

CPR PRO Guideline Changes and Rationale

CPR PRO

Five areas of the CPR guidelines have been changed.

Age Range

2000 Guideline

Child CPR guidelines apply to victims 1 to 8 years of age.

2005 Guideline

Child CPR guidelines apply to victims from 1 year of age to the onset of puberty.

Reason for the Change

More practical measure and ease of teaching.

Circulation. 2005; 112:IV-156-IV-166

Assess/Alert

2000 Guideline

If rescuer is alone with victim, knowledgeable and experienced providers should use common sense and "phone first" for any apparent sudden cardiac arrest (e.g., sudden collapse at any age) and "phone fast" in other circumstances in which breathing difficulties are documented or likely to be present (e.g., trauma or an apparent choking event).

2005 Guideline

Rescuer who is alone should alter sequence of rescue based on most likely cause.

Sudden witnessed collapse: activate EMS, get AED, do CPR.

Hypoxic arrest (i.e., suffocation): Give 5 cycles (about 2 minutes) of CPR before alerting EMS.

Reason for the Change

Clarity.

Circulation. 2005;112:IV-12-IV-17

Airway

2000 Guideline

The jaw-thrust technique without head tilt is the safest initial approach to opening the airway of the victim with suspected neck injury because it usually can be done without extending the neck. Carefully support the head without tilting it backward or turning it from side to side.

2005 Guideline

If a healthcare provider suspects a cervical spine injury, open the airway using a jaw thrust without head extension. Use a head tilt–chin lift maneuver if the jaw thrust does not open the airway.

Reason for the Change

Maintaining airway and adequate ventilation is the overriding priority. All airway maneuvers cause spinal movement. Studies in human cadavers showed that both chin lift (with or without head tilt) and jaw thrusts were associated with similar, substantial movement of the cervical vertebrae.

Circulation. 2005;112:III-5-III-16

Breathing

2000 Guideline

Give each rescue breath for 1-2 seconds, making sure the victim's chest rises with each breath.

2005 Guideline

Give each breath for 1 second with enough volume to produce visible chest rise.

Reason for the Change

Simplification and to reduce excessive ventilation that is unnecessary and harmful to both rescuer and victim.

Circulation. 2005;112:IV-12-IV-17

Circulation

2000 Guideline

Healthcare providers should perform a pulse check in conjunction with assessment for signs of circulation. If you are not confident that circulation is present, begin chest compressions immediately.

2005 Guideline

There is no evidence that checking for signs of circulation (breathing, coughing or movement) is needed for detection of circulation. If you are a healthcare provider, you should try to palpate a pulse (brachial in an infant and carotid or femoral in an adult or child). If a pulse is not definitely felt within 10 seconds, proceed with chest compressions.

Reason for the Change

Simplification and ease of training. Studies show that healthcare providers and lay rescuers are unable to reliably detect a pulse. At times, they will think a pulse is present when there is no pulse.

Circulation. 2005; 112: IV-18-IV-34

CPR Compression to Ventilation Ratio

2000 Guideline

Adult compression to ventilation ratio: 15:2.

Infant to child compression to ventilation ratio: 5:1.

Speed: 100 compressions per minute.

2005 Guideline

New compression to ventilation ratio: 30:2 for single rescuer CPR for all ages (except newborn infants).

New compression to ventilation ratio: 30:2 for 2-rescuer adult CPR until advanced airway is in place, then give continuous chest compressions without pauses for 8 to 10 breaths per minute. When two rescuers are involved, they should change roles about every 2 minutes to prevent fatigue.

New compression to ventilation ratio: 15:2 for 2-rescuer infant/child CPR.

Note: It is important to focus on providing “effective” chest compressions to maximize the quality of CPR. Effective means push hard, fast, allow complete chest “recoil” and minimize interruptions. **Hard** means 1-1/2 to 2 inches in adult and about one third to one half the depth of chest in child/infant. **Fast** means 100 compressions per minute.

