

American Heart Association

Basic Life Support

Precourse Review Materials

*Revised July 2006
Huntsville Hospital Training Center*

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BLS Healthcare Provider & Recertification Course Precourse Review

THIS IS ONLY FOR HEALTHCARE PROVIDER RECERTIFICATION NOT HEARTSAVER
All licensed Professionals Must Take The AHA Healthcare Provider Class not a Heartsaver class
Please review this guide before coming to class

Facts to Know

- **You must bring a current AHA HCP card to a recertification class or a copy with you**
- **If you need tabletop skills, you must provide a doctor's statement to HH Employee Health prior to the class and bring a copy with you to class**
- **Books are available for purchase for \$17.50 at Corporate University**
- **Class size and length may vary. Please be on time, you will not be able to participate if late**
- **You must pre-register via Net Learning after approved by your Nurse Manager**

BLS CPR consists of 4 main components:

- Airway
- Breathing
- Circulation
- Defibrillation

ADULT

Chain of Survival:

- Early access: Establish Unresponsiveness then activate EMS/911,
- Early CPR: Provide BLS/CPR within 4 minutes
- Early defibrillation: Have an AED on them within 5 minutes of the arrest
- Early advanced care: EMS/code team arriving soon thereafter

Choking

1. Conscious Choking

- Are you choking?
- Can you speak?
- Can I HELP you?
- Provide inward and upward Abdominal thrust, just above the navel.

2. Unconscious Choking: (NO BLIND FINGER SWEEPS)

- Call 911
- Open the airway remove the object if you see it, attempt 2 breaths (If first breath does not go in reposition the head and try again) then begin CPR (30 compressions to 2 breaths)
- Every time you open the airway to give breaths look for the object
- Then continue CPR (30 to 2)

3. Adult Rescue breathing:

It is done only when the victim is not breathing adequately but has a pulse. Rescue breathing for the adult is 1 breath every 5 –6 seconds or 10-12/min.

CPR

1. Adult 1 rescuer CPR

- Determine Unresponsiveness (shake and shout), if no response
- activate EMS or 911 or send second rescuer to do this if they are present
- Do a head tilt; chin lift [use jaw thrust if you suspect spinal cord injury]
- Look, listen and feel for breathing for 5-10 seconds
- If no breathing, give 2 breaths (over 1 second each) that make the chest rise
- Check for carotid pulse for 5 to 10 seconds

| If the victim has circulation (pulse) | If the victim does not have circulation (no pulse) |
|--|---|
| Rescue breath for them: <ul style="list-style-type: none">- 1 breath every 5 to 6 seconds for about 10-12 per minute (each breath should be delivered over 1 second making the chest rise)- Recheck pulse every 2 minutes | Start chest compressions, at the center of the chest at the nipple line with the heel of one hand on top of the other, at a ratio of: <ul style="list-style-type: none">- 30 compressions to 2 ventilation at a rate of 100 per minute and a depth of 1 ½" to 2"- Reassess after 5 cycles of 30 compressions to 2 breaths, after 2 minutes |

Push Hard, and Push Fast: compress at a rate of 100 compressions per minute
Allow full chest recoil after each compression, Minimize interruptions in chest compressions

2. Adult 2 rescuer CPR:

- Ratio of 30 compressions to 2 breaths, Rate 100/min or 5 cycles in 2 minutes (Ventilator) the rescuer at the head, (Compressor) the rescuer at the chest
- Ventilator determines responsiveness, if no response
- Compressor or bystander activates, calls 911 or EMS number
- Ventilator does head tilt; chin lift [use the jaw thrust if you suspect spinal cord injury]
- Ventilator will look, listen and feel for breathing, if no breathing
- Ventilator gives 2 rescue breaths (over 1 second each) that make the chest rise
- Ventilator checks for circulation, carotid pulse 5 to 10 seconds max

| If the victim has circulation (pulse) | If the victim does not have circulation (no pulse) |
|--|---|
| <p>Ventilator will rescue breath for them:</p> <ul style="list-style-type: none"> - 1 breath every 5 seconds for about 10-12 per minute (each breath should be delivered over 1 second making the chest rise) - Recheck pulse every 5 cycles/2 minutes | <p>Compressor will start chest compressions, with the heel of two hands at a ratio of:</p> <ul style="list-style-type: none"> - 30 compressions by the compressor to 2 ventilations by the ventilator at a rate of 100 per minute and a depth of 1 ½” to 2” or deeper for larger person - The ventilator can check for a pulse during compressions to make sure they are effective by feeling a pulse every compression. - After every 2 minutes of CPR switch to maintain effective CPR |

