



# Yolo County Emergency Medical Services Agency

## Quick Reference

Revised Date: December 14, 2018

<b>HIGH PERFORMANCE-CPR GUIDE</b>	
<b>Adult</b>	<b>Pediatric</b>
<b>Overview</b>	
<p>High Performance-CPR (HP-CPR) refers to providing high-quality chest compressions as part of a well-organized team response to a cardiac arrest. Coordinated and efficient teamwork is essential to minimize the time spent not in contact with the chest to improve patient outcomes.</p>	
<b>Definitions</b>	
<ul style="list-style-type: none"> <li><b>Peri-shock pause</b> – Total time of pre-shock and post-shock pause when compressions are not being performed.</li> <li><b>Femoral Pulse (Compression Pulse)</b> – Pulse felt at the femoral artery during compressions.</li> <li><b>Chest Compression</b> – Positive pressure in the chest that pushes blood to vital organs including the brain.</li> <li><b>Chest Decompression (Recoil)</b> – Negative pressure in the chest that draws air into the lungs and blood back into the heart. Also provides for coronary perfusion.</li> </ul>	
<b>Principals</b>	
<ul style="list-style-type: none"> <li>BLS has ownership of compressions</li> <li>Compressions are only stopped for defibrillation and rhythm checks</li> <li>Rotate Compressors every 2-minutes at rhythm check</li> <li>Defibrillator is charged prior to rhythm checks (you can always dump the charge)</li> <li>Compressor hovers over the chest and begins compressions immediately after shock</li> <li>Ensure proper depth of compressions, compression rate, and full recoil/decompression</li> </ul>	
<b>Compressions</b>	
<ul style="list-style-type: none"> <li>Continuous compressions</li> <li>Ensuring optimal rate 100 - 120</li> <li>Ensuring adequate depth 2 – 2.4 inches</li> <li>Allowing full chest recoil (avoid leaning)</li> <li>Rotate rescuer on compressions every 2-minutes</li> </ul>	<ul style="list-style-type: none"> <li>Continuous compressions</li> <li>Ensuring optimal rate 100 - 120</li> <li>Ensuring adequate depth 1/3 the diameter of the chest</li> <li>Allowing full chest recoil (avoid leaning)</li> <li>Rotate rescuer on compressions every 2-minutes</li> </ul>
<b>Ventilations</b>	
<ul style="list-style-type: none"> <li>Sniffing position – elevate the head</li> <li>Ventilations given every 10<sup>th</sup> compression on the upstroke</li> <li>Enough volume to see chest rise (about a 1/3 of the bag)</li> <li>Avoid hyperventilation!</li> </ul>	<ul style="list-style-type: none"> <li>Sniffing position – elevate the shoulders</li> <li>Ventilations given every 10<sup>th</sup> compression on the upstroke</li> <li>Enough volume to see chest rise</li> <li>Avoid hyperventilation!</li> </ul>
<b>Defibrillation</b>	
<ul style="list-style-type: none"> <li>Shocking on a 2-minute cycle</li> <li>Pre-charging the monitor at 1:45</li> <li>Minimize peri-shock pause to less than 5-seconds</li> <li>Change out rescuer on compressions during peri-shock pause</li> </ul>	



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### Pit Crew CPR - Positions

#### BLS – 3 Provider Crew

- Position 1 – Code Commander / Timekeeper – Fire Captain
  - Position 2 – AED / Ventilator / Compressor – Firefighter 1
  - Position 3 – Compressor / Ventilator – Firefighter 2
- \*Rotate between compressor and ventilator every 2-minutes  
\*For smaller crews, prioritize compressions and AED

#### BLS/ALS - 5 Provider Crew

- Position 1 - Monitor / Code Commander - Paramedic
  - Position 2 – Compressor / Ventilator – Firefighter 1
  - Position 3 – Compressor / Ventilator – Firefighter 2
  - Position 4 – Time keeper / Recorder – Fire Captain
  - Position 5 – Assistant / Compressor / Ventilator – Transport EMT
- \*Rotate between compressor and ventilator every 2-minutes

### Pit Crew Phases

#### Phase 1: Patient's side to first shock

- \* Please Note: If you are using an AED – Follow the AED Prompts
- Confirm no pulse
  - Move patient to the floor with adequate space and begin compressions
  - Power on the defibrillator / AED and place next to the patient's shoulder
  - Set metronome (if available)
  - Extend the cables, attach the combi-pads, and coordinate the application of the pads with the compressor
  - Charge the defibrillator / AED without interrupting compressions
  - Once the defibrillator / AED is charged, announce "Stop CPR"
  - The person on compressions should "hover" to indicate they are clear
  - If shockable rhythm, push the shock button
  - Immediately resume compressions

#### Phase 2: First 2-minute cycle after the first shock

- Post-shock compressions should be ongoing
- Assemble the BVM
- Attach capnography between mask and bag (if available)
- Attach capnography circuit to the monitor (if available)
- Attach BVM to oxygen
- Insert an OPA and 2 NPAs
- Deliver ventilations every 10<sup>th</sup> compression on the upstroke of the compression
- Pay attention to your initial EtCO<sub>2</sub> reading



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### Pit Crew Phases *cont.*

#### Phase 3: The Switch

- At the 1:45 mark, pre-charge the defibrillator / AED without interrupting compressions
- As soon as the defibrillator / AED starts charging, the airway person should remove the BVM from the patient and move behind the compressor
- Once charged, announce "Stop CPR"
- The compressor should move to the airway position and the new compressor should prepare for compressions
- The person on the defibrillator / AED should quickly verify the rhythm is shockable and press shock
- Once the shock is delivered (or rhythm is non-shockable), announce "Continue CPR"
- This is the start of a new 2-minute cycle
- Initiate IV/IO, NG/OG, and drugs without interfering with compressions
- Medications should be timed on the 4-minute mark after rhythm check
- Repeat until ROSC is achieved
- Consider TOR policy after at least 20-minutes and reversible causes have been addressed

#### Phase 4: Post-resuscitation care checklist

- Attach pulse oximetry and continue ventilating (maintain SpO<sub>2</sub> at 96-99%)
- Obtain a full set of vital signs including temperature
- Obtain 12-Lead ECG
- Perform mini-neuro exam
- Re-evaluate the airway, consider advanced airway
- Consider additional IV/IO lines
- Start transport to a STEMI Receiving Center
- If the patient re-arrests: start CPR, charge the defibrillator, deliver shock, provide post-shock compressions, address reversible causes

### Consider

- **Basic airway management is the preferred method during cardiac arrest.**
- Pediatric cardiac arrest is more likely to be respiratory or asphyxia, early airway assessment and management should be performed in coordination with HP-CPR.
- Compressions should only be stopped for defibrillation and rhythm checks at the 2-minute mark
- Good teamwork, excellent communication, smooth transitions, and mutual respect are the keys to success.