Adult
Basic Life Support
(BLS)

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cardiology

I have no disclosures.

OBJECTIVES

- Understand the Adult Chain of Survival

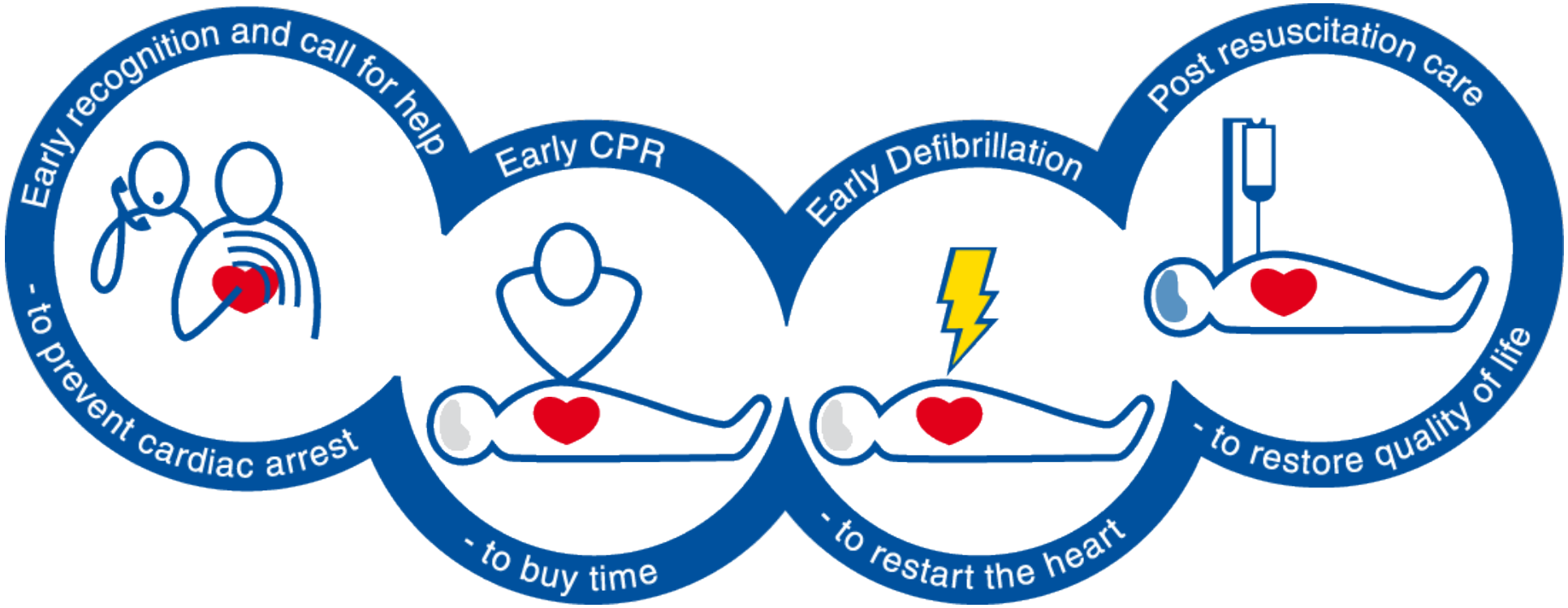
- Adult BLS Steps
  - How to assess the collapsed victim
  - How to perform High Quality CPR
  - How to provide effective ventilation
  - How to properly use an AED
  - How to place an unconscious breathing victim in the recovery position.

- Special Scenarios
  - Opioid Overdose

BACKGROUND

- Approximately 700,000 cardiac arrests per year in Europe
- Survival to hospital discharge presently approximately 5-10%
- Bystander CPR vital intervention before arrival of emergency services – double or triple survival from SCA (sudden cardiac arrest)
- Early resuscitation and prompt defibrillation (within 1-2 minutes) can result in >60% survival
- Where are our national figures?

