Adult and Pediatric Medical Cardiac Arrest Administrative Guideline

P	**Defibrillation 2 J/kg (200 J adult dose), if indicated** **If asystole, defibrillate x 1 (initial check only)**

For **GRFD, NWFD, TFD**:

For patients <18 yo, follow PediPART airway instructions

Witnessed arrest from cardiac cause	
B	**Passive oxygenation insufflation** 15 LPM NRB mask & NPA/OPA *Age <8 yo, BVM with NPA/OPA only*
P	Place advanced airway **after** 8 minutes, consider PEEP at 5 cmH2O

All other causes of cardiac arrest (unwitnessed, respiratory, pediatric)	
B	**Positive pressure ventilation** BVM with NPA, OPA, or iGel Age <8 yo, BVM with NPA/OPA only
P	Perform intubation or surgical cricothyrotomy if indicated, consider PEEP at 5 cm H_2O

P	IV preferred or proximal IO access (distal femur, proximal humerus)

Shockable	
B	Continue compressions and rhythm analysis/defibrillation every two minutes
P	Perform defibrillation For **VT or VF**, administer amiodarone, IV preferred After **third shock**, administer repeat amiodarone IV and administer first dose of epinephrine (1 mg of cardiac dose) if not yet given **8 minutes after first epinephrine,** administer second dose of epinephrine, max total dose 2 mg
	Consider early transport for eCPR if applicable

Nonshockable	
B	Continue compressions and rhythm analysis/defibrillation every two minutes
P	As **early as possible**, administer first dose of epinephrine (1 mg of cardiac dose) **8 minutes after first epinephrine,** administer second dose of epinephrine, max total dose 2 mg

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

[Dead on Scene AG] or [Return of Spontaneous Circulation AG]

DRUG DOSAGES:

Neonate <10 days old
Perform heel stick glucose
Administer **Dextrose 10% (D10) 1 mL/kg IV/IO,** max dose 250 mL

Epinephrine
Administer **epinephrine (1 mg/10 mL) 0.01 mg/kg** IV/IO, max dose 1mg
May repeat x 1

Ventricular tachycardia or ventricular fibrillation
Administer **amiodarone 5 mg/kg IV/IO**, max initial 300 mg, IV preferred.
May repeat once 6-8 min later at 2.5 mg/kg **IV**, max repeat dose 150 mg. Follow amiodarone doses with 20 mL flush.

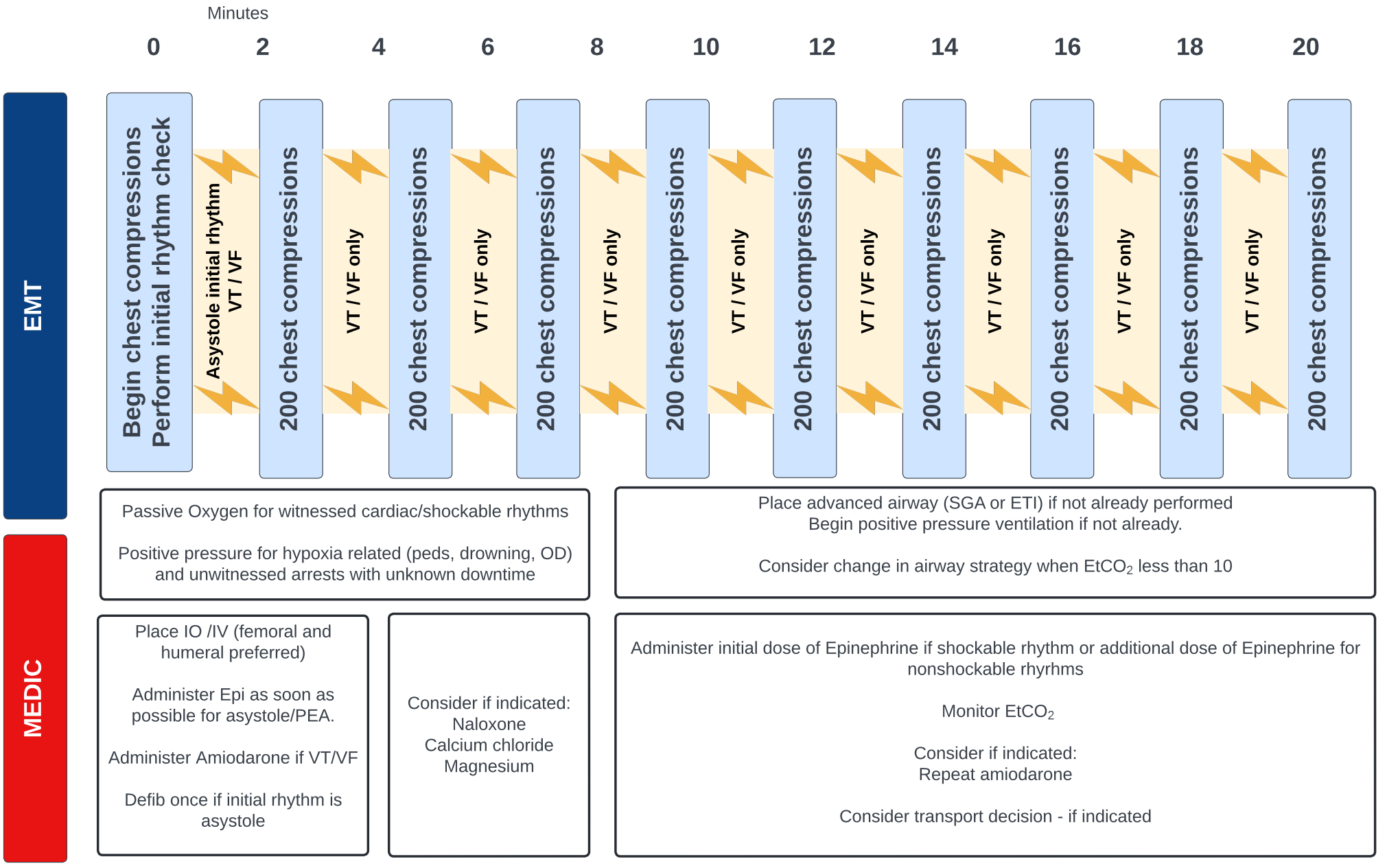
Defibrillation: **2 J/kg → 4 J/kg → 6 J/kg → 10 J/kg** (Max 200J)

