FULTON COUNTY
EMERGENCY SERVICES

EMS PROTOCOLS

Fulton County
Emergency Medical Services

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Medical Director
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CARDIAC

*PULSELESS ARREST – V.FIB/V.TACH*

- **Witnessed**
  - Fast Patches
  - DEFIB

- **Unwitnessed**
  - 2 minutes of CPR before defib
  - DEFIB

- CPR – manual until **Auto Pulse** available

- **Identify V.Fib/V.Tach**

- **Defibrillation**
  - Biphasic – Lifepack 12, Zoll E-Series
    - 200 J All Shocks
  - Monophasic – Older Life Packs
- 200 J → 300 J → 360 J
- 2 minutes CPR between shocks

- **IV Access**
  - NS 1000mL, large bore
  - IO if no IV readily accessible
  - For IO, Lidocaine 1%, infuse 2-4 mL first for pain control

- **Vasopressin 40 units IV – One Time Only**
  - OR Epinephrine 1:10,000
  - 1mg IV push q 3-5 min

- **If still pulseless, Amiodarone 300mg IV**
  - May repeat Amiodarone at 150 mg IV in 3-5 min if rhythm persists
Consider Magnesium Sulfate
2gm IV over 10 minutes
- For Torsades, Magnesium Sulfate is first drug.
- Magnesium Sulfate
  - Mix in 50mL of D5W, mini drop tubing.

Advanced Airway for persistent
- Continue cycles of CPR, Epinephrine and Defibrillation if pulselessness persists

Online Med Control
- Anticipate Review of above orders
**PEA/ASYTOLE**

- CPR- Autopulse ASAP
- Fast Patches
- Determine Rhythm
  - Rhythm w/o pulse = PEA
- For Asystole – Change leads to confirm
  - Hard Wire for Lead II
- IV access – NS 1000mL large bore
  - Or IO if no IV access
  - For IO, Lidocaine 1% 2-4 mL first for pain control
- Vasopressin 40 units IV (one time only)
  - Or Epinephrine 1:10,000 1mg IV q 3-5 minutes
- Advanced Airway for prolonged cases
- Consider:
  - Glucose – D50 1 ampule IV/IO (or its equivalent)
  - Bicarbonate – 1 mEq/kg IV/IO
- Online Med Control for further orders
  - After 2 rounds of Epinephrine, Online Med Control may be contacted to consider discontinuing efforts for asystole.

- **H’s & T’s**

<table>
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TRAUMATIC CARDIAC ARREST

- C-Spine control at all times
- Chest compressions
- Combo patches
- Treat rhythm per protocol
- Move immediately to vehicle, all other treatment en route
- Advanced airway ASAP – reassess after any movement
- 2 large bore IVs or IO NS 1000mL
  - For IO, Lidocaine 1% 2-4 mL first for pain control
- Needle decompression bilateral chest 14 Gauge needle, seal with J loop and syringe.
- Online Med Control – advise treatment thus far
- Check pulse, check rhythm, treat according to protocol
HYPOTHERMIC CARDIAC ARREST

- Remove patient gently and safely from environment
- Remove wet garments
- Protect against heat loss, wind chill
- Establish if unresponsive – apneic, pulseless
- CPR, Auto Pulse, Combo patch
- Identify rhythm
- Treat shock-able rhythms with electricity & CPR
  - Do not give cardiac meds to hypothermic arrest
- Cardiac Monitor – Lead II
- Advanced airway
- IV – 2 large bore with warmed NS 1000mL
**BRADYCARDIA**

- Fast Patches
- If history of transplant, go to heart block protocol

- Atropine:
  - For mild symptoms – 0.5mg IV
  - For severe symptoms – 1mg IV

- TCP – Settings:
  - Rate 80 Milliamps 20
  - Increase in 5 milliamp increments until capture
  - Ativan 1-2mg IV OR Versed 2-4mg IV as needed for sedation if needed

- Patient must be more than 50kg and SBP
greater than 110 for sedation

- **Online Med Control** for second doses of sedation or if less than 50 kg

- **Epinephrine Drip** (Epinephrine 1:1000 2mg in D5W 250mL)
  - Start at 2mcg/min (15 drops per minute) Titrate up to maximum 10mcg/min or until perfusing HR & SBP achieved
3rd Degree Heart
Block/Second Degree [Mobitz Type II] Block

- TCP – settings:
  - Rate 80, milliamps 20 – increase by 5mAmp until capture
  - Sedation if needed:
    - Ativan 1-2mg IV OR
    - Versed 2-4mg IV
    - NOT indicated if less than 50kg or SBP 110
    - Online Med Control if less than 50 kg

- Epinephrine Drip – Epinephrine 1:1000 2mg in D5W 250mL
  - Start at 2mcg/min (15 drops per minute)
  - Titrate to a maximum of 10mcg/min (75 drops per minute) OR
  - Perfusing rate and/or SBP over 100
STABLE-NARROW COMPLEX
TACHYCARDIA/PSVT

Vagal Maneuvers
- Bearing Down
- Coughing
- Hold Breath
- Do not use carotid sinus massage or ice to face

