# CPR and Automatic External Defibrillator Training Manual

Course information: **253.594.7979**

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# WHAT HAPPENS WHEN YOU CALL 9-1-1!

After dialing 911 an emergency dispatcher will answer your call and ask you;

**“Do you need Police, Fire or Medical Aid?”** or **“911, what are you reporting?”**

Your response should be appropriate to your emergency **“Fire, medical aid, car accident,”** etc.

If your emergency is not law related, you will be transferred to a Fire Department dispatcher.

The Fire Department dispatcher will answer **“Fire & Medical Aid what city and address is your emergency.”**

The Dispatcher will then ask you **“is the patient conscious & breathing normally?”** If not, they may direct you to start CPR. If the patient is conscious and breathing normally, they will ask you 5 vital point questions;

1. *Address/location
2. Chief Complaint/Nature
3. Age
4. Gender
5. Phone number

Cellphone: **It is EXTREMELY important that you know your location before calling!** If you are unsure of your location, this will delay emergency responders getting to you in a timely manner. It can be helpful to give identifying landmarks or cross streets of your location if you don't know the address. If you are unable to talk directly to 9-1-1, go ahead and TEXT 9-1-1 with your emergency! Current cellphone technology does not give the dispatcher your location despite what many people believe. Please know your location before calling.

The dispatcher may inquire about other facts regarding the patient; however, if the answers to the above question indicate a life-threatening problem, a second dispatcher will send help immediately while the first dispatcher gathers more information from you, which they will then relay to the responding units.

If the problem is not life threatening and won't require a TFD paramedic, a private ambulance may be dispatched in addition to a Fire Engine or Ladder Company.

Every TFD fire engine and ladder company is staffed with 3 EMT's, Squad units provide 2 EMT's who provide basic life support. Some companies are also staffed with a paramedic.

(This is an example of cross streets.)

(This is an example of a landmark which is just a name of building.)

# BLOODBORNE PATHOGENS

**Know what to do if you are exposed!**

- What is a “true” exposure?
  - Needle stick
  - Blood or bodily fluids in the eyes, mouth, or a break in the skin
  - Mouth to mouth
  - Breathing airborne pathogens
  - Human bite

- Hepatitis, HIV, tuberculosis, meningitis, measles, chicken pox, and many other diseases could potentially be transmitted while providing first aid.

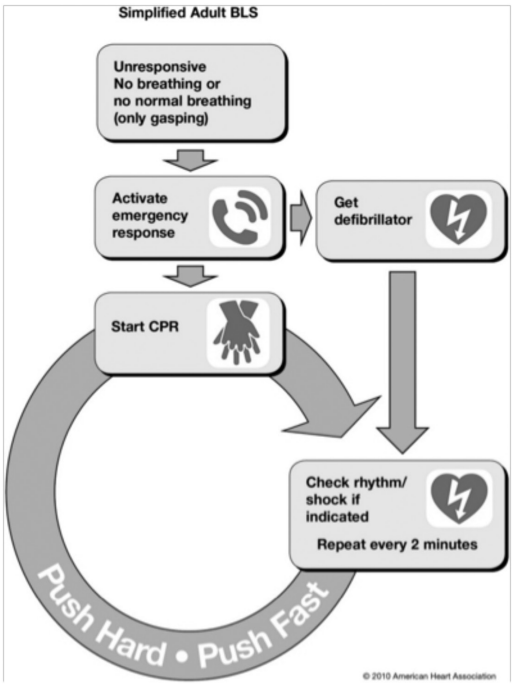
- Personal Protective Equipment
  - First aid kit containing:
    - Gloves (have several pair available)
    - CPR shields OR Masks with one-way valve
    - Eye protection
    - Respiratory protection

- Proper hand washing is most effective method to prevent spread of germs.

