

BLS STUDY GUIDE

Introduction to Adult Chain of Survival

The AHA has adopted, supported, and helped develop the concept of emergency cardiovascular care (ECC) systems for many years. The term *Chain of Survival* provides a useful metaphor for the elements of the ECC systems concept. The 5 links in the adult *Chain of Survival* are:

- Immediate recognition of cardiac arrest and activation of the emergency response system.
- Early cardiopulmonary resuscitation (CPR) with an emphasis on chest compressions
- Rapid defibrillation
- Effective advanced life support
- Integrated post-cardiac arrest care

Although basic life support is taught as a sequence of distinct steps to enhance skills retention and clarify priorities, several actions should be accomplished simultaneously when multiple rescuers are present.

Introduction to the Pediatric Chain of Survival

Although in adults cardiac is often sudden and results from a cardiac cause, in children cardiac arrest is often secondary to respiratory failure and shock. Identifying children with these problems is essential to reduce the likelihood of pediatric cardiac arrest and maximize survival and recovery. Therefore, a prevention link is added in the pediatric *Chain of Survival*:

- Prevention of arrest
- Early high-quality bystander CPR
- Rapid activation of the EMS (or other emergency response) system
- Effective advanced life support (including rapid stabilization and transport to definitive care and rehabilitation)
- Integrated post-cardiac arrest care

Change in Sequence: C-A-B, Not A-B-C

The *2010 AHA Guidelines for CPR and ECC* recommend a change in the BLS sequence of steps from A-B-C (Airway, Breathing, Chest Compression) to C-A-B (Chest compressions, Airway, Breathing) for adults, children, and infants. This change in CPR sequence requires reeducation of everyone who has ever learned CPR, but the consensus of the authors and experts involved in creating the *2010 AHA Guidelines for CPR and ECC* is that the change is likely to improve survival.

By changing the sequence to C-A-B, rescuers can start chest compressions sooner, and the delay in giving breaths should be minimal (only the time required to deliver the first cycle of 30 chest compressions, or approximately 8 seconds or less; for 2-rescuers infant or child CPR, the delay will be even shorter).

Emphasis on High-Quality CPR

The *2010 AHA Guidelines for CPR and ECC* once again emphasize the need for high-quality CPR including:

- A compression rate of at least 100/min (this is a change from “approximately” 100/min)
- A compression depth of at least 2 inches (5cm) in adults and a compression depth of at least one third of the anterior-posterior diameter of the chest in infants and children. This is approximately 1 ½ inches (4cm) in infants and 2 inches (5cm) in children. Note that the range of 1 ½ to 2 inches is no longer used for adults, and the absolute depth specified for children and infants is deeper than in previous versions of the *AHA Guidelines for CPR and ECC*.

- Allowing complete chest recoil, minimizing interruptions in compressions, and avoiding excessive ventilation continue to be important components of high-quality CPR.

To further strengthen the focus on high-quality CPR, the 2010 AHA Guidelines for CPR and ECC stress the importance of training using a team approach to CPR. The steps in the BLS Algorithm have traditionally been presented as a sequence to help a single rescuer prioritize actions.

There is increased focus on providing CPR as a team because resuscitations in most EMS and healthcare systems involve teams of rescuers, with rescuers performing several actions simultaneously. For example, one rescuer activates the emergency response system while a second begins chest compressions, a third is either providing ventilations or retrieving the bag-mask for rescue breathing, and a fourth is retrieving a defibrillator and preparing to use.

No Look, Listen, and Feel

Another key change is the removal of “look, listen, and feel for breathing” from the assessment step. This step was removed because bystanders often failed to start CPR when they observed agonal gasping. The healthcare provider should not delay activating the emergency response system but should check the victim for 2 things simultaneously; response and breathing. With the new chest compression-first sequence, the rescuer should activate the emergency response system and begin CPR if the adult victim is unresponsive and not breathing or not breathing normally (only gasping) and has no pulse. For the child or infant victim, CPR is performed if the victim is unresponsive and not breathing or only gasping and has no pulse.