CHAIN OF SURVIVAL



CHAIN OF SURVIVAL – Adults

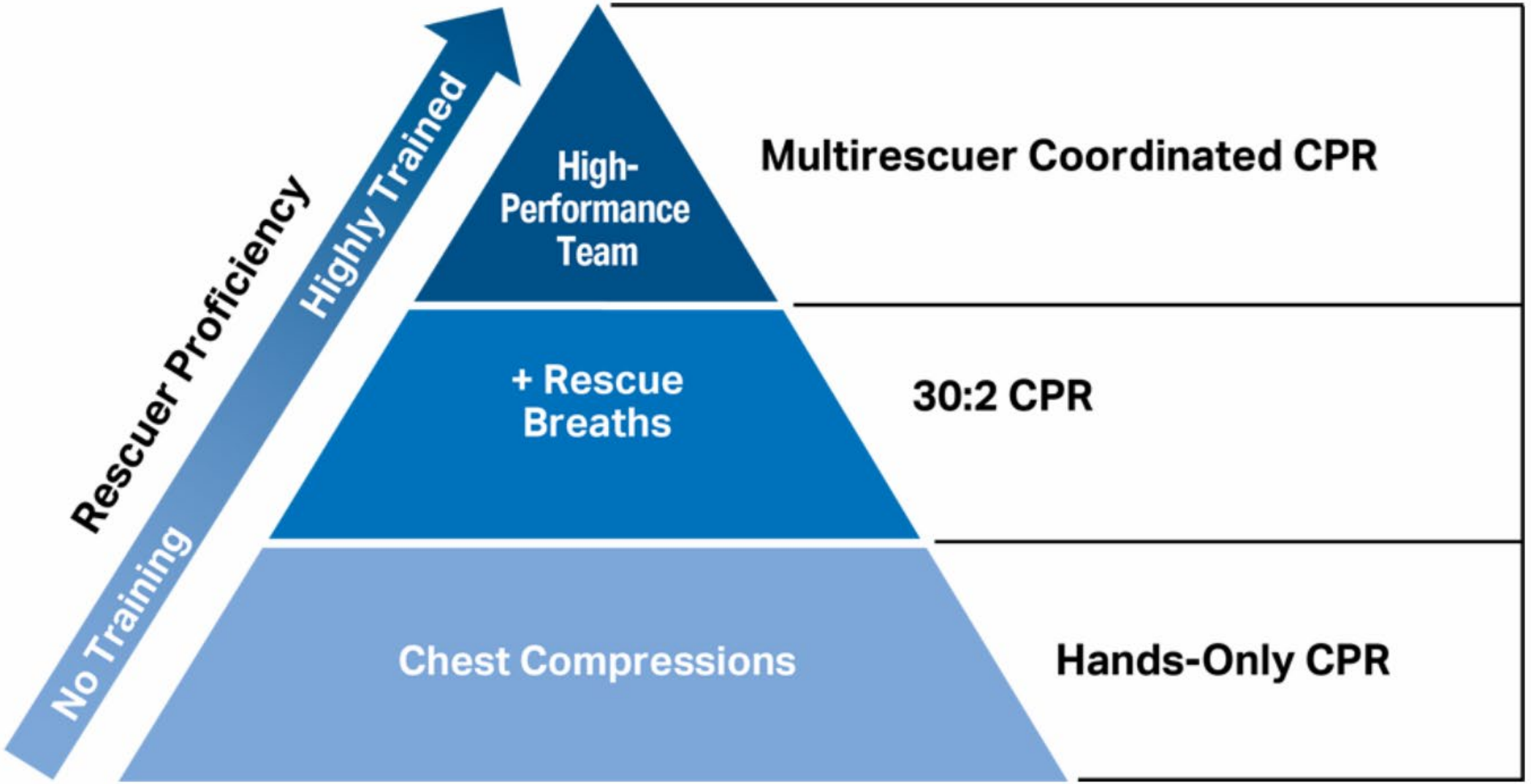
Out-of-Hospital

In-Hospital

CHAIN OF SURVIVAL - Paediatrics

Out-of-Hospital

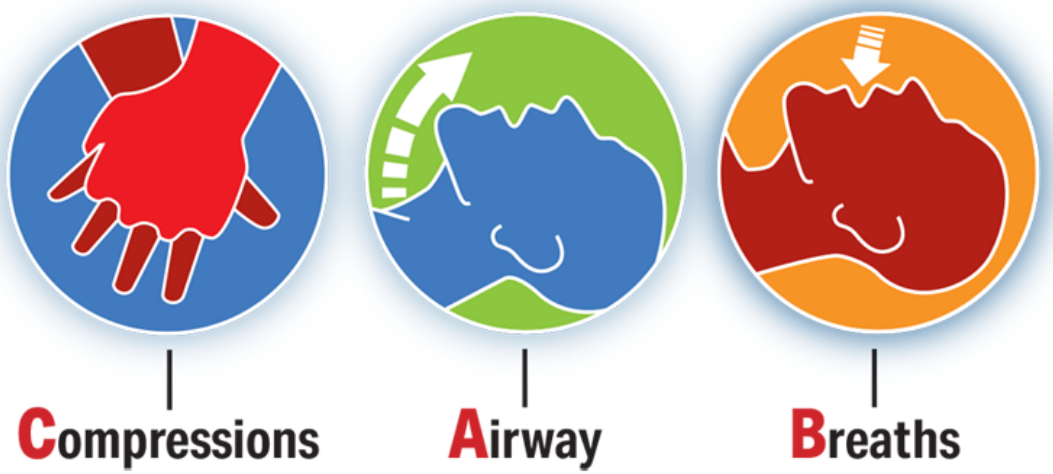
In-Hospital



“Something is better than nothing”

American Heart Association.

C-A-B

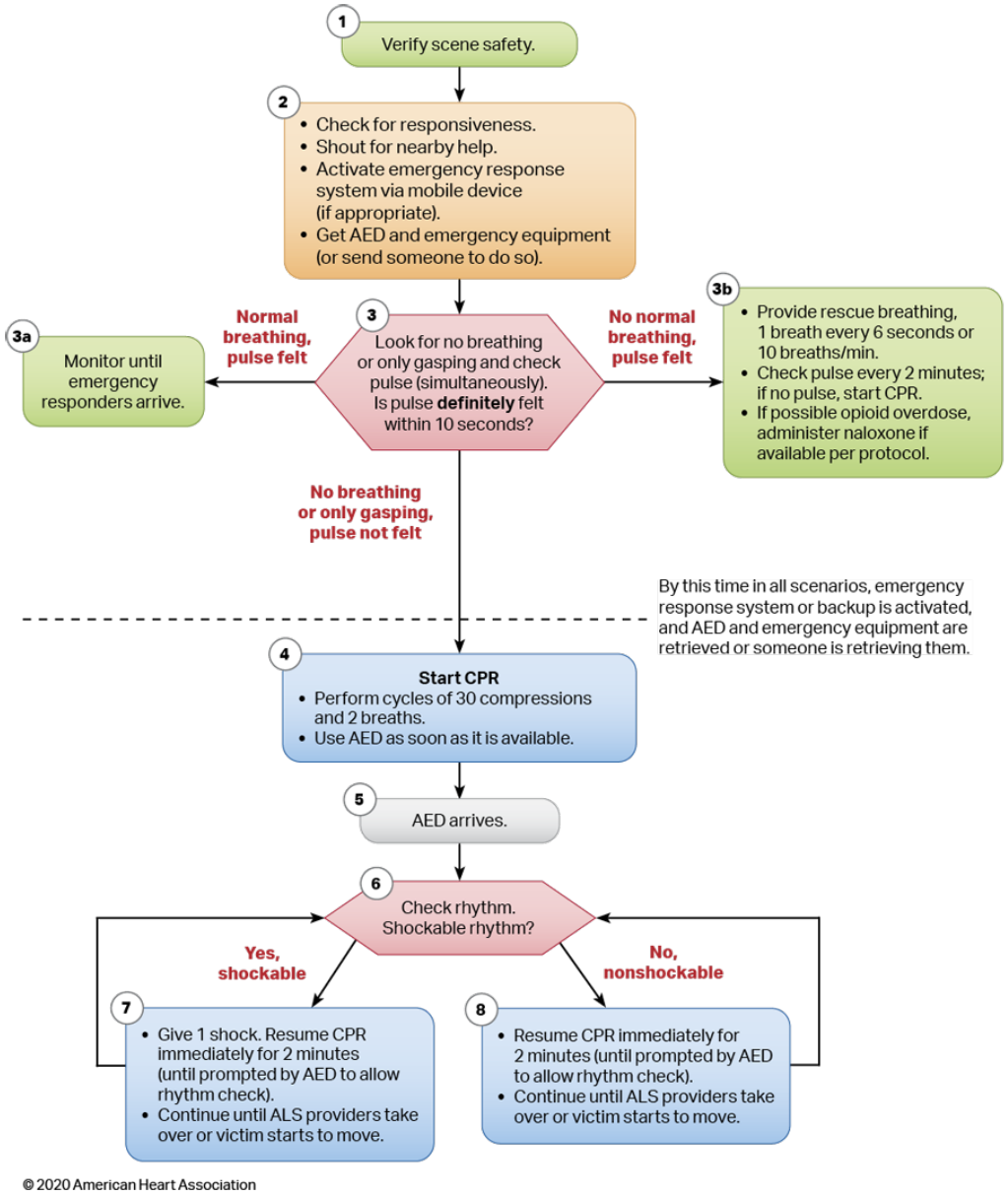


Critical Concepts

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

- **Start compressions within 10 seconds** after recognizing cardiac arrest.
- **Push hard and push fast:** Compress at a rate of 100 to 120/min with a depth of
  - At least 5 cm for adults
  - At least one third the depth of the chest, approximately 5 cm, for children
  - At least one third the depth of the chest, approximately 4 cm, for infants
- **Allow complete chest recoil** after each compression.
- **Minimize interruptions** in compressions (try to limit interruptions to less than 10 seconds).
- **Give effective breaths** that make the chest rise.
- **Avoid excessive ventilation.**

