

2015 Interim Training Materials

BLS for Healthcare Providers Student Manual Comparison Chart

	New	Old	Rationale
Part 2: BLS/CPR for Adults Immediate recognition and activation of emergency response system	<ul style="list-style-type: none"> • Call for nearby help upon finding the victim unresponsive. • Continue to assess the breathing and pulse simultaneously. • Activate the emergency response system or call for backup. 	<ul style="list-style-type: none"> • Check for responsiveness. • Check for no breathing or no normal breathing. • Call for help. • Check for pulse for no longer than 10 seconds. 	<p>The intent of the recommendation change is to minimize delay and to encourage fast, efficient, simultaneous assessment and response, rather than a slow, methodical, step-by-step approach.</p>

<p>Shock first vs CPR first</p>	<p>For witnessed adult cardiac arrest, chest compressions should be started immediately. Use a defibrillator as soon as possible. CPR should be provided while the AED pads are applied and until the AED is ready to analyze the rhythm.</p>	<p>When any rescuer witnesses an out-of-hospital arrest and an AED is immediately available on-site, the rescuer should start CPR with chest compressions and use the AED as soon as possible. HCPs who treat cardiac arrest in hospitals and other facilities with on-site AEDs or defibrillators should provide immediate CPR and should use the AED/defibrillator as soon as it is available. These recommendations are designed to support early CPR and early defibrillation, particularly when an AED or defibrillator is available within moments of the onset of sudden cardiac arrest. When an OHCA is not witnessed by EMS personnel, EMS may initiate CPR while checking the rhythm with the AED or on the electrocardiogram (ECG) and preparing for defibrillation. In such instances, 1½ to 3 minutes of CPR may be considered before attempted defibrillation. Whenever 2 or more rescuers are present, CPR should be provided while the defibrillator is retrieved. With in-hospital sudden cardiac arrest, there is insufficient evidence to support or refute CPR before defibrillation. However, in monitored patients, the time from ventricular fibrillation (VF) to shock delivery should be under 3 minutes,</p>	<p>While numerous studies have addressed the question of whether a benefit is conferred by providing a specified period (typically 1.5 to 3 minutes) of chest compressions before shock delivery, as compared with delivering a shock as soon as the AED can be readied, no difference in outcome has been shown.</p>
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	New	Old	Rationale
		and CPR should be performed while the defibrillator is readied.	
Chest compression rate	In adult victims of cardiac arrest, perform chest compressions at a rate of 100 to 120/min.	Lay rescuers and healthcare providers perform chest compressions at a rate of at least 100/min.	A single large registry series suggested that as the compression rate increases to more than 120/min, compression depth decreases in a dose-dependent manner. For example, the proportion of compressions of inadequate depth was about 35% for a compression rate of 100 to 119/min but increased to inadequate depth in 50% of compressions when the compression rate was 120 to 139/min and to inadequate depth in 70% of compressions when the compression rate was more than 140/min.
Chest compression depth	Perform chest compressions to a depth of at least 2 inches/5 cm for an average adult. Avoid excessive chest compression depths of more than 2.4 inches/6 cm when a feedback device is available.	The adult sternum should be depressed at least 2 inches (5 cm).	A compression depth of approximately 5 cm is associated with greater likelihood of favorable outcomes compared with shallower compressions. While there is less evidence about whether there is an upper threshold beyond which compressions may be too deep, a recent very small study suggests potential injuries (none life-threatening) from excessive chest compression depth (greater than 2.4 inches/6 cm). Compression depth may be difficult to judge without use of feedback devices, and identification of upper limits of compression depth may be challenging. It is important for rescuers to know that chest compression depth is more often too shallow than too deep.

	New	Old	Rationale
Chest recoil	Avoid leaning on the chest between compressions to allow full chest wall recoil for adults in cardiac arrest.	Allow complete recoil of the chest after each compression, to allow the heart to fill completely before the next compression.	Full chest wall recoil occurs when the sternum returns to its natural or neutral position during the decompression phase of CPR. Chest wall recoil creates a relative negative intrathoracic pressure that promotes venous return and cardiopulmonary blood flow. Leaning on the chest wall between compressions precludes full chest wall recoil. Incomplete recoil raises intrathoracic pressure and reduces venous return, coronary perfusion pressure, and myocardial blood flow and can influence resuscitation outcomes.
Minimizing interruptions in chest compressions	<p>Minimize the frequency and duration of interruptions in compressions to maximize the number of compressions delivered per minute.</p> <p>For adults in cardiac arrest who receive CPR without an advanced airway, perform CPR with the goal of a chest compression fraction as high as possible, with a target of at least 60%.</p>		<p>Interruptions in chest compressions can be intended as part of required care (ie, rhythm analysis and ventilation) or unintended (ie, rescuer distraction). Chest compression fraction is a measurement of the proportion of total resuscitation time that compressions are performed. An increase in chest compression fraction can be achieved by minimizing pauses in chest compressions. The optimal goal for chest compression fraction has not been defined. The addition of a target compression fraction is intended to limit interruptions in compressions and to maximize coronary perfusion and blood flow during CPR.</p>

