Cardiac Arrest – General

This protocol should be followed for all adult cardiac arrests. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless return of spontaneous circulation (ROSC) is achieved or transport is ordered by medical control or otherwise specified in protocol.

- If an arrest is of a known traumatic origin refer to the **Dead on Scene Protocol**.
- If it is unknown whether the arrest is traumatic or medical, continue with this protocol.
- Patients displaying a Do Not Resuscitate order or bracelet – follow **DNR Protocol**.
- When an ALS unit is present, follow this general cardiac arrest protocol in conjunction with the protocol that addresses the indentified rhythm.
- Once arrest is confirmed, emphasis should be on avoiding interruptions in CPR.
- CPR should be done in accordance with current guidelines established by the American Heart Association.

Pre-Medical Control

MFR/EMT/SPECIALIST

1. Confirm Arrest
   A. Assess for signs of normal breathing.
   B. Check a carotid pulse for not more than 10 seconds.
2. Initiate CPR or continue CPR if already in progress and apply and use AED as soon as available.
3. Ensure CPR quality
   A. Compressions at least 2” in depth for adults.
   B. Compression rate at least 100 per minute.
   C. Avoid excessive ventilation (volume and rate).
4. Continue CPR with minimal interruptions, changing the rescuer doing compressions every 2 minutes, when possible.
5. Initiate ALS response if available.
6. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**

EMT

7. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and AED analysis when ALS is not available or delayed, contact Medical Control prior to initiating transport. Consider termination of resuscitation and refer to **Termination of Resuscitation Procedure.**
8. Establish a patent airway with a supraglottic airway. After insertion, provide continuous CPR without pauses for ventilation. Ventilations should be delivered at 8-10 breaths per minute or 1 breath every 5 to 6 seconds. See **Emergency Airway Procedure.**
9. Verify CPR quality frequently and anytime the rescuer providing compressions or ventilations changes.

SPECIALIST

10. If Return of Spontaneous Circulation (ROSC) has **not** been achieved after three, two minute cycles of CPR and ALS is not available or delayed, contact medical control, initiate transport.
11. Start an IV/IO NS KVO. If IV is attempted and is unsuccessful, after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
12. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.
    B. Supraglottic airways are an acceptable alternative for endotracheal intubation.

PARAMEDIC

13. Confirm Arrest if not previously done.
    A. Assess for signs of normal breathing.
    B. Check a carotid pulse for not more than 10 seconds.
14. Initiate CPR, or continue CPR if already in progress and apply cardiac monitor.
15. Check rhythm, shock if indicated and continue CPR.
16. Ensure CPR quality
    A. Compressions at least 2” in depth for adults.
    B. Compression rate at least 100 per minute.
    C. Avoid excessive ventilation (volume and rate).
    D. Continue CPR with minimal interruptions, changing rescuer doing compressions every 2 minutes, when possible.
    E. Apply waveform capnography, if available.
17. Start an IV/IO NS KVO. If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line choice.
18. Administer Medications consistent with appropriate protocol.
19. Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts and high flow oxygen. See **Emergency Airway Procedure.**
    A. Minimize interruptions in compressions during airway placement to less than 10 seconds.
    B. Supraglottic airways are an acceptable alternative for endotracheal intubation.
20. If quantitative waveform capnography is available and P_{ETCO_2} is < 10 mm Hg attempt to improve CPR quality.
21. Reassess ABC’s as indicated by rhythm or patient condition change. Pulse checks should take no more than 10 seconds. If no pulse after 10 seconds, assume pulselessness, continue CPR.
22. Prior to advanced airway placement, utilize ventilation periods to visualize the ECG rhythm without compression artifact, this will allow you to plan ahead for the assessment period at the end of the two minute CPR cycle.

23. After insertion of advanced airway, monitor capnography to confirm appropriate tube placement and deliver continuous CPR, without pauses for ventilation. Ventilations delivered at 8-10 breaths per minute or 1 breath every 6 - 8 seconds.

Post-Medical Control
MFR/EMT/SPECIALIST/PARAMEDIC

24. Additional basic and/or advanced life support care as appropriate.
25. Consider termination of resuscitation per **Termination of Resuscitation Protocol**.

Notes:

1. **Excellent CPR is a priority:**
   A. 30 compressions: 2 ventilations in groups of 5 cycles, over 2 minutes.
   B. Push hard ≥ 2 inches and fast (≥100/min) and allow full recoil of chest during compressions.
   C. Change rescuer doing compressions every 2 minutes to avoid fatigue or utilize automated mechanical CPR devices, if available.
   D. Restart CPR immediately after any defibrillation attempts.
   E. Keep pauses in CPR to a minimum by checking rhythm when rotating rescuer doing compressions and by avoiding pauses in CPR during airway management and other interventions.
2. If AED has been applied by BLS personnel, skip to appropriate place in protocol that incorporates previous care. ALS personnel should switch to manual defibrillator after initial AED shock or place AED in manual mode.
3. For Biphasic devices shock with energy levels following manufacturers' recommendations (120 – 200 J). If unknown use the maximum available. For monophasic devices use 360 J.
4. Confirm and document tube placement by physical exam, measurement of exhaled CO_2 and/or use of other MCA approved secondary confirmation device.
5. If possible, contact medical control prior to moving or transporting patient.
6. Continue resuscitation attempts and initiate transport, unless field termination is ordered by Medical Control.
7. An impedance threshold device may be utilized during CPR, if available. Device should be discontinued immediately upon return of spontaneous circulation.
8. Treat reversible causes.

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- CPR should be done in accordance with current guidelines established by the American Heart Association.

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- Confirm Arrest
- Assess for normal breathing.
- Check a carotid pulse for not more than 10 seconds.
- Initiate CPR or Continue CPR if already in progress. Apply cardiac monitor.
- Check rhythm, shock if indicated and continue CPR.

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- Ensure CPR quality
- Compressions at least 2" in depth for adults
- Compression rate at least 100 per minute
- Avoid excessive ventilations (volume & rate)
- Continue CPR with minimal interruptions, changing rescuer doing compressions every 2 minutes, when possible.
- Apply waveform capnography, if available

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- Start an IV/IO NS KVO
- If IV is attempted and is unsuccessful after 2 attempts start an IO line per **Vascular Access & IV Fluid Therapy Procedure.** IO may be first line of choice.
- Administer medications consistent with appropriate protocol

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- Establish a patent airway, maintaining C-Spine precaution if indicated, using appropriate airway adjuncts & high flow oxygen. See **Emergency Airway Procedure.**
- Minimize interruptions in compressions during airway placement to less than 10 seconds.
- Supraglottic airways are an acceptable alternative for endotracheal intubation.
- If quantitative Waveform Capnography is available and PETCO2 is < 10 mm Hg, attempt to improve CPR quality.

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- Reassess ABC's as indicated by rhythm or patient condition change.
- Pulse checks should take no more than 10 seconds.
- If no pulse after 10 seconds, assume pulselessness, continue CPR.
- Prior to advanced airway placement, utilize periods to visualize ECG rhythm without compression artifact, this allows you to plan ahead for assessment period at end of 2 minute CPR cycle.

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- After insertion of advanced airway, monitor capnography to confirm appropriate tube placement and deliver continuous CPR.
- Ventilations delivered at 8-10 per minute or 1 breath every 6 – 8 seconds.

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Contact Medical Control

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- Additional basic and/or advanced life support care as appropriate
- Consider termination of resuscitation per **Termination of Resuscitation Protocol**

Notes:

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