BLS- Healthcare Provider Review Packet

Updated for 2010 ECC/CPR Guidelines

Revised August 2011

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

1. **Recognition/Activation** of EMS
2. Early **CPR**
3. Rapid **Defibrillation**
4. Early **advanced life support**
5. Integrated **post-cardiac arrest care**

AHA Pediatric Chain of Survival

1. **Prevention** of arrest
2. **Early** and **effective CPR**
3. Rapid **activation** of the EMS system
4. Early and effective pediatric **advanced life support**
5. Integrated **post-cardiac arrest care**

CPR Age Groups (for HealthCare Provider level CPR ONLY):

Infant = Age 0-1

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

Adult = Puberty and up

The CABDs of BLS

Circulation – Check pulse for 5-10 seconds; if no definite pulse, start cycles of CPR, **begin** with compressions (Push Hard, Push Fast and Allow Full Chest Recoil)

Airway – Opening airway w/Head Tilt/Chin Lift

Breathing – Give 2 initial breaths (enough to make the chest rise, delivered slow over 1 second each)

Defibrillation – AED - Universal Steps to run the AED: 1. **Power**, 2. Place **pads** on chest, 3. **Plug** in pads to unit (if needed), 4. Analyze (CLEAR!!), 5. Shock (if indicated) (CLEAR!!), 6. Immediate cycles of CPR beginning with compressions (DO NOT pause for pulse check after first shock). Continue until next prompt from AED (will be approximately 2 minutes).

CPR Ratios

1 Rescuer – I Ratio (all ages) = 30:2 **5 Cycles of 30:2 take approximately 2 minutes

2 Rescuers – 2 Ratios = Adults = 30:2, Children/Infants = 15:2

Rate/Speed of Chest Compressions (all ages) = at least 100 compressions per minute

Techniques to Open the Airway: Head Tilt/Chin Lift or Jaw Thrust (if cervical spine injury is suspected) ** *If you cannot get adequate chest rise with the Jaw Thrust, use the Head Tilt/Chin Lift.*

Rescue Breathing with or without Bag-Valve Mask and Supplementary Oxygen:

Adults = 1 breath every 5-6 seconds

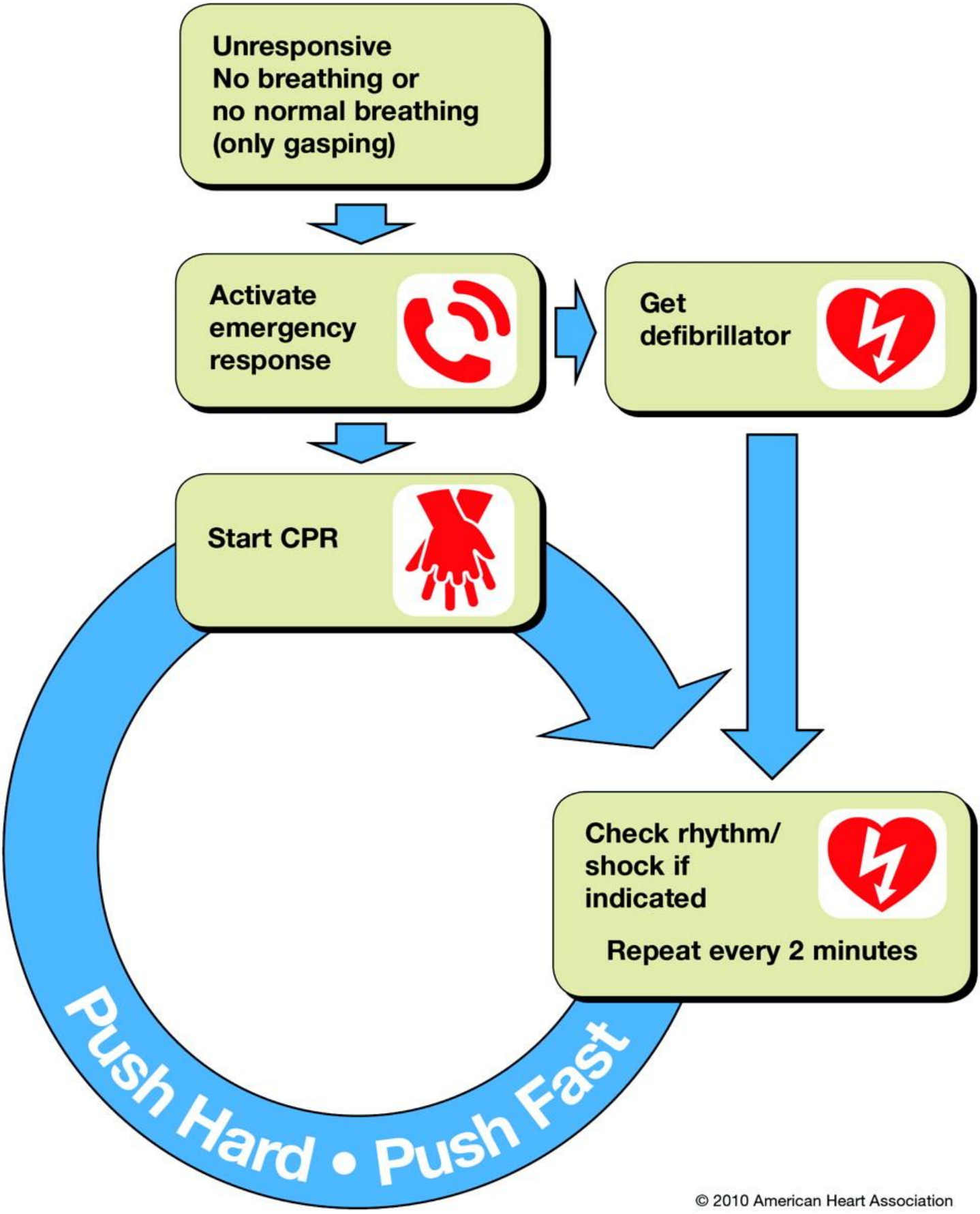
Children/Infants = 1 breath every 3-5 seconds