	New	Old	Rationale
Part 4: BLS/CPR for Children; Part 5: BLS/CPR for Infants C-A-B sequence	<p>Although the amount and quality of supporting data are limited, providers should maintain the sequence from the 2010 Guidelines by initiating CPR with C-A-B over A-B-C.</p>	<p>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 30 compressions (by a single rescuer) or 15 compressions (for resuscitation of infants and children by 2 healthcare providers) rather than with 2 ventilations.</p>	<p>In the absence of new data, the sequence has not been changed. Consistency in the order of compressions, airway, and breathing for CPR in victims of all ages may be easiest for rescuers who treat people of all ages to remember and perform. Maintaining the same sequence for adults and children offers consistency in teaching.</p>
Chest compression depth	<p>Rescuers should provide chest compressions that depress the chest at least one third the anteroposterior diameter of the chest in pediatric patients (infants [younger than 1 year] to children up to the onset of puberty). This equates to approximately 1.5 inches (4 cm) in infants to 2 inches (5 cm) in children. Once children have reached puberty (ie, adolescents), the recommended adult compression depth of at least 2 inches (5 cm) but no greater than 2.4 inches (6 cm) is used.</p>	<p>To achieve effective chest compressions, rescuers should compress at least one third of the anteroposterior diameter of the chest. This corresponds to approximately 1.5 inches (about 4 cm) in most infants and about 2 inches (5 cm) in most children.</p>	<p>One adult study suggested harm with chest compressions greater than 6 cm, resulting in a change in the adult BLS recommendation to include an upper limit for chest compression depth; the pediatric experts accepted this recommendation for adolescents beyond puberty. A pediatric study observed improved 24-hour survival when compression depth was greater than 51 mm (2 inches). Judgment of compression depth is difficult at the bedside, and the use of a feedback device that provides such information may be useful if available.</p>
Chest compression rate	<p>To maximize simplicity in CPR training, the adult chest compression rate of 100 to 120/min is used for infants and children.</p>	<p>Push at a rate of at least 100 compressions per minute.</p>	<p>One adult registry study demonstrated inadequate chest compression depth with extremely rapid compression rates. To maximize educational consistency and retention, in the absence of pediatric data, pediatric experts adopted the same recommendation for compression rate as is made for adult BLS.</p>

	New	Old	Rationale
Compression-only CPR	Conventional CPR (rescue breaths and chest compressions) should be provided for infants and children in cardiac arrest. The asphyxial nature of most pediatric cardiac arrests necessitates ventilation as part of effective CPR. However, because compression-only CPR can be effective in patients with a primary cardiac arrest, if rescuers are unwilling or unable to deliver breaths, we recommend rescuers perform compression-only CPR for infants and children in cardiac arrest.	Optimal CPR in infants and children includes both compressions and ventilations, but compressions alone are preferable to no CPR.	Large registry studies have demonstrated worse outcomes for presumed asphyxial pediatric cardiac arrest, which comprise the vast majority of out-of-hospital pediatric cardiac arrest, treated with compression-only CPR. In 2 studies, when conventional CPR (compressions plus breaths) was not given in presumed asphyxial arrest, outcomes were no different from when victims did not receive any bystander CPR. When a presumed cardiac etiology was present, outcomes were similar whether conventional or compression-only CPR was provided.
Part 7: CPR With an Advanced Airway Ventilation during CPR with an advanced airway	With an advanced airway in place, deliver 1 breath every 6 seconds (10 breaths per minute) while continuous chest compressions are being performed.	When an advanced airway (ie, endotracheal tube, Combitube, or laryngeal mask airway) is in place during 2-person CPR, give 1 breath every 6 to 8 seconds without attempting to synchronize breaths between compressions (this will result in delivery of 8 to 10 breaths per minute).	This simple single rate for adults, children, and infants—rather than a range of breaths per minute—should be easier to learn, remember, and perform.

BLS Dos and Don'ts of Adult High-Quality CPR

Rescuers Should	Rescuers Should <i>Not</i>
Perform chest compressions at a rate of 100 to 120/min	Compress at a rate slower than 100/min or faster than 120/min
Compress to a depth of at least 2 inches (5 cm)	Compress to a depth of less than 2 inches (5 cm) or greater than 2.4 inches (6 cm)
Allow full recoil after each compression	Lean on the chest between compressions
Minimize pauses in compressions	Interrupt compressions for greater than 10 seconds
Ventilate adequately (2 breaths after 30 compressions, each breath delivered over 1 second, each causing chest rise)	Provide excessive ventilation (ie, too many breaths or breaths with excessive force)