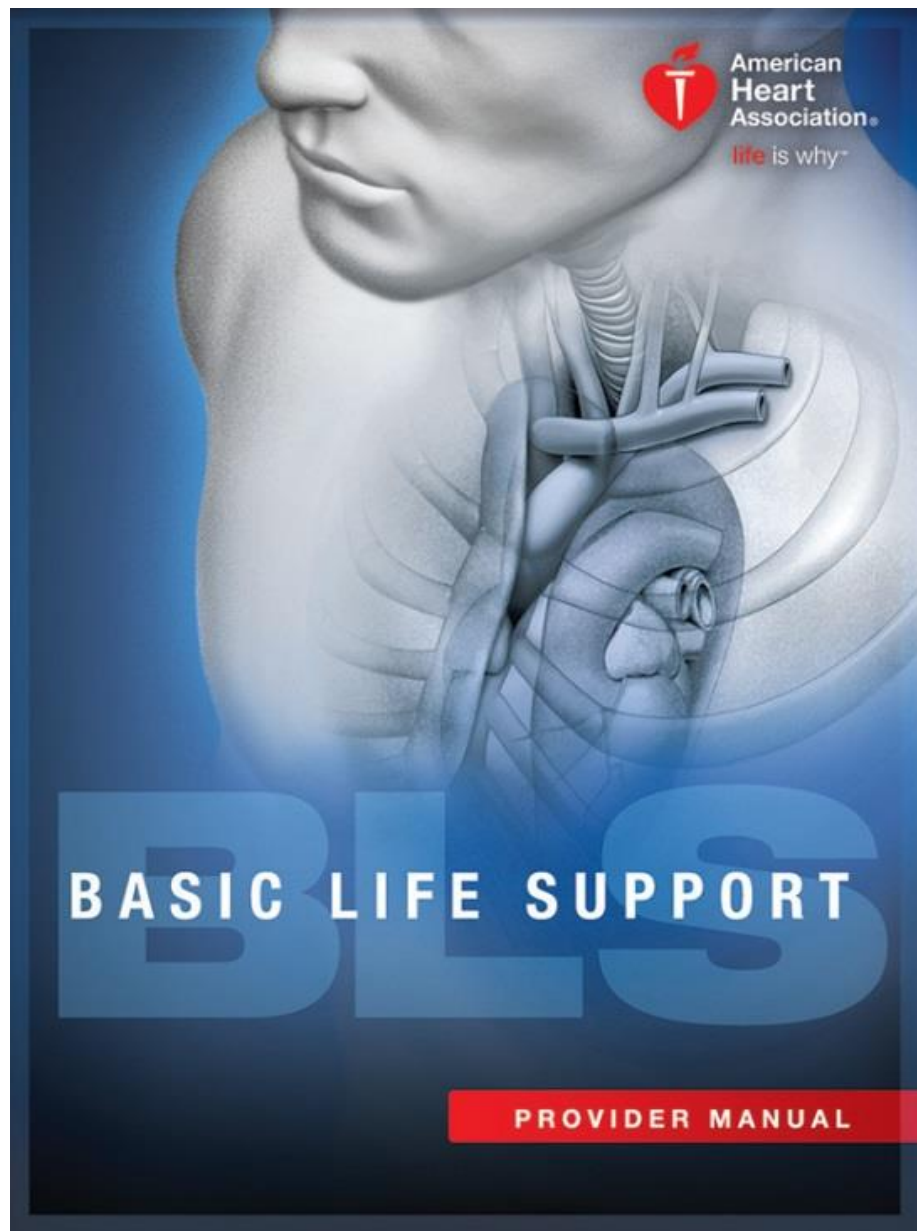




BLS- Healthcare Provider Review Packet

Updated for 2015 ECC/CPR Guidelines
OCT 2015



Purpose of CPR (cardiopulmonary resuscitation) = Circulate oxygenated blood to the vital organs

Purpose of AED (Automated External Defibrillator) = Re-establish a normal cardiac rhythm

AHA Adult Chain of Survival

IHCA and OHCA Chains of Survival

IHCA



OHCA



American Heart Association

CPR Age Groups:

Infant = Age 0-1

Child = Age 1 to Puberty (indicated by chest, underarm, and facial hair development in males, breast development in females)

Adult = Puberty and up

CPR consists of 4 main components:

Circulation – Checking pulse, cycles of CPR

Airway – Opening airway, choking relief

Breathing – Providing initial breaths, rescue breathing

Defibrillation – AED

Techniques to Open the Airway: Head Tilt/Chin Lift or Jaw Thrust (if cervical spine injury is suspected)