Borderline – Approaching Shock
- Adenocard – 6mg – 2 syringe technique
  - May repeat at 12mg for resistant/recurrent tachycardia
- Cardizem 0.25mg/kg slow IV push over 2 minutes
- If Bradycardia or Hypotension occur with Cardizem:
- Calcium Chloride (CaCl) 2-4mg/kg up to 1gm over 5 min
- Calcium Chloride (CaCl) 1gm mix in D5W 50 mL 10 drop set at 100 drops per min

- **VENTRICULAR TACHYCARDIA/WIDE COMPLEX TACHYCARDIA**
  - Monomorphomic only
    - Adenocard 6mg IV 2 syringe technique
  - Mono or Polymorphic
    - Stable
      - Amiodarone 150mg IV over 10 min
• Amiodarone 150 mg in D5W 50mL, regular 10 drop set with drip rate 50 drops per minute
• May repeat in 10-15 minutes if rhythm persists

**Borderline**

• Synchronized Cardioversion
• Ativan 1-2mg OR Versed 2-4mg IV for sedation
• Monophasic 100J → 200J → 300J → 360J
• Biphasic 50J → 100J → 150J → 200J
TACHYCARDIA

Atrial Fibrillation or Atrial Flutter with rapid ventricular rate:

- Determine if pre-existing arrhythmia
- Ask about Wolff-Parkinson-White Syndrome
- If they have WPW DO NOT give Cardizem!
- If otherwise not contraindicated:
  - Cardizem: 0.25mg/kg IV (max dose 20mg) over 2 minutes
  - May repeat dose at 0.35mg/kg IV (max dose 25mg) in 15-20 minutes if needed
If bradycardia or hypotension occurs with Cardizem, treat:

- Calcium Chloride (CaCl) 2-4mg/kg up to 1gm IV over 5 min
- Calcium Chloride (CaCl) 1gm mix in D5W 50mL through 10 drop set at 100 drop/minute until symptoms resolve

Unstable/Borderline

- Synchronized Cardioversion
- Ativan 1-2 mg OR Versed 2-4 mg IV for sedation
- Monophasic 100J → 200J → 300J → 360J
- Biphasic 50J → 100J → 150J → 200J
CARDIOGENIC SHOCK

- Hypotension – make sure to treat rate issues first
  - Oxygen
  - NS in large vein with large bore catheter
  - Attach monitor, monitor lead II, and treat per protocol
    - Rhythm disturbance
    - STEMI
    - CHF
  - 12-lead EKG
  - If indicated, e.g. inferior wall MI, consider fluid bolus
    - NS 250-500mL
  - Monitor BP for changes
  - Levophed IV – Start at 2 mcg/min IV and titrate to SBP over 100 mmHg, or 10mcg/min
  - Levophed 4mg in D5W 250mL
  - See Table for drip Rate
  - Goal: SBP over 100mm Hg
**ACUTE CORONARY SYNDROME**

- With or without chest pain
  - Cardiac Monitor – monitor lead II
  - O2
    - If pulse ox less than 94%, if tachycardic/tachypneic/ or short of breath
  - Aspirin 81mg 4 tablets (less if Patient has already taken some – goal 324mg)
  - 12-lead EKG – treat accordingly
  - NS 1000mL at KVO. Consider second site
  - Determine no meds for erectile dysfunction
  - If “no” meds for erectile dysfunction and if SBP over 110:
    - NTG 0.4mg sublingual
- May repeat dose every 5 minutes to a total of 3 doses
  - If chest pain resolves, continue to monitor & treat accordingly
  - If SBP over 110, consider Morphine 2mg IV, for persistent chest pain
  - **DO NOT GIVE MORPHINE IM**
- May start Morphine after second dose of NTG as needed for pain.
- May repeat Morphine 2-4mg IV slow push as needed for symptoms and if not less than 50 kg
- May substitute Fentanyl 25-100mcg IV for Morphine allergy
- Vitals after every med and with any change in monitor or PT status
RIGHT VENTRICULAR INFARCT

For STEMI in leads II, III and AVF:

- Obtain V4R (move V4 patch to same position on right chest)
- ST elevation in V4R suggests RV infarct
  - High risk for hypotension with NTG in these patients
- Use ACS protocol and include:
  - NS 250-500mL bolus for SBP less than 110
  - Levophed start at 2mcg/min IV titrate to SBP over 100 or 10 mcg/min
    - Levophed 4mg in D5W 250 mL
**ACUTE PULMONARY EDEMA**

- Severe CHF
  - Oxygen
  - NS at KVO – large vein, large bore catheter. Consider second site.
  - CPAP
  - For anxiety with CPAP:
    - If SBP over 110:
      - Versed 2-4 mg IV (may use IN if IV not established) OR Ativan 1-2mg IV
    - If SBP less than 100:
      - Assure no erectile dysfunction meds
      - NTG 0.4mg sl
      - Captopril 25mg sl – wet first
        - Onset of action is 5 minutes
      - If SBP less than 100:
● Levophed start at 2mcg/min IV titrate to keep SBP over 100 or 10 mcg/min
  ♦ Levophed 4mg in D5W 250mL