Adult BLS


1
Verify scene safety.
2
• Check for responsiveness.
• Shout for nearby help.
• Activate emergency response system via mobile device (if appropriate).
• Get AED and emergency equipment (or send someone to do so).
3
Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?
Normal breathing, pulse felt
3a
Monitor until emergency responders arrive.
No normal breathing, pulse felt
3b
• Provide rescue breathing, 1 breath every 6 seconds or 10 breaths/min.
• Check pulse every 2 minutes; if no pulse, start CPR.
• If possible opioid overdose, administer naloxone if available per protocol.
No breathing or only gasping, pulse not felt
By this time in all scenarios, emergency response system or backup is activated, and AED and emergency equipment are retrieved or someone is retrieving them.
4
Start CPR
• Perform cycles of 30 compressions and 2 breaths.
• Use AED as soon as it is available.
5
AED arrives.
6
Check rhythm. Shockable rhythm?
Yes, shockable
No, nonshockable
7
• Give 1 shock. Resume CPR immediately for 2 minutes (until prompted by AED to allow rhythm check).
• Continue until ALS providers take over or victim starts to move.
8
• Resume CPR immediately for 2 minutes (until prompted by AED to allow rhythm check).
• Continue until ALS providers take over or victim starts to move.
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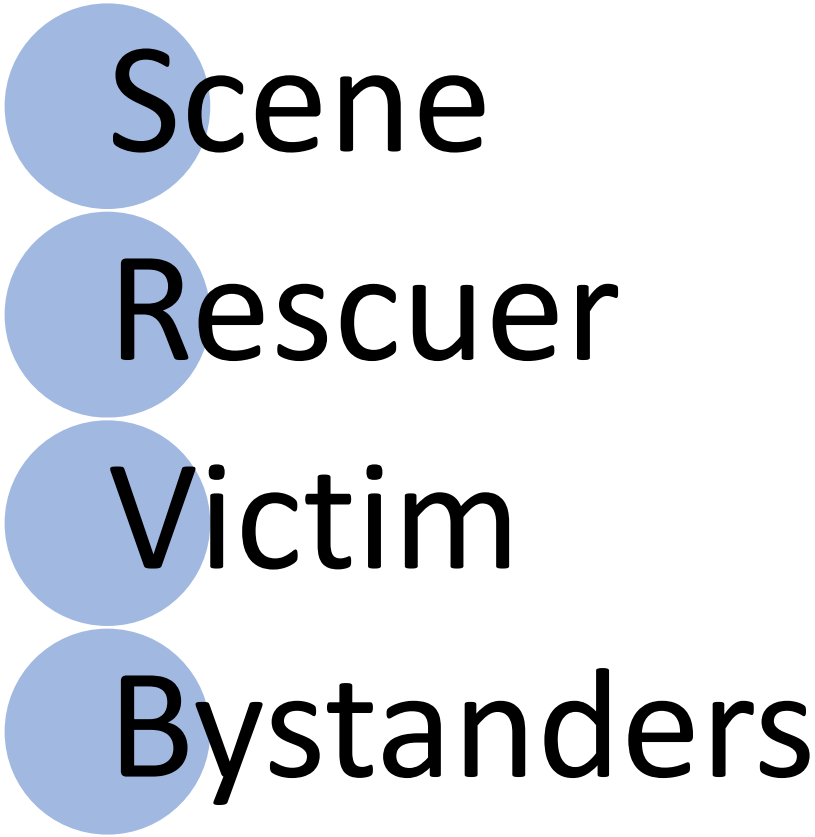
Adult BLS Steps

- Verify Safety



CHECK RESPONSE & Call for Help

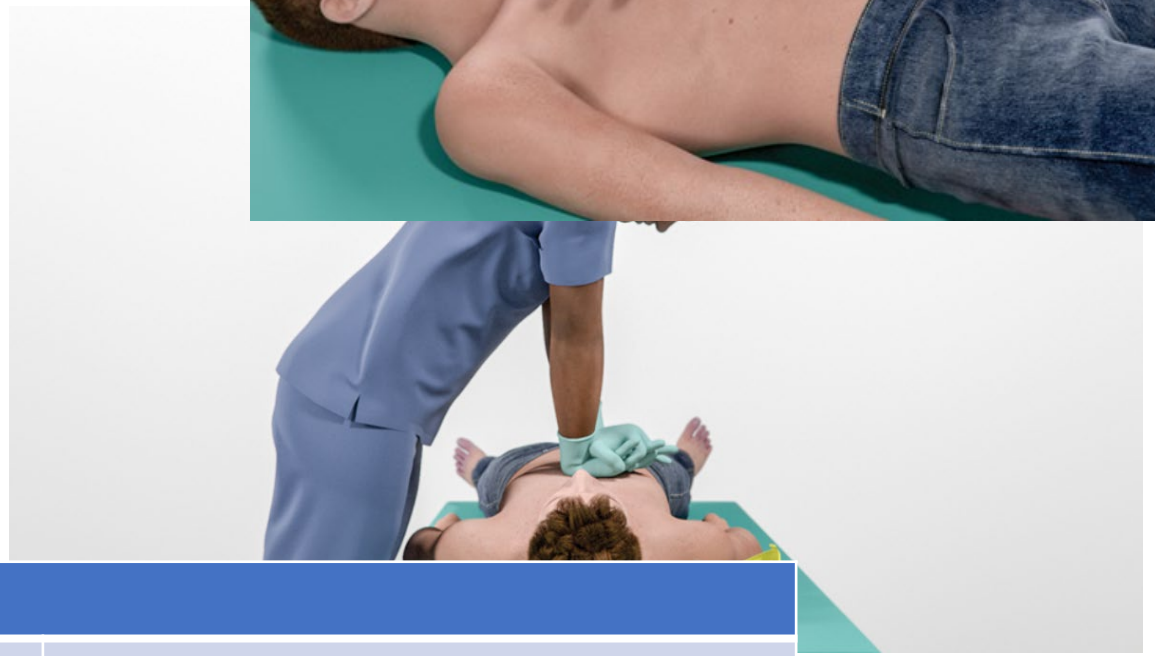
Adult BLS Steps

- Check for Breathing & Pulse

Look, Listen & Feel

Adult BLS Steps

- Chest Compressions



High Quality CPR	
Compression to Ventilation Ratio	30:2
Compression Rate	100-120 /min
Compression Depth	5-6 cm with full recoil
Compression Period Length	Every 5 cycles or 2 minutes
Chest Compression Fraction (CCF)	Min > 60%, preferably >80%

