HUNTSVILLE HOSPITAL SYSTEM

American Heart Association

Basic Life Support
for
Healthcare Providers

Pre-course Review Materials

Revised April 2011
Huntsville Hospital Training Center

CORPORATE UNIVERSITY
HUNTSVILLE HOSPITAL

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BLS Healthcare Provider & Renewal Course
Pre-course Review

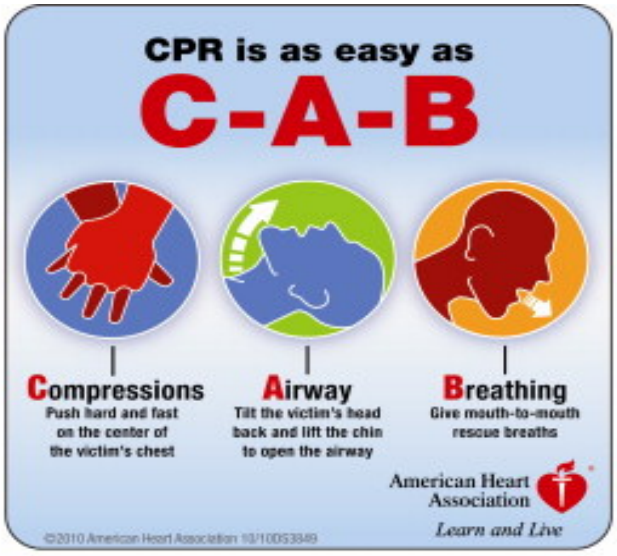
THIS IS ONLY FOR HEALTHCARE PROVIDER & RENEWAL PARTICIPANTS NOT HEARTSAVER CANDIDATES
All licensed Professionals Must Take The AHA Healthcare Provider Class not a Heartsaver class
Please review this guide before coming to class

Facts to Know

- **You must bring a current HCP card or a copy to a renewal class.**
- **Tabletop skills are available if needed**
- **Books are available for purchase 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**
- **You must be on time for the class or you will have to reschedule**

BLS CPR consists of 3 main components:

- **C**ompressions
- **A**irway
- **B**reathing



ADULT

Adult Chain of Survival:

Early access: Establish Unresponsiveness/no breathing then activate EMS/911,
Early CPR: Provide BLS/CPR within 4 minutes
Early defibrillation: Have an AED on them and shocking within 5 minutes of the arrest
Early advanced care: EMS/code team arriving soon thereafter

Choking - Adult

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, 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. Agonal Gasps are inadequate breaths associated with Cardiac Arrest not Choking.

CPR - Adult

1. **Adult 1 rescuer CPR**
   - Determine Unresponsiveness (shake and shout), if no response
   - Check for no breathing or normal breathing (minimum 5 seconds; maximum 10 seconds)
   - Activate emergency medical system and call for an AED
   - Check for carotid pulse for (minimum 5 seconds; maximum 10 seconds)
   - If there is no detectable pulse, start chest compressions at the center of the chest, at the nipple line, with the heal of one hand on top of the other, at a ratio of:
     - 30 compressions (Acceptable <18 seconds for 30 compressions)
   - Give 2 breaths (1 second each)
   - Deliver second cycle of 30 compressions at correct hand position (Acceptable >23 compressions)
   - Give 2 breaths (1 second each)
   - Continue CPR until help arrives

Push Hard, and Push Fast: compress at a minimum rate of at least 100 compressions per minute and a depth of 2 inches, and 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/minute or 5 cycles in 2 minutes
  - (Ventilator) the rescuer at the head,
  - (Compressor) the rescuer at the chest
- Ventilator determines responsiveness, if no response
- Ventilator checks for no breathing or normal breathing (minimum 5 seconds; maximum 10 seconds)
- Compressor or bystander activates emergency medical system (call 911) and call for an AED
- Ventilator checks for circulation, carotid pulse (minimum 5 seconds; maximum 10 seconds)

If the victim has circulation (pulse)	If the victim does not have circulation (no pulse)
Ventilator will rescue breath for them: - 1 breath every 5-6 seconds for about 10-12 per minute (each breath should be delivered over 1 second making the chest rise)	Compressor will start chest compressions, with the heel of two hands at a ratio of: - 30 compressions by the compressor to 2 ventilations by the ventilator at a rate of at least 100 per minute and a depth of 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 5 cycles or 2 minutes of CPR switch to maintain effective CPR

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

Once the advanced airway is 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), switch positions every 2 minutes or 150 compressions.

