

**GENERAL CARDIAC ARREST – ADULT  
STATEWIDE ALS PROTOCOL**

Initial Patient Contact - See Protocol # 201<sup>1</sup>  
Pulseless, may have gasping/agonal respirations

**Cardiac arrest witnessed by ALS personnel  
OR  
Quality CPR in progress on ALS arrival**

NO

YES<sup>2</sup>

**DURING  
UNINTERRUPTED  
COMPRESSIONS:**

IO/IV Access ASAP  
EPINEPHRINE  
1 mg IO/IV  
every 3 - 5 minutes

**Airway Options<sup>6</sup>:**

- Naso/oropharyngeal Airway
- Alternative Airway<sup>7</sup>

**AVOID** endotracheal intubation and patient packaging during initial 10 minutes

**Ventilation Options<sup>6</sup>:**

- No Ventilation
- 1 ventilation every 15 compressions<sup>8</sup> (Monitor Perfusion with Capnography)

**Supplemental Oxygen**

Antidysrhythmic if Recurrent VF/VT and Other Medications if appropriate (See Box on Next Page)

200 Uninterrupted Chest Compressions<sup>4,5</sup>

If VF/VT, Defibrillate 360 joules<sup>3</sup>

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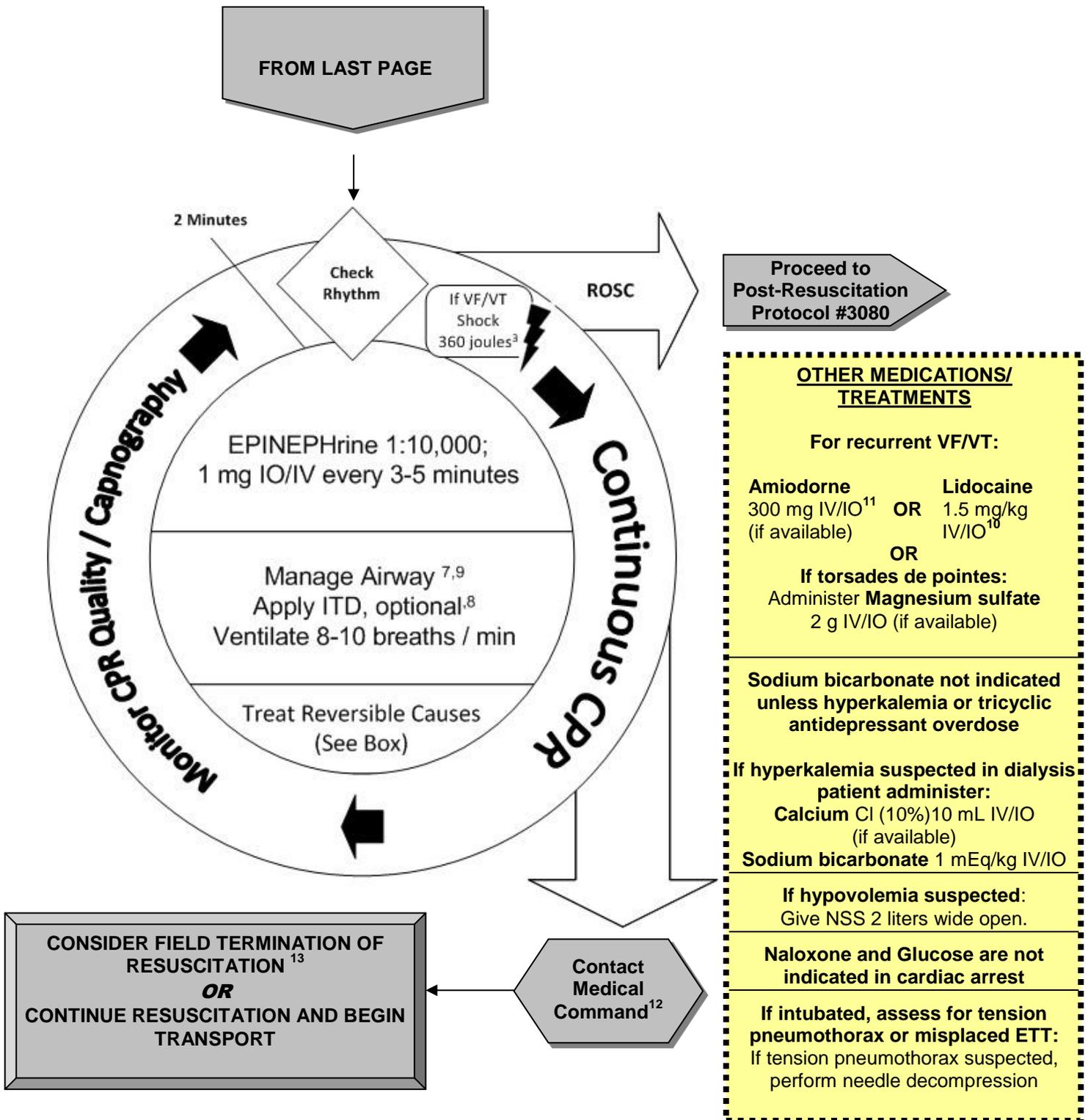
If VF/VT, Defibrillate 360 joules<sup>3</sup>

**PROCEED TO  
NEXT PAGE**

**Return of Spontaneous Circulation (ROSC)**

**Proceed to Post-resuscitation Protocol #3080**

**GENERAL CARDIAC ARREST – ADULT  
STATEWIDE ALS PROTOCOL**



**GENERAL CARDIAC ARREST  
STATEWIDE ALS PROTOCOL****Criteria:**

- A. Adult patient with cardiac arrest (may have gasping or agonal breathing).

