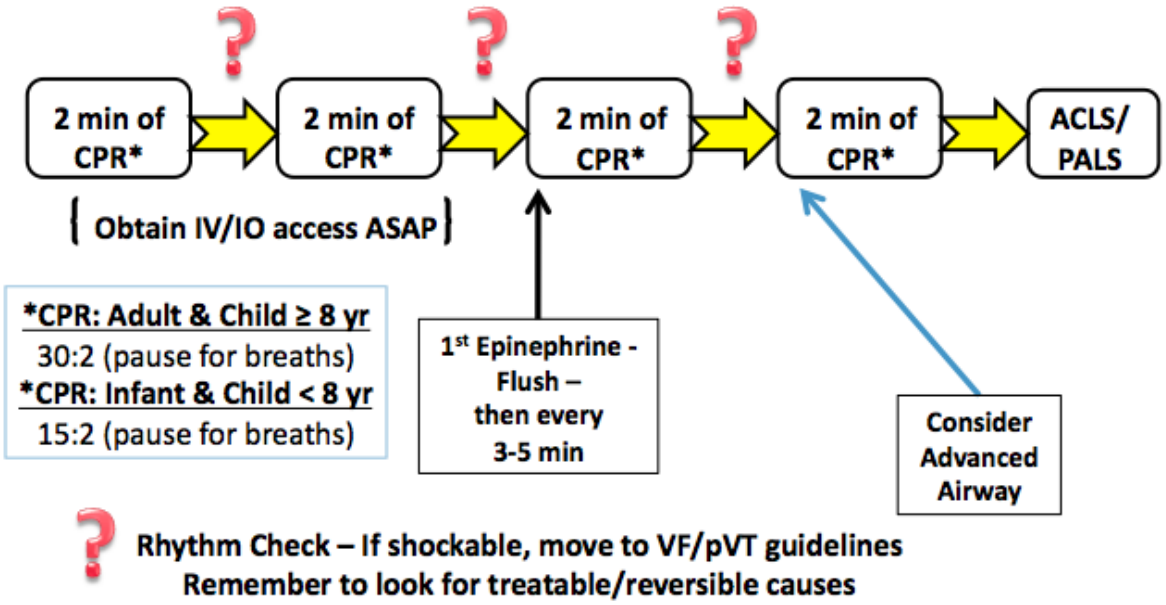
Cardiac Arrest

Inclusion Criteria: These guidelines help establish treatment priorities for all apneic and pulseless patients. Do not attempt resuscitation in patients who meet criteria outlined in the **Determination of Death Policy** or the **Do Not Resuscitate Policy.** The **Neonatal Care Guideline** covers cardiac arrest in newborns or neonates. Other guidelines may also apply including **Asystole/PEA, Trauma, and Ventricular Fibrillation/Pulseless Ventricular Tachycardia.**



Basic Level

1. Assess for signs of responsiveness and signs of circulation (no more than 5-10 seconds for pulse check). If the pulse is absent or if you are uncertain, begin high-quality chest compressions.
   a. Push hard at a rate of 100 compressions per minute. Turn on metronome, if available.
   b. Allow maximum recoil of the chest after each compression.
   c. Minimize interruptions in compression.
   d. Do not pause compressions for more than 10 seconds for any reason.

2.

Perform CPR at a ratio of	
Adults and Children age 8 or older	**Infants and Children Younger than age 8**
• 30 compressions and 2 ventilations	• 15 compressions and 2 ventilations

3. Assess and support an open airway with head-tilt chin-lift maneuver and an oropharyngeal airway.
   a. If you suspect spinal injury, use the jaw thrust maneuver and an oropharyngeal airway.

4. Assess and support breathing.
   a. Support ventilations with 100% oxygen, 1-hand squeezes of the BVM over 1 second each, and only enough tidal volume to produce visible chest rise.
   b. **DO NOT** overventilate.
   c. Use the compression-to-ventilation ratio as specified by age (above).

5. For cardiac arrest in cases of suspected trauma, initiate spinal movement restrictions.
   a. BLS agencies should begin transport if transfer to the closest appropriate medical facility is faster than waiting for an ALS unit. Minimize scene time and continue treatment guidelines en route.

b. Contact BioTel as early as possible so that they can notify the receiving Trauma Center who can begin preparation for the patient's arrival.