Adult BLS Steps

- Pregnant Women

Adult BLS Steps

- Pediatrics

Adult

About age 12 years or older

Child

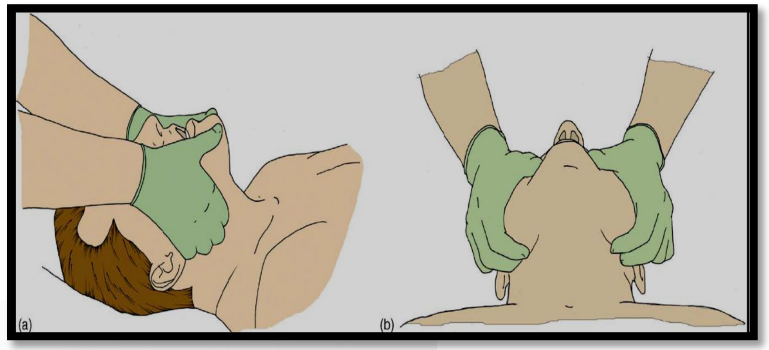
Between the ages of 1 and 12 years

Infant

Younger than 1 year

Adult BLS Steps

- Airway



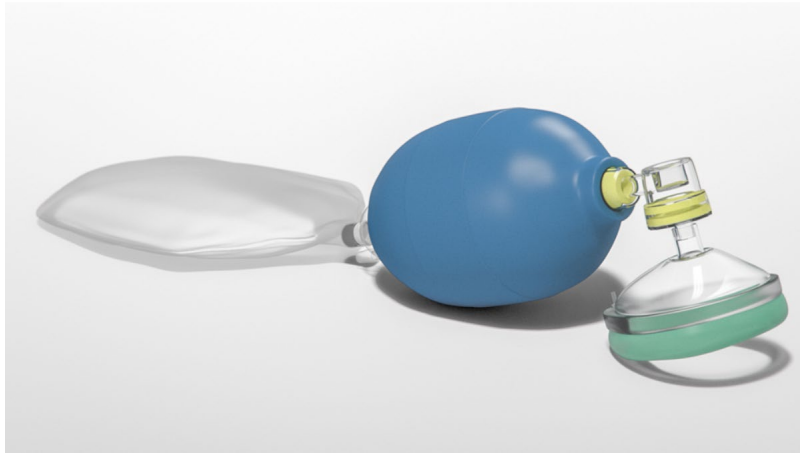
Adult BLS Steps

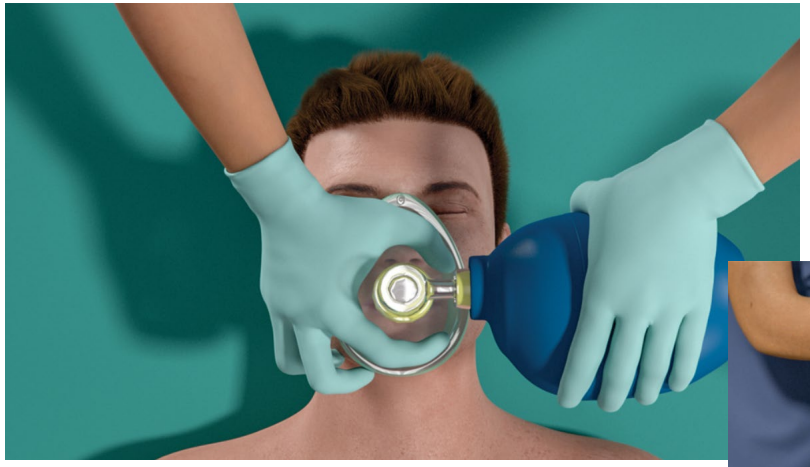
- Breathing

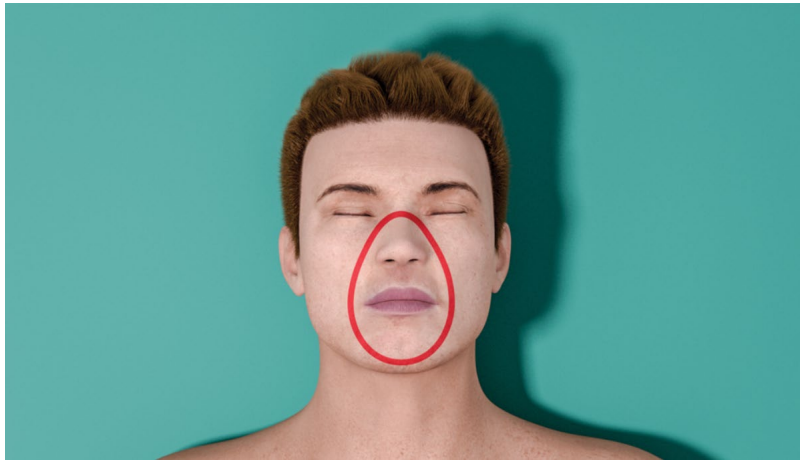
High Quality CPR	
Compression to Ventilation Ratio	30:2
Ventilation Period (if 1 rescuer)	< 10 sec
Ventilation Rise	Visible Chest rise

