# Basic Life Support Study Guide

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
<th>ADULT</th>
<th>CHILD</th>
<th>INFANT</th>
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<tbody>
<tr>
<td><strong>ASSESSMENT</strong></td>
<td><strong>Adolescent and older</strong></td>
<td><strong>1 year to puberty</strong></td>
<td><strong>Less than 1 year of age</strong></td>
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<tr>
<td><strong>Scene Safety</strong></td>
<td>Make sure the environment is safe for rescuers and victim</td>
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<tr>
<td><strong>Recognition of Cardiac Arrest</strong></td>
<td>Check for responsiveness, shout for help if no response</td>
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<td></td>
<td>No breathing or only gasping (i.e. no normal breathing)</td>
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<td></td>
<td>No definite pulse felt within 10 seconds</td>
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<tr>
<td></td>
<td>(Breathing and pulse check can be performed simultaneously in less than 10 seconds)</td>
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<tr>
<td><strong>Activate emergency response system (Call 9-1-1)</strong></td>
<td><strong>Alone with no mobile phone</strong> Leave the victim to call 9-1-1 and get an AED before starting CPR</td>
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<td></td>
<td><strong>Alone with mobile phone</strong> Call 9-1-1 and begin CPR immediately; use AED as soon as it is available</td>
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<tr>
<td></td>
<td><strong>Not alone</strong> Send someone to call 9-1-1 and begin CPR immediately; use the AED as soon as it is available</td>
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### Circulation

**How to Check a Pulse**

- **Carotid pulse**
  - If no pulse → start CPR
- **Carotid pulse**
  - If no pulse or pulse is less than 60 bpm with signs of poor perfusion → start CPR
- **Brachial pulse**
  - If no pulse or pulse is less than 60 bpm with signs of poor perfusion → start CPR

**Compression rate**

- At least 5 seconds and no more than 10 seconds

**Compression depth**

- At least 2 inches (5 cm)
- At least 1/3 AP diameter
- About 2 inches (5 cm)
- About 1 1/2 inches (4 cm)

**Chest wall recoil**

- Allow complete recoil between chest compressions
- Do not lean on the chest after each compression

**Compression interruptions**

- Minimize interruptions in chest compressions
- Attempt to limit interrupts to < 10 seconds

**Compression location**

- Lower half of the breastbone
- Just below the nipple line on breastbone

**Compression method**

- 2 Hands: Heel of 1 hand with second hand on top
- 2 Hands: Heel of 1 hand with second hand on top
- 1-rescuer: 2 fingers
- 2-rescuers: 2 thumbs-encircling hands

### Airway

After 30 compressions, open the airway

Head tilt-chin lift (use jaw-thrust for suspected head and neck trauma)
**BREATHING**

Once the airway is open, give 2 breaths that make the chest rise. Each breath should take about 1 second. Total hands off time when giving breaths.

- **Compression : ventilation **without** an advanced airway**
  - 30:2 for **1-or-2-rescuer CPR**
- **Compression : ventilation **with** an advanced airway**
  - 30:2 for **1-rescuer CPR**
  - 15:2 for **2-rescuer CPR**
- **Rescue breathing without chest compressions**
  - 1 breath every 6 seconds with ongoing chest compressions at 100 – 120 bpm
  - 1 breath every 5 to 6 seconds
  - 1 breath every 3 to 5 seconds

**DEFIBRILLATION**

Automated External Defibrillator – AED

- **Pad sizes**
  - Use adult pads ONLY. Do **not** use child pads.
  - Use child pads for child ages 1 to 8.
  - Use adult AED pads if child pads are not available.

**Compression : ventilation without an advanced airway**

Attach and use AED as soon as possible.

Minimize interruptions in chest compressions before and after shock.

Resume CPR beginning with chest compressions immediately after each shock.

- **Manual defibrillator preferred.**
  - For AED:
    - Use child pads.
    - Use adult pads if child pads are not available.

**RESCUE TECHNIQUES: C-A-B and D**

**Assessment**

1. Determine that the scene is safe.
2. Within 10 seconds, simultaneously check to see if the victim is responsive, breathing normally, and has a pulse. If victim is unresponsive, not breathing normally, and has no pulse, send someone to activate the emergency response system (EMS) = call 9-1-1, and get the AED.

**Phone “FIRST” and Phone “FAST”**

Know the difference and when to use the appropriate method of activating EMS when the rescuer is ALONE.

**If rescuer is ALONE**

- **Adult**
  - **Phone FIRST**
    - Immediately call 9-1-1
    - Return to begin CPR
  - Phone FIRST means to prioritize activating EMS immediately to allow fast arrival of EMS professionals to attach and use a defibrillator.

- **Child or Infant**
  - **Phone FAST**
    - Immediately begin CPR
    - After 2 minutes, or 5 cycles of CPR, call 9-1-1
    - EXCEPTION: for sudden, witness collapse of child or infant, activate EMS immediately after verifying that victim is unresponsive and not breathing normally.
    - Phone FAST means to prioritize CPR before activating EMS in order to deliver oxygen immediately as the most common cause of cardiac arrest in infants and children is a severe airway breathing problem, respiratory arrest, or shock.
**Circulation**

♥ Check for a Pulse
- Perform a pulse check on an adult on the **carotid** artery of the neck.
- Compressions should be started within **10 seconds** of recognition of an unresponsive victim with no normal breathing and no pulse.
- Start CPR immediately when the adult victim is unresponsive, not breathing adequately, and does not have a pulse. For a child or infant, start compressions with a heart rate less than 60 bpm.

