

CPR Study Guide

This study guide was developed to assist you in completing the CPR course, including the required test. The test is a 25 question, multiple choice format with four answer options. This study guide reflects specific wording found in class materials and tests. You should be able to print this directly from your web browser. If this does not work, call: 6-4111 and we will assist you.

Links in the "Chain of Survival"

Adults:

1. Access the EMS - CALL 911; Bldg. 10 call 111; off NIH campus - call 9-911.
2. Early CPR
3. Early Defibrillation
4. ACLS (Advanced Cardiac Life Support)

The greatest impact on improving the survival from adult sudden cardiac arrest is immediate bystander CPR and defibrillation within 5 minutes. The victim has probably had a heart attack.

Pediatric

1. Prevention
2. Early CPR
3. Early access to EMS
4. Early PALS

The most common cause of sudden cardiac arrest in kids (infants and children) is a lack of oxygen to the heart muscle and brain caused by severe breathing emergencies, respiratory arrest, or shock.

The most common cause of death is accidents; motor vehicle trauma, drowning, poisoning, burns, etc.

Symptoms of a Heart Attack

- Pressure / achy pain in the chest, back (between the shoulder blades), jaw, perhaps radiating to the arm
- Nausea
- Dizziness
- Sweating (diaphoresis)
- Agitation
- Indigestion
- DENIAL on the part of the patient and the rescuer (especially if a friend or family member) - Sometimes waiting hours, even days, before going to the Emergency Department

Symptoms of a Stroke

- Severe headache
- Sensory changes: sight, speech, hearing, comprehension, balance
- Numbness (usually hemispheric)
- History of hypertension increases the probability of stroke with the above symptoms.

Things to remember about Basic Life Support

Occurrence is Sudden and Unexpected. It is usually out-of hospital.

Guidelines are for laypeople as well as healthcare providers.

1. Opening the airway is usually done by tilting the forehead and lifting the bony part of the chin. An improperly positioned airway is the most common cause of an airway obstruction. If cervical injury may have occurred, use the Jaw Thrust (give patient an underbite) with pressure behind the ascending portion of the mandible. Stabilize the neck if trained to do so.
2. Head tilts:
 - Adult may need to be hyperextended
 - CHILD - NEUTRAL POSITION, SLIGHTLY EXTENDED
 - INFANT - NEUTRAL POSITION
3. Chest compression hand position
 - Adult: center of the sternum at the nipple line using heels of 2 hands
 - Child: heel of 1 hand on the sternum while maintaining the airway with the other hand.
 - Infant: 2 fingers slightly below the nipple line (1 finger's breadth if small fingers) over the heart. 2 thumbs either next to each other, or one atop the other, while encircling the chest with the hands for 2 rescuer CPR.

N.B. The purpose of doing CPR is to provide a flow of oxygen to the heart and brain.

- Slow gentle ventilations reduce the chance of gastric distention.
- Ventilation should cause CHEST to rise.
- Rescue Breathing (there are signs of circulation) is a quick effective way to provide oxygen to the victim.
- Signs of Circulation (or lack thereof)
 - Skin blueness (cyanosis) or pallor
 - Body is limp; no flexion or movement
 - No breathing or gasps
 - No pulse (check for no longer than 10 sec.) Only Healthcare Providers will check for pulse
- Rescuers monitor each other's effectiveness: ventilator monitors the carotid pulse DURING compressions, compressor leaves hands lightly on the chest and FEELS the chest rise DURING the ventilations.
- FBAO (Foreign body airway obstruction)
 - If victim is conscious and is an adult or child, do the Heimlich Maneuver with fist at or slightly above the navel until it's successful or they become unconscious. If an infant, us 5 back blows then 5 chest thrusts (if needed) while you are sitting, until it's successful or they become unconscious.

- If victim becomes unconscious, or you know from circumstantial evidence that he's choked, check the mouth, remove foreign body if seen and attempt to ventilate. If no foreign body is seen in adult you may still sweep through the mouth.....NEVER SWEEP a child's or an infant's mouth if no object is seen.

Assessment Algorithm

- Check for safety
- Check for victim's responsiveness
- Call for "HELP!" (see above)
- Open airway
- Look, listen, feel for breathing
- Attempt 2 breaths
If unable to ventilate:
 - Reposition the head and attempt again
 - 5 abdominal or chest thrusts

 - Open then check mouth, sweep to remove seen objects
 - Attempt to ventilate, if no air goes in, reposition and try again, etc.
- Once 2 breaths go in, check for signs of circulation (see above)
- No pulse, begin chest compressions;
- Pulse present, give gentle, long, rescue breaths
- Breathing present, turn victim onto the side to maintain the airway (Rescue, or Recovery, Position)

Risk Factors for CVD		
Cannot Change	Cannot change but can control	Can change
Age	Diabetes	Smoking
Family history	Gout	Hypercholesterolemia
Gender		Hypertension: obesity, lack of exercise, stress

Numbers you need to know						
Age =	Adults >8 years		Children 1-8 years		Infants <1 yr	
No. of rescuers	1	2	1	2	1	2
Ratio C:V	15:2	15:2	5:1	5:1	5:1	5:1
Rate of compression	100 compressions/min use heel of two hands		100 compressions/min use heel of one hand		at 100 compressions/min use two fingers	
Depth of compression	1 ½" - 2" normal size adult		1" - 1 ½" 1/3 depth of chest		½" - 1" 1/3 depth of chest	
Rescue breaths	1 q 5 seconds 12/min		1 q 3 seconds 20/min		1 q 3 seconds 20/min	
Duration of breaths	2 seconds slow & gentle		1 - 1 ½ seconds slow & gentle		1 - 1 ½ seconds slow & gentle	
N.B. NO compressions on Rescue Breathing ..Do NOT Extrapolate!!!!!!						

Public Access Defibrillation

PAD programs in communities help ensure rapid access to a defibrillator and that laypersons are trained in AED use.

Immediate CPR provides a flow of oxygen-rich blood to the heart and brain, "buying time" until defibrillation and improving the victim's chance of survival.

Automated External Defibrillators are usually brought to the scene while CPR is in progress. The AED takes precedence over CPR. Once the unit says "Do not touch the patient" stop the CPR and follow the prompts.