Summary of High-Quality CPR Components for BLS Providers

Component	Adults and Adolescents	Children (Age 1 Year to Puberty)	Infants (Age Less Than 1 Year, Excluding Newborns)
Scene safety	Make sure the environment is safe for rescuers and victim		
Recognition of cardiac arrest	Check for responsiveness No breathing or only gasping (ie, no normal breathing) No definite pulse felt within 10 seconds (Breathing and pulse check can be performed simultaneously in less than 10 seconds)		
Activation of emergency response system	If you are alone with no mobile phone, leave the victim to activate the emergency response system and get the AED before beginning CPR Otherwise, send someone and begin CPR immediately; use the AED as soon as it is available	Witnessed collapse Follow steps for adults and adolescents on the left Unwitnessed collapse Give 2 minutes of CPR Leave the victim to activate the emergency response system and get the AED Return to the child or infant and resume CPR; use the AED as soon as it is available	
Compression-ventilation ratio without advanced airway	1 or 2 rescuers 30:2	1 rescuer 30:2 2 or more rescuers 15:2	
Compression-ventilation ratio with advanced airway	Continuous compressions at a rate of 100-120/min Give 1 breath every 6 seconds (10 breaths/min)		
Compression rate	100-120/min		
Compression depth	At least 2 inches (5 cm)*	At least one third AP diameter of chest About 2 inches (5 cm)	At least one third AP diameter of chest About 1½ inches (4 cm)
Hand placement	2 hands on the lower half of the breastbone (sternum)	2 hands or 1 hand (optional for very small child) on the lower half of the breastbone (sternum)	1 rescuer 2 fingers in the center of the chest, just below the nipple line 2 or more rescuers 2 thumb-encircling hands in the center of the chest, just below the nipple line
Chest recoil	Allow full recoil of chest after each compression; do not lean on the chest after each compression		
Minimizing interruptions	Limit interruptions in chest compressions to less than 10 seconds		

*Compression depth should be no more than 2.4 inches (6 cm).

Abbreviations: AED, automated external defibrillator; AP, anteroposterior; CPR, cardiopulmonary resuscitation.

