

2015 Guidelines Update for CPR and ECC

Science FAQ

October 15, 2015

Q: What is the overarching theme of the 2015 Guidelines Update for CPR and ECC?

A: Key points from the 2015 guidelines update provide bystanders, dispatchers and communities with practical guidance to improve the effectiveness of their teamwork. The latest science says quick action, quality training, use of mobile technology and coordinated efforts can increase survival from cardiac arrest.

The guidelines recommend more training to develop better systems of care. Everyone from bystanders to advanced healthcare providers should know what to do at every step of a cardiovascular emergency. The guidelines emphasize creating a culture of action that benefits the entire community in which it operates, inside and outside the hospital setting.

Q: What are the most significant updates in the 2015 Guidelines Update for CPR and ECC?

A: Key new or updated recommendations include:

- Universal elements of a system of care have been identified to provide stakeholders with a common framework with which to assemble an integrated resuscitation system cardiac arrest in the hospital as distinct from out-of-hospital settings.
- New Out-of-Hospital Cardiac Arrest and In-Hospital Cardiac Arrest Chains of Survival have been developed. Separate Chains of Survival have been recommended that identify the different pathways of care for patients who experience cardiac arrest in the hospital as distinct from out-of-hospital settings.
- There is emphasis on the use of mobile technologies by bystanders to aid in calling 9-1-1 sooner and receiving dispatch-assisted CPR instructions. Additionally, mobile-technology and social media applications that notify rescuers of a nearby cardiac arrest may increase the rate of bystander-initiated CPR. Bystanders should use mobile phones to immediately call 9-1-1, placing the phones on speaker, so the dispatcher can help bystanders check for breathing, get the precise location and provide instructions for performing CPR.
- Untrained bystanders should still call 9-1-1 and provide Hands-Only CPR, or CPR without breaths, pushing hard and fast in the centre of the chest to the rate of 100-120 compressions per minute. However, if the bystander is trained in CPR and can perform breaths, he or she should add breaths in a 30:2 compressions-to-breaths ratio.
- Dispatchers should be trained to help bystanders check for breathing and recognize cardiac arrest. Dispatchers should also be aware that brief generalized seizures may be an early sign of cardiac arrest.
- Mobile dispatch systems that notify potential rescuers of a nearby presumed cardiac arrest can improve the rate of bystander CPR and shorten the time to first chest compressions. Communities may want to consider this service to improve the chain of survival.

Key new or updated recommendations, continued

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- Components of high-quality CPR have been updated. These include the following range for compression rate and depth:
 - In adult victims of cardiac arrest, it is reasonable for rescuers to perform chest compressions at a rate of 100 to 120/min and to a depth of at least 5 cm for an average adult, while avoiding excessive chest compression depths (greater than 6 cm).
- Education recommendations target resuscitation education of both lay rescuers and healthcare providers. Emphasis on frequent training intervals and the use of feedback devices/mannequins will optimize performance of CPR in training and practice.
- A new lay provider algorithm is introduced for opioid-associated life-threatening emergencies that incorporates naloxone administration with CPR and AED.
- Updates to targeted temperature management (TTM, formerly called “therapeutic hypothermia”) suggest a range of temperatures may be acceptable to target in the post-cardiac arrest period.
- This *2015 Guidelines Update for CPR and ECC* marks the transition from periodic review and publication of new science-based recommendations to a more continuous process of evidence evaluation and guideline optimization designed to more rapidly translate new science into resuscitation practice that will save more lives.

Q: Do the 2015 guidelines include recommendations for bystanders?

A: The guidelines confirm that, for bystanders, Hands-Only CPR, or compression-only CPR, remains an effective and empowering tool in saving lives from cardiac arrest. However, new guidelines recommend that if a bystander is trained in CPR and can perform breaths, he or she should add breaths in a 30:2 compressions-to-breaths ratio.

Q: What is the significance of a new Systems of Care chapter?

A: This recommendation emphasizes that everyone has a role to play in cardiac arrest survival. The guidelines are taking the first steps to help have a universal system of care that communities can implement.

Q: Why are there now different Chains of Survival for in-hospital and out-of-hospital cardiac arrest?