6. **As soon as a defibrillator or AED arrives, apply hands-free defibrillation pads without interrupting CPR. For manual defibrillators, use pediatric defibrillation pads (if available) for patients between 1 and 8 years old. For AEDs, use special pediatric dose-attenuating AED pads for patients between 1 and 8 years old. Do not apply the AED to infants under 1 year old. If using a manual defibrillator, perform all care while in the PADDLES mode.**

- If using an AED, follow all voice and visual prompts. Continue defibrillation and CPR sequence until advanced providers place the patient on a manual defibrillator.
- If using a manual defibrillator, deliver one shock at a time, if needed for VF or pVT.
- Do not place manual defibrillators in the AED mode:
  - Unless specifically permitted by Medical Direction and agency MOP.
  - At any time for children younger than the 8th birthday.
- Immediately after delivering a shock, resume high quality chest compressions for 2 full minutes without first checking the rhythm or pulse.
- At the end of the 2-minute CPR cycle, briefly pause chest compressions for no more than 10 seconds to check the rhythm.
  - If the rhythm is organized, check for the presence of a pulse.
  - If ROSC, refer to **Post Cardiac Arrest Management Guidelines.**
  - If asystole or PEA is present, resume CPR, and refer to the **Asystole/PEA Guidelines**.
  - If the patient remains in a shockable rhythm, refer to the **Ventricular Fibrillation/pulseless Ventricular Tachycardia Guidelines**.

For All Defibrillation Attempts

- Perform chest compressions for 15-20 seconds while charging the defibrillator.
- Do not interrupt chest compressions for more than 5 seconds before or after shock delivery.

Advanced Level

7. For cardiac arrest in cases of suspected trauma, initiate spinal movement restrictions.
   a. Blunt Trauma – Manage victims of blunt trauma in cardiac arrest according to the **Termination of Resuscitation Guidelines**.
   b. Penetrating Trauma
      1. SIGNS OF LIFE: If the patient has EMS-witnessed signs of life (movement, vocalization, respiratory effort, swallowing, reactive pupils, reflexes, measurable vital signs), transport to the closest Trauma Center
      2. NO SIGNS OF LIFE: Manage penetrating trauma in cardiac arrest that had no signs of life according to the **Termination of Resuscitation Guidelines**.

8. Do not attempt placement of an advanced airway (supraglottic or endotracheal) for at least 6 minutes (after three 2-minute cycles) unless necessary because of regurgitation.
   a. Advanced airway insertion attempts MUST NOT interrupt chest compressions.
   b. After securing the advanced airway, deliver ventilations without interrupting chest compressions:
      1. Medical etiology cardiac arrest - 8 to 10 ventilations each minute (every 6 to 8 seconds)
      2. Trauma etiology cardiac arrest - 6 ventilations each minute

9. Establish IV or IO access using normal saline as soon as feasible during the resuscitation attempt.
   a. IV/IO access attempts MUST NOT interrupt chest compressions.
   b. Flow rate:
      1. TKO rate for medical cardiac arrests
      2. Wide open rate for cardiac arrest caused by trauma. Upon ROSC, adjust rate to TKO.

10. **If mechanism of injury AND symptoms AND physical exam suggest a tension pneumothorax**

Adult	Pediatric
• perform needle thoracostomy	• Contact BioTel

11. Identify the presenting dysrhythmia and proceed to the appropriate dysrhythmia treatment guidelines.

12. Summary of therapies by age:

Therapy	Adult	Child	Infant
Definition of Age	8th birthday and above	1 year to 8th birthday	Before 1st birthday
CPR	30 compressions to 2 ventilations	15 compressions to 2 ventilations	15 compressions to 2 ventilations
Defibrillation	Adult AED/defibrillator pads	Pediatric defibrillator pads or AED with special pediatric AED pads (if available)	Manual defibrillator with pediatric defibrillator pads – Do not use an AED
Drugs	Standard adult dosing for patients 14 and older; weight-based dosing for children 8 through 13	Weight-based dosing	Weight-based dosing