



## **BLS for Healthcare Providers Critical Concepts**

High-quality CPR improves a victim's chances of survival. The critical characteristics of high-quality CPR include:

Start compressions within 10 seconds of recognition of cardiac arrest. Chest compressions are important because they pump blood to the rest of the body.

Push hard, push fast: Compress at a rate of at least 100/min with a depth of at least 2 inches (5cm) for adults, approximately 2 inches (5cm) for children, and approximately 1 ½ or 1.5 inches (4cm) for infants.

Allow complete chest recoil after each compression. Complete chest recoil contributes to effective CPR by allowing the heart to refill with blood between compressions.

Minimize interruptions in compressions (try to limit interruptions to < 10 seconds).

Give effective breaths that make the chest rise.

Avoid excessive ventilation. Automated External Defibrillator-AED

As soon as an AED becomes available, the first step the rescuer should perform is to turn on the AED.

After the AED delivers a shock, the rescuer should immediately restart CPR, beginning with chest compressions.

Using an AED for a child less than 8 years of age, adult pads/dose may be used if pediatric pads/dose attenuator are not available.

## **Foreign Body Airway Obstruction - Choking**

The best way to relieve severe choking in responsive adult or child – Perform abdominal thrusts. If the adult becomes unresponsive activate the emergency response system and start CPR beginning with compressions.

The best action to relieve severe choking in a responsive infant – Begin cycles of 5 back slaps, followed by 5 chest thrusts.

When a victim of foreign-body airway obstruction becomes unresponsive (adult, child, or infant) and the rescuer has sent someone to activate emergency response system, immediately start CPR beginning with compressions. Child or Infant With A Heart Rate

When a child/infant has a pulse of more than 60/minute but is not breathing, the rescuer should give breaths without chest compressions.

When an unresponsive child/infant has a pulse of less than 60/minute and is not breathing with signs of poor perfusion despite oxygenation and ventilation with a bag-mask, the rescuer should perform both compressions and breaths. C-A-B is Chest Compressions–Airway–Breaths, Not A-B-C

## **CHEST COMPRESSIONS**

The rescuer should initially ensure that the scene is safe when the rescuer first sees a potential victim.

A victim who is unresponsive with no normal breathing and no pulse requires CPR.

It is appropriate to move an adult victim who needs CPR when the victim is in a dangerous environment.

To identify cardiac arrest in an unresponsive victim with no breathing (or no normal breathing), a healthcare provider should check a pulse for no more than 10 seconds.

Adult and child pulse is located on the side of the neck, near the trachea

Infant pulse is located on the inside of the upper arm, between the elbow and the shoulder.

It is important to compress to the appropriate depth during CPR to create blood flow during compressions.

The depth of chest compressions for an adult victim should be at least 2 inches (5cm).

The depth of chest compressions for an infant is at least one third the depth of the chest, approximately 1½ or 1.5 inches (4cm).

Recommended rate for performing chest compressions for victims of all ages is at least 100 compressions per minute.

Hands are placed on the lower half of the breastbone to perform chest compressions on an adult.

In 2-rescuer CPR, one rescuer provides chest compressions; the second rescuer maintains an open airway and gives breaths.

Preferred technique for providing chest compressions during 2-rescuer CPR for the infant is the 2 thumb-encircling hands technique.

## **AIRWAY**

The best way to open the airway of an unresponsive victim with no suspected neck injury is the head tilt-chin lift.

After the airway is opened, the proper technique for delivering mouth-to-mouth ventilation is the rescuer opens the airway, seals his or her mouth over the victim's mouth, pinches the victim's nose closed, and gives 2 breaths while watching for the chest to rise.

## **BREATHS**

Bag-mask device/technique is not recommended for a single rescuer to provide breaths during CPR.

The rescue breath for an adult, child, or infant is effective when the chest rises visibly.

During bag-mask ventilation, giving a breath just until you see the chest rise is recommended to minimize the risk of air entering the victim's stomach (gastric inflation).

The compression- ventilation ratio for 1-rescuer adult CPR is 30:2.

The compression- ventilation ratio for 2-rescuer child CPR is 15:2.

The compression- ventilation ratio for 2-rescuer infant CPR is 15:2.

Compression and ventilation rates for 2-rescuer CPR in the presence of an advanced airway is to compress at a rate of at least 100 per minute, 1 breath every 6 to 8 seconds.

When administering breaths by using a bag-mask device for a child who is not breathing but does have a pulse, the rescuer should give breaths at the rate of 1 breath every 3 to 5 seconds

## **Sequence Change from ABC to CAB**

The most dramatic change in the 2010 AHA CPR guidelines for ACLS and BLS is a change in the basic life support sequence of steps from "A-B-C" (Airway, Breathing, Chest compressions) to "C-A-B" (Chest compressions, Airway, Breathing) for adult and pediatric patients (excluding newborns).

This change occurred due to the fact that the vast majority of cardiac arrests occur in adults, and the highest survival rates from cardiac arrest are reported among patients of all ages with witnessed arrest and a rhythm of VF or pulseless ventricular tachycardia. (VT). In these patients, the critical elements of CPR have been shown to be chest compressions and early defibrillation.

This change in sequence will ensure that chest compressions will be initiated sooner and should only cause a minimal delay in ventilation until completion of the first cycle of chest compressions (approx. 18 seconds for 30 chest compressions)

Starting with chest compressions may ensure that more victims receive CPR and that rescuers who are unable or unwilling to provide ventilations will at least perform chest compressions.

Per the 2010 Guidelines, it is reasonable for the in-hospital healthcare provider to tailor the sequence of rescue actions to the most likely cause of arrest