Adult BLS Steps

- Breathing



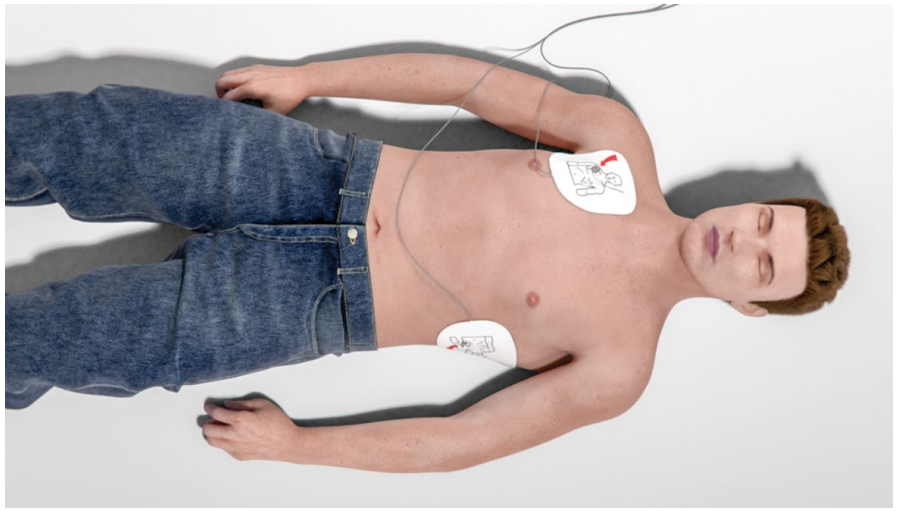


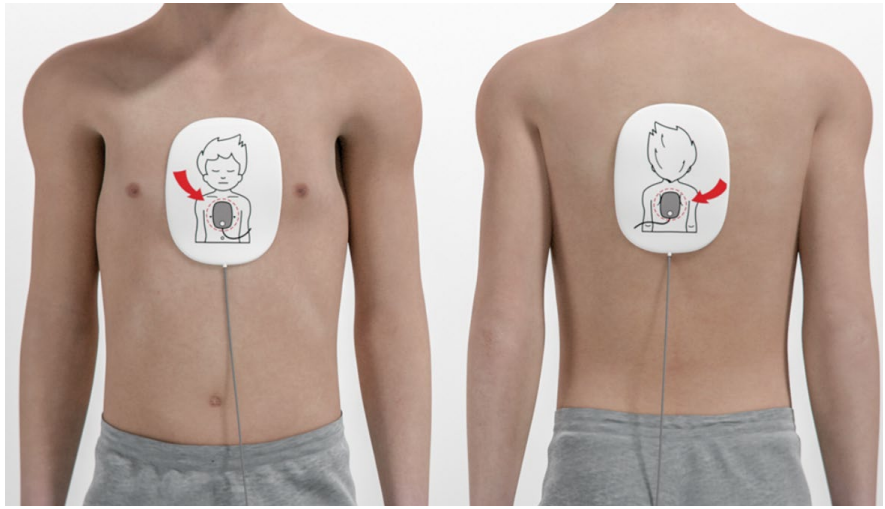


“E – C Technique”

Adult BLS Steps

- Automatic External Defibrillator





Adult BLS Steps

- Automatic External Defibrillator

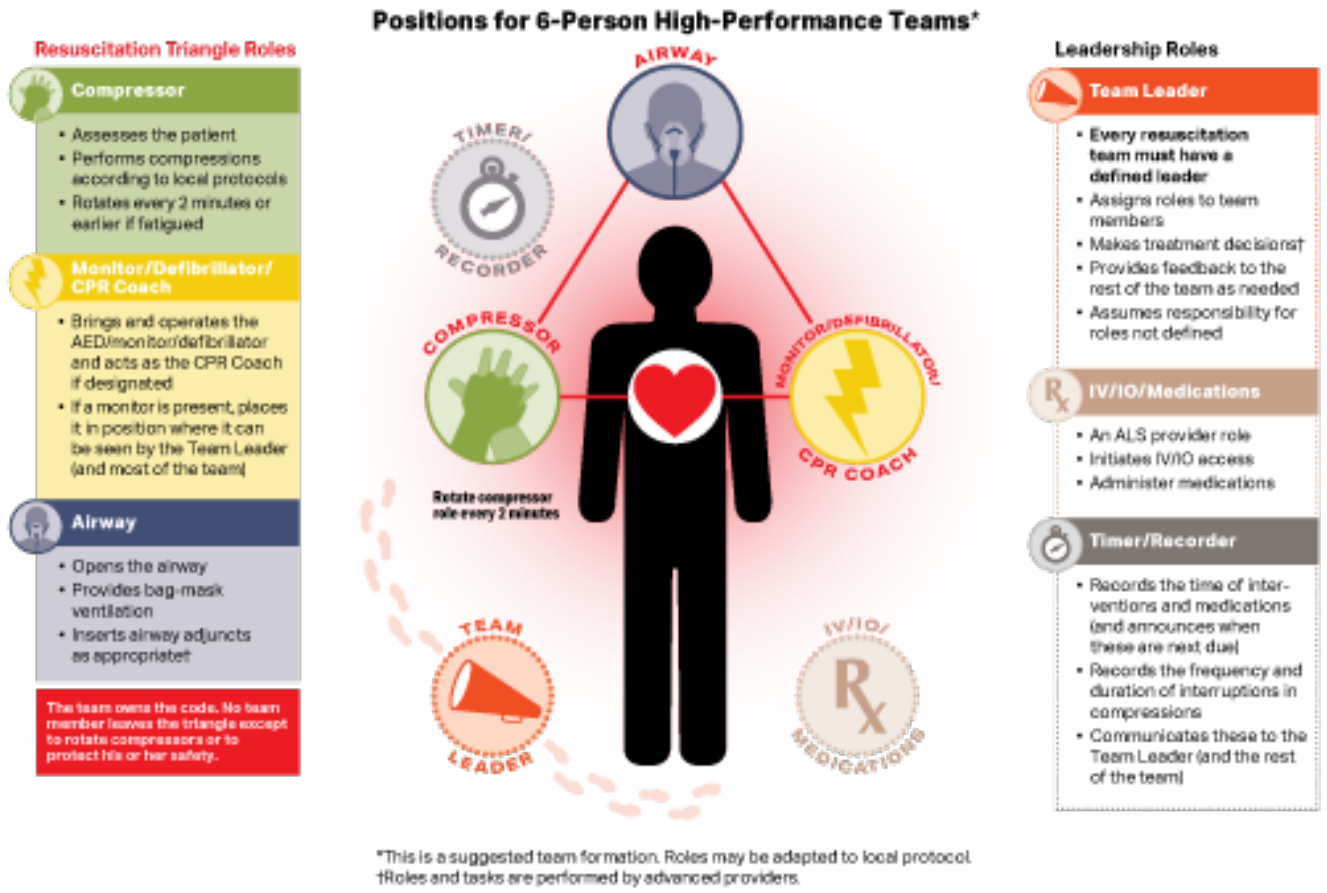
Adult BLS Steps

- Team Approach

“CPR Coach”