CHILD AND INFANT

Pediatrics

Pediatrics 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 - Child

1. **Conscious Choking:**
   - Are you choking?
   - Can you speak?
   - Can I 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, then begin CPR, with a ratio of 30 compressions to 2 breaths
   - Every time you open the airway to give breaths look for the object
   - Then continue CPR with a ratio of 30 compressions to 2 breaths
   - 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 - Child

1. **Child 1 rescuer CPR:**
   - Determine unresponsiveness
   - Check for no breathing or normal breathing (minimum 5 seconds; maximum 10 seconds)
   - Call for help-send bystander to call 911 or activate EMS. If no one comes you begin CPR and after 5 cycles or two minutes, you should activate 911/EMS.
   - Check for circulation at the carotid artery for 5 seconds minimum; 10 seconds maximum
   - If there is no detectable pulse, or pulse is less than 60 beats/min., start chest compressions at the center of the chest, at the nipple line, with the heal of one hand on top of the other, at the depth of 1/3 of the child's body or 2" depth:
     - 30 compressions (Acceptable <18 seconds for 30 compressions)
   - Give 2 breaths (1 second each)
   - Deliver second cycle of compressions at correct hand position (Acceptable >23 compressions)
   - Give 2 breaths (1 second each)
   - Continue CPR at a ratio of 30 to 2 until help arrives

Push Hard, and Push Fast: compress at a minimum 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
- Check for no breathing or normal breathing (minimum 5 seconds; maximum 10 seconds)
- Compressor or bystander calls 911 or activates EMS number
- 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: - 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	Ventilator will start chest compressions, with the heal of one hand or two at a ratio of: 15 compressions by the ventilator and to 2 ventilations by the bystander at a rate of: 100 per minute and a depth of 1/3 of the child's body depth or 2" -switch/reassess after 5 cycles

INFANT (0-1 YEAR OF AGE)

Choking - Infant

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 then the infant's bottom
   - Then flip the infant and provide 5 chest thrusts just below the nipple line, keeping the head lower that the infant's bottom
   - 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, begin CPR at a ratio of 30 to 2
   - Every time you open the airway to give breaths look for the object
   - Then continue CPR at a ratio of 30 to 2
   - If no one came to call 911 or activate EMS, you call after 2 minutes or 5 cycles 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 - Infant

1. **Infant 1 rescuer CPR**
   - Determine unresponsiveness, if no response no breathing
   - Calls for help-if a bystander is present send them to call 911 or activate EMS. If no bystanders respond or present precede to:
   - 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: - 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	- 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 at least 100 per minute and a depth of 1/3 of the infant's body depth or 1 ½" - 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
- Ventilator checks for no breathing or normal breathing (minimum 5 seconds; maximum 10 seconds)
- Compressor or bystander calls 911 or activates EMS
- 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: - 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	- Ventilator will start chest compressions, with thumb encircling technique at a ratio of 15 compressions by the bystanders to 2 ventilations at a rate of at least 100 per minute and a depth of 1/3 of the infant's body depth or 1 ½", switch after 5 cycles

Push Hard, and Push Fast: compress at a minimum 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. The sooner the shock is delivered the better, since the probability of successful defibrillation diminishes rapidly over time. AEDs are designed for adults but most can be adapted for children and infants with pediatric pads.
Provide 5 cycles of CPR, 30 compression to 2 breaths, for 2 minutes before using an AED on a child from 1 year to 8 or on an infant 1< of age.

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

For infants (<1 year of age), a manual defibrillator is preferred. If a manual defibrillator is not available, an AED with a pediatric dose attenuator is desirable. If neither are available, an AED without a dose attenuator may be used.

Note: Adult AED pads can be used on children and infants but pediatric pads are preferred. Pediatric pads can not be used on adults.