♥ Proper Hand Placement
- Adult: Place two hands in the center of the chest between the nipples on the lower half of the sternum (breastbone).
- Child: Place one or two hands in the center of the chest between the nipples (two hands preferred, only use one hand for a very small child).

♥ Push Hard
- Adequate depth of compressions is needed to create **blood flow**. Compress at least 2 inches in an adult, about 2 inches in a child, about 1 ½ inches in an infant.

♥ Push Fast
- The rate of performing chest compressions for a victim of any age (adult, child and infant) is **100 to 120** compressions per minute.

♥ Allow for Full Chest Recoil
- Take your weight off your hands and allow the chest to come back to its normal position. Full chest recoil maximizes the return of blood to the heart after each compression.

♥ Minimize Interruptions
- Minimizing interruptions in chest compressions will increase the victim’s chance of survival.

♥ Avoid Hyperventilation
♥ If 2 or more rescuers, switch quickly
- Adult: Switch compressor roles (30:2) every 5 cycles or two minutes.
- Child: Switch compressor roles (15:2) every 10 cycles or two minutes.
- Infant: Use 2-thumb encircling hands technique. Switch compressor roles (15:2) every 10 cycles or two minutes

**Airway**

♥ No suspected cervical spine injury – The **head tilt-chin lift** is the best way to open an unresponsive victim’s airway.
♥ **Suspected** cervical spine injury – The **jaw-thrust** is used for opening the airway without tilting the head or moving the neck. If after two unsuccessful attempts, use **head tilt-chin lift**.

**Breathing**

♥ Giving Breaths
- After 30 compressions, open the airway, and give two breaths. This can be done with a face mask, or by mouth-to-mouth. **Mouth-to-mouth** involves pinching the victim's nose close and give 1 breath (blowing for 1 second), watching for the chest to rise (look for chest rise in infants too).
- If the chest does not rise, make a second attempt to open the airway with the head tilt-chin lift. Then give 1 breath (blowing for 1 second) and watch for the chest to rise.
- Some victims may continue to demonstrate agonal or gasping breaths for a few minutes after a cardiac arrest. However, these breaths are too slow or too shallow and will not maintain oxygenation. This is not normal breathing and CPR should be performed.

♥ 2-Rescuer CPR
- While the first rescuer begins chest compressions, the second rescuer should maintain an open airway and give ventilations.
- A bag mask device should only be used in two-person CPR.

♥ Rescue Breathing
- Adult: Rescue breathing should be performed when an adult is not breathing and has a pulse.
- Child or Infant: Rescue breathing should be performed when a child or infant is not breathing effectively and has a heart rate greater than 60 bpm.
**CPR with an Advanced Airway**
- When an advanced airway (e.g. endotracheal tube) is in place and a patient has no pulse, compress at a rate of 100 to 120 compressions/minute and give 1 breath every 6 seconds.

**Defibrillation** – Attach the Automated External Defibrillator (AED)

**Importance of Defibrillation**
- Early defibrillation eliminates an abnormal heart rhythm so that the heart can restore a regular cardiac rhythm.

**Shock First**
- Immediate CPR and defibrillation within no more than 3 to 5 minutes gives an adult in sudden cardiac arrest the best chance of survival.

**AED on Adults**
- Only use adult AED pads when performing defibrillation on an adult. You may not use pediatric pads on an adult because they do not provide enough electrical energy to defibrillate an adult heart.

**AED on Children and Infants**
- Rescuer should use pediatric pads when available for anyone 8 years of age or younger. Use adult pads if pediatric pads are not available and make sure the pads do not touch or overlap.
- A manual defibrillator is preferred for infants, but if one is not available, use the AED.

**AED Pad Placement**
- Adult or Child victim: Place one pad on the victim’s upper right chest just below the collar bone and right of the sternum and the other pad on the left side and below the nipple, being careful that the pads do not touch.
- Infant victim: For a smaller child or infant, an alternative pad placement is anterior/posterior.

**Steps for Defibrillation**
1. Turn on the AED
2. Attach pads
3. Follow AED prompts

**Special Considerations**
- The AED may be used on a person of any age.
- Make sure to clear the victim before shocking so that you and others helping do not get shocked.
- If no shock is advised, leave the AED pads on the victim and continue CPR beginning with compressions.
- CPR alone may not save the life of a sudden cardiac arrest victim. Early defibrillation is needed.

**FOREIGN BODY AIRWAY OBSTRUCTION (CHOKING)**

**Choking on a Responsive Victim**
- Adult or Child:
  - Ask “Are you choking?”
  - Performing abdominal thrusts is the best way to relieve severe choking in a responsive adult or child.
- Infant:
  - Confirm severe airway obstruction.
  - Performing cycles of 5 back slaps and 5 chest thrusts is the best way to relieve severe choking in a responsive infant.

**Choking on an Unresponsive Victim**
- Immediately begin CPR when a choking victim becomes unresponsive (adult, child, or infant).
- When you open the airway to give breaths, look for and remove the object (if seen) before giving breaths.