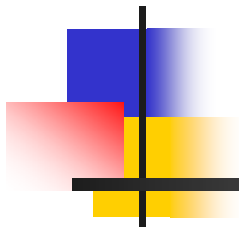


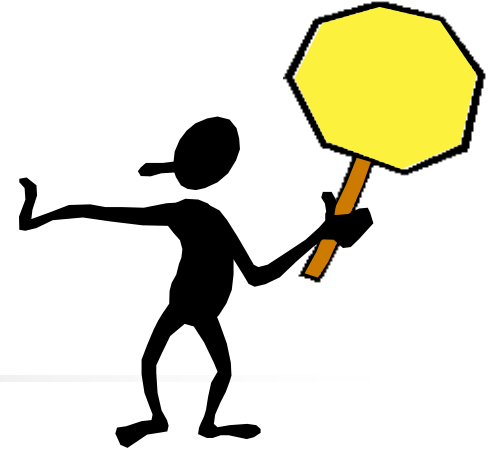
Welcome to American Heart Association



Basic Life Support
for
Healthcare Providers
University Hospital Training Center
2006 (based on 2005 Guidelines)

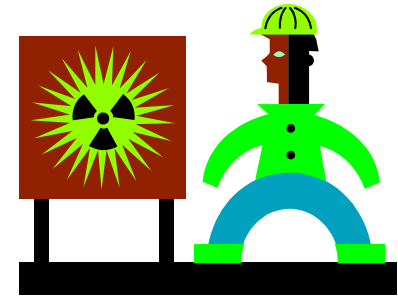


Mandatory Caution Statement



- ❖ BLS courses may include physical strain, possibility of cross infection and emotional stress.
- ❖ If your physician has recommended you avoid strenuous activity or limited your activity in any way, you need to realize CPR is hard work.
- ❖ This is true both when you practice on a mannequin and when you perform CPR on a cardiac arrest victim.

Consider This:

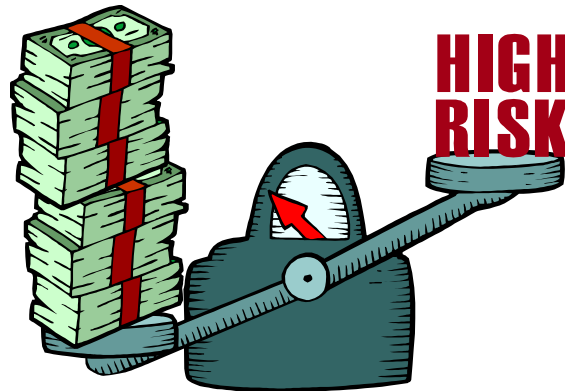


- ❖ If you have a medical or coronary history that may be aggravated by this course, consult with your physician about your ability to participate.
- ❖ If you have recently had any type of infectious disease, incl. respiratory infections or open sores on your mouth, hands, or face: **You must defer mannequin practice until you are well.**

Risk Factors for Heart Attack & Stroke

Modifiable:

- ❖ Cigarette smoking
- ❖ High Blood Pressure
- ❖ Cholesterol Levels
- ❖ Physical inactivity
- ❖ Stress
- ❖ Obesity



Non-Modifiable:

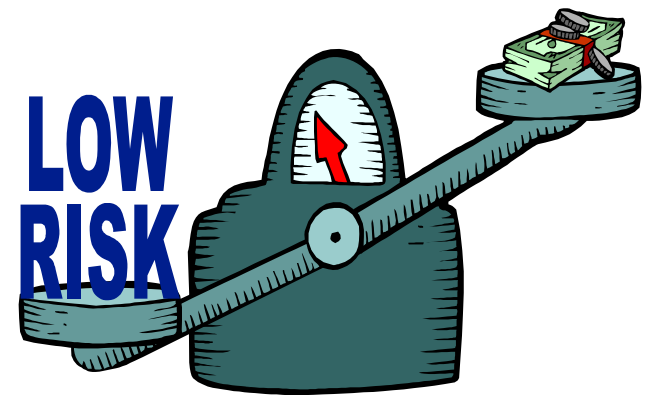
- ❖ Heredity
- ❖ Gender
- ❖ Age
- ❖ Race