BLS HCP Review Questions:

1. **What are 2 ways to open the victim's airway?**
   A. [Head tilt-chin lift and jaw thrust]

2. **What is the <u>RATE</u> of compressions for Adults, Children and Infants?**
   A. [At least 100/minute]

3. **What are the common signs of <u>STROKE</u>?**
   A. [Weakness on one side of the body, trouble speaking, or dizziness]

4. **What are the signs of a heart attack?**
   A. [Crushing pain in the center of the chest, the pain may start radiating to one side, back, neck, or the jaw, sweating and nausea]

5. **What is happening when you notice the abdomen rising on your victim as you breath?**
   A. [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]

6. **If the chest does not rise when you give a breath, what should you do?**
   A. [reposition the head and try again]

7. **If you suspect an injury, how do you open the victim's airway?**
   A. [jaw thrust]

8. **Where do you check for the pulse on a CHILD?** [carotid, in the neck]

9. **What is the purpose of 1 second breaths just making the chest rise when ventilating a victim?**
   A. [decrease gastric inflation]

10. **Where do you place your hands when doing chest compressions on a child and adult**
    A. [center of the victim's bare chest between the nipples]

11. **Are agonal gasps adequate breathing?**
    A. [No, you must give rescue breaths]

12. **Where do you check for the pulse on an INFANT?**
    A. [brachial artery, on the palm side of the arm near you midway between the elbow and the shoulder or the femoral artery]

13. **Can you use adult AED pads on a child or infant?**
    A. [yes, if you do not have child pads]

14. **When do you shock a child or infant with an AED?**
    A. [As soon as the AED is available.]

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. C, A, B/D of BLS/CPR are:

   Compression – Pushing on the chest, hard and fast to circulate blood to the heart and brain

   Airway – Performing the "Head/Tilt, Chin Lift" to prepare for breathing

   Breathing – Give two breaths about 1 second each, just enough to make the chest rise

   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 or INFANT.
11. PUSH HARD AND PUSH FAST: Compress at a minimum rate of 100 compressions/minute for all ages.

Skills Checklists for Review

BLS for Healthcare Providers Course

1- and 2-Rescuer Adult BLS With AED Skills Testing Sheet

See 1- and 2-Rescuer Adult BLS With AED Skills Testing Criteria and Descriptors on next page

American Heart Association®

Student Name: _____ Test Date: _____

CPR Skills (circle one): Pass Needs Remediation

AED Skills (circle one): Pass Needs Remediation

Skill Step	Critical Performance Criteria	✓ if done correctly	
1-Rescuer Adult BLS Skills Evaluation During this first phase, evaluate the first rescuer's ability to initiate BLS and deliver high-quality CPR for 5 cycles.			
1	ASSESSES: Checks for response and for no breathing or no normal breathing, only gasping (at least 5 seconds but no more than 10 seconds)		
2	ACTIVATES emergency response system		
3	Checks for PULSE (no more than 10 seconds)		
4	GIVES HIGH-QUALITY CPR:		
	• Correct compression HAND PLACEMENT	*Cycle 1:*	
	• ADEQUATE RATE: At least 100/min (ie, delivers each set of 30 chest compressions in 18 seconds or less)	*Cycle 2:*	*Time:*
	• ADEQUATE DEPTH: Delivers compressions at least 2 inches in depth (at least 23 out of 30)	*Cycle 3:*	
	• ALLOWS COMPLETE CHEST RECOIL (at least 23 out of 30)	*Cycle 4:*	
	• MINIMIZES INTERRUPTIONS: Gives 2 breaths with pocket mask in less than 10 seconds	*Cycle 5:*	
Second Rescuer AED Skills Evaluation and SWITCH During this next phase, evaluate the second rescuer's ability to use the AED and both rescuers' abilities to switch roles.			
5	DURING FIFTH SET OF COMPRESSIONS: Second rescuer arrives with AED and bag-mask device, turns on AED, and applies pads		
6	First rescuer continues compressions while second rescuer turns on AED and applies pads		
7	Second rescuer clears victim, allowing AED to analyze—RESCUERS SWITCH		
8	If AED indicates a shockable rhythm, second rescuer clears victim again and delivers shock		
First Rescuer Bag-Mask Ventilation During this next phase, evaluate the first rescuer's ability to give breaths with a bag-mask.			
9	Both rescuers RESUME HIGH-QUALITY CPR immediately after shock delivery:	*Cycle 1*	*Cycle 2*
	• SECOND RESCUER gives 30 compressions immediately after shock delivery (for 2 cycles)		
	• FIRST RESCUER successfully delivers 2 breaths with bag-mask (for 2 cycles)		