- Post exposure follow-up with a physician

(Known as “Universal Precautions”)

# Summary of Key Issues and Major Changes




Key issues and major changes for the 2020 AHA Guidelines for CPR recommendations for lay rescuer adult CPR are the following:

- The simplified universal adult Basic Life Support algorithm has been created.
- Refinements have been made to recommendations for immediate recognition and activation of the emergency response system based on signs of unresponsiveness, as well as initiation of CPR if the victim is unresponsive with no breathing or no normal breathing (i.e., victim is only gasping).
- “Look, listen, and feel for breathing” has been removed from the algorithm.
- Continued emphasis has been placed on high-quality CPR (with chest compressions of adequate rate and depth, allowing complete chest recoil after each compression, minimizing interruptions in compressions, and avoiding excessive ventilation).
- There has been a change in the recommended sequence for the lone rescuer to initiate chest compressions before giving breaths (C-A-B rather than A-B-C). The lone rescuer should begin CPR with 30 compressions rather than 2 ventilations to reduce delay of the first compression. Compression rate should be at least 100-120 per minute (rather than “approximately” 100/min).
- Compression depth for adults has been changed to 2 to 2.4 inches.
- Recognition of cell phone use for 911 activation without leaving victims side.
- Public Access Defibrillator programs to focus on areas with high likelihood of SCA (sudden cardiac arrest), (casino, airports, sporting facility).

# ONE RESCUER
# ADULT/CHILD/INFANT CPR

**ADULT**

- Check for **SAFETY OF THE RESCUER**. Look at the big picture.
- **TAP, SHOUT and, ASK**
  "Are you all right?" Use appropriate means to wake up patient. Minimum 5 seconds, no more than 10 seconds spent on waking them up.
- **CALL FOR HELP / Activate the EMS System 911**
  Ask someone (if available) to call 911. "**Help! YOU,** (point) go call 9-1-1, grab an AED, and come back!" If you have a cell phone use it, and place on speaker. Do not leave a patient unless it's your only option to call for help.
- **BEGIN CHEST COMPRESSIONS**
  If not breathing NORMALLY, start **compressions** at a **rate** of **100-120 COMPRESSIONS PER MINUTE** counting (out loud) "One, two, three...", etc. Give **30 COMPRESSIONS** with a **DEPTH** of at least 2 inches, but not deeper than 2.4 inches, (avg. adult) followed by **2 VENTILATIONS**.
- **OPEN AND MAINTAIN THE AIRWAY**
  Head tilt, chin lift for all patients, even those with suspected neck or back injury. Look carefully in mouth
- **BREATHING**
  Give 2 breaths (About 1 second long). Watch chest rise.
  If chest does not rise, re-open airway and try again. If no air goes in started chest compressions. If successful, proceed to compressions. NO more than 10 seconds to deliver 2 breaths.
- Continue to repeat 30 compressions and 2 ventilations
- As soon as **AED** arrives, attach and follow directions

| |
|---|
| **C - Compressions** |
| **A - Airway** |
| **B - Breathing** |
| **D - Defibrillation** |

**CHILD & INFANT**

Follow the same **C-A-B-D** checks as above. Body size is smaller so the compressions and breaths will be smaller. Compressions may be done with one hand or two hands depending on size of child. A child is defined as being between ages 1-8 or signs of puberty if unable to determine age. Chest compression depth is 2 inches or 1/3 depth of chest. Infant is defined as birth to age 1. Use two fingers for infants, at a depth 1 1/2 inches or 1/3 of chest. The rate is at least 100-120 per minute and the ratio of compressions to breaths is 30 to 2, for both child and infant.