For all victims of all ages (except newborns), begin CPR with compressions (C-A-B sequence). After each set of chest compressions, open the airway and give 2 breaths.

Understanding the Basics of BLS

BLS Consists of these main parts

- Chest compressions
- Airway
- Breathing
- Defibrillation

Distinct from the lone responder approach, many workplaces and most EMS and in-hospital resuscitations involve teams of providers who should perform several actions simultaneously (eg. One rescuer activates the emergency response system while a second rescuer begins chest compressions, a third is either providing ventilations or retrieving the bag-mask for rescue breathing, and a fourth is retrieving a defibrillator and preparing to use it).

Overview of Initial BLS Steps

The four basic steps of BLS are:

- Assess the victim for a response and look for normal or abnormal breathing. If there is no response and not breathing or no normal breathing (ie, only gasping), shout for help
- If you are alone, activate the emergency response system and get an AED (or defibrillator) if available and return to the victim
- Check the victim’s pulse (take at least 5 but no more than 10 seconds)
- If you do not definitely feel a pulse within 10 seconds, perform 5 cycles of compressions and breaths (30:2 ratio), starting with compressions (C-A-B sequence).

Assessment and Scene Safety

The first rescuer who arrives at the side of the victim must quickly be sure that the scene is safe. The rescuer then check the victim for a response:

- Make sure the scene is safe for you and the victim. You do not want to become a victim yourself.
- Tap the victim's shoulder and shout, "Are you all right?"
- Check to see if the victim is breathing. If a victim is not breathing or not breathing normally (ie, only gasping), you must activate the emergency response system.

Agonal gasps are not normal breathing. Agonal gasps may be present in the first minutes after sudden cardiac arrest. A person who gasps usually looks like he is drawing air in very quickly. The mouth may be open and the jaw, head, or neck may move with gasps. Gasps may appear forceful or weak and some time may pass between gasps because they usually happen at a slow rate.

Activate the Emergency Response System and Get an AED

If you are alone and find an unresponsive victim not breathing, shout for help. If no one responds, activate the emergency response systems, get an AED if available, and then return to the victim to check a pulse and begin CPR (C-A-B sequence).

Pulse Check

Healthcare providers should take no more than 10 seconds to check for a pulse.

To perform a pulse check in the adult, palpate a carotid pulse. If you do not definitely feel a pulse within 10 seconds, start chest compressions. To locate the carotid artery pulse:

- Locate the trachea, using 2 or 3 fingers
- Slide these 2 or 3 fingers into the groove between the trachea and the muscles at the side of the neck, where you can feel the carotid pulse
- Feel for a pulse for at least 5 but no more than 10 seconds. If you do not definitely feel a pulse, begin CPR, starting with chest compressions (C-A-B sequence).

Begin Cycles of 30 Chest Compressions and 2 Breaths (CPR)

The lone rescuer should use the compression-ventilation ratio of 30 compressions to 2 breaths when giving CPR to victims of any age. When you give chest compressions, it is important to push the chest hard and fast, at a rate of at least 100 compressions per minute, allow the chest to recoil completely after each compression, and minimize interruptions in compressions. Begin with chest compressions. The foundation of CPR is chest compressions. Follow these steps to perform chest compressions in an adult:

- Position yourself at the victim's side
- Make sure the victim is lying faceup on a firm, flat surface. If the victim is lying facedown, carefully roll him faceup. If you suspect the victim has a head or neck injury, try to keep the head, neck, and torso in a line when rolling the victim to a faceup position.
- Put the heel of one hand on the center of the victim's chest on the lower half of the breastbone
- Put the heel of your other hand on top of the first hand
- Straighten your arms and position your shoulders directly over your hands
- PUSH HARD AND FAST