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Figure 5

BLS Healthcare Provider Adult Cardiac Arrest Algorithm—2015 Update

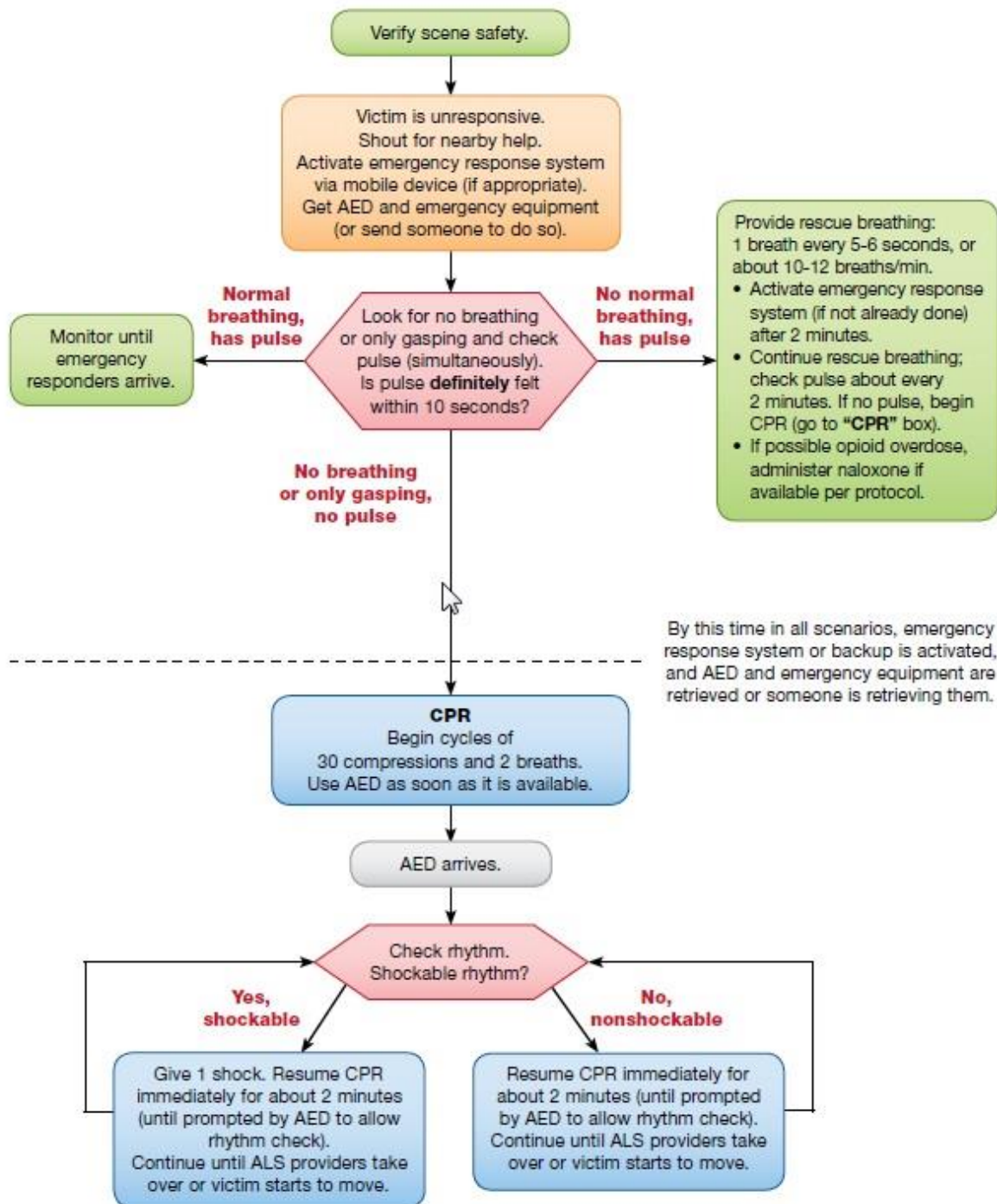


Figure 7

