Adult and Pediatric Cardiac Arrest Administrative Guideline

Minutes 1-8

B

Initiate chest compressions at rate of 100-120 bpm
15 LPM NRB mask & NPA/OPA

If unwitnessed arrest or respiratory/hypoxia/pediatric/trauma IMMEDIATELY begin airway management and positive pressure ventilation at a rate of 10 breaths per minute.

Ventilate all children < 8 yo using OPA/BVM only

P

Place pads and perform immediate rhythm check/**defibrillation 2 J/kg (200 J adult dose)**
If asystole, defibrillate x 1 (initial check only)

Minutes 8-20

B

- Perform 4 rounds of 200 compressions
- Check rhythm and pulse every 2 minutes
- Defibrillate if indicated (VF/VT)
- Minimize interruptions

P

IV/IO access

Administer **epinephrine** as early as possible.
For monomorphic VT or VF, administer **amiodarone.**
For polymorphic VT (torsades), administer **magnesium.**

Consider alternative etiologies and administer medications below if strong evidence of reversible cause of cardiac arrest

P

Place advanced airway (supraglottic airway or ETI) after 4 rounds/8 minutes, consider PEEP @5 cmH2O

Administer 2nd dose of **epinephrine (max 2 mg of cardiac dose)**

Dead on Scene AG if indicated

POST ROSC CARE

B

Support Airway/Oxygenation/Ventilation
Leave I-gel in place
Continue maximal O2 therapy
BVM ventilation rate of 8-10 bpm
Do not overventilate/hyperventilate

Prevent hyperthermia only, do not perform therapeutic hypothermia

P

Obtain 12-lead ECG
Attempt peripheral IV access

Prepare stick of push dose epinephrine for all post ROSC patients and monitor for shock

Administer **push dose epinephrine (14 yo or older)** if HR and BP downtrending significantly or patient in shock**.**
< 14 yo call for medical direction

For rearrest:
Resume chest compressions
Do not give 3rd dose of epinphrine

DRUG DOSAGES:

Defibrillation: **2 J/kg --> 4 J/kg --> 6 J/kg --> 10 J/kg** (Max 200J)

Epinephrine 0.01 mg/kg (1 mg/ 10mL) IV/IO (max dose 1 mg)
Max total dose of 2mg with 2nd dose at 8 minutes

Amiodarone 5 mg/kg IV/IO**. Max initial dose 300 mg**
May repeat x 1 **at 2.5 mg/kg** I/IO. **Max repeat dose 150 mg**
Follow amiodarone doses with 20 mL NS flush
Do not administer in torsades

Push dose epinephrine (14 years or older only) IV/IO
10-20 mcg boluses (1-2mL) every 2 minutes
Preparation: mix 1 mL of 1 mg/10 mL (CARDIAC) epinephrine with 9 mL NS. This results in a 10 mcg/mL concentration

Titrate to effect, goal SBP 90 mmHg

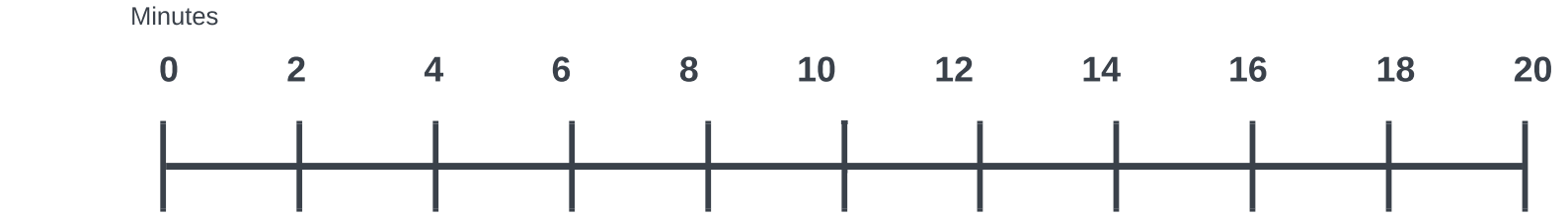
Only if concern for opioid overdose;
Administer **naloxone 2 mg IV/IO or 4 mg IN**
May repeat x 1 **naloxone 2 mg IV/IO (Max total 6 mg)**

Only if concern for hyperkalemia:
Administer **calcium chloride 20 mg/kg IV/IO Max dose 1 g**

For polymorphic ventricular tachycardia (torsades). Administer **magnesium 25 mg/kg (max 2g)** IV/IO over 2 minutes.