**Exclusion Criteria:**

- A. Cardiac arrest due to acute traumatic injury - Follow Cardiac Arrest - Traumatic Protocol #3032.
- B. Cardiac arrest due to severe hypothermia - Follow Hypothermia Protocol #3035
- C. Patient displaying an Out-of-Hospital Do Not Resuscitate (OOH-DNR) original order, bracelet, or necklace - see OOH-DNR Protocol #324.

**System Requirements:**

- A. Ideally, providers in each EMS agency will use a “pit crew” approach when using this protocol to ensure the most effective and efficient cardiac arrest care. Training should include teamwork simulations integrating QRS, BLS, and ALS crew members who regularly work together. High-performance systems should practice teamwork using “pit crew” techniques with predefined roles and crew resource management principles. For example:
  - 1. Rescuer 1 and 2 set up on opposite sides of patient’s chest and perform continuous chest compressions, alternating after every 100 compressions to avoid fatigue.
  - 2. Use metronome or CPR feedback device to ensure that compression rate is 100-120/ minute.
  - 3. Chest compressions are only interrupted during rhythm check (AED analysis or manual) and defibrillation shocks. Continue compressions when AED/ defibrillator is charging.
  - 4. Additional rescuer obtains IO (or IV) access and gives EPINEPHrine. Consider tibial IO as first attempt at vascular access.
  - 5. During the first four cycles of compressions/defibrillation (approximately 10 minutes) avoid any attempt at intubation, and consider delaying use of mechanical CPR device.
  - 6. Use of a CPR checklist to ensure that all best practices are followed during CPR.
- B. For efficient “pit crew” style care, the EMS agency medical director should establish the options that will be used by providers functioning within the EMS agency. Options include establishing:
  - 1. The airway/ventilation management, if any, that will be used during compression-only CPR.
  - 2. The initial route of vascular access.
  - 3. Whether an ITD will be used.
- C. The EMS agency, overseen by the agency medical director, must perform a QI review of care and outcome for every patient that receives CPR.
  - 1. The QI should be coordinated with local receiving hospitals to include hospital admission, discharge, and condition information. This EMS agency QI can be accomplished by participation in the Cardiac Arrest Registry for Enhanced Survival (CARES) program..
  - 2. The QI should be coordinated with local PSAP/dispatch centers to review opportunities to assure optimal recognition of possible cardiac arrest cases and provision of dispatch-assisted CPR (including hands-only CPR when appropriate).

**Notes:**

- 1. If AED has been applied by BLS provider, skip to appropriate place in protocol that incorporates previous care. ALS providers should switch to manual defibrillator as soon as possible.

2. Precordial thump may be used when ALS providers witness VF arrest in a monitored patient. Begin chest compressions if any delay to defibrillation.
3. Shock at maximum output of defibrillator, up to maximum of 360 joules, for initial and subsequent defibrillation attempts.
4. Excellent CPR is a priority:
  - a. Push hard and fast (100-120/min) and allow full recoil of chest during compressions.
  - b. Change rescuer doing compressions every 1-2 minutes (100-200 compressions) to avoid fatigue
  - c. When ventilation indicated and advanced airway in place, deliver 8-10 breaths/minute y giving one ventilation for every 15 compressions or using respiratory rate on capnograph or timer on ITD/CPR feedback device. Avoid hyperventilation.
  - d. Restart CPR immediately after any defibrillation attempts.
  - e. Keep pauses in CPR to a minimum by charging defibrillator during CPR, restarting compressions immediately after defibrillation without checking pulse or rhythm, and avoiding pauses in CPR during airway management.
5. Do not move or package patient for transport at this time. Chest compressions are much less effective during patient transportation/movement, and any possible interventions by medical command will be less effective without optimal CPR.
6. The optimal airway management during compression-only CPR has not been established. Agency medical directors can set agency policy using the following approaches:
  - a. Open airway with manual technique or naso/oropharyngeal airway or Alternative Airway – with or without passive oxygenation
  - b. Provide either no active ventilation (passive ventilation from compressions) or bag ventilate (one ventilation every 15 compressions) without interrupting compressions (monitor perfusion with capnography if providing active ventilation)
  - c. If BVM ventilation, consider 2-thumbs-up 2-person BVM technique
7. Confirm and document tube placement with absence of gastric sounds and presence of bilateral breath sounds **AND** continuous waveform ET<sub>CO</sub><sub>2</sub> detector. Follow Confirmation of Airway Placement Protocol #2032 May insert gastric tube, if available, to decompress stomach.
8. If available, an inspiratory impedance threshold device (ITD) may be placed on the end of an advanced airway or two-person BVM during CPR.
9. Endotracheal intubation optional at this point, but if unable to intubate in up to 3 attempts, consider an alternative/ rescue airway device.
10. Repeat lidocaine, 0.75 mg/kg IV/IO, every 5 -10 minutes to a total dose of 3 mg/kg.
11. May repeat one additional dose of amiodarone, 150 mg IV/IO, after 10 minutes.
12. If possible, contact medical command prior to moving or transporting patient. CPR is much less effective during patient transportation, and any possible interventions by medical command will be less effective without optimal CPR.
13. Field termination of resuscitation must be ordered by Medical Command Physician, otherwise continue resuscitation attempts and initiate transport.

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**Performance Parameters:**

- A. Documentation of code summary from monitor /ECG rhythm strips.
- B. Documentation of confirmation of advanced airway placement including documentation of gastric sounds, breath sounds and use of confirmatory device (include print out of ET<sub>CO</sub><sub>2</sub> monitor if possible)

- C.** EMS agency should document patient outcome and QI indicators for cardiac arrest, including ROSC during EMS care, ROSC on arrival to ED, admitted to hospital, discharged from hospital alive, and neurologic function on discharge. Participating in and registering each cardiac arrest patient in CARES can be used to benchmark agency performance.