- Press hard at least 2 inches (5cm) with each compressions. For each chest compression, make sure your push straight down on the victim's breastbone
- Deliver compressions in a smooth fashion at a rate of at least 100/min
- At the end of each compression, make sure you allow the chest to recoil completely. Chest recoil allows blood to flow into the heart and is necessary for chest compressions to create blood flow. Incomplete chest recoil is harmful because it reduces the blood flow created by chest compressions. Chest compression and chest recoil/relaxation times should be approximately equal.
- Minimize interruptions

Moving the Victim Only When Necessary

Do not move the victim while CPR is in progress unless the victim is in a dangerous environment or if you believe you cannot perform CPR effectively in the victim's present position or locations. CPR is better and has fewer interruptions when rescuers perform the resuscitation where they find the victim.

Opening the Airway for Breaths: Head Tilt-Chin Lift

There are 2 methods for opening the airway to provide breaths: head tilt-chin lift and jaw thrusts. Two rescuers are generally needed to perform a jaw thrust and provide breaths with a bag-mask device. Use a jaw thrust only if you suspect a head or neck injury, as it may reduce neck and spine movement. Switch to head tilt-chin lift maneuver if the jaw thrust does not open the airway. Follow these steps to perform a head tilt-chin lift:

- Place one hand on the victim's forehead and push with your palm to tilt the head back
- Place the fingers of the other hand under the bony part of the lower jaw near the chin
- Lift the jaw to bring the chin forward

Caution: Do not press deeply into the soft tissue under the chin because this might block the airway. Do not use the thumb to lift the chin and do not close the victim's mouth completely.

Adult Mouth-to-Barrier Device Breathing

Standard precautions include using barrier devices, such as a face mask or a bag-mask device, when giving breaths. Rescuers should replace face shields with mouth-to-mask or bag-mask devices at the first opportunity. Masks usually have a 1-way valve that diverts exhaled air, blood, or bodily fluids away from rescuer.

Giving Adult Mouth-to-Mask Breaths

For mouth-to-mask breaths, you use a mask with or without a 1-way valve. The 1-way valve allows the rescuer's breath to enter the victim's mouth and nose and diverts the victim's exhaled air away from the rescuer. Some masks have an oxygen inlet that allows you to administer supplementary oxygen.

To use a mask, the lone rescuer is at the victim's side. This position is ideal when performing 1-rescuer CPR because you can give breaths and perform chest compressions when positioned at the victim's side. The lone rescuer holds the mask against the victim's face and opens the airway with a head tilt-chin lift. The rescuer should deliver the breaths over 1 second.

Bag-Mask Device

Bag-mask devices consist of a bag attached to a face mask. They may also include a 1-way valve. Bag-mask devices are the most common method that healthcare providers use to give positive-pressure ventilation during CPR. Follow these steps to open the airway with head tilt-chin lift and use a bag-mask to give breaths to the victim:

- Position yourself directly above the victim's head
- Place the mask on the victim's face, using the bridge of the nose as a guide for correct position
- Use the E-C clamp technique to hold the mask in place while you lift the jaw to hold the airway open
- Squeeze the bag to give breaths (1 second each) while watching for the chest to rise. Deliver all breaths over 1 second whether you use supplementary oxygen

2-Rescuer Adult BLS/Team CPR Sequence

When a second rescuer is available to help. That second rescuer should activate the emergency response system and get the AED. The first rescuer should remain with the victim to start CPR immediately, beginning with chest compressions. After the second rescuer returns, the rescuers should use the AED as soon as it is available. The rescuers will then give compressions and breaths but should switch roles after every 5 cycles of CPR or about every 2 minutes. As additional rescuers arrive, they can help with the bag-mask ventilations, use of the AED or defibrillator, and crash cart. In 2-rescuer CPR, each rescuer has specific duties:

- Rescuer 1
 - Perform chest compressions
 - Compress the chest at least 2 inches (5cm)
 - Compress at a rate of at least 100/min
 - Allow the chest to recoil completely after each compression
 - Minimize interruptions in compressions
 - Use a compression-to-breath ratio of 30:2
 - Count compressions aloud
 - Switch duties with the second rescuer every 5 cycles or about 2 minutes
- Rescuer 2
 - Maintain an open airway
 - Give breaths, watching for chest rise and avoiding excessive ventilation
 - Encourage the first rescuer to perform compressions that are deep
 - Switch duties with the first rescuer every 5 cycles or about 2 minutes

Effective Communication – Effective teams communicate continuously. If the compressor counts out loud, the rescuer providing breaths can anticipate when breaths will be given and prepare to give them efficiently to minimize interruptions in compressions.