3. Advance airway (ETT, comby tube, etc.):

Once in place do NOT stop compressions for breaths just DO CONTINUOUS COMPRESSIONS AND PERFORM 8 TO 10 BREATHS PER MINUTE (every 6 to 8 seconds)

CHILD AND INFANT

Chain of Survival:

Prevention is # 1

Early and effective bystander CPR, for two minutes if alone

Rapid activation of EMS or Call 911

Early and effective advanced Life support (EMS) (includes rapid stabilization and transport to definitive care and rehabilitation)

Child (1 year of age to puberty)

Puberty-look for: males-chest-facial-under arm hair, females-breast-budding

Choking

1. Conscious Choking:

- Are you choking?
- Can you speak?
- I can HELP you? (ask the parent if you can help their child)
- Provide inward and upward abdominal thrust, just above the navel to relive the obstruction.

2. Unconscious Choking: NO BLIND FINGER SWEEPS

- Call for help, send bystander to call 911 or activate EMS
- Open the airway, remove the object if you see it, attempt 2 breaths then begin CPR (30 to 2)
- Every time you open the airway to give breaths look for the object
- Then continue CPR (30 to 2)
- If no one came to call 911 or activate EMS, you call after 2 minutes of CPR

3. Rescue Breathing:

1 breathe every 3 to 5 seconds or 12 to 20/min (only enough air to make the chest rise over 1 second each)

CPR

1. Child 1 rescuer CPR:

- Determine unresponsiveness
- Call for help-send bystander to call 911 or activate EMS
- Head tilt; chin lift (jaw thrust if suspect spinal cord injury), look, listen and feel for breathing, if inadequate give 2 rescue breaths (over 1 sec. each) that make the chest rise
- Check for circulation for 5-10 seconds: carotid pulse > 60 beats/min.

| If the victim has circulation (pulse > 60 beats/min.) | If the victim does not have circulation (pulse < 60 beats/min.) |
|---|--|
| Rescue breath for them: <ul style="list-style-type: none"> - 1 breath every 3 - 5 seconds for about 12 - 20 per minute (each breath should be delivered over 1 second making the chest rise) - Recheck pulse every 2 minutes - You activate the EMS or call 911 if no-one is around after the first 20 breaths | <ul style="list-style-type: none"> - Start chest compressions, with the heel of one or two hands at the center of the chest between the nipples at a ratio of 30 to 2 ventilations at a rate of 100 per minute and a depth of 1/2 to 1/3 of the child's body depth - The ventilator can check for a pulse during compressions to make sure they are effective by feeling a pulse every compression. - If the collapse is unwitnessed and if you are alone reassess after 5 cycles of 30 to 2 over 2 minutes then you activate the EMS or call 911 |

**Push Hard, and Push Fast: compress at a rate of 100 compressions per minute
Allow full chest recoil after each compression, Minimize interruptions in chest compressions**

2. Child 2 rescuer:

CPR Ratio = 15 compressions:2 breaths, Rate = 100/min, 5 cycles per minute

- (Ventilator) the rescuer at the head, (Compressor) the rescuer at the chest
- Ventilator determines responsiveness, if no response
- Compressor or bystander calls 911 or activates EMS number
- Ventilator does head tilt; chin lift [use the jaw thrust if you suspect spinal cord injury]
- Ventilator will look, listen and feel for breathing, if no breathing
- Ventilator gives 2 rescue breaths that make the chest rise
- Ventilator checks for circulation, carotid pulse > 60 beats/min. within 5-10 seconds

| If the victim has circulation (pulse > 60 beats/min.) | If the victim does not have circulation (pulse < 60 beats/min.) |
|--|--|
| Ventilator will rescue breath for them: <ul style="list-style-type: none"> - 1 breath every 3 - 5 seconds for about 12 - 20 per minute (each breath should be delivered over 1 second making the chest rise) - Recheck pulse every 2 minutes | <ul style="list-style-type: none"> - Compressor will start chest compressions, with the heel of one hand or two at a ratio of: 15 - compressions by the compressor to 2 ventilations by the ventilator at a rate of: 100 per minute and a depth of 1/2 to 1/3 of the child's body depth-switch/reassess after 5 cycles |

INFANT (0-1 YEAR OF AGE)