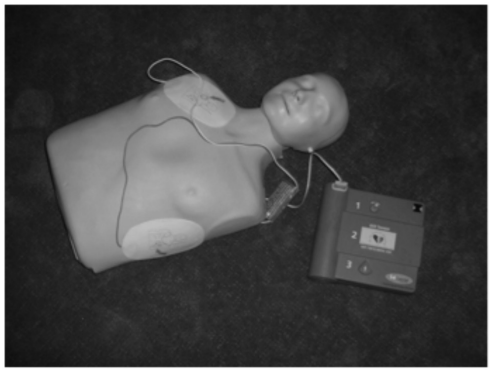
Calling for help is different for children/infant only when you are alone. Because most cardiac arrest in kids is due to airway blockage you should do two minutes of CPR prior to leaving child.* This will allow you to find the blockage and clear it sooner. This delay in calling should also be done for adult patients with a known airway problem. (Trauma, Overdose or drowning)

**unless you have a cell phone, if so then call 911 immediately and place on speaker, while still attempting to help.*


# Automatic External Defibrillators

85% of adults go into an abnormal heart rhythm before their heart totally stops. The most common is ventricular fibrillation (V-Fib). Instead of the normal squeezing action that the heart uses to circulate blood, the heart quivers or shakes when in V-Fib.

Electrical shock is used to stop this quivering rhythm and allows the heart to re-start in the normal squeezing action, which will produce a pulse.



Automatic External Defibrillators allow anyone with basic knowledge to defibrillate a person in V-Fib. AED's will not allow shock in a patient that does not need it.

AED's are becoming more cost effective. Costs can vary from $500.00 to $1500.00 per unit. These are the units being put on airplanes, in casinos and many other large buildings. Many buildings in Tacoma either already have or are in the process of putting them in service.

Every engine, truck and fireboat company in Tacoma has an AED with personnel trained to use it.

# AED Specifics

Ventricular fibrillation (VF) does not circulate any blood. CPR should be done prior to the arrival of the AED. CPR should continue while the device is being connected to the patient. During the “analyze” mode and the “shock advised” period you should not touch the patient.

Chances of successfully defibrillating a patient diminish rapidly over time. Roughly 7 – 10% life loss per minute when no CPR is administered. Rate average 3-4% decline if CPR is provided prior to AED use. CPR performed while waiting for the AED to arrive on scene prolongs VF and delays asystole extending the survival window.

**C** - Compressions
**A** - Airway
**B** - Breathing
**D** - Defibrillation

Special Circumstances:

- Wet surfaces. Move to dry area if possible. Stand on shoes to minimize possible shock to rescuer.
- Use pediatric pads if available on patients less then 8 years of age. If pediatric pads are not available adult pads are okay.
- Remove any medication patches on the chest where the de-fib patches go.
- Do not place de-fib patches over any implanted devices, give 1” clearance.
- Do not use pediatric pads on Adults.

De-fib patches are placed on the right upper portion of chest; below the collarbone and above the nipple, and, on the left side of the chest outside the left nipple and several inches below the armpit. Most patches have pictures to help you place them in the right position.

Make sure the patches stick to the chest. For sweaty chests use clothing or provided gauze to dry the chest. For hairy chests use the provided razor to remove hair in the area needed to stick the patch.

SAFETY: While the machine is very safe and will not allow shock unless it is connected to a person in V-fib, the following precautions should be followed.

- Do not touch the patient during analysis or shock

- Warn bystanders before shocking patient and LOOK to make sure everyone is clear before you press the button

The Tacoma Fire Department encourages everyone to be familiar with the use of AED’s. AED’s are often placed in public areas for use by anyone recognizing a need.

# FOREIGN BODY AIRWAY OBSTRUCTION CHOKING - ***CONSCIOUS*** (ADULT/CHILD)

**What to do:**

1. Ask, “Are you choking?”
2. If yes, direct someone to **call 911,** then find correct hand position (midline, just above the navel). Give abdominal thrusts, inward and upward with a clenched fist, until obstruction is removed, or patient becomes unconscious.
3. **IF PATIENT IS PREGNANT OR TOO LARGE TO GET ARMS AROUND, USE CHEST THRUSTS INSTEAD OF ABDOMINAL THRUSTS.** Place fist in center of chest on sternum. Give chest compression.
4. Each thrust is a distinct inward and upward movement and is done with intent to expel object.
5. When obstruction is removed, patient should be checked at hospital for possible internal injuries.
6. If patient goes unconscious before object is removed, see FOREIGN BODY AIRWAY OBSTRUCTION - CHOKING - UNCONSCIOUS.