2 Rescuers Using the Bag-Mask

When 3 or more rescuers are present, 2 rescuers can provide more effective bag-mask ventilation than 1 rescuer. When 2 rescuers use the bag-mask system, one rescuer opens the airway with a head tilt-chin lift and holds the mask to the face while the other rescuer squeezes the bag.

Automated External Defibrillator for Adults and Children 8 Years of Age and Older

Once the AED arrives, place it at the victim's side, next to the rescuer who will operate it. This position provides ready access to the AED controls and easy placement of AED pads. It also allows a second rescuer to perform CPR from the opposite side of the victim without interfering with AED operation. AEDs are available in different models with a few differences from model to model, but all AEDs operate in basically the same way:

- Power on the AED

- Attache the AED pads to the victim's bare chest
 - Choose adult pads for victim's over 8 years of age
 - Peel the backing from the AED pads
 - Attach the adhesive AED pads to the victim's bare chest
 - Attach the AED connecting cables to the AED box
- Clear the victim and analyze the rhythm
 - If the AED prompts you, clear the victim during analysis. **BE SURE NO ONE IS TOUCHING THE VICTIM**
 - Some AEDs will tell you to push the analyze button
 - The AED then tells you if a shock is advised
- If the AED advises a shock, it will tell you to clear the victim
 - Clear the victim before you deliver the shock and be sure no one is touching the victim
 - Press the shock button
- If no shock is needed, and after any shock delivery, immediately resume CPR, starting with chest compressions
- After 5 cycles or about 2 minutes of CPR, the AED will prompt you to repeat the steps

Special AED Situations

The following special situations may require the rescuer to take additional actions when using an AED:

- The victim has a hairy chest
 - If the pads do not stick to the chest, press down firmly on each pad
 - Quickly pull off the pads. This will remove a large amount of hair
 - Put on new set of pads and resume the steps for using an AED
- The victim is immersed in water or water is covering the victim's chest
 - Water is a good conductor of electricity.
 - Do not use an AED in water
 - If the victim is in water, remove the victim from the water
 - If the victim is lying in water or is covered in water quickly wipe the chest before attaching the AED pads
- The victim has an implanted defibrillator or pacemaker
 - If you place an AED pad directly over an implanted medical device, the device may block the delivery of the shock to the heart
 - If possible, avoid placing AED pad over device
 - Follow the normal steps for operating an AED
- The victim has a transdermal medication patch
 - Do not place AED pads directly on top of a medication patch.
 - The medication patch may block the transfer of energy from the AED pad
 - Remove the patch and wipe the area clean before attaching the AED pad

2-Rescuer BLS Sequence with An AED

Follow these BLS steps for 2 rescuer CPR with an AED:

- Check for response and check for breathing: if the victim does not respond and is not breathing or not breathing normally:
 - The first rescuer stays with the victim and starts the steps for CPR
 - The second rescuer will call for help and get the AED/Defibrillator

- The first rescuer will check for a pulse: if a pulse is not definitely felt in 10 seconds the first rescuer will start CPR beginning with compressions
- The second rescuer will bring the AED/Defibrillator
 - The second rescuer will turn-on the defibrillator and attach the pads to the victim and attach the AED pad cords to the AED
- Once the AED pads are connected the victim will be cleared and the AED will analyze for a shockable rhythm
- If the AED advises a shock the rescuers will clear the victim and press the shock button
- If no shock is advised, or after any shock delivery, immediately resume CPR starting with compressions
- After every 5 cycles or every 2 minutes of CPR, the AED will prompt you to repeat the steps