AFTER 2 CYCLES, STOP THE EVALUATION

- If the student completes all steps successfully (a ✓ in each box to the right of Critical Performance Criteria), the student passed this scenario.
- If the student does not complete all steps successfully (as indicated by a blank box to the right of any of the Critical Performance Criteria), give the form to the student for review as part of the student's remediation.
- After reviewing the form, the student will give the form to the instructor who is reevaluating the student. The student will reperform the entire scenario, and the instructor will notate the reevaluation on this same form.
- If the reevaluation is to be done at a different time, the instructor should collect this sheet before the student leaves the classroom.

	Remediation (if needed):
Instructor Signature: _____	Instructor Signature: _____
Print Instructor Name: _____	Print Instructor Name: _____
Date: _____	Date: _____

Skills Checklists for Review

BLS for Healthcare Providers Course

1- and 2-Rescuer Infant BLS Skills Testing Sheet

American Heart Association®

See 1- and 2-Rescuer Infant BLS Skills Testing Criteria and Descriptors on next page

Student Name: _____ Test Date: _____

1-Rescuer BLS and CPR Skills (circle one):	**Pass**	**Needs Remediation**
2-Rescuer CPR Skills		
Bag-Mask (circle one):	**Pass**	**Needs Remediation**
2 Thumb–Encircling Hands (circle one):	**Pass**	**Needs Remediation**

Skill Step	Critical Performance Criteria	✓ if done correctly	
1-Rescuer Infant BLS Skills Evaluation During this first phase, evaluate the first rescuer's ability to initiate BLS and deliver high-quality CPR for 5 cycles.			
1	ASSESSES: Checks for response and for no breathing or only gasping (at least 5 seconds but no more than 10 seconds)		
2	Sends someone to ACTIVATE emergency response system		
3	Checks for PULSE (no more than 10 seconds)		
4	GIVES HIGH-QUALITY CPR:		
	• Correct compression FINGER PLACEMENT	*Cycle 1:*	
	• ADEQUATE RATE: At least 100/min (ie, delivers each set of 30 chest compressions in 18 seconds or less)	*Cycle 2:*	*Time:*
	• ADEQUATE DEPTH: Delivers compressions at least one third the depth of the chest (approximately 1½ inches [4 cm]) (at least 23 out of 30)	*Cycle 3:*	
	• ALLOWS COMPLETE CHEST RECOIL (at least 23 out of 30)	*Cycle 4:*	
	• MINIMIZES INTERRUPTIONS: Gives 2 breaths with pocket mask in less than 10 seconds	*Cycle 5:*	
2-Rescuer CPR and SWITCH During this next phase, evaluate the FIRST RESCUER'S ability to give breaths with a bag-mask and give compressions by using the 2 thumb–encircling hands technique. Also evaluate both rescuers' abilities to switch roles.			
5	DURING FIFTH SET OF COMPRESSIONS: Second rescuer arrives with bag-mask device. RESCUERS SWITCH ROLES.		
6	Both rescuers RESUME HIGH-QUALITY CPR:	*Cycle 1*	*Cycle 2*
	• SECOND RESCUER gives 15 compressions in 9 seconds or less by using 2 thumb–encircling hands technique (for 2 cycles)	X	X
	• FIRST RESCUER successfully delivers 2 breaths with bag-mask (for 2 cycles)		
AFTER 2 CYCLES, PROMPT RESCUERS TO SWITCH ROLES			
7	Both rescuers RESUME HIGH-QUALITY CPR:	*Cycle 1*	*Cycle 2*
	• FIRST RESCUER gives 15 compressions in 9 seconds or less by using 2 thumb–encircling hands technique (for 2 cycles)	*Time:*	*Time:*
	• SECOND RESCUER successfully delivers 2 breaths with bag-mask (for 2 cycles)	X	X
AFTER 2 CYCLES, STOP THE EVALUATION			

- If the student completes all steps successfully (a ✓ in each box to the right of Critical Performance Criteria), the student passed this scenario.
- If the student does not complete all steps successfully (as indicated by a blank box to the right of any of the Critical Performance Criteria), give the form to the student for review as part of the student's remediation.
- After reviewing the form, the student will give the form to the instructor who is reevaluating the student. The student will reperform the entire scenario, and the instructor will notate the reevaluation on this same form.
- If the reevaluation is to be done at a different time, the instructor should collect this sheet before the student leaves the classroom.