BLS Healthcare Provider Pediatric Cardiac Arrest Algorithm for the Single Rescuer— 2015 Update

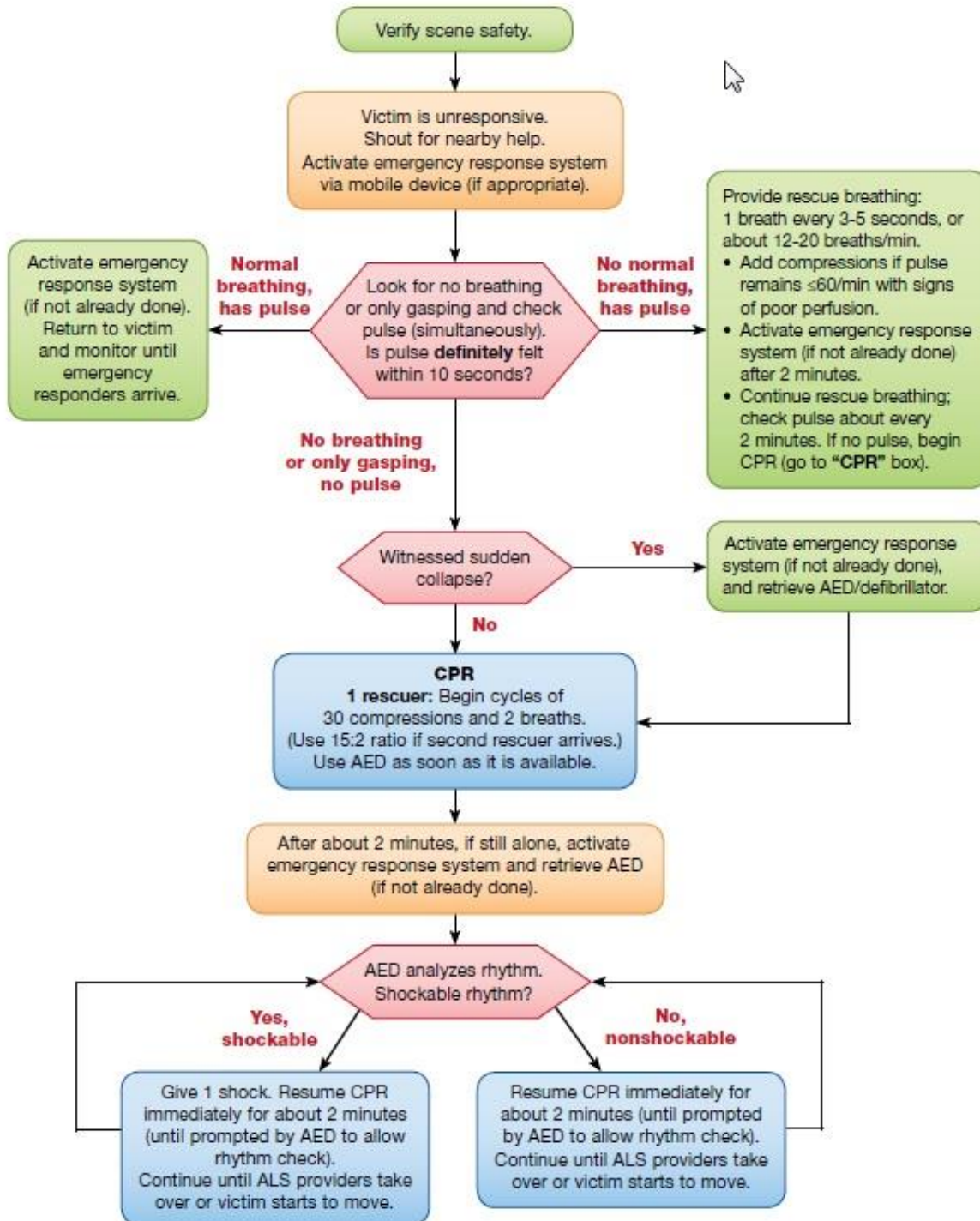
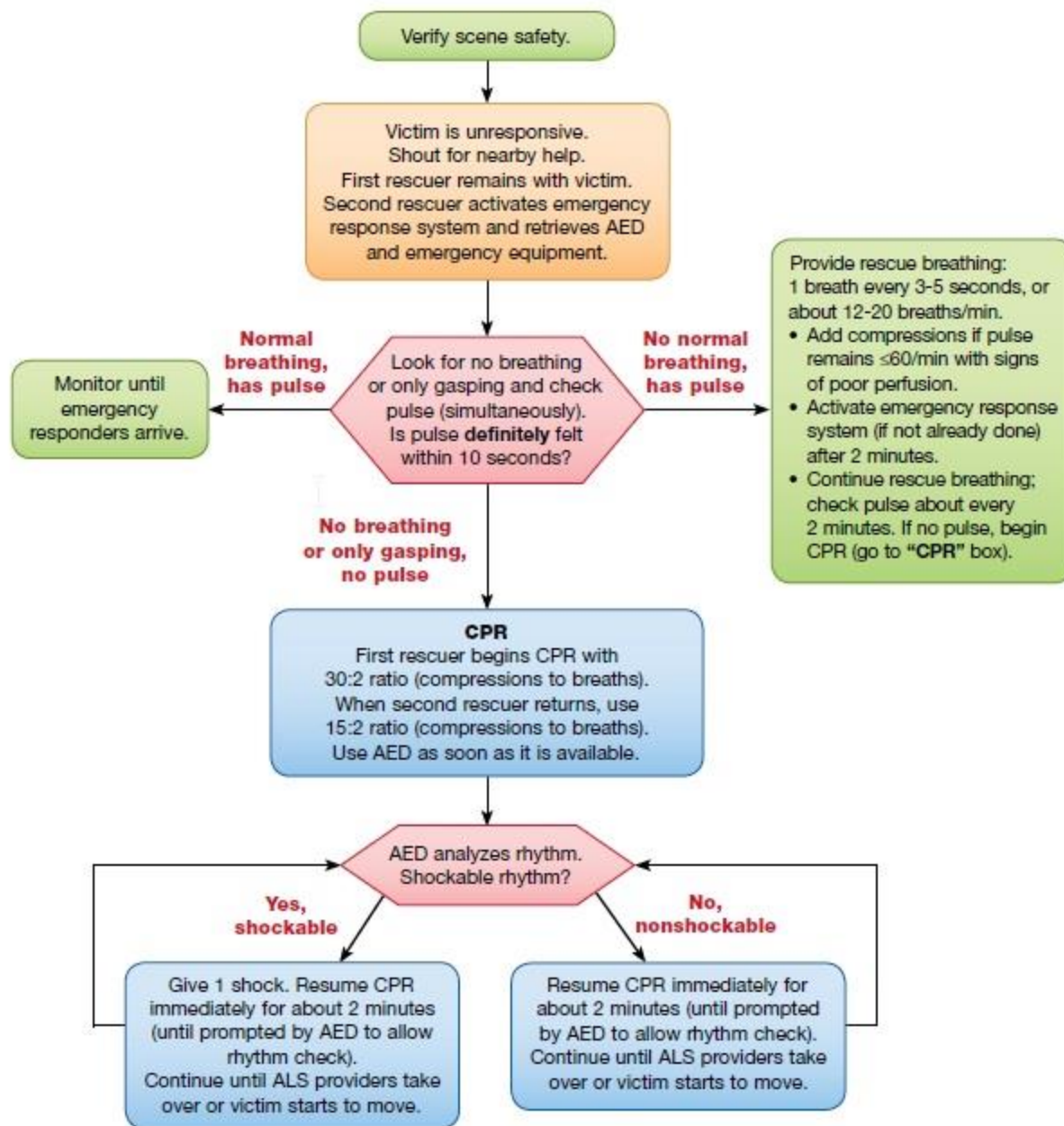


