hanging down between the pads. Do not remove nipple piercings as this takes too long and do not rip them out as you will create a open injury.
- Remove medication patches that are underneath or between the pads and make sure you are wearing gloves when removing, don't touch the medicine patch with your bare skin. Quickly wipe the area clean after removing the patch.

AED use for Infants and Children under 55lbs

- If the AED has a different set of pads designed for small children or infants, or a dose attenuator, you should use it. You should use the smaller shock dose on any victim that is less than 55lbs. The dose attenuator is an AED that has a button, key, or switch to adjust the shock delivered to children or infants.
- If the AED does not have child/infant pads, a key, or switch, you should still use the adult pads with the AED on the child or infant. Adult pads cannot touch or overlap. So, one pad will be placed on the center of the child/infants chest and one pad on the center of their back between the shoulder blades. You can place either pad on the chest and either pad on the back.
- After the AED advises to either shock or not, you will resume CPR starting with chest compressions. Your compressions will be on top of the pad on the chest.

Infant CPR Assessment

1. Our first step is to make sure the scene is safe and only if it is safe for us will we proceed to the victim.
2. Check for responsiveness by tapping or tickling the bottom of the infants foot. The infants leg should kick, curl, or pull. They should always have a reflex.
3. If the infant is unresponsive, you must tell someone to call 9-1-1 and get an AED!
4. If you are alone you must activate 9-1-1 yourself and get an AED, if your facility has one and you know where its located. If an AED is not available, just stay with the patient and call 9-1-1.
5. Check the infants breathing for 5-10 seconds. If the infant is not breathing or not breathing normally (only gasping) you must start CPR beginning with compressions.
6. Continue CPR until the infant is breathing again, or gains consciousness, or advanced care providers arrive and take over, or if you become too tired. (Switch out on compressions if other people are present).

Infant Chest Compressions

- Give 30 compressions. Compressions need to be done hard/forceful to produce adequate circulation. Push the chest down 1.5 inches or 1/3rd the depth of the chest on the infant. To do this you must push the chest down until the heart presses against the infants back, hitting the bottom of their chest. Allow full chest recoil so the heart can refill with blood and then compress again.
- Get your knees or thighs up close to the side of the infant. Place 2 fingers or 2 thumbs next to each other, directly below the nipple line and on the center of the infants chest.
- You must perform compressions that are fast enough and deep enough. Perform compressions at a rate of 100-120 compressions per minute.
- *KEY POINT: You might hear popping in their chest, during compressions. You will cause sounds from air exchange as you force air in and out of the chest cavity from your compressions.

Infant Breaths

- First, open the infants airway with a head-tilt-chin-lift. You do this by providing pressure to the forehead with one hand, while grabbing the bony edge of the chin with the other hand. Pull the chin up to open the airway and relieve any airway obstruction. Do not open the airway too far, lift their chin high enough to place their head in the neutral position. *Note: remove any objects in the mouth, if visible, before attempting breaths.
- Mouth-to-Nose and Mouth breaths: Seal your lips around the infants nose and mouth and give 2 breaths. If you do not have a barrier device and do not want to perform mouth-to-mouth breaths you should rest for no longer than 10 seconds after completing every set of 30 compressions, performing hands-only CPR.
- Pocket-Mask breaths: Place the pediatric pocket mask over the infants nose and mouth, use both hands to seal the mask against the infants face, open the airway, blow through the mouthpiece on the mask and give 2 breaths. DO NOT use an adult adult barrier device on an infant because it is too large and will completely seal over the eyes and will cause complications.
- When giving breaths you only want to give enough breath to see the chest rise. The volume of breath will depend on the size of the infants lungs. Deliver the breaths at a normal/gentle pace. WARNING!! If breaths are delivered too fast or forceful you will cause air to enter the stomach and this will cause the infant to vomit. This will also occur if you give breath past the point of initial chest rise. An infants breath is more like a “puff”.