Choking

1. Infant Conscious Choking:

- Look for choking signs, like bluish skin, lips or nose, high-pitched noise
- Pick up the infant and give 5 back blows between the shoulder blades, with the head supported and with the head lower than the infant's bottom
- Then flip the infant and provide 5 chest thrusts just below the nipple line
- Repeat until infants able to cry or becomes unconscious

2. Unconscious Choking: NO BLIND FINGER SWEEPS

- Call for help, send bystander to call 911 or activate EMS
- Open the airway, remove the object if you see, attempt 2 breaths begin CPR 30 to 2
- Every time you open the airway to give breaths look for the object
- Then continue CPR 30 to 2
- If no one came to call 911 or activate EMS, you call after 2 minutes of CPR

3. Infant Rescue Breathing:

1 breath every 3 to 5 seconds or 12 to 20/min (only enough air to make the chest rise, each breath over 1 second)

CPR

1. Infant 1 rescuer CPR

- Determine unresponsiveness, if no response
- Calls for help-if a bystander is present send them to call 911 or activate EMS
- Head tilt; chin lift (jaw thrust if suspect spinal cord injury)
- Look, listen and feel for breathing
- If no breathing give 2 rescue breaths, if breaths go in
- Check for circulation for 5-10 seconds: pulse (brachial or femoral) >60 beats/min.

| If the victim has circulation (pulse > 60 beats/min.) | If the victim does not have circulation (pulse < 60 beats/min.) |
|---|--|
| Rescue breath for them: <ul style="list-style-type: none"> - 1 breath every 3 - 5 seconds for about 12 - 20 per minute (each breath should be delivered over 1 second making the chest rise) - Recheck pulse every 2 minutes - You activate the EMS or call 911 if no-one is around after the first 20 breaths | <ul style="list-style-type: none"> - Start chest compressions, 2 fingers one finger width below the nipple line, at a ratio of 30 compressions to 2 ventilations at a rate of 100 per minute and a depth of 1/2 to 1/3 of the infant's body depth - Reassess after 5 cycles of 30 to 2 - You activate the EMS or call 911 if no-one is around after the first 5 cycles - Then return to the infant & provide CPR |

2. Infant 2 rescuer CPR:

CPR Ratio = 15:2, Rate = 100/min, 5 cycles per minute

- (Ventilator) the rescuer at the head, (Compressor) the rescuer at the chest
- Ventilator determines responsiveness, if no response
- Compressor or bystander calls 911 or activates EMS
- Ventilator does head tilt; chin lift [use the jaw thrust if you suspect spinal cord injury]
- Ventilator will look, listen and feel for breathing, if no breathing
- Ventilator gives 2 rescue breaths that make the chest rise
- Ventilator checks for circulation for 5-10 sec: pulse (brachial or femoral) >60 beats/min.

| If the victim has circulation (pulse > 60 beats/min.) | If the victim does not have circulation (pulse < 60 beats/min.) |
|--|---|
| Ventilator will rescue breath for them: <ul style="list-style-type: none"> - 1 breath every 3 - 5 seconds for about 12 - 20 per minute (each breath should be delivered over 1 second making the chest rise) - Recheck pulse every 2 minutes | <ul style="list-style-type: none"> - Compressor will start chest compressions, with thumb encircling technique at a ratio of 15 compressions by the compressor to 2 ventilations at a rate of 100 per minute and a depth of 1/2 to 1/3 of the infant's body depth-switch/reassess after 5 cycles |

**Push Hard, and Push Fast: compress at a rate of 100 compressions per minute
Allow full chest recoil after each compression, Minimize interruptions in chest compressions**

AED USE

An Automated External Defibrillator (AED) is used when the heart stops beating normally and needs to be reset by an electric shock. AEDs are designed for adults but most can be adapted for children with pediatric pads down to 1 year of age.

Provide 5 cycles of CPR, 30 compression to 2 breaths, for 2 minutes before using an AED on a child from 1 year to puberty.

Special Considerations:

- Hairy chest-remove enough hair to get good contact with the skin.
- Dry chest if visibly wet.
- Implanted device-place pad at least 1 inch away from implant, never place pad on top of device.
- Medication patch-remove it and wipe area before pad placement.

FYI: AEDs and Infants

There is currently not enough data for the AHA to recommend for or against using AEDs in infants less than approximately 1 year of age.