Other:

- ❖ Diabetes

Prudent Heart Living

- ❖ A lifestyle that minimizes risk of future Heart Disease
- ❖ Eliminate cigarette smoking
- ❖ Decrease blood cholesterol levels
- ❖ Increase exercise
- ❖ Eliminate obesity
- ❖ Control high blood pressure & diabetes
- ❖ Decrease stress



Symptoms of Heart Attack

Victims often deny symptoms may be due to Heart Attack

Typical:

- ❖ Pain in chest, arm, jaw
- ❖ Complaints of indigestion/heartburn

Have victim lie down or sit quietly & call **911**

Patients with no history of Aspirin Allergy or signs of active GI Bleeding are to chew an Aspirin (ASA) 160mg-325mg while awaiting EMS.

Atypical:

- ❖ Pressure in chest
- ❖ Pain in back
- ❖ Nausea
- ❖ Dizziness
- ❖ Sweaty



Symptoms of Stroke (Brain Attack)

- ❖ Sudden weakness on one side of the body
- ❖ Facial droop
- ❖ Inability to talk or swallow effectively
- ❖ Drooling
- ❖ Confusion
- ❖ **Have victim lie down or sit quietly & call 911**
- ❖ If a Stroke Facility is available, within a reasonable transport interval, transport to a Stroke Center (ex: University Hospital).

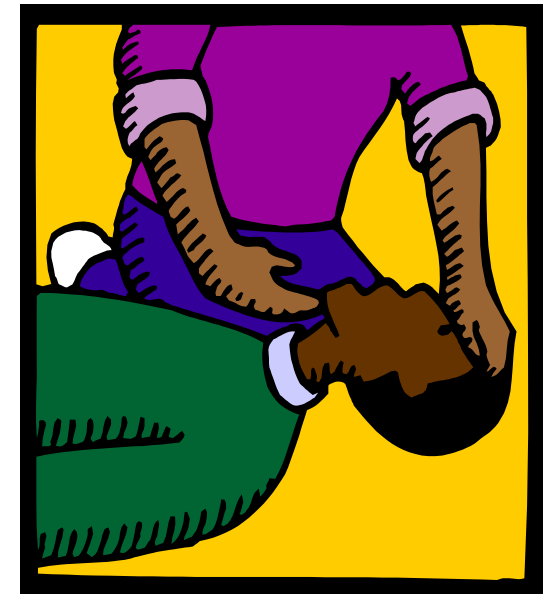


ABC's of Cardiopulmonary Resuscitation

Establish unresponsiveness:

No response to arousal, no signs of circulation, no movement, no breath. Activate EMS: call **911** (At 550 Harrison and UHCC use the Red Phone) & get **AED** - in hospital call **4-4444** & get emergency equipment.

- ❖ *Airway* - open with head tilt/chin lift **or** jaw thrust w/ cervical spine immobilization if injury to head or neck
- ❖ *Breathing* - look for chest to rise, listen & feel for breath. If no breathing, give 2 breaths. If unable, reposition—try again
- ❖ *Circulation* – check Pulse for 5-10 seconds & check signs of circulation (breathing, coughing, or movement).
- ❖ *Begin CPR*





Chest Compressions

- ❖ In order to be effective, chest compressions must provide adequate blood flow to the heart (coronary artery blood flow) and the brain (cerebral blood flow). Effective blood flow is related to the rate and depth of compressions.
- ❖ Allowing complete chest recoil after each compression allows blood to return to the heart to refill the heart, in order to maintain cardiac output.
- ❖ Chest compressions should not be interrupted for any longer than 10 seconds, for any reason.



Unwitnessed Arrest

- ❖ When responding to an unwitnessed arrest perform 5 cycles (or about 2 minutes of CPR), before using the AED.
- ❖ For an asphyxial arrest (Drowning) call 911 after 5 cycles (2 minutes) of CPR.