A: The 2015 guidelines represent the first time recommendations do not take a “one size fits all” approach to how to treat a victim of cardiac arrest. The way resuscitation is approached is different depending on whether the arrest occurred in or out of the hospital.

Q: Why are there new limits for depth and rate of chest compressions?

A: New to the 2015 guidelines update are upper limits of recommended heart rate and compression depth, based on preliminary data suggesting that excessive compression rate and depth adversely affect outcomes.

Q: What are the key changes for 911 dispatchers?

To help bystanders recognize cardiac arrest, dispatchers should inquire about a victim’s absence of responsiveness and quality of breathing (normal versus not normal). If the victim is unresponsive with absent or abnormal breathing, the rescuer and the dispatcher should assume that the victim is in cardiac arrest. Dispatchers should be educated to identify unresponsiveness with abnormal and agonal gasps across a range of clinical presentations and descriptions.

Q: What are the key changes in advanced cardiovascular life support?

A: Key recommendations for ACLS include:

- Vasopressin in combination with epinephrine offers no advantage as a substitute for standard-dose epinephrine in cardiac arrest. Therefore, to simplify the algorithm, vasopressin has been removed from the Adult Cardiac Arrest Algorithm– 2015 Update.
- There is inadequate evidence to support the routine use of lidocaine after cardiac arrest. However, the initiation or continuation of lidocaine may be considered immediately after ROSC from cardiac arrest due to VF/pVT.
- There is inadequate evidence to support the routine use of a β -blocker after cardiac arrest. However, the initiation or continuation of an oral or IV β -blocker may be considered early after hospitalization from cardiac arrest due to VF/pVT.
- Targeted temperature management (TTM, formerly known as therapeutic hypothermia) recommendations have been updated with new evidence suggesting that a range of temperatures may be acceptable to target in the post–cardiac arrest period (target temperature between 32°C and 36°C selected and achieved, then maintained constantly for at least 24 hours).

Q: What are the key recommendations for pediatric basic and advanced cardiovascular life support?

A: For pediatrics, the guidelines update reaffirmed the C-A-B sequence and that compressions and ventilation needed for pediatric arrest. Additional key updates include:

Pediatric basic cardiovascular life support recommendations:

- Compression rate change to 100-120 compressions/min
- 1/3 the anterior-posterior diameter of the chest
 - Infants: approximately 4 cm
 - Children: approximately 5 cm
 - Adolescents: at least 5 cm, but no greater than 6 cm
- If rescuers are unwilling or unable to deliver breaths, they should perform compression-only CPR
- Updated 1-rescuer and multi-rescuer algorithms

Pediatric advanced cardiovascular life support recommendations:

- For children with febrile illness in settings with limited access to critical care resources, administration of bolus IV fluid should be undertaken with extreme caution
- No evidence to support the routine use of atropine as a premedication to prevent bradycardia
- Amiodarone or lidocaine are equally acceptable for VF/pVT
- For children who are comatose, maintain 5 days of normothermia (36°C to 37.5°C) or 2 days of initial continuous hypothermia (32°C to 34°C) followed by 3 days of normothermia.

Q: What are the key recommendations on CPR education?

A: Key recommendations in the Education section include:

- To minimize the time to defibrillation for cardiac arrest victims, deployment of AEDs should not be limited to only trained people (although training is still recommended)
- Training primary caregivers and/or family members of high-risk patients may be reasonable

Q: What are the key recommendations in First Aid?

A: The 2015 Guidelines Update for First Aid key updates include:

- The use of stroke assessment systems can assist first aid providers with identifying signs and symptoms of stroke
- Glucose tablets are the preferred care for mild hypoglycemia
- If symptoms of anaphylaxis do not resolve with an initial dose of epinephrine and second dose may be considered.
- No evidence for or against routine use of oxygen as a first aid measure for chest pain
- HAINES position is no longer recommended due to paucity and low level of evidence. The recommended recovery position is a lateral side-lying position
- There is no longer a restriction to chew only non-enteric coated aspirin. Adults experiencing chest pain may chew 1 or 2 low dose aspirins.