	Remediation (if needed):
Instructor Signature: _____	Instructor Signature: _____
Print Instructor Name: _____	Print Instructor Name: _____
Date: _____	Date: _____

BLS for Healthcare Providers Student Manual
Comparison Chart

BLS Changes

	New	Old	Rationale
CPR	Chest compressions, Airway, Breathing (C-A-B) New science indicates the following order: 1. Check the patient for responsiveness. 2. Check for no breathing or no normal breathing. 3. Call for help. 4. Check the pulse for no longer than 10 seconds. 5. Give 30 compressions. 6. Open the airway and give 2 breaths. 7. Resume compressions.	Airway, Breathing, Chest compressions (A-B-C) Previously, after responsiveness was assessed, a call for help was made, the airway was opened, the patient was checked for breathing, and 2 breaths were given, followed by a pulse check and compressions.	Although ventilations are an important part of resuscitation, evidence shows that compressions are the critical element in adult resuscitation. In the A-B-C sequence, compressions are often delayed.
	Compressions should be initiated within 10 seconds of recognition of the arrest.	Compressions were to be given after airway and breathing were assessed, ventilations were given, and pulses were checked.	Although ventilations are an important part of resuscitation, evidence shows that compressions are the critical element in adult resuscitation. Compressions are often delayed while providers open the airway and deliver breaths.
	Compressions should be given at a rate of at least 100/min. Each set of 30 compressions should take approximately 18 seconds or less.	Compressions were to be given at a rate of about 100/min. Each cycle of 30 compressions was to be completed in 23 seconds or less.	Compression rates are commonly quite slow, and compressions >100/min result in better perfusion and better outcomes.

CPR	Compression depths are as follows: • Adults: **at least** 2 inches (5 cm) • Children: **at least** one third the depth of the chest, approximately 2 inches (5 cm) • Infants: **at least** one third the depth of the chest, approximately 1½ inches (4 cm)	Compression depths were as follows: • Adults: 1½ to 2 inches • Children: one third to one half the diameter of the chest • Infants: one third to one half the diameter of the chest	Deeper compressions generate better perfusion of the coronary and cerebral arteries.
Airway & Breathing	Cricoid pressure is no longer routinely recommended for use with ventilations during cardiac arrest.	If an adequate number of rescuers were available, one could apply cricoid pressure.	Randomized studies have demonstrated that cricoid pressure still allows for aspiration. It is also difficult to properly train providers to perform the maneuver correctly.
	"Look, listen, and feel for breathing" has been removed from the sequence for assessment of breathing after opening the airway. Healthcare providers briefly check for no breathing or no normal breathing when checking responsiveness to detect signs of cardiac arrest. After delivery of 30 compressions, lone rescuers open the victim's airway and deliver 2 breaths.	"Look, listen, and feel for breathing" was used to assess breathing after the airway was opened.	With the new chest compression–first sequence, CPR is performed if the adult victim is unresponsive and not breathing or not breathing normally (ie, not breathing or only gasping) and begins with compressions (C-A-B sequence). Therefore, breathing is briefly checked as part of a check for cardiac arrest. After the first set of chest compressions, the airway is opened and the rescuer delivers 2 breaths.
AED Use	For children from 1 to 8 years of age, an AED with a pediatric dose-attenuator system should be used if available. If an AED with a dose attenuator is not available, a standard AED may be used. For infants (<1 year of age), a manual defibrillator is preferred. If a manual defibrillator is not available, an AED with a pediatric dose attenuator is desirable. If neither is available, an AED without a dose attenuator may be used.	This does not represent a change for children. In 2005 there was not sufficient evidence to recommend for or against the use of an AED in infants.	The lowest energy dose for effective defibrillation in infants and children is not known. The upper limit for safe defibrillation is also not known, but doses >4 J/kg (as high as 9 J/kg) have provided effective defibrillation in children and animal models of pediatric arrest, with no significant adverse effects. AEDs with relatively high energy doses have been used successfully in infants in cardiac arrest, with no clear adverse effects