CARDIAC ARREST
PROTOCOLS
Family Presence During Resuscitation Attempts

“Family presence” is the practice of allowing a patient's family member to remain in the treatment area while a patient is resuscitated or undergoes a medical procedure. Parents or family members seldom request to be present during a resuscitation attempt unless they are encouraged to do so. It is suggested that family members who were present during resuscitative efforts showed less anxiety and depression and more constructive grief behavior than family members who were not present during the attempt. EMS providers should offer, when appropriate, the opportunity for family to observe the resuscitation process.

When dealing with any resuscitation remember to take into account the following:

- Family members reported that being present helped them adjust to the death.
- Presence during resuscitation helps prevent the question that often accompanies an unsuccessful resuscitation attempt: *Was everything done?*
- Parents and caretakers of chronically ill children are often knowledgeable about and comfortable with medical equipment and emergency procedures.
- Providers should be sensitive and compassionate to the presence of family members during resuscitative efforts and should (when able to do so) attempt to answer questions, clarify information, and offer comfort during resuscitation efforts, without instilling false hope of the chances for survival.
- Keeping the family updated on the status of the patient while resuscitation is underway is important. Balancing the needs of the patient and the family can be difficult. Usually, a provider knowledgeable in the resuscitation process should make contact with the family to explain procedures etc.
- **Family member presence during resuscitation should not be permitted when:**
  1. uncontrollable emotional outbursts interfere with resuscitation efforts or patient care,
  2. a potential crime scene exists (unless viewing is not graphic and does not disturb evidence),
  3. access to the patient is limited due to the confines of resuscitation space,
  4. scene stability is in question.

Notifying survivors of an unexpected or sudden death:

Despite your best efforts many prehospital resuscitations fail and notifying family and/or friends of the death is an important aspect of the resuscitation process. Death notification can be awkward and difficult even for experienced EMS providers. In all cases survivors should be informed with compassion preferably by a knowledgeable and experienced EMS provider (often the EMS provider in charge of resuscitative efforts).

- What you say or do can have a tremendous impact on the grief process as survivors often great weight to what is said, often remembering it for the rest of their lives.
- When informing relatives of the death, use plain English (“is dead” or “died”) rather than "passed away", which can be misinterpreted.
- When speaking of the deceased person, use the patient’s name, “him,” or “her”, but never "body" or "it."
- If a language barrier exists try to obtain a translator from outside the family; always prepare the translator for what is to be said (do not wait until they are relaying information to inform them).
- If a family member is the only translator, be aware that it may be a difficult task to hear bad news about a loved one and then to explain the news to someone else within the family.
- **When family is not present on scene:** If a family member must be notified of a death over the phone (on a recorded line) by EMS (this is often done by police or medical examiner). Clearly state your name, your association with EMS, and the patient's name over the phone to verify that the person on the telephone is a relative of the patient. Provider a brief description of events and treatment using layman terminology, unless they are medical professionals themselves.
- Family may react to news of death in different ways; calm or hysterical, shock, rage, disbelief, apathy or numbness, crying, and even violence. EMS providers should be prepared to handle the situation.
- Viewing the body is often painful for the family, but it may reduce prolonged grieving by creating an increased sense of the reality of death.
- Before viewing, blood should be wiped from visible parts of the body, close the eye (if open), and any resuscitation debris removed. Devices that must be left in place for a Medical Examiner review (IV’s, tubes etc) should be explained before they are seen. **Note:** Anytime a crime scene exists or is suspected cleansing the body or altering the scene is contraindicated.
CARDIAC ARREST - GENERAL MANAGEMENT

**ADULT**

Apply an AED and follow prompts.

BVM ventilation:

> **age 8 years:** use 10 to 12 bpm.

Chest compression rate of approximately 100 bpm

If hypovolemia is suspected administer NS in 10-20 mL/kg increments until 2 liters is reached or fluid overload occurs.

Cardiac monitor failure
No ECG available on scene

**Epinephrine** 1 mg IV push. 
Use 2 mg if via ET.

Use 3 mgs IV if beta blocker ODS or anaphylaxis.