Advanced Airway (ET, LMA, King) (all ages) = 1 breath every 6-8 seconds

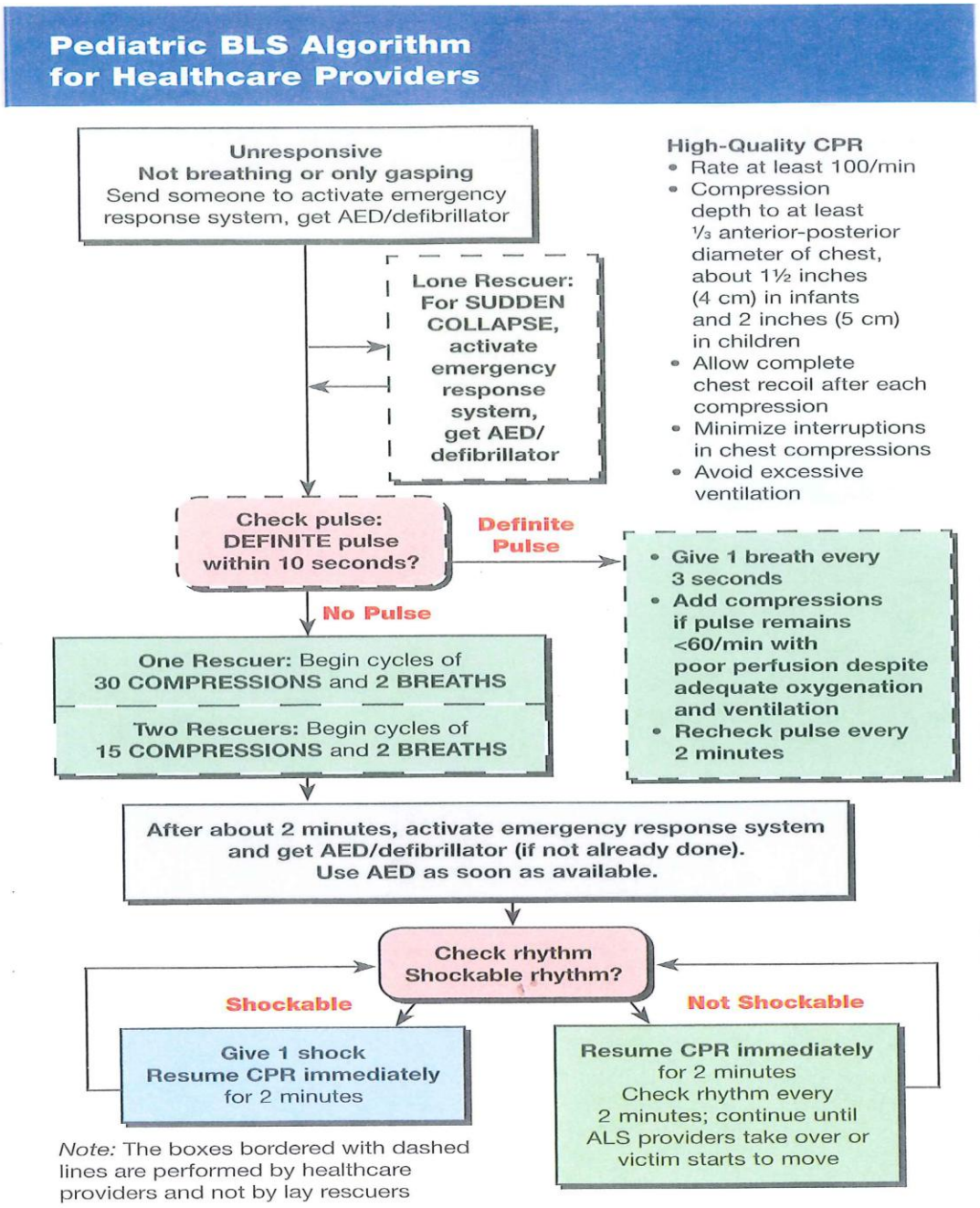
Agonal Respirations = Gasping, inadequate breaths seen in unresponsive victims, no chest rise – need to give rescue breaths

