

Adult and Pediatric Cardiac Arrest Administrative Guideline

Minutes 1-8

B	Initiate chest compressions at rate of 100-120 bpm
P	Immediate rhythm check/defibrillation 2 J/kg (200 J adult dose) 15 LPM NRB mask & NPA/OPA + NC 10 LPM

If non-cardiac etiology (e.g. respiratory causes, pediatric) - IMMEDIATELY begin airway management and positive pressure ventilation.
Ventilation Rates:
Adults - 10 bpm
Peds 12-20 bpm
Ventilate all children < 8yo using BVM only

B	<ul style="list-style-type: none"> Perform 4 rounds of 200 compressions Check rhythm and pulse every 2 minutes Defibrillate if indicated Minimize interruptions
	IV/IO access Administer epinephrine as early as possible
P	If VT/VF after first shock, administer amiodarone or lidocaine For polymorphic VT (torsades) administer magnesium .

Consider alternative etiologies

Hyperkalemia: Calcium chloride
Hypovolemia/Shock: NS fluid bolus
Suspected opioid overdose: Naloxone
Hypoglycemia: **Hypoglycemia AG**
Torsades: Magnesium

Minutes 8-20

P	Place advanced airway (supraglottic airway or ETI) after 4 rounds/8 minutes Administer 2nd dose of epinephrine
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ROSC at any time

Yes

No

Post ROSC AG

Dead on Scene AG if indicated

DRUG DOSAGES:

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

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

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

Lidocaine 1mg/kg (max dose 100 mg) IV/IO.
May repeat x 1 at 0.5 mg/kg (max dose (50 mg)

If there is concern for opioid overdose;
Administer **naloxone 2 mg IN/IV/IO**
May repeat **naloxone 2 mg IV/IO**

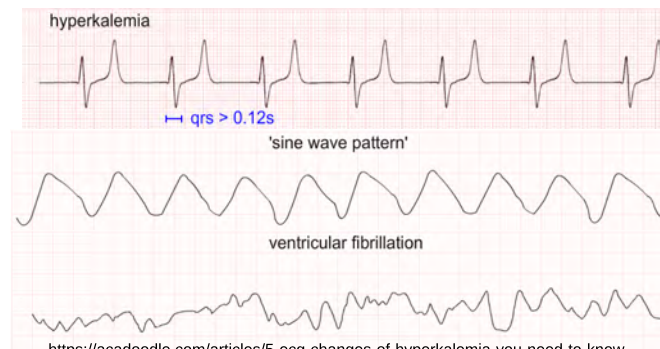
If there is concern for hyperkalemia:
Administer **calcium chloride 20 mg/kg IV/IO**
Max dose 1 g

For polymorphic ventricular tachycardia (torsades). Administer **magnesium 25 mg/kg (max 2g) IV/IO** over 2-5 minutes.

Education/Pearls

Treatment of cardiac arrest provides a unique challenge due to the intensive therapies and critical windows for intervention. 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.

- Hyperkalemia:
 - A common cause of arrests, hyperkalemia is often seen in the setting of renal failure, tissue destruction (such as prolonged downtime from rhabdomyolysis or 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 1 g IV/IO
 - The following ECG changes may be present in hyperkalemia:



- 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**
- 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.
- For torsades, administer magnesium (max 2 g). Amiodarone prolongs the QT interval and should not be given to patients with torsades (polymorphic VT due to prolonged QT).

CPR hand positions:

- Infant - two thumb-encircling hands
- 12 months to 8 years - one-hand chest compressions
- >8 years - two-hand chest compressions

Local Cardiac Receiving Centers:

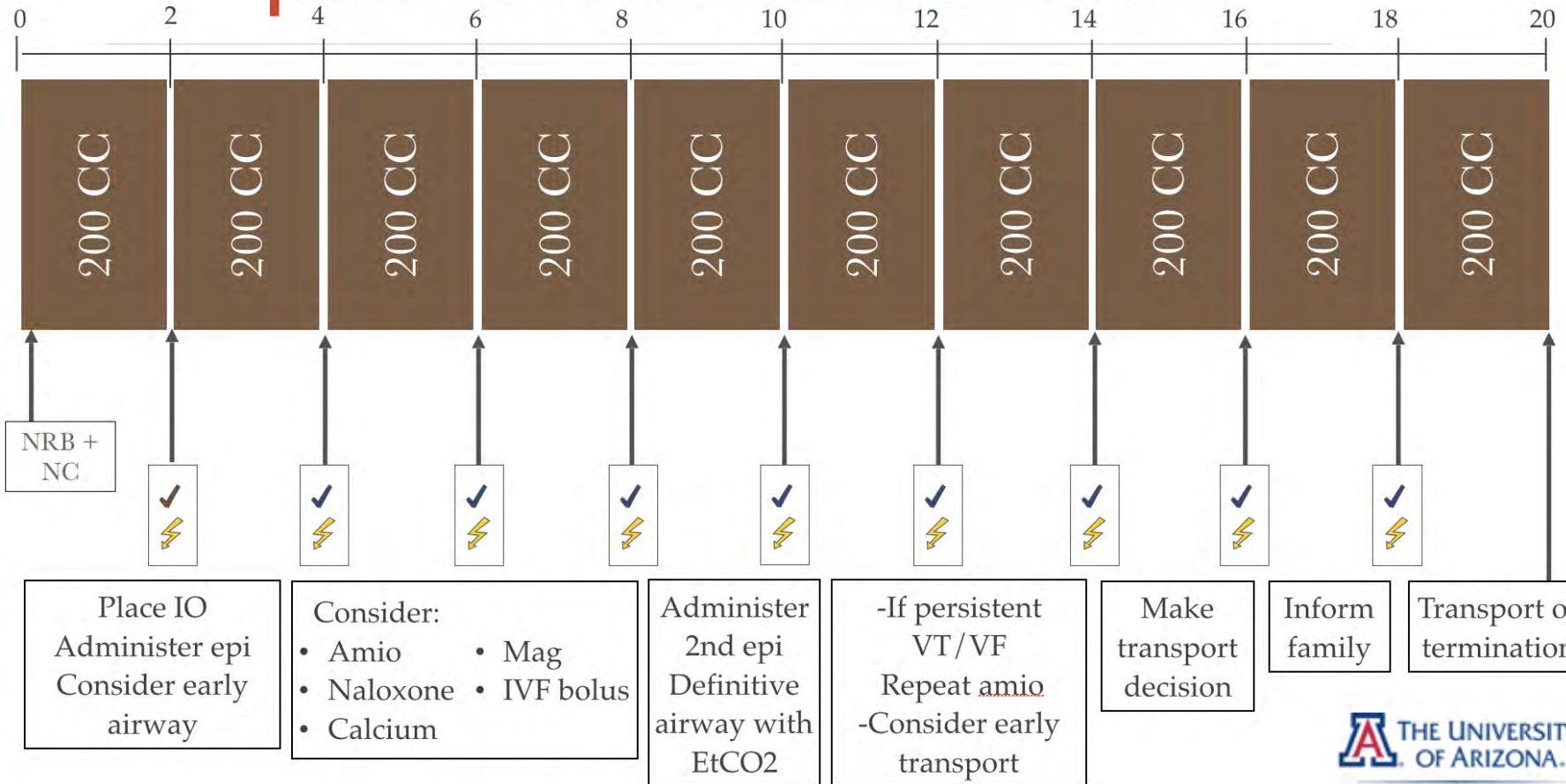
- BUMC-T
- BUMC-SC
- NWMC
- OVH
- TMC
- SJH
- SMH
- VAMC

Local Pediatric Cardiac Receiving Centers:

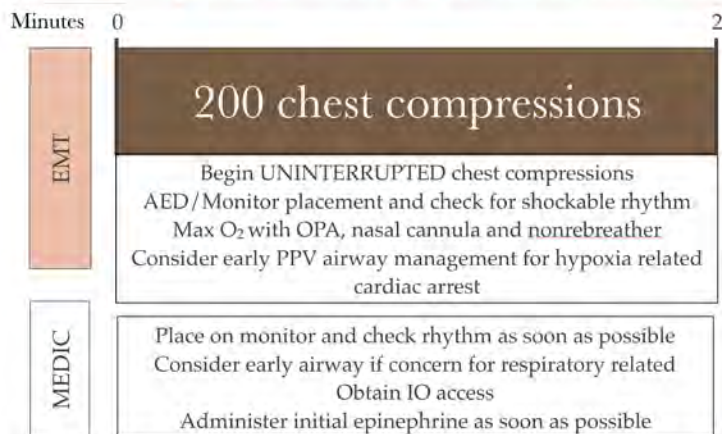
- BUMC-T
- TMC

pCPR Protocol Overview

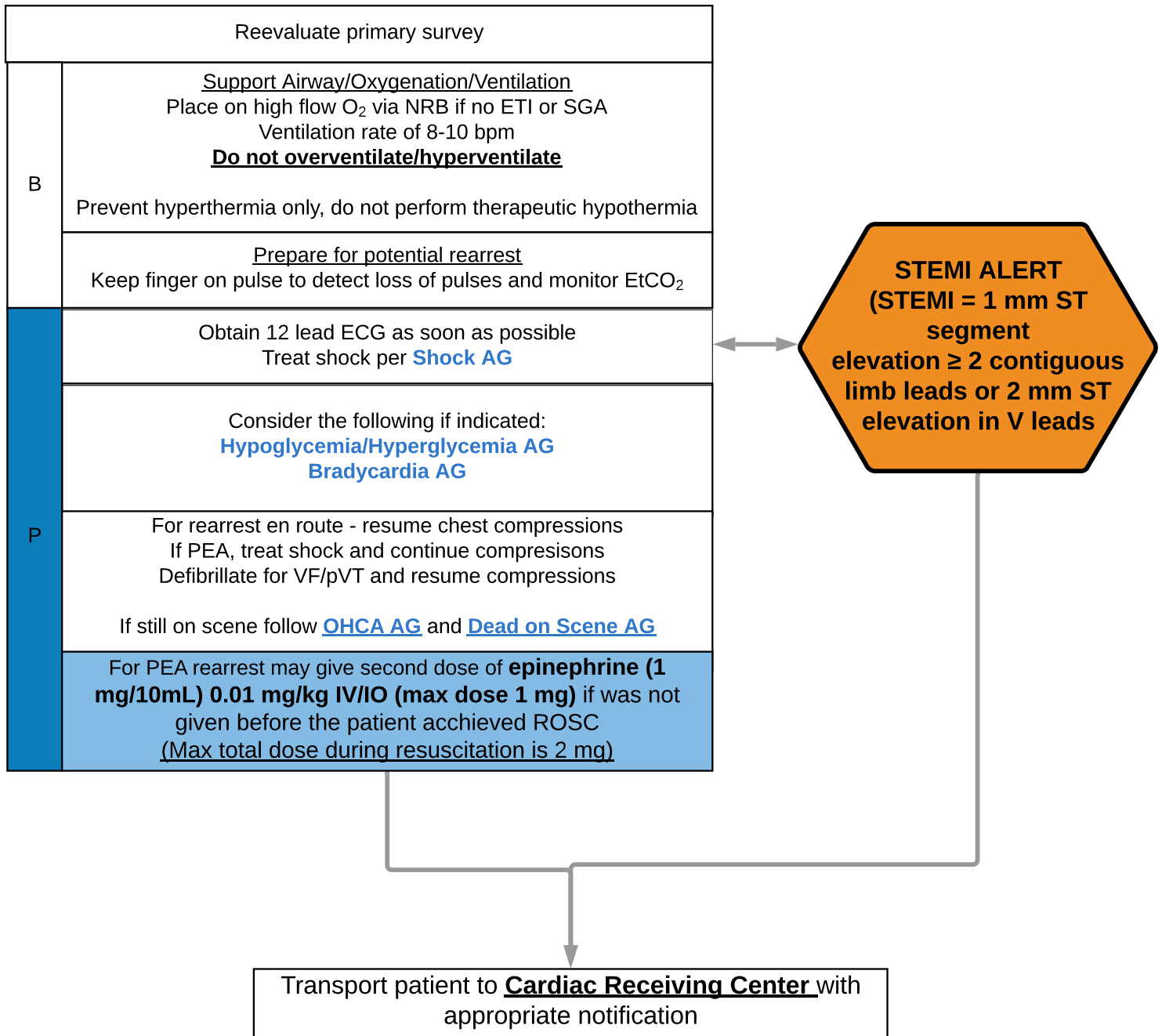
Minutes



pCPR - first two minutes



Post Cardiac Arrest Administrative Guideline



Education/Pearls

The post-arrest period is dangerous for the patient, as re-arrest and dysrhythmias frequently occur. Titrate fluid resuscitation, vasopressor administration, and oxygen to optimize vital sign parameters. Dysrhythmias are common and usually self-limiting after ROSC and may not need further treatment, especially atrial dysrhythmias. However, providers should treat worsening bradycardia, as it may precede re-arrest.