Repeat every 3 to 5 minutes as needed.

*Use 1:10,000 for IV/IO/ET*

**PEDIATRIC**

Apply an AED if over 1 year of age and follow prompts.

BVM ventilation:

< **28 days:** use 30 bpm.

> **28 days to 8 years:** use 12 to 20 bpm.

Chest compression rate of approximately 100 bpm

If hypovolemia is suspected administer NS in 20 mL/kg increments until 1 liter is reached or fluid overload occurs.

Cardiac monitor failure
No ECG available on scene

**Epinephrine** 0.01 mg/kg to 1 mg per dose.
Use 0.1 mg/kg for ET up to 5 mgs per dose.

Repeat every 3 to 5 minutes as needed.

*Use 1:10,000 for IV/IO
Use 1:1000 for ET*
# Cardiac Arrest – Asystole / PEA

## Adult

**Epinephrine** 1 mg IV.  
Use 2 mgs if via ET.  
Consider 3 mg if BB OD or anaphylaxis.  
Repeat every 3 to 5 minutes as needed.

**Atropine** 1 mg rapid IV.  
Use 3 mgs if via ET x 1.  
Repeat IV dose every 3 to 5 minutes until 3 mgs is reached or rate is > 60 bpm.

**Asystole unresponsive to initial dose of epinephrine and atropine**

**Aminophylline** 250 mgs IV x 1.

**If SVT > 150 bpm with no pulse immediately cardiovert**

- **Monophasic:**  
  100, 200, 300, 360 J.

- **Biphasic:**  
  100, 120, 200 J.

**Amiodarone** 300 mgs IV if no response to shocks.

Circulate drug for 1 minute and then cardiovert at last energy level used.

If still no response and still pulseless, administer epinephrine as above and contact Biocare Medical Control.

## Pediatric

**Epinephrine** 0.01 mg/kg up to 1 mg IV per dose.  
Use 0.1 mg/kg for ET up to 5 mgs per dose.  
Repeat every 3 to 5 minutes as needed.  
*Use 1:10,000 for IV/IO*  
*Use 1:1000 for ET*

Atropine and Aminophylline are not indicated in routine pediatric arrest.

**If SVT > 180 bpm in a child and 220 bpm in an infant with no pulse immediately cardiovert**

*Monophasic and biphasic:*  
Begin at 1 J/kg.  
If no response use 2 J/kg.

**Amiodarone** 5 mg/kg up to 300 mgs IV if no response to shocks.

Circulate drug for 1 minute and then cardiovert once at 2 J/kg.

If still no response and still pulseless, administer epinephrine as above and contact Biocare Medical Control.
**ADULT**

10% Calcium gluconate 2 grams IV (20 mL) over 1 minute.

May repeat once in 10 minutes if no response is observed.

*Flush line and then administer;*

Sodium bicarbonate 1 mEq/kg up to 100 mEq IV push.

*Administer after sodium bicarbonate;*

Albuterol 10 mg via nebulization or direct tracheal instillation.

**PEdiATRIC**

10% Calcium gluconate 60 mg/kg up to 2 grams IV over 1 minute.

May repeat once in 10 minutes if no response is observed.

*Flush line and then administer;*

Sodium bicarbonate 1 mEq/kg up to 50 mEq IV push.

*Administer after sodium bicarbonate;*

Albuterol 5 mg via nebulization or direct tracheal instillation.
**ADULT**

### Hypotension present not due to a rapid or slow dysrhythmia

- **NS** 500 mL IV/IO over 10 minutes.
- Repeat as needed until perfusion improves, SBP is > 90 or 2 liters is reached.
- **Half the rate and amount if renal failure or cardiac history.**

### Persistent hypotension despite fluids

- **Dopamine** beginning at 5 mcg/kg/min.
  - Increase by 5 mcg every 5 minutes until 20 mcg/kg/min is reached.