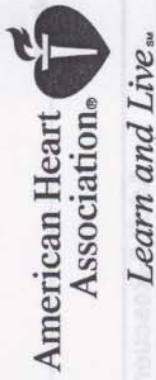
BLS HCP Review Questions:

- 1. What are 2 ways to open the victim's airway?** [Head tilt-chin lift and jaw thrust]
- 2. What are 3 techniques you would use to check for breathing?** [1) LOOK- for the chest to rise and fall, 2) LISTEN- for breath, and 3) FEEL-for breath on your cheek]
- 3. What is the RATE of compressions for Adults, Children and Infants?** [100/minute]
- 4. What are the common signs of STROKE?** [Weakness on one side of the body, trouble speaking, or dizziness]
- 5. What are the signs of a heart attack?** [Crushing pain in the center of the chest, the pain may start radiating to one side, back, neck, or the jaw, sweating and nausea]
- 6. What is happening when you notice the abdomen rising on your victim as you breath?** [you are giving too much volume or too forceful rescue breaths] [the goal is to have a gentle rise and fall of the chest during ventilation over 1 second]
- 7. If the chest does not rise when you give a breath, what should you do?** [reposition the head and try again]
- 8. If you suspect an injury, how do you open the victim's airway?** [jaw thrust]
- 9. Where do you check for the pulse on a CHILD?** [carotid, in the neck]
- 10. What is the purpose of 1 second breaths just making the chest rise when ventilating a victim?** [decrease gastric inflation]
- 11. Where do you place your hands when doing chest compressions on a child and adult** [center of the victim's bare chest between the nipples]
- 12. Are agonal gasps of breath adequate breathing?** [No]
- 13. Where do you check for the pulse on an INFANT?** [brachial artery, on the palm side of the arm near you midway between the elbow and the shoulder or the femoral artery]
- 14. Can you use adult AED pads on a child?** [yes, if you do not have child pads]

Review of some key concepts and skills:

1. Recovery Position can be used if victim has adequate breathing, adequate circulation and no suspected spinal injury
2. Gastric inflation occurs when breaths are given with too much volume, too rapidly and/or too forcefully and the extra breath enters the stomach, if this does start, just reduce the amount of breath you are giving to the victim. The goal is a gentle rise and fall of chest says you have given adequate volume for breaths over 1 second
3. Hypertension is elevated blood pressure
4. A B C D of BLS/CPR are:
 - Airway** – head tilt chin lift or jaw thrust if you suspect spinal injury
 - Breathing** – look for rise and fall of the chest, give breaths if not seen
 - Circulation** – check for pulse, movement, breathing and coughing, give compressions if no pulse is found in Adults or if below 60 beats/min in pediatrics.
 - Defibrillation** – Use an AED to shock or restart the heart
5. Brain death starts after about 4 minutes if no help is provided and the victim is not hypothermic then Brain death is usually complete after 10 minutes without oxygen
6. Heart attacks are usually denied, if discomfort lasts longer than 15-20 minutes and is not relieve by rest or nitroglycerin, activate EMS. Remember some people do not present with the usual symptoms of chest pain.
7. Mild Airway Obstruction is a good airway exchange, if they can cough forcefully.
8. Severe airway Obstruction is poor or no air exchange, with a weak or ineffective cough.
9. No Blind finger sweeps on anyone.
10. Compression to ventilation ratio for 1 rescuer CPR is 30 to 2 on all ages and changes to 15 to 2 on 2 rescuer CPR ONLY for CHILD/INFANT.
11. PUSH HARD AND PUSH FAST: Compress at a rate of 100 compressions/minute for all ages.

BLS for Healthcare Providers CPR Critical Skills Testing Checklist



Name: _____ Date of Test: _____

| Test Summary | | | |
|---|--------------|--------------------|---------|
| PASS = Steps all checked (done correctly) NR = Needs Remediation Indicate PASS or NR: | | | |
| 1R CPR | 2R CPR + AED | Infant 1R + 2R CPR | |
| PASS NR | PASS NR | PASS NR | PASS NR |

Instructor's signature affirms that skills tests were done according to AHA guidelines.