Adult BLS Steps

Team Approach



Adult BLS Steps

- Team Approach

Share Knowledge

Summarize & Reevaluate

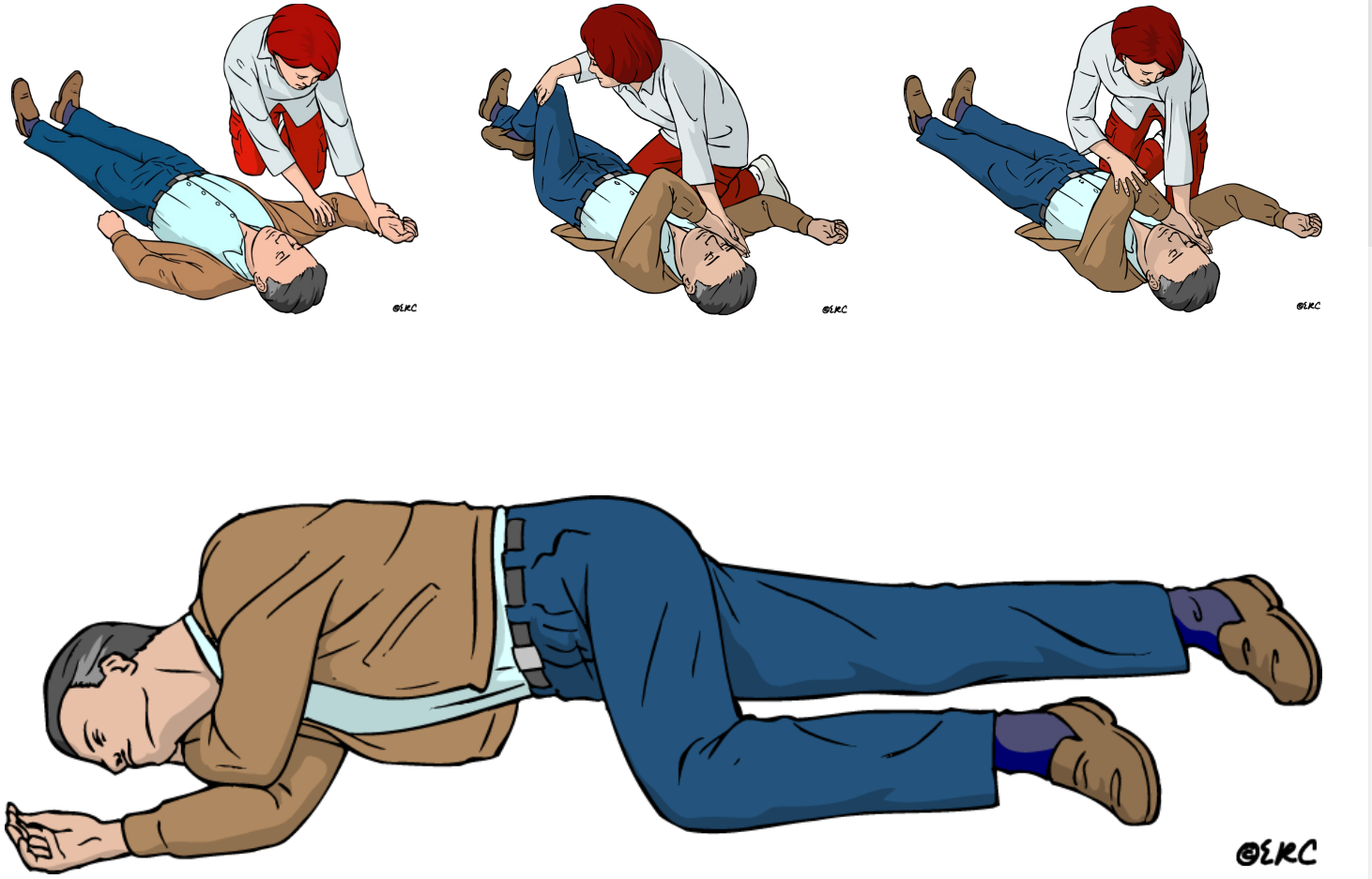
Clear Messages

Closed loop communication

Mutual Respect

Adult BLS Steps

- Recovery Position
- *IF VICTIM STARTS TO BREATHE NORMALLY PLACE IN RECOVERY POSITION*



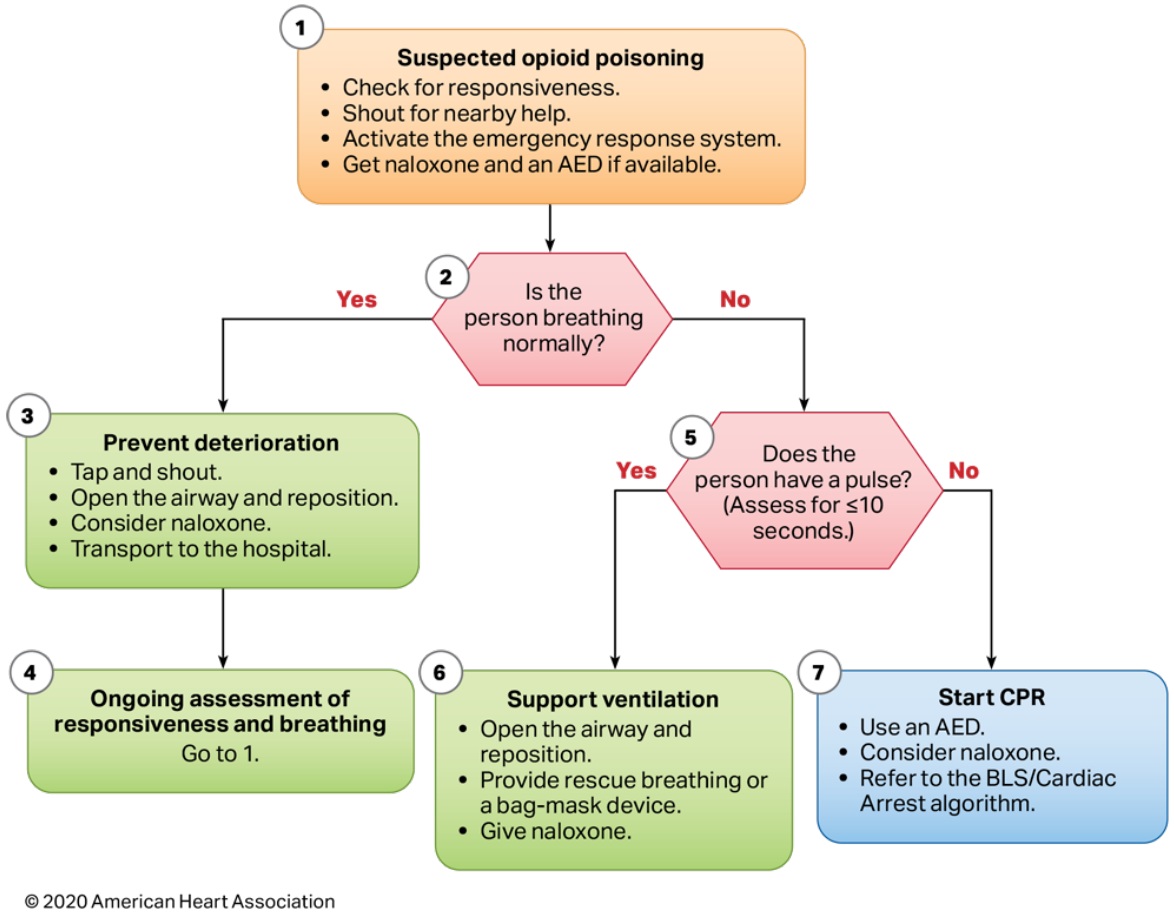
When Can I Stop CPR?