BLS/CPR for Children from 1 Year of Age to Puberty

The child BLS sequence and skills are similar to the sequence for adult BLS. The key differences between child and adult BLS are:

- Compression-ventilation ratio for 2-rescuer CPR is 15:2
- Compression depth is at least 1/3 the depth of the chest or approximately 2 inches (5cm)
- Compression technique – a rescuer may use the heel of 1 or 2 hands
- Activation of the emergency response system
 - If you did not witness the arrest and are alone, provide 2 minutes of CPR before leaving the child to activate the emergency response system and get an AED/Defibrillator
 - If the arrest is sudden and witnessed, leave the child to activate the emergency response system and get the AED/Defibrillator and then return to the child

Compression Rate and Ratio for Lone Rescuer- The lone rescuer should use the universal compression-ventilation ratio of 30 compressions to 2 breaths when giving CPR to victims of all ages.

Follow these steps to perform 1-rescuer BLS sequence for a child

- Check the child for a response and check breathing. If there is no response and no breathing or only gasping, shout for help
- If someone responds, send the person to activate the emergency response system and get the AED.
- Check the child's pulse (at either the carotid or femoral pulse)
- If you don't feel a pulse or despite adequate oxygenation and ventilation the heart rate is less than 60 with signs of poor perfusion, perform cycles of compressions and breaths (30:2 ratio) starting with compressions
- After 5 cycles, if someone has not already done so, activate the emergency response system and get the AED and use the AED as soon as it is available

Locating the Femoral Artery Pulse

To perform a pulse check in the child, palpate a carotid or femoral pulse. If you do not definitely feel a pulse within 10 seconds, start chest compressions. Follow these steps to locate the femoral artery pulse:

- Place 2 fingers in the inner thigh, midway between the hipbone and the pubic bone and just below the crease where the leg meets the abdomen

- Feel for a pulse for at least 5 seconds but no more than 10 seconds. If you do not feel a pulse begin CPR starting with compressions (C-A-B sequence)

2-Rescuer Child BLS Sequence

Follow these steps to perform 2-rescuer BLS sequence for a child:

- Check the child for a response and check for breathing. If there is no response or breathing the second rescuer activates the emergency response system
- The first rescuer will check the child's pulse (carotid or femoral pulse)
- If the first rescuer does not feel a pulse despite adequate oxygenation and ventilation or the heart rate is less than 60, perform cycles of compressions and breaths (30:2 ratio). When the second rescuer returns use a compression-to-breath ratio of 15:2

Child Ventilation with Barrier Devices

The use of barrier devices is the same as for adults. To provide bag-mask ventilation, select a bag and mask of appropriate size. The mask must be able to cover the victim's mouth and nose completely without covering the eyes or overlapping the chin.

The Importance of Breaths for Infants and Children

When sudden cardiac arrest occurs the oxygen content of the blood is typically normal, so compressions alone may maintain adequate oxygen delivery to the heart and brain for the first few minutes after arrest. In contrast, infants and children who develop cardiac arrest often have respiratory failure or shock that reduces the oxygen content in the blood even before the onset of arrest. As a result, for most infants and children in cardiac arrest, chest compressions alone are not as effective for delivering oxygen to the heart and brain as the combination of compressions plus breaths. For this reason, it is very important to give both compressions and breaths for infants and children during CPR.