Compression/Ventilation Ratio Rate & Hand Positions

Adult and older Child (Lay rescuer > age 8)
(HCP Adolescent (age 12-14) puberty and older):

- ❖ Comp/Vent Ratio- 30:2, do 5 cycles (2 minutes) & check pulse/breaths
- ❖ Pulse Check – Carotid
- ❖ Compressions – Approximately 100/min (give 30 compressions in less than 23 seconds). Push Hard and Push Fast.
- ❖ Ventilations – Initially, 2 breaths at one second per breath.
- ❖ Delivering ventilations too quickly or too forcefully may cause gastric/stomach inflation (Gastric Distension).
- ❖ Rescue Breaths for CPR with an Advanced Airway (ET tube, LMA or Combitube) - there is no interruption between compressions and ventilations (8-10 breaths per minutes or one breath every 6-8 seconds).



Adult Hand Placement – Center of chest between nipples, with 1½-2 inch compression.



Compression/Ventilation Ratio Rate and Hand Positions

Child (1 year old to Puberty) – Lay rescuers (1-8 years)

HCP (1 year to Adolescent (12-14 years))

- ❖ Comp/Vent Ratio – Single rescuer (30:2)
HCP (15:2 for two rescuers)
- ❖ Pulse Check - Lay Rescuer (Carotid)
HCP (Carotid)
- ❖ Compressions – Approximately 100 per minute (give 30 compressions in less than 23 seconds).
- ❖ Ventilations - Initially, 2 breaths at one second per breath.
- ❖ Delivering ventilations too quickly or too forcefully may cause gastric/stomach inflation (Gastric Distension).
- ❖ CPR with an Advanced Airway – 8-10 breaths per minute, one breath every 6-8 seconds.

Child Hand Placement – Heel of one hand with second hand on top or heel of one hand only. Landmark: Center of Chest between nipples, 1/3 to 1/2 the depth of the chest.



Compression/Ventilation Ratio Rate and Hand Positions

Infant (age 0-12 months)

Most cardiac arrests preceded by severe airway/breathing problems or shock.

- ❖ Comp/Vent Ratio – 30:2 Single Rescuer
- ❖ 15:2 HCP (2 rescuers)
- ❖ Compressions – Approximately 100/min (give 30 compressions in less than 23 seconds).
- ❖ Pulse Check – Brachial
- ❖ Ventilations - Initially, 2 breaths at one second per breath.
- ❖ Delivering ventilations too quickly or forcefully may cause gastric/stomach inflation(Gastric Distension).
- ❖ (CPR with an Advanced Airway) – 8-10 breaths per minute, one breath every 6-8 seconds.

Hand placement- Infant: Landmark (just below nipple line)

- ❖ One rescuer 2 fingers
- ❖ HCP (2 rescuers) 2 thumb encircling hands
- ❖ 1/3 to 1/2 depth of the chest

Rescue Breathing

If signs of circulation are present, but breathing is absent or inadequate

Adult:

- ❖ One breath every 5-6 seconds (10-12/min)
- ❖ Once breathing resumes place in Recovery Position (lay victim on side)

Infant/Child:

- ❖ One breath every 3-5 seconds (12-20/min)



Recovery Position

Management of victims who are unresponsive but breathing with signs of circulation

- ❖ Modified, lateral position maintains alignment of back & spine while allowing for observation of victim
- ❖ Head is dependent to allow for drainage of fluids
- ❖ Maintains open airway
- ❖ Roll onto side so head, shoulders & torso move simultaneously without twisting
- ❖ Avoid any pressure on the chest that impairs breathing
- ❖ If in recovery position >30 min, turn to opposite side



Choking Victims

Responsive Adult/Child

Assess by asking:

- ❖ Are you choking?



- ❖ Universal sign for Choking

- ❖ Tell victim you can help
- ❖ Give “chest compressions” with proper hand position.





