



## Cardiac Arrest Management

Policy Number: 7003

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Authority: California Health and Safety Code, Division 2.5 EMS, Sections 1797.220 & 1797.221

### I. Definition

- A. The initial management in resuscitation of cardiac arrest patients is to establish circulation via high quality, uninterrupted chest compression.

### II. Basic Life Support

#### A. Provide General Medical Care.

##### Adult

- A. Initial management:
1. Chest compressions should be 2+ inches in depth.
  2. During the resuscitation, attempt to limit any pause to 3 seconds or less.
  3. Set metronome at 110 compressions per minute.
  4. Allow for full recoil.
  5. Switch compressors every 2 minutes.
  6. Optional: Mechanical CPR devices (AutoPulse and LUCAS) may be used and is recommended only after at least three rounds (6 minutes) of CPR and two defibrillations, if indicated, and generally only if rescuer fatigue is an issue.
- B. Defibrillation should be attempted as soon as possible during the resuscitation.
1. High performance CPR begins immediately upon arrival.
  2. AED should be attached during compressions.
    - a. If shock indicated, compress the chest 30 times during the charge of the AED.
    - b. Off-the-chest time should only occur during the actual defibrillation.
  3. Hover hands over chest during shock administration and be ready to compress as soon as shock delivered.
- C. Airway management:
1. If only 2 rescuers on scene, place a NRB mask with high flow O<sub>2</sub> on patient for passive oxygenation until a third rescuer arrives.
  2. Two-handed, two thumbs on BVM is essential for maintaining a good BLS airway.

##### Pediatric (less than 14 years of age)

- A. Initial management:
1. Chest compressions should be 1/3 to 1/2 depth of chest.
    - a. Child – 1 or 2 hands
    - b. Infant – 2 fingers
  2. During the resuscitation attempt to limit any pause to 3 seconds or less.
  3. Set metronome at 110 compressions per minute.
  4. Allow for full recoil of chest.
  5. Switch compressors every 2 minutes.
- B. Defibrillation should be attempted as soon as possible during the resuscitation.
1. High performance CPR begins immediately upon arrival.
  2. AED should be attached during compressions.
    - a. If shock indicated, compress the chest 30 times during the charge of the AED.
    - b. Off-the-chest time should only occur during the actual defibrillation.
    - c. Hover hands over chest during shock administration and be ready to compress as soon as shock delivered.
- C. Airway management:
1. If only 2 rescuers on scene, place a NRB mask with high flow O<sub>2</sub> on patient for passive oxygenation until a third rescuer arrives.
  2. Two-handed, two thumbs on BVM is essential for maintaining a good BLS airway.
  3. Choice of adjuncts, including nasal and oral airways should be based on the specific needs of the patient.
  4. Small tidal volume ventilations (approximately 100ml) should be administered on the upstroke of every 10<sup>th</sup> compression.



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| 3. Choice of adjuncts, including nasal and oral airways should be based on the specific needs of the patient.  |  |
| 4. Small tidal volume ventilations (approximately 100 ml) should be administered on the upstroke of every 10 <sup>th</sup> compression. A pediatric bag is preferred to help ensure small tidal volumes.   |  |
| 5. Change to normal adult size BVM for patients with ROSC.   |  |
| 6. Accredited EMTs who work for an approved rural providers, may use a Supraglottic airway as an advanced rescue airway for adult patients in cardiac arrest when BLS maneuvers are unsuccessful per <i>procedure guideline 7912 Supraglottic Airway</i> .   |  |
| <b>III. Advanced Life Support</b>  |  |
| <b>Adult</b>   | <b>Pediatric (less than 14 years of age)</b>   |
| <p>A. Switch to manual monitor and check rhythm.</p> <ol style="list-style-type: none"> <li>1. Defibrillate immediately if in VF/VT per manufacture guidelines.</li> <li>2. Analyze rhythm every 2 minutes.</li> </ol> <p>B. Vascular access:</p> <ol style="list-style-type: none"> <li>1. Do not stop compressions to accomplish.</li> <li>2. An IO may be preferable limiting the interference with compressions.</li> </ol> <p>C. Medication administration should occur per <i>treatment guideline 7102 Dysrhythmias</i>.</p> <ol style="list-style-type: none"> <li>1. Do not stop compressions while giving medications.</li> </ol> <p>D. Airway management</p> <ol style="list-style-type: none"> <li>1. Maintain a BLS airway unless it is compromised.</li> <li>2. If ROSC is achieved, BLS airway is preferred but an approved alternate rescue airway device or endotracheal intubation can be considered per procedure guidelines <i>7911 Endotracheal Intubation or 7912 Supraglottic Airway</i>.</li> <li>3. Placing advanced airways should not interfere with continuous chest compressions or defibrillation.</li> <li>4. End-tidal capnography should be used for evaluating the effectiveness of resuscitation, ROSC, and as a possible endpoint for the resuscitation.</li> </ol> | <p>A. Switch to manual monitor and check rhythm.</p> <ol style="list-style-type: none"> <li>1. Defibrillate immediately if in VF/VT per manufacturer guidelines.</li> <li>2. Analyze rhythm every 2 minutes.</li> </ol> <p>B. Vascular access:</p> <ol style="list-style-type: none"> <li>1. Do not stop compressions to accomplish.</li> <li>2. An IO may be preferable, limiting the interference with compressions</li> </ol> <p>C. Medication administration should occur per <i>treatment guideline 7102 Dysrhythmias</i>.</p> <ol style="list-style-type: none"> <li>1. Do not stop compressions while giving medications.</li> </ol> <p>D. Airway management:</p> <ol style="list-style-type: none"> <li>1. Maintain a BLS airway unless it is compromised.</li> <li>2. End-tidal capnography should be used for evaluating the effectiveness of resuscitation, ROSC, and as a possible endpoint for the resuscitation.</li> <li>3. Place ETCO<sub>2</sub> filter line on BVM as soon as possible.</li> </ol> <p>E. Post arrest management:</p> <ol style="list-style-type: none"> <li>1. If SBP &lt; 70 mmHg after 3 boluses contact Base Hospital for Push Dose Epinephrine order.</li> <li>2. Refer to pediatric medication administration guide for medication dosing.</li> </ol> |