For neonate <10 days old check heel stick glucose and provide hypoglycemia management if <40

Prehospital CPR Timeline



EMT

200 chest compressions

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200 chest compressions

Passive Oxygen for witnessed cardiac

Positive pressure for hypoxia related (peds, drowning, OD) and unwitnessed arrests with unknown downtime

Place advanced airway (SGA or ETI) if not already performed
Begin positive pressure ventilation if not already.

consider change in airway strategy when $EtCO_2$ less than 10

MEDIC

Place IO or IV
Administer first Epi as soon as possible.

Administer Amiodarone if VT/VF

Defib only once if initial rhythm is asystole

Consider if indicated:
Naloxone
Calcium chloride
Magnesium

Administer addition dose of Epinephrine
Monitor EtCO2

Consider if indicated:
Repeat Amiodarone

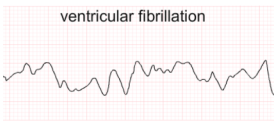
Consider transport decision

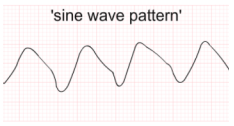
Education/Pearls

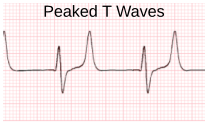
Prioritize effective CPR in the first 8 minutes, addressing any cardiac arrhythmias and optimizing airway opening with an OPA or NPA. Consider the possibility of transport early in resuscitation in cases of dynamic arrhythmias or persistent VF. Without a full 12 lead there are cases where fine VF appears as asystole. This is the rational to provide initial defib in cases of asystole. Please document as asystole as initial rhythm when this is the case.

Hyperkalemia: Often seen in the setting of renal failure, tissue destruction (e.g. rhabdomyolysis, large burns), certain medications, or prior episodes of hyperkalemia, and should be suspected in wide complex rhythms or VF.

- The pacing threshold for bradycardia is elevated in hyperkalemia, leading to increased latency, intermittent or loss of capture, and loss of sensing.
- When suspected, give Calcium Chloride
- The following ECG changes may be present in hyperkalemia:







https://acadoodle.com/articles/5-ecg-changes-of-hyperkalemia-you-need-to-know

Pediatrics: In patients under the age of 14, strongly consider respiratory illness as the cause of cardiac arrest.

- Early ventilation is indicated in these patients
- **Do not intubate patients <8 years**

Dysrhythmias:

- For persistent shock resistant VF after 3+ defibrillation attempts, consider electrical storm and place patient on mechanical CPR device (if available) and prepare for transport to a cardiac receiving facility.
- Consider changing pad placement after 3 shocks to alternate placement.
- For torsades, administer magnesium (max 2 g).

Return of Spontaneous Circulation (ROSC): The post-arrest period is dynamic, and re-arrest and dysrhythmias frequently occur. Prioritize vasopressor administration and target oxyen to optimize vital sign parameters. Dysrhythmias in this period are common and usually self-limiting, and some warrant no further treatment, especially atrial dysrhythmias. However, providers should treat worsening bradycardia, as it may precede re-arrest, as well as wide-complex tachycardia. After arrest,

- Monitor $EtCO_2$; $EtCO_2$ should remain above 20. Lower readings may indicate re-arrest or airway displacement.
- Monitor SpO_2 to maintain saturation between 94-99%
- Obtain a 12-lead; if STEMI, transmit ECG and expedite preparation for transport
- Prepare for transport and assure adequate personnel; once loaded, reassess airway and pulse
- Prepare your pressor; titrate fluid resuscitation and vasopressor administration to maintain SBP of 90-100 mmHg or Mean Arterial Pressure (MAP) of 65-80 mmHg.
- Continuously monitor cardiac rhythm
  - Bradycardia:
    - A common post-ROSC rhythm, first-line treatment is push-dose epinephrine. **Titrate pressor as needed to target a perfusing heart rate.**
    - **Only attempt pacing in severe bradycardia if mechanical capture can absolutely be verified (i.e. finger on the pulse with good blood pressure) and the patient is under constant monitoring. After ROSC, heart muscle is often stunned and pacing will be ineffective. You must have a patient with a pulse for pacing to be an option.**
  - **Wide-complex tachyardia: See Wide Complex Tachycardia AG**