2010 American Heart Association Guidelines for CPR and Emergency Cardiovascular Care
Comparison Chart of Key Changes (BLS only)

2010 Recommendation	2005 Recommendation	Explanation
Basic Life Support		
A change in the basic life support (BLS) sequence of steps for trained rescuers from "A-B-C" (Airway, Breathing, Chest compressions) to "C-A-B" (Chest compressions, Airway, Breathing) for adults and pediatric patients (children and infants, excluding newborns). Also applies to BLS for healthcare providers.	Use of the "A-B-C" basic life support sequence.	-In the majority of cardiac arrests, the critical initial elements of CPR are chest compressions and early defibrillation. -In the C-A-B sequence, chest compressions will be initiated sooner and ventilation only minimally delayed until completion of the first cycle of chest compressions. -The A-B-C sequence could be a reason why fewer than a third of people in cardiac arrest receive bystander CPR. A-B-C starts with the most difficult procedures: opening the airway and delivering rescue breaths.
"Look, Listen and Feel" has been removed from the BLS algorithm. Also applies to BLS for healthcare providers.	"Look, Listen and Feel" Included in BLS algorithm	Performance of "Look, Listen and Feel," is inconsistent and time consuming.
A compression rate of at least 100/min. Also applies to BLS for healthcare providers.	A compression rate of "approximately" 100/min.	The number of chest compressions delivered per minute during CPR is an important determinant of return of spontaneous circulation (ROSC) and survival with good neurologic function. In most studies, delivery of more compressions during resuscitation is associated with better survival, and delivery of fewer compressions is associated with lower survival.
The new recommendation for chest compression depth: push down on the adult breastbone at least 2 inches (5 cm). Also applies to BLS for healthcare providers.	Depress adult breastbone approximately 1 1/2 to 2 inches (approximately 4 to 5 cm).	Compressions generate critical blood flow and oxygen and energy delivery to the heart and brain. Rescuers often do not push the chest hard enough.
If a bystander is not trained in CPR, the bystander should provide Hands-Only™ (compression-only) CPR for the adult victim who suddenly collapses, with an emphasis to "push hard and fast" on the center of the chest, or follow the directions of the EMS dispatcher. All trained lay rescuers should, at a minimum, provide chest compressions for victims of cardiac arrest. In addition, if the trained lay rescuer is able to perform rescue breaths, compressions and breaths should be provided in a ratio of 30 compressions to 2 breaths.	The 2005 AHA Guidelines for CPR and ECC did not provide different recommendations for trained versus untrained rescuers but did recommend that dispatchers provide compression-only CPR instructions to untrained bystanders. The 2005 AHA Guidelines for CPR and ECC did note that if the rescuer was unwilling or unable to provide ventilations, the rescuer should provide chest compressions only.	Hands-Only (compression-only) CPR is easier for an untrained rescuer to perform and can be more readily guided by dispatchers over the telephone. In addition, survival rates from cardiac arrests of cardiac etiology are similar with either Hands-Only CPR or CPR with both compressions and rescue breaths. However, for the trained lay rescuer who is able, the recommendation remains for the rescuer to perform both compressions and ventilations.