Compression and recoil time should be approximately equal. Two-rescuers performing infant CPR should squeeze chest when using 2 thumb–encircling hands technique.

Reason for the Change

Simplification and ease of training. The goal is to provide longer periods of uninterrupted chest compressions. Blood flow to heart and brain is better with hard and fast compressions. Complete chest recoil allows blood to return to and refill the heart.

Circulation. 2005;112:IV-12-IV-17

CPR for Infants/Children

2000 Guidelines

Healthcare providers are taught to provide chest compressions when there are no observed signs of circulation (including absence of a pulse) or when a heart rate less than 60 beats per minute develops in the presence of poor systemic perfusion.

2005 Guidelines

If the heart rate is less than 60 beats per minute with poor perfusion despite effective ventilation with oxygen, start chest compressions.

Reason for the Change

Same procedure with more clarity and emphasis.

Circulation. 2005;112:IV-167-IV-187

AED (Automatic External Defibrillators)

2000 Guideline

AEDs are programmed to analyze the victim's rhythm and provide a series of three shocks. During this series of shocks, the rescuer should not interrupt or interfere with the equipment's rapid analysis and shock pattern. AEDs are programmed to pause after each group of three shocks to allow 1 minute for CPR.

2005 Guideline

When using an AED, deliver one shock followed by immediate CPR, beginning with chest compressions. Recheck the rhythm after 5 cycles of CPR – about 2 minutes.

Note: New recommendations suggest rescuers rapidly integrate CPR with use of the AED.

Reason for the Change

The goal is to minimize interruptions in chest compressions because the heart does not pump blood effectively for a few minutes after shock. Compressions are needed to provide blood flow. Also, newer AEDs are more effective at stopping ventricular fibrillation (the most frequent initial heart rhythm in witnessed cardiac arrest) on the first shock.

Circulation. 2005;112:IV-35-IV-46

AED for Infants and Children

2000 Guideline

The use of AEDs in infants and children less than 8 years old is not recommended, primarily because of the lack of data concerning sensitivity, specificity, safety, and efficacy.

2005 Guideline

For children 1 to 8 years of age, rescuer should use a pediatric dose-attenuator system, if available. If not available, use a standard AED.

Reason for the Change

Many AEDs can accurately detect ventricular fibrillation in children of all ages with a high degree of sensitivity and specificity. Some are equipped with pediatric attenuator systems to reduce the delivered energy to a dose suitable for children. There is insufficient data to make a recommendation for or against the use of AEDs for infants under 1 year of age. This recommendation supports previous ILCOR Advisory Statement

Circulation JUL 2003; 107: 3250 – 3255

Circulation. 2005;112:IV-35-IV-46

Foreign Body Airway Obstruction (FBAO)

2000 Guideline

If you observe the victim's collapse and you know it is caused by FBAO, activate EMS at the proper time in the CPR sequence. If a second rescuer is available, send the second rescuer to activate the EMS system while you remain with the victim. Be sure the victim is lying face up. Perform a tongue-jaw lift, followed by a finger sweep to remove the object. Open the airway and try to ventilate. If you are unable to make the victim's chest rise, reposition the head and try to ventilate again.

If you cannot deliver effective breaths (meaning the chest does not rise) even after attempts to reposition the airway, consider FBAO. Straddle the victim's thighs and perform the Heimlich maneuver/abdominal thrust (up to 5 times). Repeat the sequence until the obstruction is cleared, and the chest rises with ventilation.

2005 Guideline

If the adult victim with FBAO becomes unresponsive, the rescuer should carefully support the patient to the ground, immediately activate EMS, and then begin CPR. Each time the airway is opened during CPR, the rescuer should look for an object in the victim's mouth and remove it.

Reason for the Change

Simplification and ease of training. Studies show that higher sustained airway pressures can be generated using chest thrusts rather than the abdominal thrusts. No evidence exists that shows the previous, complicated recommendation is any more effective than CPR.

Circulation. 2005;112:IV-18-IV-34.)