# FOREIGN BODY AIRWAY OBSTRUCTION CHOKING - **UNCONSCIOUS** (ADULT/CHILD)

1. When a person who is choking becomes unconscious, ease him/her to the floor and call out for help.
2. Call 9-1-1.
3. Head tilt chin lift to open airway, look carefully inside mouth, DO NOT perform a blind finger sweep.
4. Attempt to breathe for patient. If no air goes in reposition the head and try again.
5. If airway remains blocked, perform chest compressions, just like for CPR.
6. Following the compressions, open airway, look carefully inside mouth, and try to give patient 2 more breaths.
7. Repeat compressions and breathing attempts until the obstruction is removed.
8. Continue monitoring patient until EMS arrives.

# OPIOID INFORMATION

- Opioid Overdose is currently one of the leading causes of death for people who are under the age of 40.
- About 85% of Opioid related deaths are accidental, and the majority of these actually happen at home and in front of loved ones.
- Drug overdose deaths in the U.S. top 100,000 annually.

## What is an Opioid Overdose?

- Most people believe that this happens quickly, but instead it usually takes 1-3 hours after drug use. This also means that body ingested more of the “drug” than the body can actually handle.
- These “drugs” usually attack the receptors that control the body’s ability to breathe which then leads to a person becoming unconscious, possibly going into coma, and even possibly leading to cardiac arrest where the heart stops.
- In the long term, there can be brain, nerve, physical damage and even the possibility of death.

## General Signs and Symptoms of Overdose

- Breathing of person has slowed down, became shallow, or even stopped.
- If you look into the eyes of a person who has overdosed, you will see constricted “pinpoint pupils”
- Possible pale, blue or cold skin which means the person has a “lack” amount of oxygen perfusing through the body.
- Possibly you will notice pill bottles, needles/syringes, spoons with matches/lighters, or even smoking pipes around them with any of the above signs/symptoms.

## Common Opioid Drugs

| | |
|---|---|
| Heroin | Oxycodone |
| Vicodin | Percocet |
| Morphine | Fentanyl |
| Hydrocodone | Tylenol 3 |
| Oxycontin | Codeine |

# OPIOID INFORMATION CONTINUED

The main antidote/ reversal medication for opioid overdoses is called Naloxone also known as Narcan. This drug acts to rapidly reverse an overdose, and it acts as an antagonist which means it binds to opioid receptors and can reverse and block the effects of other opioids. When given it can quickly restore normal respirations (breathing) to a person whose breathing has slowed or even stopped as a result of the potential overdose.

Narcan can be given in different methods which include nasal spray and auto injector. When using Nasal Spray, you will inject a fine mist into the person's nostril and then it will begin to work quickly. The other one that is common to the community is the auto injector which you would give to a patient by injecting the preloaded auto-injector into the thigh of the patient. This is made to go directly through clothing if need be.

**IF YOU GIVE THIS MEDICATION MAKE SURE YOU CALL 9-1-1 SO THE PATIENT CAN RECEIVE MEDICAL ATTENTION!**


## MEDICATION DISPOSAL

- **DON'T FLUSH DOWN THE TOILET/SINK**
- **DON'T THROW AWAY IN HOUSEHOLD TRASH**
- **DON'T TAKE TO FIRE STATION FOR DISPOSAL**


- **DO SEEK A RESPONSIBLE DISPOSAL SITE:**
  - **www.medproject.org** – This website provides locations where you can bring your expired or unwanted medicines for proper disposal. The medications need to be either in original container or sealed bag.
  - **www.tpchd.org** (Tacoma Pierce County Health Department)

