2015 Interim Training Materials

ACLS Provider Manual and ACLS EP Manual Comparison Chart

	New	Old	Rationale
BLS Changes			
Assessment sequence (ACLS Provider Manual, Part 2: The Systematic Approach, and Part 5: The ACLS Cases)	Healthcare providers (HCPs) must call for nearby help upon finding the victim unresponsive, but it would be practical for an HCP to continue to assess the breathing and pulse simultaneously before fully activating the emergency response system (or calling for backup). These recommendations allow flexibility for activation of the emergency response system to better match the HCP's clinical setting. Trained rescuers are encouraged to simultaneously perform some steps (ie, checking for breathing and pulse at the same time), in an effort to reduce the time to first chest compression. Integrated teams of highly trained rescuers may use a choreographed approach that accomplishes multiple steps and assessments simultaneously rather than the sequential manner used by individual rescuers (eg, one	The HCP should check for response while looking at the patient to determine if breathing is absent or not normal.	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.

	New	Old	Rationale
	rescuer activates the emergency response system while another begins chest compressions, a third either provides ventilation or retrieves the bag-mask device for rescue breaths, and a fourth retrieves and sets up a defibrillator).		
Compression rate (ACLS Provider Manual, Part 2: The Systematic Approach, and Part 5: The ACLS Cases)	In adult victims of cardiac arrest, it is reasonable for rescuers to perform chest compressions at a rate of 100 to 120/min.	It is reasonable for lay rescuers and HCPs to perform chest compressions at a rate of at least 100/min.	The minimum recommended compression rate remains 100/min. The upper limit rate of 120/min has been added because 1 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.

	New	Old	Rationale
Chest compression depth **(ACLS Provider Manual, Part 2: The Systematic Approach, and Part 5: The ACLS Cases)**	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
ACLS Changes			
Advanced airway ventilation rate (ACLS Provider Manual,Part 5: The ACLS Cases)	It may be reasonable for the provider to deliver 1 breath every 6 seconds (10 breaths per minute) while continuous chest compressions are being performed (ie, during CPR with an advanced airway).	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—rather than a range of breaths per minute—should be easier to learn, remember, and perform.
Targeted temperature management (ACLS Provider Manual,Part 5: The ACLS Cases)	All comatose (ie, lacking meaningful response to verbal commands) adult patients with return of spontaneous circulation (ROSC) after cardiac arrest should have targeted temperature management (TTM), with a target temperature between 32°C and 36°C selected and achieved, and then maintained constantly for at least 24 hours.	Comatose (ie, lacking meaningful response to verbal commands) adult patients with ROSC after out-of-hospital ventricular fibrillation cardiac arrest should be cooled to 32°C to 34°C for 12 to 24 hours. Induced hypothermia also may be considered for comatose adult patients with ROSC after IHCA of any initial rhythm or after OHCA with an initial rhythm of pulseless electrical activity or asystole.	Initial studies of TTM examined cooling to temperatures between 32°C and 34°C compared with no well-defined TTM and found improvement in neurologic outcome for those in whom hypothermia was induced. A recent high-quality study compared temperature management at 36°C and at 33°C and found outcomes to be similar for both. Taken together, the initial studies suggest that TTM is beneficial, so the recommendation remains to select a single target temperature and perform TTM. Given that 33°C is no better than 36°C, clinicians can select from a wider range of target temperatures. The selected temperature may be determined by clinician preference or clinical factors.

	New	Old	Rationale
Out-of-hospital cooling (ACLS Provider Manual,Part 5: The ACLS Cases)	The routine prehospital cooling of patients with rapid infusion of cold intravenous (IV) fluids after ROSC is not recommended.	Comatose (ie, lacking meaningful response to verbal commands) adult patients with ROSC after out-of-hospital ventricular fibrillation cardiac arrest should be cooled to 32°C to 34°C for 12 to 24 hours. Induced hypothermia also may be considered for comatose adult patients with ROSC after IHCA of any initial rhythm or after OHCA with an initial rhythm of pulseless electrical activity or asystole.	Before 2010, cooling patients in the prehospital setting had not been extensively evaluated. It had been assumed that earlier initiation of cooling might provide added benefits and also that prehospital initiation might facilitate and encourage continued in-hospital cooling. Recently published high-quality studies demonstrated no benefit to prehospital cooling and also identified potential complications when using cold IV fluids for prehospital cooling.
Pharmacology Changes			
Vasopressors for resuscitation: vasopressin (ACLS Provider Manual,Part 5: The ACLS Cases)	Vasopressin in combination with epinephrine offers no advantage as a substitute for standard-dose epinephrine in cardiac arrest.	One dose of vasopressin 40 units IV/intraosseously may replace either the first or second dose of epinephrine in the treatment of cardiac arrest.	Both epinephrine and vasopressin administration during cardiac arrest have been shown to improve ROSC. Review of the available evidence shows that efficacy of the 2 drugs is similar and that there is no demonstrable benefit from administering both epinephrine and vasopressin as compared with epinephrine alone. In the interest of simplicity, vasopressin has been removed from the Adult Cardiac Arrest Algorithm.