Figure 8

BLS Healthcare Provider Pediatric Cardiac Arrest Algorithm for 2 or More Rescuers—2015 Update



life is why.™

At the American Heart Association, we want people to experience more of life's precious moments. That's why we've made better heart and brain health our mission. It's also why we remain committed to exceptional training—the act of bringing resuscitation science to life—through genuine partnership with you. Only through our continued collaboration and dedication can we truly make a difference and save lives.

Until there's a world free of heart disease and stroke, the American Heart Association will be there, working with you to make a healthier, longer life possible for everyone.

Why do we do what we do? life is why.

Life Is Why is a celebration of life. A simple yet powerful answer to the question of why we should all be healthy in heart and mind. It also explains why we do what we do: Lifesaving work. Every day.

Throughout your student manual, you will find information that correlates what you are learning in this class to **Life Is Why** and the importance of cardiovascular care. Look for the **Life Is Why** icon (shown at right), and remember that what you are learning today has an impact on the mission of the American Heart Association.

We encourage you to discover your **Why** and share it with others. Ask yourself, what are the moments, people, and experiences I live for? What brings me joy, wonder, and happiness? Why am I partnering with the AHA to help save lives? Why is cardiovascular care important to me? The answer to these questions is your **Why**.



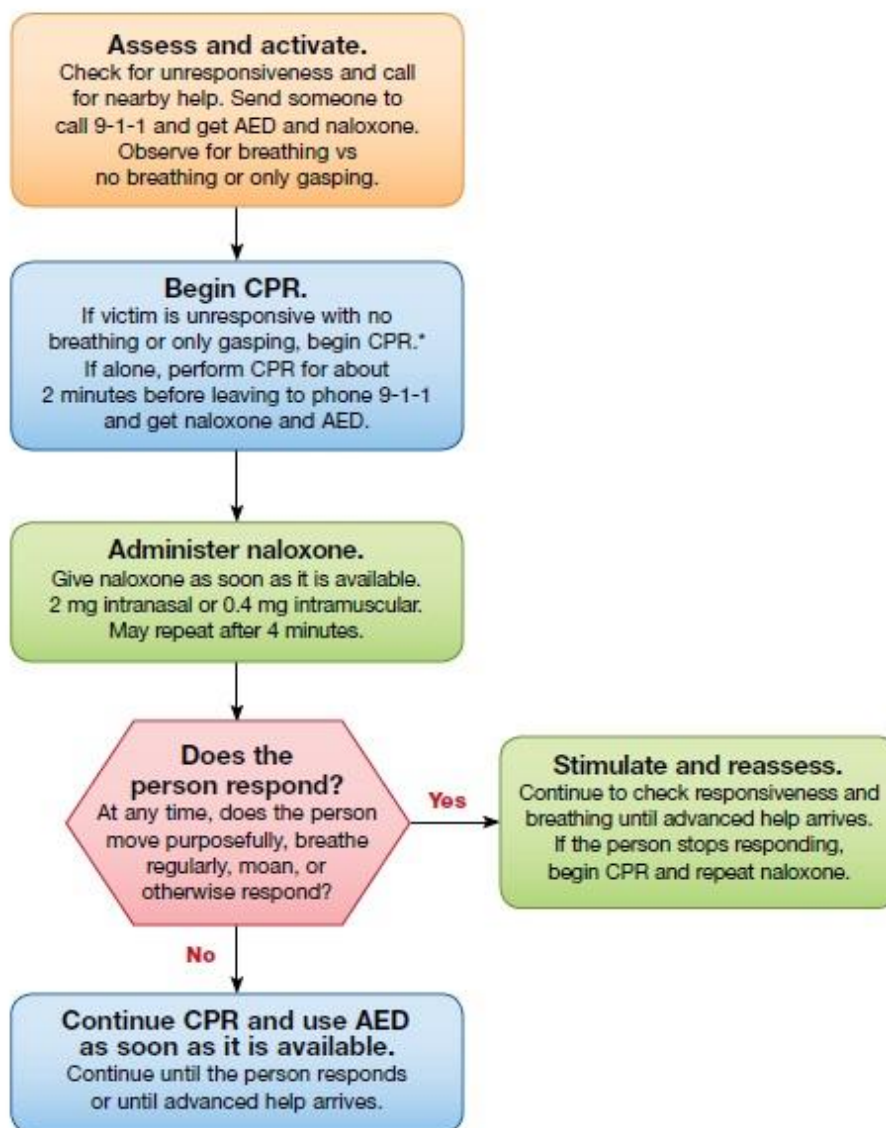
Instructions

Please find on the back of this page a chance for you to participate in the AHA's mission and **Life Is Why** campaign. Complete this activity by filling in the blank with the word that describes your **Why**.

Share your "_____ **Is Why**" with the people you love, and ask them to discover their **Why**.

Talk about it. Share it. Post it. Live it. #lifeiswhy #CPRsavesLives



Figure 6**Opioid-Associated Life-Threatening Emergency (Adult) Algorithm—New 2015**

*CPR technique based on rescuer's level of training.

arrest, the provision of naloxone may help an unresponsive patient with severe respiratory depression who only appears to be in cardiac arrest (ie, it is difficult to determine if a pulse is present).

Intravenous Lipid Emulsion

2015 (Updated): It may be reasonable to administer ILE, concomitant with standard resuscitative care, to patients who have premonitory neurotoxicity or cardiac arrest due to

local anesthetic toxicity. It may be reasonable to administer ILE to patients with other forms of drug toxicity who are failing standard resuscitative measures.

2010 (Old): It may be reasonable to consider ILE for local anesthetic toxicity.