- Victim revives
- Trained help arrives
- Too exhausted to continue
- Unsafe scene
- Physician directed (do not resuscitate orders)
- Cardiac arrest of longer than 30 minutes
  - (controversial)

Special Scenarios

-

Opioid Poising

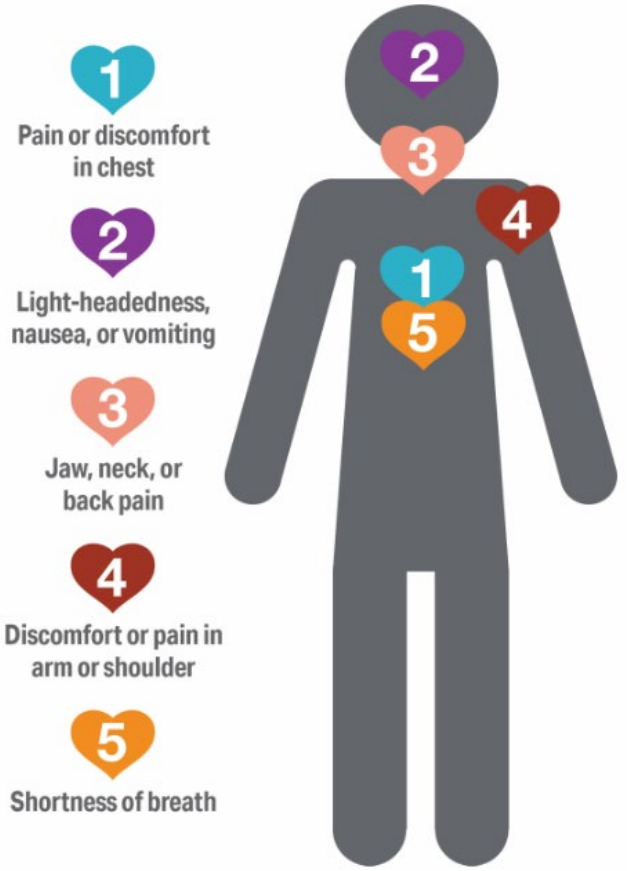


Special Scenarios

-

Heart Attack

"Time is Muscle"
Early Recognition
Early Intervention
• ASA
• CPR



Special Scenarios - Stroke

"Time is Brain"	
F	Face Drooping
A	Arm Weakness
S	Speech Difficulties
T	Time to Call

Special Scenarios - Drowning

"Rescue breaths first"

Special Scenarios

-

Anaphylaxis

"Epi injection"

Special Scenarios - Chocking

Relief of Foreign-Body Airway Obstruction

Adults and adolescents	Children (age 1 year to puberty)	Infants (age less than 1 year)
1. Ask "Are you choking?" If the victim nods yes and cannot talk, severe airway obstruction is present. Take steps immediately to relieve the obstruction. 2. Give abdominal thrusts to a victim who is standing or sitting or chest thrusts for pregnant or obese victims. 3. Repeat thrusts until effective or the victim becomes unresponsive.	1. Ask "Are you choking?" If the victim nods yes and cannot talk, severe airway obstruction is present. Take steps immediately to relieve the obstruction. 2. Give abdominal thrusts to a victim who is standing or sitting or chest thrusts for obese victims. 3. Repeat thrusts until effective or the victim becomes unresponsive.	1. If the victim cannot make any sounds or breath, severe airway obstruction is present. 2. Give up to 5 back slaps and up to 5 chest thrusts. 3. Repeat step 2 until effective or the victim becomes unresponsive.
Victim becomes unresponsive		
4. Activate the emergency response system via mobile device (if appropriate) or send someone to do so. After about 2 minutes of CPR, if you are alone with no mobile device, leave the victim to activate the emergency response system (if no one has already done so). 5. Lower the victim to the floor. Begin CPR, starting with chest compressions. Do not check for a pulse. 6. Before you deliver breaths, look into the mouth. If you see a foreign body that can be easily removed, remove it. 7. Continue CPR until advanced providers arrive.		