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

Hyperkalemia
Administer **calcium chloride 20 mg/kg IV/IO,** max dose 1 g

Polymorphic ventricular tachycardia (Torsades)
Administer **magnesium 25 mg/kg IV/IO** over 2 min, max 2g

Prehospital CPR Timeline



Education/Pearls

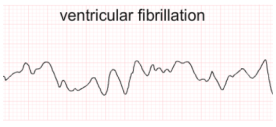
Prioritize effective CPR in the first 8 minutes of cardiac arrest management, addressing promptly any cardiac arrhythmias. First-look asystole is defibrillated once to cover for otherwise undetected or occult VF. Anytime a shockable rhythm is assessed in cardiac arrest, defibrillation should be performed. Good quality CPR, effective post-ROSC care, and early epinephrine in non-shockable rhythms are tied to improved patient outcomes.

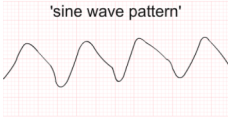
Refractory VF/VT: For patients exhibiting 3+ episodes of shockable rhythm, pre-hospital management is often only temporizing due to profound cardiac ischemia. These patients often require emergent hospital resources, such as ECMO or the cath lab. For patients with refractory shockable rhythms, consider early transport (e.g. at the third shock) to a cardiac receiving facility, administration of a second dose of amiodarone, and a vector change. In patients with isolated electrical disturbances, we delay epinephrine to the third shock. The second, final dose of epinephrine should follow approximately eight minutes after the first dose.

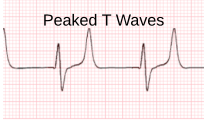
Asystole and PEA: Early administration of epinephrine is prioritized in these patients, as trials have shown benefit in survival. Asystole (not PEA) should be shocked once when first detected. The second, final dose of epinephrine should again follow approximately eight minutes after the first dose.

Airway management: For patients with witnessed cardiac arrests in the setting of suspected cardiac cause (i.e. suspected MI, sudden syncope), airway management should consist of passive oxygen insufflation with a NRB +/- NC. For all other cardiac arrests (unwitnessed, pediatric, respiratory), hypoxia is a suspected major contributor of the cardiac arrest. Pursue positive pressure ventilation immediately in these patients and place an earlier advanced airway.

Hyperkalemia: In the setting of renal failure, tissue destruction (e.g. rhabdomyolysis, large burns), certain medication use, or prior hyperkalemia, treat hyperkalemia in wide complex rhythms or VF. 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
- Defibrillation should follow an escalating doses: 2J/kg, 4J/kg, 6J/kg, then 10J/kg with a max of 200J.
- If a Pedi-PART participating agency, consider iGel on odd days
- **Do not intubate patients <8 years**

Polymorphic VT (Torsades de Pointes):

- Administer magnesium (max 2 g)
- Defibrillate pulseless torsades.

IV/IO Access: Recent studies have shown improved outcomes in patients with amiodarone when administered IV (when compared to IO) access in cardiac arrest, as well as increased flow rates for proximal IO access. For this reason, IV/IO access is a renewed focus in OHCA management.

- When IV access is not feasible, obtain proximal IO access. Femoral or humeral are preferred over tibial.
- When possible, administer amiodarone via IV.

Measuring Terminal EtCO2: When nearing termination of resuscitation, record a final EtCO2. This is measured by ceasing compressions and continuing ventilation for 20 seconds, then measuring the EtCO2 level.