- Continuously monitor cardiac rhythm and EtCO₂
 - EtCO₂ should remain above 20 - lower readings may indicate re-arrest
- Titrate O₂ to maintain saturation between 94-99%
- Obtain a 12 lead; if STEMI, transmit ECG and expedite preparation for transport
- Treat bradycardia per **Bradycardia AG**
- Once loaded for transport, reassess airway and pulse
- Assure there are appropriate personnel for transport, particularly in the event of rearrest
- Titrate fluid resuscitation and vasopressor administration to maintain SBP of 90 – 100 mmHg or Mean Arterial Pressure (MAP) of 65 – 80 mmHg.

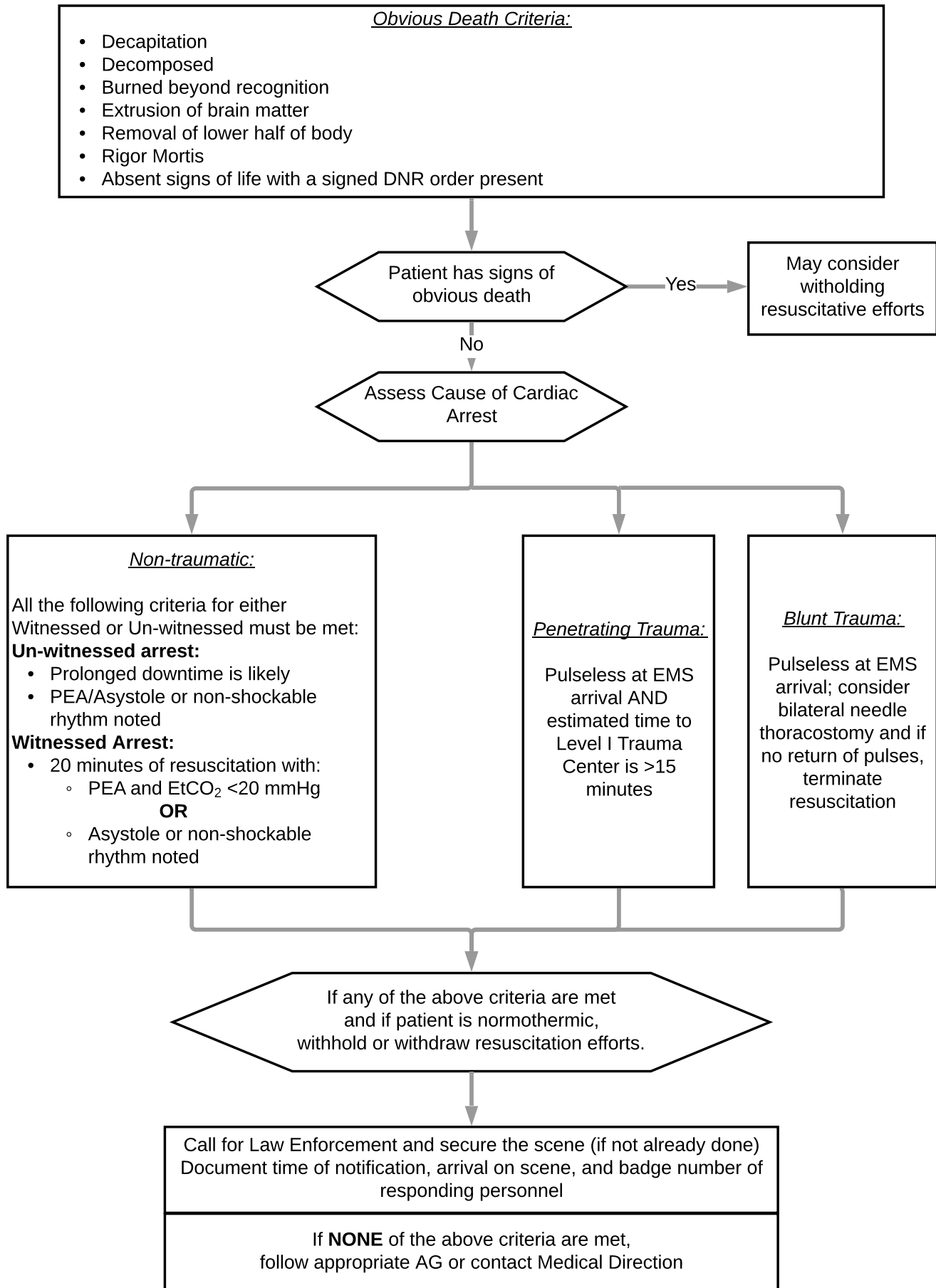
Pacing:

- **While transcutaneous pacing may otherwise be indicated in the ischemic heart, consider the danger of missed re-arrest while pacing.**
- In general titrate pressors as needed, and only attempt pacing if indicated in the post ROSC patient if mechanical capture can absolutely be verified (i.e. finger on the pulse with good blood pressure) and the patient is under constant monitoring.

For Rearrest - resume chest compressions and treat underlying rhythm.

- For PEA - treat shock with fluid bolus and resume chest compressions
 - If the patient has not already received the max total epinephrine dose (2 doses max), may administer the additional dose of epinephrine.
- For PEA - VF/pVT defibrillate and resume chest compressions
- Treat other underlying rhythms, such as torsades, per OHCA Administrative Guideline.

Dead On Scene Administrative Guideline



Education/Pearls

- Patients must be pulseless and apneic to apply this AG. PEA/Asystole should be confirmed in two leads for at least ten seconds.
- If the patient is hypothermic due to submersion or environmental exposure, follow [OHCA AG](#) and transport per guideline.
- Online medical direction is not necessary if the patient meets this AG criteria.
- An EMS provider must remain with the patient until released to the Law Enforcement Officer.
- For patients <18 years of age, consultation with online medical direction is recommended.
- After termination, do not alter body condition in any way or remove equipment (lines, tubes, etc.). Doing so may compromise potential Medical Examiner investigation

Advanced Directives (ADs): ADs describe the patient's wishes for treatment in life-threatening situations, and may include limitations of compressions, airway management, feeding, fluids, and preference for organ donation or dialysis. In the absence of formal written directions (MOLST, POLST, DNR, generic advanced directives), a person with power of attorney for healthcare or healthcare proxy may prescribe limits of treatment.

- Patients must have one of the following documents or a valid alternative (such as identification bracelet indicating wishes) immediately available:
 - Physician Orders for Life Sustaining Treatment (POLST) or Medical Orders for Life Sustaining Treatment (MOLST): explicitly describes acceptable interventions for the patient in the form of medical orders, and must be signed by a physician or other empowered medical provider to be valid.
 - Do Not Resuscitate (DNR) order: identifies that CPR and intubation are not to be initiated if the patient is in arrest or peri-arrest. The extent of interventions covered by this order can vary widely.
 - One of the documents above is valid when it meets all of the following criteria:
 - Be intact: it has not been cut, broken or shows signs of being repaired
 - Display the patient's name and the physician's name
- If there is documentation of Advanced Directives (POLST, MOLST, DNR), the patient should receive full treatment per protocols with the exception of any intervention specifically prohibited in the patient's advanced directive; for example, a patient with a DNI (Do Not Intubate) should receive all interventions except intubation.
 - If for any reason an intervention that is prohibited by an advanced directive is being considered, online medical direction should be obtained.
- In cases where the patient's status is unclear, appropriateness of withholding resuscitation efforts is questioned, or if there is question on the validity of the provided forms, EMS personnel should initiate CPR immediately and then contact online medical direction. Proceed with resuscitation until additional information can be obtained to clarify the best course of action.
- Special Consideration: For scene safety and/or family wishes, the provider may decide to implement CPR even if all the criteria for death are met.

Traumatic Arrest:

- Resuscitation efforts may be terminated in any blunt trauma patient who is apneic, and pulseless.
- Victims of penetrating trauma found apneic and pulseless should be rapidly assessed for the presence of other signs of life, such as pupillary reflexes, spontaneous movement, response to pain, and electrical activity on EKG.
- If resuscitation is not terminated, transport is indicated. Cardiopulmonary arrest patients in whom mechanism of injury does not correlate with clinical condition, suggesting a non-traumatic cause of arrest, should have standard ALS resuscitation initiated.