Why: Since 2010, published animal studies and human case reports have examined the use of ILE for patients with drug toxicity that is not the result of local anesthetic infusion. Although the results of these studies and reports

Identification of Airway Obstruction

	Victims 1 year of age and older	Infants (less than 1 year)
<u>Signs of Mild Airway Obstruction:</u>	Good air exchange; responsive and can cough forcefully; may wheeze between breaths	Good air exchange; responsive and can cough forcefully; may wheeze between breaths
<i>Rescuer actions:</i>	Encourage victim's breathing; do not interfere with their attempts to expel the foreign body, stay with victim and monitor; if persists, activate EMS	Do not interfere with their attempts to expel the foreign body, stay with victim and monitor; if persists, activate EMS
<u>Signs of Severe Airway Obstruction:</u>	Poor or no air exchange; weak, ineffective cough or no cough; high-pitched noise while inhaling or no noise; increased respiratory difficulty; possible cyanosis (turning blue); unable to speak; clutching the neck with the thumb and fingers, making the universal choking sign; unable to move air	Poor or no air exchange; weak, ineffective cough or no cough; high-pitched noise while inhaling or no noise; increased respiratory difficulty; possible cyanosis (turning blue); unable to cry; unable to move air
<i>Rescuer actions:</i>	Ask "Are you choking?". If victim nods and cannot talk, severe airway obstruction is present. Activate EMS and follow steps for care (see next page).	If victim cannot make any sounds or breath, severe airway obstruction is present. Activate EMS when appropriate. follow steps for care (see next page).

Relief of Severe Airway Obstruction

	Victims 1 year of age and older	Infant (<1 yr)
Responsive Victim w/ Severe Airway Obstruction	<ol style="list-style-type: none"> 1. Identify self, ask for permission to help (ask parent or guardian if child). 2. Perform abdominal thrusts *Use chest thrusts for obese or pregnant victims 3. Continue abdominal thrusts until the object is expelled or the victim becomes unresponsive. 	<ol style="list-style-type: none"> 1. Position infant facedown, resting on forearm, head slightly lower than chest, supporting head and jaw with hand. Rest forearm on thigh. 2. 5 back slaps (middle of back btwn shoulder blades w/ heel of hand) 3. Carefully turn infant over as a unit, supporting head. Support infant on forearm. Rest forearm on thigh. 4. 5 chest thrusts (2 finger position just below the nipple line). 5. Repeat back slaps & chest thrusts until object is expelled or the infant becomes unresponsive.

Unresponsive Victim w/Severe Airway Obstruction	Adult 1. Activate EMS 2. Open the airway, look for an object. If an object <u>is visible</u> , remove it. DO NOT perform a blind finger sweep. 3. Begin CPR** with one extra step: each time you open the airway, look for the object in the back of the throat. If you see an object, remove it.	Child 1. Open the airway, look for an object. If an object <u>is visible</u> , remove it. DO NOT perform a blind finger sweep. 2. Begin CPR** with one extra step: each time you open the airway, look for the object in the back of the throat. If you see an object, remove it. 3. After approximately 5 cycles (2 minutes) of CPR, activate EMS.	1. Place infant on firm, flat surface. 2. Open the airway, look for an object. If an object <u>is visible</u> , remove it. DO NOT perform a blind finger sweep. 3. Begin CPR** with one extra step: each time you open the airway, look for the object in the back of the throat. If you see an object, remove it. 4. After approximately 5 cycles (2 minutes) of CPR, activate EMS.
	**Chest compressions give effective pressure in the chest and may be able to relieve the obstruction.		

Recovery Position

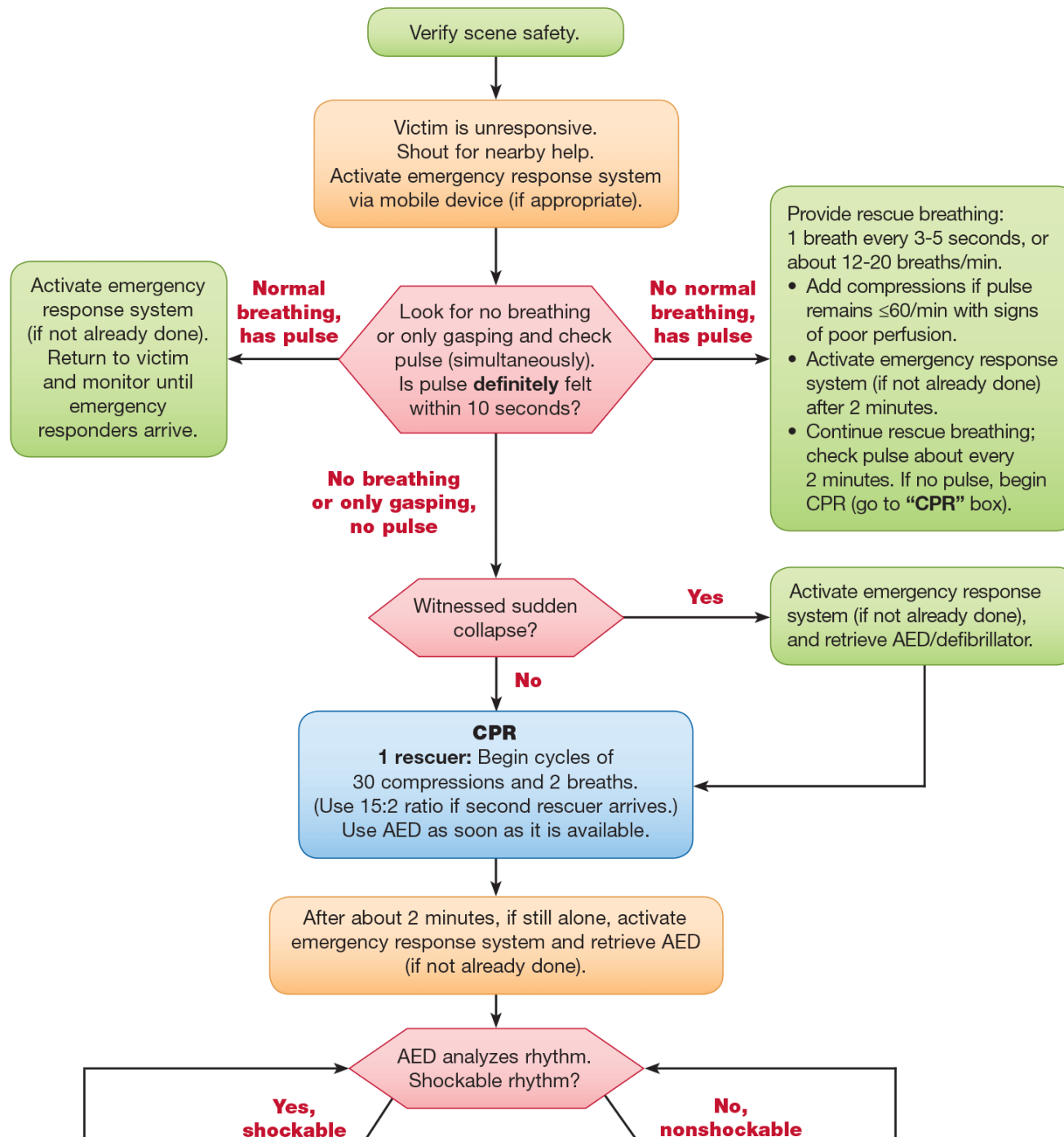
A stable modified lateral position that maintains alignment of the back and spine while allowing the rescuer to observe and maintain access to the victim.