No Blind Finger Sweeps

Special Scenarios

-

Chocking

Special Scenarios

-

Chocking

Special Scenarios

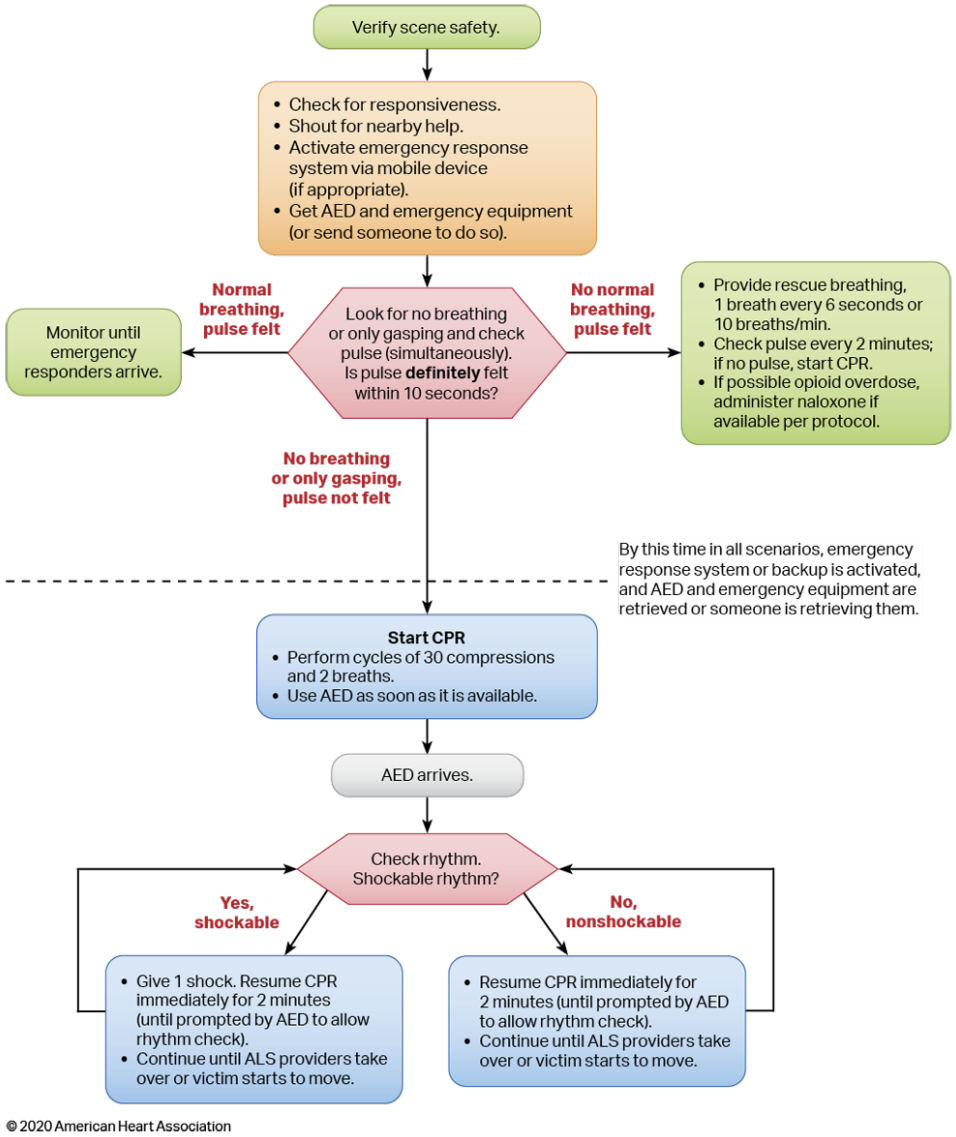
-

Chocking

Summary

Adult BLS

Adult BLS


Verify scene safety.
• Check for responsiveness.
• Shout for nearby help.
• Activate emergency response system via mobile device (if appropriate).
• Get AED and emergency equipment (or send someone to do so).
Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?
Normal breathing, pulse felt
Monitor until emergency responders arrive.
No normal breathing, pulse felt
• Provide rescue breathing, 1 breath every 6 seconds or 10 breaths/min.
• Check pulse every 2 minutes; if no pulse, start CPR.
• If possible opioid overdose, administer naloxone if available per protocol.
No breathing or only gasping, pulse not felt
By this time in all scenarios, emergency response system or backup is activated, and AED and emergency equipment are retrieved or someone is retrieving them.
Start CPR
• Perform cycles of 30 compressions and 2 breaths.
• Use AED as soon as it is available.
AED arrives.
Check rhythm. Shockable rhythm?
Yes, shockable
• Give 1 shock. Resume CPR immediately for 2 minutes (until prompted by AED to allow rhythm check).
• Continue until ALS providers take over or victim starts to move.
No, nonshockable
• Resume CPR immediately for 2 minutes (until prompted by AED to allow rhythm check).
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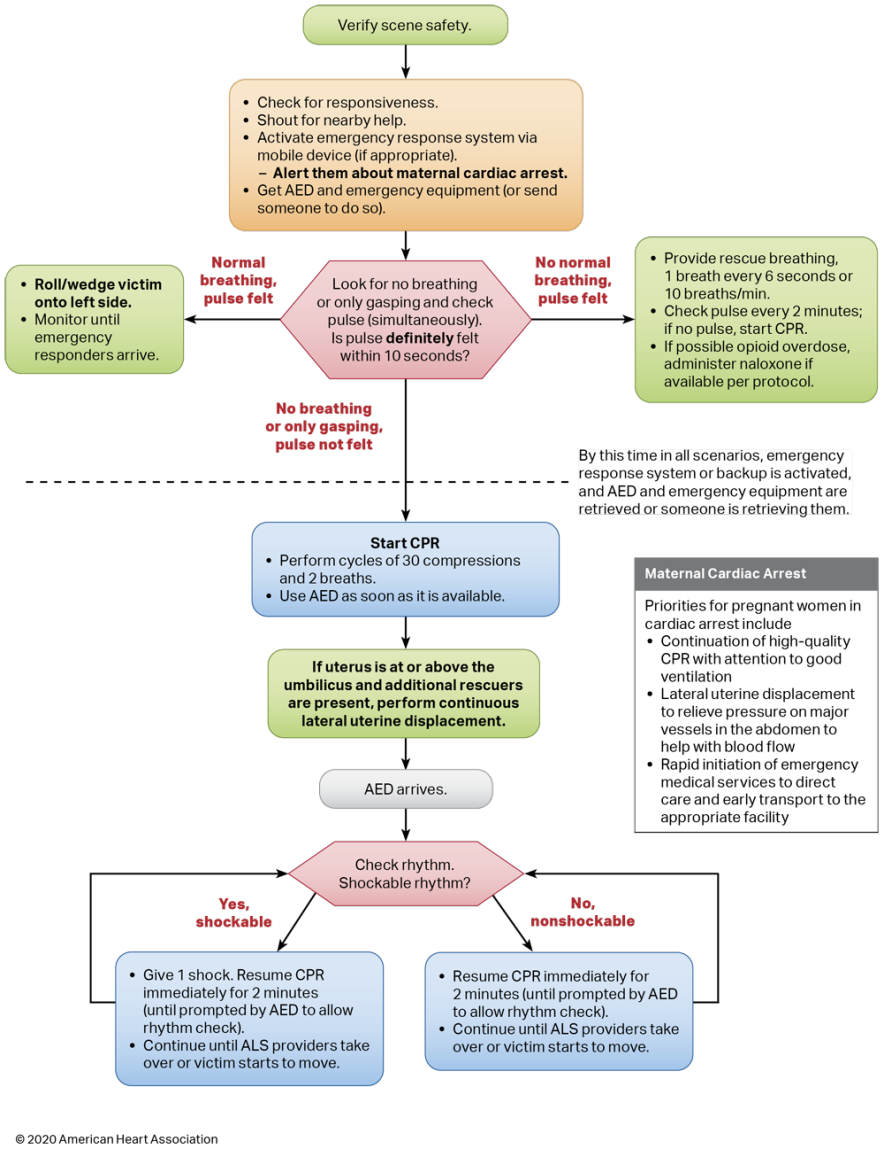
Adult BLS - Pregnancy



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)
Verifying scene safety	Make sure the environment is safe for rescuers and victim		
Recognizing 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 should be performed simultaneously in less than 10 seconds)		
Activating emergency response system	***If a mobile device is available, phone emergency services***		
	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)	Continuous compressions at a rate of 100-120/min Give 1 breath every 2-3 seconds (20-30 breaths/min)	
Compression rate	100-120/min		
Compression depth	At least 5 cm*	At least one third AP diameter of chest Approximately 5 cm	At least one third AP diameter of chest Approximately 4 cm
Hand placement	2 hands on the lower half of the breastbone (sternum)	2 hands or 1 hand (option for very small child) on the lower half of the breastbone (sternum)	***1 rescuer*** 2 fingers or 2 thumbs 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 If the rescuer is unable to achieve the recommended depth, it may be reasonable to use the heel of one hand
Chest recoil	Allow complete 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 with a CCF goal of 80%		

*Compression depth should be no more than 6 cm.
Abbreviations: AED, automated external defibrillator; AP, anteroposterior; CCF, chest compression fraction; CPR, cardiopulmonary resuscitation.

Thank You