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| 5. Place ETCO <sub>2</sub> filter line on BVM as soon as possible.  |   |
| <p>E. Post arrest management:</p> <ol style="list-style-type: none"> <li>1. If unable to maintain a minimum systolic BP of 90 mmHg after IV fluid bolus of 1000 ml, administer push-dose Epinephrine.</li> <li>2. Mix 1 ml of Epinephrine 1:10,000 (0.1mg/ml) with 9 ml NS in a 10 ml syringe.</li> <li>3. Administer diluted Epinephrine 1 ml IV every 1-5 minutes, titrate to maintain a SBP &gt; 90 mmHg.</li> </ol>   |   |
| IV. Special Considerations  |   |
| <p>A. Timekeeping is important:</p> <ol style="list-style-type: none"> <li>1. The compressor should count 1-10, repeat.</li> <li>2. Ventilator counts 10, 20, 30, etc. every 10 compressions.</li> </ol> <p>B. A team leader should be identified at the beginning of the resuscitation attempt.</p> <ol style="list-style-type: none"> <li>1. Cardiac arrest management should be handled in a sequential and orderly fashion, with all job tasks clearly identified and delegated to resuscitation team members.</li> <li>2. It is always best for the person at the head to lead the CPR team (Rescuer #3). This rescuer should advise when at 200 compressions, as well as to charge the defibrillator at 2 minute intervals.</li> <li>3. Overall scene management should be coordinated and supervised using the precepts of the Incident Command System.</li> </ol> <p>C. Resuscitation time: minimum 20 minutes on scene in ALL, except very rare cases (i.e. unsafe and unworkable scenes).</p> <ol style="list-style-type: none"> <li>1. Ongoing V-Fib/Pulseless V-Tach should be worked for at least 30 minutes.</li> <li>2. Pediatric arrests are to be transported to the nearest emergency department as soon as practical.</li> </ol> <p>D. Post Arrest Management:</p> <ol style="list-style-type: none"> <li>1. Should focus on stabilizing the patient's life threats and transport.</li> <li>2. Prior to moving the patient, obtain a 12 lead EKG. 5-10 minutes on scene is reasonable to ensure rhythm stability.</li> <li>3. Ventilate the patient with 10 breaths per minute to achieve an EtCO<sub>2</sub> of 35-45 mmHg and an O<sub>2</sub> sat of 94-98%.</li> <li>4. No hyperventilation or hyper-oxygenation.</li> <li>5. Transport all ROSC patients to a STEMI receiving center if within a 30 minute transport time.</li> </ol> <p>E. Continuous compressions and defibrillation take precedent over ventilation, vascular access, and medications.</p> <p>F. Defibrillate per manufacturers recommendation.</p> <p>G. Remember, do not stop chest compressions for ventilation, charging of manual defibrillator or ALS procedures.</p> <p>H. Evidence shows that Sodium Bicarbonate and Calcium Chloride are not helpful in cardiac arrest unless hyperkalemia is suspected. If hyperkalemia is suspected, Sodium Bicarbonate and Calcium Chloride administration may be considered.</p> <p>F. If tricyclic antidepressant overdose suspected, refer to <i>treatment guideline 7203 Poisoning-Overdose</i>.</p> |   |
| V. Base Orders  |   |
| A. None.  | A. If SBP<70mmHg after 3 boluses contact Base Hospital for Push Dose Epinephrine order. |
| VI. Contraindications   |   |
| A. None.  |   |
| VII. Cross Reference  |   |

# COASTAL VALLEYS EMS AGENCY



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| A. General Medical Care    | Policy No. 7001 |
| B. Dysrhythmias            | Policy No. 7102 |
| C. Supraglottic Airway     | Policy No. 7912 |
| D. Endotracheal Intubation | Policy No. 7911 |
| F. Poisoning Overdose      | Policy No. 7203 |