

# Highlights

## OF THE 2017 AMERICAN HEART ASSOCIATION FOCUSED UPDATES ON ADULT AND PEDIATRIC BASIC LIFE SUPPORT AND CARDIOPULMONARY RESUSCITATION QUALITY

These highlights summarize the key issues and changes in the adult and pediatric basic life support (BLS) 2017 focused updates to the American Heart Association (AHA) guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiovascular care (ECC).

### Adult BLS and CPR Quality

#### Summary of Key Issues and Major Changes

The topics reviewed here include the following:

- Dispatch-assisted CPR
- Use of continuous vs interrupted chest compressions by emergency medical services (EMS) providers
- Use of chest compression–only (Hands-Only) CPR vs CPR using chest compressions with ventilation in both the in-hospital and out-of-hospital settings

At the request of the AHA Training Network, we have clarified the descriptions of lay rescuers as follows:

1. Untrained
2. Trained in chest compression–only CPR
3. Trained in CPR using chest compressions and ventilation (rescue breaths)

#### Dispatch-Assisted CPR

**2017 (Updated):** We recommend that when dispatchers' instructions are needed, dispatchers should provide chest compression–only CPR instructions to callers for adults with suspected out-of-hospital cardiac arrest (OHCA).

**2015 (Old):** Dispatchers should provide chest compression–only CPR instructions to callers for adults with suspected OHCA.

**Why:** The 2017 BLS International Consensus on CPR and ECC Science With Treatment Recommendations (CoSTR) summary and systematic review considered instructions for dispatch-assisted chest compression–only CPR for OHCA. No new studies were reviewed for this topic.

#### Bystander CPR

##### 2017 (Updated):

1. For adults in OHCA, untrained lay rescuers should provide chest compression–only CPR with or without dispatcher assistance.
2. For lay rescuers trained in chest compression–only CPR, we recommend that they provide chest compression–only CPR for adults in OHCA.
3. For lay rescuers trained in CPR using chest compressions and ventilation (rescue breaths), it is reasonable to provide ventilation (rescue breaths) in addition to chest compressions for the adult in OHCA.

##### 2015 (Old):

1. For lay rescuers, compression-only CPR is a reasonable alternative to conventional CPR in the adult cardiac arrest patient.
2. For trained lay rescuers, it is reasonable to provide ventilation in addition to chest compressions for the adult in cardiac arrest.
3. For trained lay rescuers, it is reasonable to provide ventilation in addition to chest compressions for the adult in cardiac arrest.

**Why:** The 2017 BLS CoSTR summary and systematic review compared bystander use of chest compression–only CPR with CPR using chest compressions and ventilation (rescue breaths).

#### EMS-Delivered CPR

##### 2017 (Updated):

1. We recommend that before placement of an advanced airway (supraglottic airway or tracheal tube), EMS providers perform CPR with cycles of 30 compressions and

- 2 breaths. As an alternative, it is reasonable for EMS providers to perform CPR in cycles of 30 compressions and 2 breaths without interrupting chest compressions to give breaths. It may be reasonable for EMS providers to use a rate of 10 breaths per minute (1 breath every 6 seconds) to provide asynchronous ventilation during continuous chest compressions before placement of an advanced airway.
2. These updated recommendations do not preclude the 2015 recommendation that a reasonable alternative for EMS systems that have adopted bundles of care is the initial use of minimally interrupted chest compressions (ie, delayed ventilation) for witnessed, shockable OHCA.

##### 2015 (Old):

1. As long as the patient does not have an advanced airway in place, the rescuers should deliver cycles of 30 compressions and 2 breaths during CPR. The rescuer delivers breaths during pauses in compressions and delivers each breath over approximately 1 second.
2. However, in EMS systems that use bundles of care involving continuous chest compressions, the use of passive ventilation techniques may be considered as part of that bundle.

**Why:** The 2017 BLS CoSTR summary and systematic review considered the use of interrupted vs continuous chest compressions when EMS providers performed CPR using chest compressions and ventilation before placement of an advanced airway.

## Adult BLS and CPR Quality, Cont.

### CPR for Cardiac Arrest

**2017 (Updated):** Whenever an advanced airway (tracheal tube or supraglottic device) is inserted during CPR, it may be reasonable for providers to perform continuous compressions with positive-pressure ventilation delivered without pausing chest compressions.

**2017 (Unchanged):** 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.

**2015 (Old):** When the victim has an advanced airway in place during CPR, rescuers no longer deliver cycles of 30 compressions and 2 breaths (ie, they no longer interrupt compressions to deliver 2 breaths). Instead, 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.

**Why:** The 2017 BLS CoSTR summary and systematic review considered the use of continuous vs interrupted chest compressions after placement of an advanced airway in the hospital setting. No new studies were reviewed for this topic.

### Chest Compression-to-Ventilation Ratio

**2017 (Updated):** It is reasonable for rescuers trained in CPR using chest compressions and ventilation (rescue breaths) to provide a compression-to-ventilation ratio of 30:2 for adults in cardiac arrest.

**2015 (Old):** It is reasonable for rescuers to provide a compression-to-ventilation ratio of 30:2 for adults in cardiac arrest.

**Why:** The 2017 BLS CoSTR summary and systematic review considered the compression-to-ventilation ratio for adult BLS. No new studies were reviewed for this topic.

## Pediatric BLS and CPR Quality

### Summary of Key Issues and Major Changes

The changes for pediatric BLS were a result of weighing the survival benefits of CPR using chest compressions with rescue breaths against chest compression-only CPR, with the conclusion that the incremental benefit of rescue breaths justified a distinct recommendation. The topics reviewed here include the following:

- Reaffirming that compressions and ventilation are needed for infants and children in cardiac arrest
- Strongly recommending that bystanders who are unwilling or unable to deliver rescue breaths should provide chest compressions for infants and children

### Components of High-Quality CPR: Pediatric BLS

**2017 (Updated):** Chest compressions with rescue breaths should be provided for infants and children in cardiac arrest.

**2015 (Old):** Conventional CPR (chest compressions and rescue breaths) should be provided for pediatric cardiac arrests.

**Why:** Grounded in a growing evidence base since the 2015 Guidelines Update publication, the recommendation for providing CPR using chest compressions with rescue breaths to infants and children in cardiac arrest is reasonable.

### Components of High-Quality CPR: Chest Compression-Only CPR

**2017 (Updated):** If bystanders are unwilling or unable to deliver rescue breaths, we recommend that rescuers provide chest compressions for infants and children in cardiac arrest.

**2015 (Old):** Because compression-only CPR is effective in patients with a primary cardiac event, if rescuers are unwilling or unable to deliver breaths, we recommend that rescuers perform compression-only CPR for infants and children in cardiac arrest.

**Why:** In comparing the survival benefits of CPR using chest compressions with rescue breaths against the convenience of adopting alignment with the adult recommendation for chest compression-only CPR, we concluded that the incremental benefit of rescue breaths justified a different recommendation.

To download full versions of the adult and pediatric BLS 2017 focused updates, visit <https://eccguidelines.heart.org>, or download a QR code reader app and scan the QR code below with your smartphone.