CPR when Advanced Airway is in place (all ages) = No pause for breaths. Continuous chest compressions while breaths are done 1 breath every 6-8 seconds. Switch after approximately 5 cycles of compressions (~150).

Simplified Adult BLS



Pediatric BLS Algorithm



Healthcare Provider Summary of Steps of CPR for Adults, Children, and Infants

Component	Recommendations		
	Adults	Children	Infants
Recognition	Unresponsive (for all ages)		
	No breathing or no normal breathing (ie, only gasping)	No breathing or only gasping	
	No pulse felt within 10 seconds		
CPR sequence	Chest compressions, Airway, Breathing (C-A-B)		
Compression rate	At least 100/min		
Compression depth	At least 2 inches (5 cm)	At least ⅓ AP diameter About 2 inches (5 cm)	At least ⅓ AP diameter About 1½ inches (4 cm)
Chest wall recoil	Allow complete recoil between compressions Rotate compressors every 2 minutes		
Compression interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds		
Airway	Head tilt–chin lift (suspected trauma: jaw thrust)		
Compression-ventilation ratio (until advanced airway placed)	30:2 1 or 2 rescuers	30:2 Single rescuer 15:2 2 rescuers	
Ventilations with advanced airway	1 breath every 6-8 seconds (8-10 breaths/min) Asynchronous with chest compressions About 1 second per breath Visible chest rise		
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock; resume CPR beginning with compressions immediately after each shock.		

Abbreviations: AED, automated external defibrillator; AP, anterior-posterior; CPR, cardiopulmonary resuscitation.

Recovery Position (left –side preferred when possible)

What: 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.

When to use: The recovery position is primarily used 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: It is not recommended for small children, infants or trauma victims. These victims may need additional assistance maintaining the open airway, and additional movement may further the risk of injury.

Identification of Airway Obstruction

	Victims 1 year of age and older	Infants (less than 1 year)
Signs of Mild Airway Obstruction:	Good air exchange; responsive and can cough forcefully; may wheeze between breaths	Good air exchange; responsive and can cough forcefully; may wheeze between breaths
Rescuer actions:	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
Signs of Severe Airway Obstruction:	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
Rescuer actions:	Ask "Are you choking?". If victim nods and cannot talk, severe airway obstruction is present. Activate EMS and follow steps for care (see below).	If victim cannot make any sounds or breathe, severe airway obstruction is present. Activate EMS when appropriate. follow steps for care (see below).

Relief of Severe Airway Obstruction

	Victims 1 year of age and older	Infant (<1 yr)
Responsive Victim w/ Severe Airway Obstruction	1. Identify self, tell victim that you will help them, (ask parent or guardian if child). 2. Perform abdominal thrusts (Heimlich Maneuver) *Use *chest thrusts for obese or pregnant victims or if the victim is in a wheelchair* 3. Continue abdominal thrusts until the object is expelled or the victim becomes unresponsive.	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 blows (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 blows & 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 is visible, 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 is visible, remove it with pinkie finger. 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 is visible, remove it with pinkie finger. 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 provide effective pressure in the chest and may be able to relieve the obstruction.***			

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

	Etiology	Warning Signs	Risk Factors	Appropriate Actions	Research Notes
Sudden Cardiac Arrest (SCA)	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. *Note: Victims in SCA will often have agonal gasps. They are ineffective and will not maintain oxygenation or ventilation.*	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.*
Heart Attack (Myocardial Infarction)	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 Atypical Signs: 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.	Unmodifiable: Heredity; male gender; increasing age Modifiable: 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. *Framingham Study Follow-Up: 1/3 of first MI in men and ½ in women were clinically unrecognized. ½ of these were truly silent, other ½ had atypical presentation.*
Stroke	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	Unmodifiable: Heredity; increasing age; race (Black Americans); diabetes; prior stroke; female gender Modifiable: 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%). *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.*

NOTES