BLS/CPR for Infants

For the purposes of the BLS sequence describe in the Pediatric BLS Algorithm the term infant means infants to 1 year of age excluding newly born infants in the delivery room. The infant BLS sequence and skills are very similar to those used for child and adult BLS/CPR. The key differences are:

- The location of pulse check is the brachial artery
- The technique of delivering compressions is 2 fingers in the center of the chest for 1-rescuer and 2 thumbs-encircling hands technique for 2-rescuers
- The compression depth is 1/3 the depth of the chest approximately 1 ½ inches (4cm)
- The compression ratio for 2-rescuers is the same as the child – 15:2
- When you activate the emergency response system:
 - If you did not witness the arrest and are alone, provide 2 minutes of CPR before leaving the infant to activate the emergency response system and get the AED
 - If the arrest is sudden and witnessed, leave the infant to phone 911 and get the AED then return to the infant

1-Rescuer Infant CPR

The lone rescuer should use the universal compression-ventilation ratio of 30 compressions to 2 breaths when giving CPR to victims of all ages. Follow these steps to perform 1-rescuer BLS for infants:

- Check the infant for a response and check for breathing. If there is no response and no breathing shout for help
- If someone responds, send the person to activate the emergency response system and get the AED
- Check the victim's brachial pulse
- If there is no pulse or despite adequate oxygenation and ventilation and the heart rate is less than 60 perform cycles of compressions and breaths (30:2 ratio) starting with compressions
- After 5 cycles, if someone has not already done so, activate the emergency response system and get the AED

Infant Ventilation with Barrier Devices

The use of barrier devices is the same as for adults. To provide bag-mask ventilation, select a bag and mask of appropriate size. The mask must be able to cover the victim's mouth and nose completely without covering the eyes or overlapping the chin.

2-Rescuer Infant CPR

The 2 thumbs-encircling hands technique is the preferred 2-rescuer chest compression technique for healthcare providers who can fit their hands around the infant's chest. This technique produces blood flow by compression the chest with both the thumbs. It produces better flow, more consistently results in appropriate depth or force of compression, and may generate higher blood pressure than the 2-finger technique. Follow these steps to give chest compressions to an infant using the 2 thumb-encircling hands technique:

- Place both thumbs side by side in the center of the infant's chest on the lower half of the breastbone
- Encircle the infant's chest and support the infant's back with the fingers of both hands
- With your hands encircling the chest, use both thumbs to depress the breastbone approximately 1/3 the depth of the chest
- Deliver compressions in a smooth fashion at a rate of at least 100/min
- After each compression, completely release the pressure on the breastbone and allow the chest to recoil completely
- After every 15 compressions, pause briefly for the second rescuer to open the airway with a head tilt-chin lift and give 2 breaths. The chest should rise with each breath
- Continue compressions and breaths in a ratio of 15:2 switching roles every 2 minutes
- Use the AED as soon as it is available

AED for Infants and Children From 1 to 8 Years of Age

Some AEDs have been modified to deliver different shock doses; one shock dose for adults and one for children. If you use a pediatric-capable AED, there are features that allow it to deliver a child-appropriate shock. The method used to choose the shock dose for a child differs based on the type of AED you are using. If your AED includes a smaller size pad designed for children, use it. If not use the standard pads making sure they do not touch or overlap. The important thing is to be familiar with the AED you will be using, if possible, before you need to use it. When you are using an AED, remember to turn it on first and follow the prompts as it leads you through the rest of the steps.

For infants, a manual defibrillator is preferred to an AED. If a manual defibrillator is not available, an AED equipped with a pediatric dose attenuator is preferred. If neither is available, you may use an AED without a pediatric dose attenuator.

Using the AED is the same as using an AED for adults

CPR with Advance Airway

The compressions rate for 2-rescuer CPR is at least 100/min. Until an advance airway is in place, rescuers must pause compressions to provide breaths. When an advance airway is in place during 2-rescuer CPR, do not stop compressions to give breaths. Give 1 breath every 6 to 8 seconds without attempting to deliver breaths between compressions. There should be no pause in chest compressions for delivery of breaths.

Mouth-to-Mouth Breaths

Mouth-to-Mouth breathing is a quick, effective way to provide oxygen to the victim. The rescuer's exhaled air contains approximately 17% oxygen and 4% carbon dioxide. This is enough oxygen to meet the victim's need.

Rescue Breathing

When adults, children or infants are not breathing adequately rescuers should give breaths without chest compressions.