Choking continued

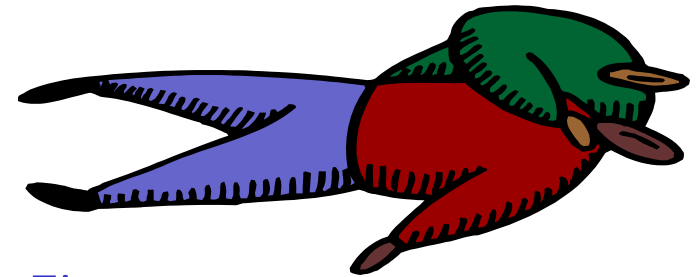
- ❖ If the victim is pregnant or obese, perform chest thrusts, as you would otherwise do.
- ❖ When performing the Heimlich Maneuver with the child victim standing, you may need to kneel.
- ❖ If you are alone and choking, you may perform the Heimlich Maneuver on yourself by “throwing” yourself over the back of a chair or anything at the height of your abdomen.

Choking Adult/Child becomes Unresponsive

Activate EMS- call 911 (At 550 Harrison and UHCC
use the Red Phone)

In Hospital call 4-4444

- ❖ Lower victim to floor
- ❖ Open airway with tongue-jaw lift (Do Not Finger sweep, unless you can see the object) –(No Blind Finger sweeps)
- ❖ Attempt to ventilate, if unsuccessful re-position & try again
- ❖ If unsuccessful, perform 5 CPR & check for results
- ❖ Continue “CPR” (chest compressions) until successful or help arrives



Choking Infant



Responsive:

- ❖ Confirm airway obstruction- severe breathing difficulty, ineffective cough, no strong cry, bluish skin
- ❖ Give 5 back slaps with heel of hand & 5 chest thrusts using 2-finger compression technique
- ❖ Repeat until object expelled or victim becomes unresponsive

Unresponsive:

- ❖ Activate EMS
- ❖ Open airway with tongue-jaw lift
- ❖ If object seen – remove
- ❖ **No object seen-no finger sweep**
- ❖ Attempt to ventilate
- ❖ Continue CPR
- ❖ Repeat until object expelled or help arrives

Automatic External Defibrillator (AED)

- ❖ Portable device - Delivers an electrical shock to the heart muscle
- ❖ Intent is for adequate current to be delivered to heart to cause it to stop quivering (fibrillating) for a split second. This allows heart's normal pacemaker to resume control
- ❖ AED to scene within 3-5 minutes of victim collapse
- ❖ Probability of successful defibrillation diminishes over time



Rationale for Use of AED's

- ❖ Used only on a pulseless, breathless victim (adult pads on >8yrs or 55kg)
- ❖ For a witnessed arrest use the AED as soon as available.
- ❖ For an unwitnessed arrest - provide 5 cycles (2 minutes) of CPR before shock.
- ❖ Do not apply to wet skin or over implanted devices or med patches
- ❖ AED electrode pads are applied to victim & CPR is continued until the AED is ready to analyze the rhythm.
- ❖ AED indicates if shock is necessary, advises to stand clear, charges electrodes & gives command to **Shock once, followed by immediate CPR, beginning with Chest Compressions. The rhythm is checked after 5 cycles (2 minutes) of CPR.**





AED's continued

- ❖ NYS has not approved the use of Adult Pads in Children/Adolescents (under age 8 or 55 kg). Although, AHA research supports the use of adult pads, if no Pediatric Pads are available.



Defibrillation Guidelines

- ❖ For attempted defibrillation of a Pediatric Patient, the first dose is 2 j per kilogram. The second and subsequent doses is 4 j per kilogram.
- ❖ For attempted defibrillation of an Adult, using a Monophasic Manual Defibrillator the dose is 360 j. When a Biphasic Manual Defibrillator using truncated exponential waveform the dose is 150-200 j or for a Rectilinear Biphasic Waveform the dose is 120 j.
- ❖ The second dose should be the same or higher.
- ❖ If the Rescuer does not know the type of Biphasic Waveform in use, the default is 200 j.



Special Considerations

- ❖ Scene Safety – When giving CPR, first make sure the scene is safe. For example, if a person near a burning building, in water, or close to exposed electrical wires needs resuscitation, first ensure that both you and the victim are in a safe location.
- ❖ In the case of trauma, do not move the victim unless it is necessary to ensure the victim's or your safety.