Instructor's signature: _____

Print Instructors Name: _____

Date: _____

| Adult/Child 1-Rescuer CPR Skills Test | |
|--|--|
| Skill Step | Critical Performance Steps |
| 1 | Check for response |
| 2 | Activate emergency response system (EMS) & call for AED |
| 3 | Opens airway using head tilt-chin lift |
| 4 | Checks breathing <i>Minimum 5 seconds; Maximum 10 seconds</i> |
| 5 | Gives 2 breaths (1 second each) with visible chest rise |
| 6 | Checks carotid pulse <i>Minimum 5 seconds; Maximum 10 seconds</i> |
| 7 | Locates proper CPR hand position |
| 8 | Delivers first cycle of compressions at correct rate <i>Acceptable <23 seconds for 30 compressions</i> |
| 9 | Gives 2 breaths (1 second each) with visible chest rise |
| 10 | Delivers second cycle of compressions at correct hand position <i>Acceptable >23 compressions</i> |
| 11 | Gives 2 breaths (1 second each) with visible chest rise |
| The next step is done only with a manikin with a feedback device, such as a clicker or light. If no feedback manikin, go to Skill Step 13. | |
| 12 | Delivers third cycle of compressions of adequate depth with full chest recoil <i>Acceptable >23 compressions</i> |
| 13 | After 5 cycles of compression and ventilations |
| STOP THE TEST | |
| PASS NR | |

TEST TIME: _____

NR: _____

Name: _____

| Adult 2-Rescuer CPR + AED Skills Test | | ✓ box if done correctly |
|---|---|-------------------------|
| Skill Step | Critical Performance Steps | |
| AED rescuer arrives with AED while CPR is in progress. | | |
| 1 | Turn on AED | |
| 2 | Selects proper AED pads and places pads correctly | |
| 3 | Clears victim to analyze <i>(must be visible and verbal check)</i> | |
| 4 | Clears victim to shock/presses the shock button <i>(must be visible and verbal check)</i> Maximum time from AED arrival <90 seconds | |
| 5 | Resume chest compressions after 1 shock | |
| Student being tested continues chest compressions; other student does breathing with bag mask. Test only student doing compressions. (AED rescuer) | | |
| 6 | Delivers cycles of compressions at correct rate <i>Acceptable <23 seconds for 30 compressions</i> | |
| 7 | Pauses to allow other rescuer to give 2 breaths with visible chest rise | |
| 8 | Delivers cycles of compressions using correct hand position | |
| 9 | Pauses to allow other rescuer to give 2 breaths with visible chest rise | |
| Switches places with little interruption after 5 cycles. Student being tested takes over breathing using bag mask. Student performs 2 more cycles of CPR. Test only student giving breaths. | | |
| 10 | Gives 2 breaths during pauses in compressions using bag mask (2 cycles) | |
| STOP THE TEST | | |
| | | PASS NR |

| Infant 1- and 2-Rescuer CPR Skills Test | | ✓ box if done correctly |
|---|---|-------------------------|
| Skill Step | Critical Performance Steps | |
| 1 | Check for response (tap foot) | |
| 2 | Activate emergency response system (EMS) | |
| 3 | Opens airway using head tilt-chin lift | |
| 4 | Checks breathing <i>Minimum 5 seconds; Maximum 10 seconds</i> | |
| 5 | Gives 2 breaths (1 second each) with visible chest rise with bag mask | |
| 6 | Checks brachial pulse <i>Minimum 5 seconds; Maximum 10 seconds</i> | |
| 7 | Locates proper CPR finger position | |
| 8 | Delivers first cycle of compressions at correct rate <i>Acceptable <23 seconds for 30 compressions</i> | |
| 9 | Gives 2 breaths (1 second each) with visible chest rise with bag mask | |
| Second rescuer arrives and takes over compressions while first rescuer breathes with bag mask. Test ONLY first rescuer. | | |
| 10 | 1st rescuer delivers 2 breaths (1 second each) with visible chest rise with bag mask (5 cycles) while the 2nd rescuer pauses from compressions | |
| Rescuers switch after 5 cycles with little interruption. 1st rescuer takes over compressions using two thumb technique. Students perform 5 more cycles of CPR. Test only 1st rescuer. | | |
| 11 | 1st rescuer delivers cycles of compressions at correct finger position <i>Acceptable > 11 of 15 compressions</i> | |
| 12 | 1st rescuer pauses to allow 2nd rescuer to give 2 breaths (1 second each) with visible chest rise with bag mask | |
| 13 | 1st rescuer delivers cycles of compressions <i>Measure depth only if using an instrumented manikin; otherwise observe that compressions are given. Acceptable > 11 of 15 compressions</i> | |
| 14 | 1st rescuer pauses to allow 2nd rescuer to give 2 breaths (1 second each) with visible chest rise with bag mask | |
| 15 | 1st rescuer delivers cycles of compressions <i>Observe that compressions are given. (3 cycles)</i> | |
| STOP THE TEST | | |
| | | PASS NR |