Use the recovery position to manage unresponsive victims who have adequate breathing. When an unresponsive victim is breathing spontaneously, the tongue, mucus, or vomit may block the airway. By placing the victim on their side, fluid can drain from the mouth. You must still monitor the victim's ABCs.

****Not Recommended for small children, infants or trauma victims**

BLS Healthcare Provider

Pediatric Cardiac Arrest Algorithm for the Single Rescuer—2015 Update




Life Threatening Emergencies: Sudden Cardiac Arrest, Heart Attack, Stroke


	<u>Etiology</u>	<u>Warning Signs</u>	<u>Risk Factors</u>	<u>Appropriate Actions</u>	<u>Research Notes</u>
<u>Sudden Cardiac Arrest (SCA)</u>	Circulation ceases, vital organs do not receive oxygen due to sudden onset of ventricular fibrillation (VF)	Sudden collapse with little to no warning signs. No response to gentle shaking. Victim will not be breathing and will have no pulse.	Can happen at any age, both genders, any race Some conditions such as Marfan's Syndrome and Hypertrophic Cardiomyopathy (HCM) increase the risk of SCA. Blunt blows to the chest (Commotio Cordis) may also induce SCA.	Recognize warning signs; activate EMS and begin CPR. If an AED is available, use it. <i>Note: Victims in SCA will often have agonal gasps. They are ineffective and will not maintain oxygenation or ventilation.</i>	Defibrillation is the only definitive treatment for VF SCA. * 90% effective if first shock is delivered w/in 4 minutes of cardiac arrest w/ at least 1min of CPR. * 70% effective if first shock is delivered w/in 4 minutes of cardiac arrest w/ no CPR. * Effectiveness decreases by 10% each minute after.
<u>Heart Attack (Myocardial Infarction)</u>	Severe narrowing of coronary artery by cholesterol plaque Cracking or erosion of plaque with formation of a blood clot, leading to complete blockage of artery. OR Blood vessel spasm (i.e. due to cocaine) Area of the heart is deprived of blood flow and oxygen for a prolonged period (< 20-30 min) and heart muscle begins to die.	Chest discomfort; shortness of breath; nausea; sweating; lightheadedness w/chest discomfort; fainting; anxiety/feelings of doom <u>Atypical Signs:</u> elderly, diabetics, women most likely to present unusual or vague, nonspecific complaints (i.e. weakness) Shortness of breath, syncope or lightheadedness may be only signs in diabetics.	<u>Unmodifiable:</u> Heredity; male gender; increasing age <u>Modifiable:</u> Untreated hypertension; smoking; elevated blood cholesterol; physical inactivity; contributing factors = diabetes, obesity, stress	Recognize warning signs; activate EMS immediately; stay with victim; have victim rest quietly in comfortable position; monitor ABC's & be prepared to start CPR. Get an AED if available.	Ischemic heart muscle may develop abnormal electrical rhythms including VF. Out-of-hospital cardiac arrest from heart attack develops w/in the first 4 hrs of onset of symptoms. <i>Framingham Study Follow-Up: 1/3 of first MI in men and 1/2 in women were clinically unrecognized. 1/2 of these were truly silent, other 1/2 had atypical presentation.</i>
<u>Stroke</u>	Blood clot forms blocking blood in an artery from bringing blood to part of the brain. Result of atherosclerosis. OR Hemorrhage (bleeding) of an artery in the brain caused by brain injury or aneurysm.	Sudden weakness/numbness on one side of body; loss, slurred or incoherent speech; unexplained dizziness, unsteadiness or sudden falls; dimness or loss of vision in one eye; loss of consciousness; severe or intense headache	<u>Unmodifiable:</u> Heredity; increasing age; race (Black Americans); diabetes; prior stroke; female gender <u>Modifiable:</u> Hypertension; smoking; heart disease; high red blood cell count; transient ischemic attacks (TIAs); physical inactivity	Recognize warning signs; activate EMS immediately; stay with victim; try to establish exact time of onset of symptoms; have victim rest quietly in comfortable position; monitor ABCs & be prepared to start CPR. Get an AED if available.	Cerebral thrombosis (clots) and embolism most common types of strokes (70-80%). <i>If given within three hours of the start of symptoms, a clot-busting drug can reduce long-term disability for the most common type of stroke.</i>