Special Considerations continued



- ❖ Standard Precautions – OSHA requires that Healthcare Workers use Standard Precautions in the workplace. Standard precautions include using barrier devices, or bag mask systems, gloves and goggles.
- ❖ Cricoid Pressure (sellick's technique) – is the application of pressure to the unresponsive victim's cricoid cartilage. Cricoid pressure is effective for preventing gastric inflation during positive pressure ventilation, with unresponsive victims. An extra rescuer must be present to utilize this technique.



Special Considerations continued

- ❖ Jaw Thrust – If you suspect a cervical spine injury, open the airway using a jaw thrust, without head extension.
- ❖ Agonal Gasps – Agonal gasps may happen in the first minutes, after cardiac arrest. Gasps are not adequate breathing. You must give rescue breaths.

Administer Version A exam:

- ❖ Pass with 84% (3 wrong on 20 question test)
- ❖ If > 3 wrong remediate & give Version B exam- pass 84% to get course completion card

Skills Performance:


- ❖ Adult 1-Rescuer CPR
- ❖ Adult Bag-Mask Ventilation
- ❖ Adult 2-Rescuer CPR
- ❖ Adult FBAO - Responsive Victim
- ❖ Adult FBAO - Unresponsive Victim & Rescue Breathing
- ❖ Infant 1-Rescuer CPR
- ❖ Infant Bag-Mask Ventilation
- ❖ Infant FBAO – Responsive Victim
- ❖ Infant FBAO – Unresponsive Victim & Rescue Breathing
- ❖ Verbalize/Demo Child criteria as appropriate
- ❖ AED Skill demonstration



CPR Healthcare Provider Summary Chart

CPR	Adult and Older Child (puberty and older)	Child (1 year old to puberty)	Infant (Less than one year old)
Establish that the victim does not respond Activate your emergency response system.	Activate your emergency response system as soon as the victim is found.	Activate your emergency response system after giving 5 cycles of CPR.	Activate your emergency response system after giving 5 cycles of CPR.
Open the airway Use head tilt-chin lift.	Head tilt-chin lift (Suspected trauma: jaw thrust)	Head tilt-chin lift (Suspected trauma: jaw thrust)	Head tilt-chin lift (Suspected trauma: jaw thrust)
Check Breathing If the victim is not breathing, give 2 breaths that make the chest rise.	Open the airway, look, listen, and feel. Take at least 5 seconds and no more than 10 seconds.	Open the airway, look, listen, and feel. Take at least 5 seconds and no more than 10 seconds.	Open the airway, look, listen, and feel. Take at least 5 seconds and no more than 10 seconds.
First 2 breaths	Give 2 breaths (1 second each)	Give 2 breaths (1 second each)	Give 2 breaths (1 second each)
Check Pulse At least 5 seconds and no more than 10 seconds.	Carotid pulse (if no pulse, start CPR)	Carotid pulse (if no pulse or pulse is < 60 bpm with signs of poor perfusion, start CPR)	Brachial pulse (if no pulse or pulse is < 60 bpm with poor perfusion, start CPR)

CPR Healthcare Provider Summary Chart (Continued)



Start CPR	Adult and Older Child (puberty and older)	Child (1 year old to puberty)	Infant (Less than one year old)
Compression location	Center of breastbone between nipples	Center of breastbone between nipples	Just below nipple line on breastbone
Compression method	Heel of 1 hand, other hand on top (or 1 hand for small victims)	Heel of 1 hand, other hand on top (or 1 hand for small victims)	2 fingers (2 thumb-encircling hands for 2 rescuer CPR)
Compression depth	1 1/2 to 2 inches	1/3 to 1/2 depth of chest	1/3 to 1/2 depth of chest
Compression rate	100 per minute	100 per minute	100 per minute
Compression-ventilation ratio	30:2 (1 or 2 rescuer CPR)	30:2 for 1 rescuer CPR 15:2 for 2 rescuer CPR	30:2 for 1 rescuer CPR 15:2 for 2 rescuer CPR