# HOME OR CAR FIRST AID KIT

| ITEM | USE |
|---|---|
| 1. Ice bag (1) Chemical 'instant' ice bags or regular ice wrapped in cloth | Reduce swelling |
| 2. Thermometer (oral) and case | Measures fever, i.e. temperature |
| 3. Tweezers (1) | Removal of small objects from skin, e.g. splinters |
| 4. Scissors (1) Get the strongest, blunt nosed scissors available | Cutting tape, bandages |
| 5. Band-Aids<br>a. 3/4 x 3" Band-Aids (12)<br>b. XL 2" Band-Aids (2)<br>c. Butterfly closures (5)<br>d. 3" x 3" gauze pads (5)<br>e. Compresses (sanitary napkins will work)<br>f. Roller bandages, Kling or Kerlix are brand names. | <br>Covering minor wounds<br>Covering minor wounds<br>Holds edges of gaping wound together<br>Covers larger abrasion, wounds<br>Pressure dressing to stop bleeding<br><br>Cover large wound areas. |
| 6. Ace wrap 3" (1) (elastic bandage) | Support weak muscles, sprains |
| 7. 40" triangular cloth bandage (2) | Make a sling |
| 8. Safety pins (4) Often come with triangular bandage above. | Secure sling |
| 9. Tape<br>a. 1" paper tape<br>b. 2" cloth reinforced tape | Securing dressing and bandages |
| 10. Neosporin ointment (1) or other brand of antibiotic salve | Antibiotic salve for infected wounds |
| 11. Hydrogen Peroxide (1) | Cleansing of wounds |
| 12. Calamine lotion (1) | Decreases itching from poison ivy, bug bites |
| 13. Sunscreen | Prevents sunburn |
| 14. Ibuprofen/Tylenol/aspirin | Headaches, fever |
| 15. Gloves, several pair | For hand protection |
| 16. CPR masks with one-way valve | CPR |
| 17. Blankets/towels 'space' blanket will work | Keep warm |
| 18. Pen/pencil and paper | Notes on patient |
| 19. Waterless soap, alcohol-based hand sanitizer | For hand washing when soap and water are not available |
| 20. Eye protection, glasses or goggles | |

Information List for Home

My Name: _____

My Address: _____

My Doctors: _____

My Social Security #: _____-_____-_____

My Allergies: _____

My Medical Conditions: _____

My medications are generally kept: _____

| Name | Strength | For |
|---|---|---|
| Example:<br>Prevacid | 30 mg | Heartburn |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

For my wallet:

Name: _____

Emergency phone #: _____-_____-_____

Medications:

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

_____

# NOTES

# TACOMA FIRE DEPARTMENT

| Recommendations | | | |
|---|---|---|---|
| **Component** | **Adults** | **Children** | **Infants** |
| | Unresponsive (for all ages) | | |
| **Recognition** | No breathing or no normal breathing (i.e., only gasping) | No breathing or only gasping | |
| **CPR sequence** | C-A-B-D | | |
| **Compression rate** | At least 100-120 per minute | | |
| **Compression depth** | At least 2 inches, but not more than 2.4 inches | At least 1/3 of chest<br>About 2 inches (5 cm) | At least 1/3 of chest<br>About 1½ inches (4 cm) |
| **Check chest recoil** | Allow complete recoil between compressions if possible rotate compressions every 2 minutes (5 cycles 30:2) | | |
| **Compression interruptions** | Minimize interruptions in chest compressions<br>Attempt to limit interruptions to <10 seconds | | |
| **Airway** | Head tilt – chin lift | | |
| **Compression-to-ventilation ratio (until advanced airway placed)** | 30:2 single rescuer | | |
| **Ventilations: when rescuer untrained or trained and not proficient** | Compressions only | | |
| **Defibrillation** | Attach and AED as soon as available. Minimize interruptions in check compressions before and after shock; resume CPR beginning with compressions immediately after each shock. | | |
| **Foreign-body airway obstruction** | Abdominal thrust | | Back slaps and chest thrusts |

**CPR PROGRAM 253.594.7979 www.CPRSunday.net**