Positions for 6-Person High-Performance Teams*


Resuscitation Triangle Roles

 **Compressor**

- Assesses the patient
- Does 5 cycles of chest compressions
- Alternates with AED/Monitor/Defibrillator every 5 cycles or 2 minutes (or earlier if signs of fatigue set in)

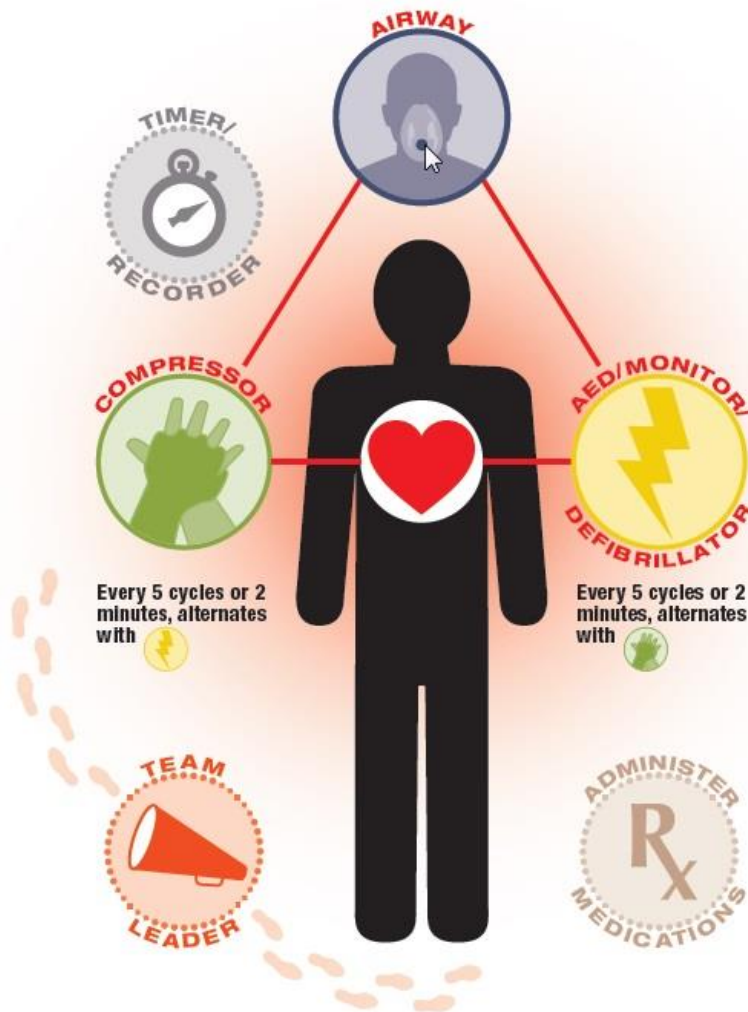
 **AED/Monitor/Defibrillator**

- Brings and operates the AED/monitor/defibrillator
- Alternates with Compressor every 5 cycles or 2 minutes (or earlier if signs of fatigue set in), ideally during rhythm analysis
- If a monitor is present, places it in a position where it can be seen by the Team Leader (and most of the team)


 **Airway**

- Opens and maintains the airway
- Provides ventilation


The team owns the code. No team member leaves the triangle except to protect his or her safety.




Leadership Roles

 **Team Leader**

- Every resuscitation team must have a defined leader**
- Assigns roles to team members
- Makes treatment decisions
- Provides feedback to the rest of the team as needed
- Assumes responsibility for roles not assigned

 **Administer Medications**

- An ALS provider role
- Administers medications

 **Timer/Recorder**

- Records the time of interventions and medications (and announces when these are next due)
- Records the frequency and duration of interruptions in compressions
- Communicates these to the Team Leader (and the rest of the team)

*This is a suggested team formation. Roles may be adapted to local protocol.