	New	Old	Rationale
Vasopressors for resuscitation: epinephrine (ACLS Provider Manual,Part 5: The ACLS Cases)	It may be reasonable to administer epinephrine as soon as feasible after the onset of cardiac arrest due to an initial nonshockable rhythm.	Epinephrine should be given for pulseless cardiac arrest.	A very large observational study of cardiac arrest with nonshockable rhythm compared epinephrine given at 1 to 3 minutes with epinephrine given at 3 later time intervals (4 to 6, 7 to 9, and greater than 9 minutes). The study found an association between early administration of epinephrine and increased ROSC, survival to hospital discharge, and neurologically intact survival.

	New	Old	Rationale
Cardiac Arrest Changes			
Cardiac arrest in patients with known or suspected opioid overdose (ACLS EP Manual)	Patients with no definite pulse may be in cardiac arrest or may have an undetected weak or slow pulse. These patients should be managed as cardiac arrest patients. Standard resuscitative measures should take priority over naloxone administration, with a focus on high-quality CPR (compressions plus ventilation). It may be reasonable to administer intramuscular (IM) or intranasal (IN) naloxone based on the possibility that the patient is in respiratory arrest, not in cardiac arrest. Responders should not delay access to more-advanced medical services while awaiting the patient's response to naloxone or other interventions.		Naloxone administration has not previously been recommended for first aid providers, non-HCPs, or BLS providers. However, naloxone administration devices intended for use by lay rescuers are now approved and available for use in the United States, and the successful implementation of lay rescuer naloxone programs has been highlighted by the Centers for Disease Control. While it is not expected that naloxone is beneficial in cardiac arrest, whether or not the cause is opioid overdose, it is recognized that it may be difficult to distinguish cardiac arrest from severe respiratory depression in victims of opioid overdose. While there is no evidence that administration of naloxone will help a patient in cardiac arrest, the provision of naloxone may help an unresponsive patient with severe respiratory depression who only appears to be in cardiac arrest (ie, it is difficult to determine if a pulse is present).

	New	Old	Rationale
Cardiac arrest in pregnancy: provision of CPR (ACLS EP Manual)	Priorities for the pregnant woman in cardiac arrest are provision of high-quality CPR and relief of aortocaval compression. If the fundus height is at or above the level of the umbilicus, manual left uterine displacement can be beneficial in relieving aortocaval compression during chest compressions.	To relieve aortocaval compression during chest compressions and optimize the quality of CPR, it is reasonable to perform manual left uterine displacement in the supine position first. If this technique is unsuccessful and an appropriate wedge is readily available, then providers may consider placing the patient in a left lateral tilt of 27° to 30°, using a firm wedge to support the pelvis and thorax.	Recognition of the critical importance of high-quality CPR and the incompatibility of the lateral tilt with high-quality CPR has prompted the elimination of the recommendation for using the lateral tilt and the strengthening of the recommendation for lateral uterine displacement.
Opioid overdose education and naloxone training and distribution (ACLS EP Manual)	It is reasonable to provide opioid overdose response education, either alone or coupled with naloxone distribution and training, to persons at risk for opioid overdose (or those living with or in frequent contact with such persons). It is reasonable to base this training on first aid and non-HCP BLS recommendations rather than on more advanced practices intended for HCPs.		

	New	Old	Rationale
Opioid overdose treatment (ACLS EP Manual)	Empiric administration of IM or IN naloxone to all unresponsive victims of possible opioid-associated life-threatening emergency may be reasonable as an adjunct to standard first aid and non-HCP BLS protocols. For patients with known or suspected opioid overdose who have a definite pulse but no normal breathing or only gasping (ie, a respiratory arrest), in addition to providing standard care, it is reasonable for appropriately trained rescuers to administer IM or IN naloxone to patients with an opioid-associated respiratory emergency. Responders should not delay access to more advanced medical services while awaiting the patient's response to naloxone or other interventions. Empiric administration of IM or IN naloxone to all unresponsive opioid-associated resuscitative emergency patients may be reasonable as an adjunct to standard first aid and non-HCP BLS protocols. Standard resuscitation procedures, including EMS activation, should not be delayed for naloxone administration.		