- Rescue breathing for an adult is 1 breath every 5-6 seconds or 12/min
- Rescue breathing for children or infants is 1 breath every 3-5 seconds or 12-20/min

Relief of Chocking – Conscious Victim

The early recognition of airway obstruction is the key to successful outcome. It is important to distinguish this emergency from fainting, stroke, heart attack, seizure, drug overdose, or other conditions that may cause sudden respiratory distress but require different treatment. The trained observer can often detect signs of choking.

Signs of mild airway obstruction may be:

- Good air exchange
- Can cough forcefully
- May wheeze between cough

Rescuers actions are:

- As long as good air exchange continues, encourage the victim to continue spontaneous coughing and breathing efforts
- Do not interfere with the victim's own attempts to expel the FB
- If mild obstruction persists, activate the emergency response system

Signs of severe airway obstruction may be:

- Poor or no air exchange
- Weak, ineffective cough or no cough at all
- High-pitched noise while inhaling or no noise at all
- Increased respiratory difficulty
- Possible cyanosis
- Unable to speak
- Clutching the neck

Rescuer's actions are:

- Ask the victim if he/she can talk
- Relieve the obstruction
 - Stand or kneel behind the victim
 - Make a fist with one hand
 - Place the thumb side of our fist against the victim's abdomen in the midline slightly above the navel and well below the breastbone
 - Grasp your fist with your other hand and press your fist into the victim's abdomen with a quick forceful upward thrust
 - Repeat thrusts until the object is expelled or the victim becomes unresponsive
 - *Use these same techniques in children 1-year of age or older*

Relief of Choking – Unconscious Victim

Choking victims initially may be responsive and then may become unresponsive. In this circumstance you know that choking caused the victim's symptoms, and you know to look for a foreign object in the throat. If a choking victim becomes unresponsive, activate the emergency response system. Lower the victim to the ground and begin CPR starting with compressions. For an adult or child victim every time you open the airway to give breaths, open the victim's mouth wide and look for the object. If you see the object that can easily be removed, remove it with your fingers. If you do not see the object, keep doing CPR.

Sometimes the choking victim may be unresponsive when you first encounter him/her. In these circumstances you probably will not know that an airway obstruction exists. Activate the emergency response system and start CPR (C-A-B sequence). You can tell you have successfully removed an airway obstruction in an unresponsive victim if you:

- Feel air movement and see the chest rise when you give breaths
- See and remove the FB from the victim's mouth

After you relieve choking in an unresponsive victim, treat him/her as you would any unresponsive victim and provide CPR or rescue breathing as needed.

Relief of Choking in Infants

Foreign bodies may cause a range of symptoms from mild to severe in infants.

Signs of mild airway obstruction may be:

- Good air exchange
- Can cough forcefully
- May wheeze between cough

Rescuers actions are:

- As long as good air exchange continues, encourage the victim to continue spontaneous coughing and breathing efforts
- Do not interfere with the victim's own attempts to expel the FB

- If mild obstruction persists, activate the emergency response system

Signs of severe airway obstruction may be:

- Poor or no air exchange
- Weak, ineffective cough or no cough at all
- High-pitched noise while inhaling or no noise at all
- Increased respiratory difficulty
- Possible cyanosis
- Unable to speak
- Clutching the neck

Rescuer's actions are:

- Ask the victim if he/she can talk
- Relieve the obstruction
 - Kneel with the victim in your lap
 - Hold the infant facedown with the head slightly lower than the chest resting on your forearm. Support the infant's head and jaw with your hand.
 - Deliver 5 back slaps forcefully between the infant's shoulder blades, using the heel of your palm.
 - After the 5 back slaps, turn the baby over using the sandwich technique
 - Provide 5 quick downward chest thrusts in the middle of the chest over the lower half of the breastbone (as you would compressions during CPR). Deliver each thrust at a rate of 1/sec.
 - Repeat the steps until the object is removed or the infant becomes unresponsive

If the infant becomes unresponsive start CPR beginning with compressions. Make sure you check the infant's airway before giving ventilations.