### Antiarrhythmic given during arrest

- *Infuse last drug administered if not contraindicated;*

  - **Amiodarone:** 1 mg per minute.
  - **Lidocaine:** 2 to 4 mgs per minute.
  - *Contact Biocare Medical Control if Magnesium was the last agent used.*

### Antiarrhythmic NOT given during arrest

- **Lidocaine** 1 mg/kg IV bolus then begin a continuous infusion at 2 to 4 mg/minute.

### Post-Intubation agitation

- **Lorazepam** 2 mgs slow IV.
  - May repeat in 5 minutes if needed.

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**PEDIATRIC**

### Hypotension present not due to a rapid or slow dysrhythmia

- **NS** 10 mL/kg IV/IO over 10 minutes.
  - Do not exceed 150 mL per bolus.
  - Repeat as needed until perfusion improves, 30 mL/kg or 1 liter is reached.
  - **Half the rate and amount if renal failure or cardiac history.**

### Persistent hypotension despite fluids

- **Dopamine** beginning at 5 mcg/kg/min.
  - Increase by 5 mcg every 5 minutes until 20 mcg/kg/min is reached.

### Antiarrhythmic given during arrest

- *Infuse last drug administered if not contraindicated;*

  - **Amiodarone:** 1 mg per minute.
  - **Lidocaine:** 2 to 4 mgs per minute.
  - *Contact Biocare Medical Control if Magnesium was the last agent used.*

### Antiarrhythmic NOT given during arrest

- **Lidocaine** 1 mg/kg IV bolus then begin a continuous infusion at 2 to 4 mg/minute.

### Post-Intubation agitation

- **Lorazepam** 0.1 mg/kg up to 2 mgs slow IV x 1.
### Adult

<table>
<thead>
<tr>
<th>Shock Type</th>
<th>Energy</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biphasic</td>
<td>200 Joules</td>
<td>Initiate CPR if VF/VT was not witnessed or response time &gt; 4 minutes.</td>
</tr>
<tr>
<td>Monophasic</td>
<td>360 Joules</td>
<td></td>
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</tbody>
</table>

Initiate CPR if VF/VT was not witnessed or response time > 4 minutes.

**Give 5 cycles of CPR ➔ Defib x 1.**

*Check Rhythm: If VF/VT - Continue.*

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

**Epinephrine** 1 mg IV.

- Consider 3 mg if BB OD or anaphylaxis.
- Use 2 mgs if via ET.
- Repeat every 3 to 5 minutes as needed.

**Give 5 cycles of CPR.**

*Check Rhythm: If VF/VT - Continue.*

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

**Amiodarone** 300 mgs IV x 1.

- Repeat 150 mg in 5 minutes x 1.

**Magnesium** 2 grams IV over 2 minutes for torsades.

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

If still no response - repeat epinephrine and shock sequencing as long as VF/VT remains persistent.

### Pediatric

<table>
<thead>
<tr>
<th>Shock Type</th>
<th>Energy</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>First</td>
<td>2 J/kg</td>
<td>Initiate CPR if VF/VT was not witnessed or response time &gt; 4 minutes.</td>
</tr>
<tr>
<td>Subsequent</td>
<td>4 J/kg</td>
<td></td>
</tr>
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</table>

**Give 5 cycles of CPR ➔ Defib x 1.**

*Check Rhythm: If VF/VT - Continue.*

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

**Epinephrine** 0.01 mg/kg up to 1 mg per dose IV.

- Use 0.1 mg/kg for ET up to 5 mgs per dose.
- Repeat every 3 to 5 minutes as needed.

*Use 1:10,000 for IV/IO*
*Use 1:1000 for ET*

**Give 5 cycles of CPR.**

*Check Rhythm: If VF/VT - Continue.*

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

**Amiodarone** 5 mg/kg up to 300 mgs IV x 1.

- Repeat half the initial dose up to 150 mgs in 5 minutes x 1.

**Magnesium** 50 mg/kg up to 2 grams IV over 2 minutes for torsades.

**CPR while charging ➔ Defib x 1.**

*Resume CPR after shock*

If still no response - repeat epinephrine and shock sequencing as long as VF/VT remains persistent.