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Pediatric Basic Life Support		
Initiate CPR for infants and children with chest compressions rather than rescue breaths (C-A-B rather than A-B-C). CPR should begin with 30compressions (any lone rescuer) or 15 compressions (for resuscitation of infants and children by two healthcare providers) rather than with two ventilations.	Cardiopulmonary resuscitation was initiated with opening of the airway and the provision of 2 breaths before chest compressions.	This proposed major change in CPR sequencing to compressions before ventilations (C-A-B) led to vigorous debate among experts in pediatric resuscitation. Because most pediatric cardiac arrests are asphyxial, rather than sudden primary cardiac arrests, both intuition and clinical data support the need for ventilations and compressions for pediatric CPR. However, pediatric cardiac arrests are much less common than adult sudden (primary) cardiac arrests, and many rescuers do nothing because they are uncertain or confused. Most pediatric cardiac arrest victims do not receive any bystander CPR, so any strategy that improves the likelihood of bystander action may save lives. Therefore, the C-A-B approach for victims of all ages was adopted with the hope of improving the chance that bystander CPR would be performed. The new sequence should theoretically only delay rescue breaths by about 18 seconds (the time it takes to deliver 30 compressions) or less (with 2 rescuers).
To achieve effective chest compressions, rescuers should compress at least one third of the anterior-posterior diameter of the chest. This corresponds to approximately 1 ½ inches (about 4 cm) in most infants and about 2 inches (5 cm) in most children.	Push with sufficient force to depress the chest approximately one third to one half the anterior-posterior diameter of the chest.	Evidence from radiologic studies of the chest in children suggests that compression to one half the anterior-posterior diameter may not be achievable. However, effective chest compressions require pushing hard, and based on new data, the depth of about 1 ½ inches (4 cm) for most infants and about 2 inches (5 cm) in most children is recommended.
For infants, a manual defibrillator is preferred to an AED for defibrillation. If a manual defibrillator is not available, an AED equipped with a pediatric dose attenuator is preferred. If neither is available, an AED without a pediatric dose attenuator may be used.	Data have shown that AEDs can be used safely and effectively in children 1 to 8 years of age. However, there are insufficient data to make a recommendation for or against using an AED in infants < 1 year of age.	Newer case reports suggest that an AED may be safe and effective in infants. Because survival requires defibrillation when a shockable rhythm is present during cardiac arrest, delivery of a high-dose shock is preferable to no shock.

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Healthcare Provider BLS		
The new guidelines more strongly recommend that dispatchers instruct untrained lay rescuers to provide Hands-Only CPR for adults who are unresponsive, with no breathing or no normal breathing. Dispatchers should provide instructions in conventional CPR for victims of likely asphyxia arrest (such as drowning).	The 2005 AHA Guidelines for CPR and ECC noted that telephone instruction in chest compressions alone may be preferable.	· Hands-Only (compressions-only) bystander CPR substantially improves survival after adult out-of-hospital cardiac arrests compared with no bystander CPR. · Other studies of adults with cardiac arrest treated by lay rescuers showed similar survival rates among victims receiving Hands-Only CPR versus those receiving conventional CPR. · It is easier for dispatchers to instruct untrained rescuers to perform Hands-Only CPR than conventional CPR for adult victims, so the recommendation is now stronger for them to do so, unless the victim is likely to have had an asphyxia arrest.
The new guidelines do not recommend routine use of cricoid pressure in cardiac arrest.	Cricoid pressure should be used only if the victim is deeply unconscious. This usually requires a third rescuer, not involved in rescue breaths or compressions.	Cricoid pressure can prevent gastric inflation and reduce the risk of regurgitation and aspiration during bag-mask ventilation, but it may also impede ventilation. Seven randomized studies showed that cricoid pressure can delay or prevent the placement of an advanced airway and some aspiration can still occur despite application of cricoid pressure. In addition, it is difficult to appropriately train rescuers in use of the maneuver.
Electrical Therapies		
If one is available, the rescuer should use a pediatric dose-attenuator system for attempted defibrillation of children 1 to 8 years of age with an AED. If the rescuer does not have an AED with a pediatric dose-attenuator system, the rescuer should use a standard AED. For infants (<1 year of age), a manual defibrillator is preferred. If a manual defibrillator is not available, an AED with pediatric dose attenuation is desirable. If neither is available, an AED without a dose attenuator may be used.	For children 1 to 8 years of age, the rescuer should use a pediatric dose-attenuator system if one is available. If the rescuer provides CPR to a child in cardiac arrest and does not have an AED with a pediatric attenuator system, the rescuer should use a standard AED. There are insufficient data to make a recommendation for or against the use of AEDs for infants <1 year of age.	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 effectively defibrillated children and animal models of pediatric arrest with no significant adverse effects. Automated external defibrillators with relatively high-energy doses have been used successfully in infants in cardiac arrest, with no clear adverse effects.