❖ **PREMATURE VENTRICULAR COMPLEXES (PVC)**

➢ Generally benign unless frequent. May not perfuse!
  ▪ **12-lead. Treat per protocol.**
  ▪ **Vitals:**
    • Report both palpated pulse and monitor rate, they may be different.
    • **Online Med Control**
    • Consider anti-arrhythmic
AUTOMATIC IMPLANTABLE DEFIBRILLATOR
- (AICD)
  - Implantable device – looks like pacemaker
- Ask if device paces, defibrillates or both;
- If pulseless, CPR is safe. No risk if AICD fires.
- ACLS protocols do not change – treat the rhythm;
- DO NOT place patches over AICD or pacemaker
I.C.E. PROTOCOL

- Induced cooling by EMS
- Criteria
  - ROSC after non-traumatic, non-hemorrhagic arrest
  - Age over 18
  - Initial temp over 34°C (93°F)
  - Patient Comatose
  - Patient with Advanced Airway – ET tube, King
  - No evidence pregnant
- Special Considerations
  - Watch capnograph – sudden increase in CO2 signals ROSC often
  - Do not delay transport to start cooling, but start ASAP.
  - Consider direct transport to ICE protocol center
    - Consider air ambulance transport
- 2 IV/IO sites. Consider 14 ga. or 16 ga. AC or EJ or IO
  - If I/O, Lidocaine 1%, 2-4 mL first for pain control

- Sedation/Paralysis
  - Fentanyl 25 to 50 mcg IV/IO
  - Etomidate 0.3mg/kg up to 40mg IV/IO
  - Consider succinylcholine 1mg/kg IV (max dose 100mg) for shivering
    - Pt must be sedated and have Advanced Airway first
  - Online Med Control for further sedation orders

- Vital sign goals:
  - **EtCO2 35-45**
    - Ventilate accordingly
    - If it falls below 35 consider recurrent arrest.
- MAP 90-100
  - Consider Levophed 2mcg/min IV titrate to 10mcg/min IV or MAP 90-100
  - Levophed 4mg in D5W 250 mL
- Infuse chilled saline at 30mL/kg-max 2L

- **LVAD [Left Ventricular Assist Device]**
  - LVAD Controller {UTMC} 419-218-3344
  - There are no pulses, use Doppler to assess pressure
    - MAP normally 60-100
    - MAP equation: \( \frac{2 \times DBP + SBP}{DBP} \)
  - Patient appearance is best indicator of function
    - Color
    - Respirations, talking
    - Diaphoresis
Arrhythmias are possible
- 12-lead EKG and treat accordingly

Problem solving is divided into "Patient" and "Device" related problems:

- Patient Related Conditions
  - Hypotension
  - Dehydration
  - Vomiting/Diarrhea
  - GI Bleeding (Common in LVAD patients)
  - Infection
  - Arrhythmia
  - Right sided heart failure (failure to provide volume to the device)

- Patient Related Conditions – Response
  - Contact LVAD Controller (Usually UTMC)
• Contact Online Med Control second
• Typical treatment
  ♦ On scene, the caregiver should be considered the expert
  ♦ Caregiver transported with patient
  ♦ Fluid boluses (usually 10mL/kg) NOT LITERS
  ♦ Transport with spare batteries, controller, meds
  ♦ Inotropes (Epinephrine, Norepinephrine) may be necessary
  ♦ No CPR – may detach device from LV

  ▪ Device Related Conditions
    • Power related
      ♦ Low Battery
♦ Community power failure (no AC to charge batteries)

- System controller issues
  ♦ Computer Processor controlling the device fails

- Device malfunction
  ♦Disconnected from controller (single wire from chest to unit)
  ♦ Device failure

- Device Related Conditions – Response
  - Contact LVAD Controller
    ♦ May also rely on patient or caregiver for expert input on device management

- If the device has not been functioning for 5 minutes, **DO NOT RESTART DEVICE UNLESS TOLD BY CONTROLLER.**
**DNR**

- **DNR Comfort Care**
- **Activated immediately when DNR order is issued**

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<td>Provide Pain Medication</td>
<td>Provide Respiratory Assist</td>
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<td>Provide Emotional Support</td>
<td>Initiate Resuscitative IV</td>
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- **DNR Comfort Care Arrest**
- Activated only when a patient experiences cardiac or respiratory arrest

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<td>Administer Resuscitative Drugs</td>
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<td>Initiate Cardiac Monitoring</td>
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DNR Specifics

- Document the item that identified the patient as DNR
- Patient’s DNR Comfort Care - Arrest or DNR Comfort Care status is confirmed when the patient has one of the following:
  - A DNR Comfort Care card (Tab 700, R-7) or form (Tab 700, R-5) completed for the patient.
  - A completed State of Ohio Living Will (declaration) form that states that the patient does not want CPR (in the case of a patient who has been determined by two doctors to be in a terminal or permanently unconscious state).
  - A DNR Comfort Care necklace or bracelet bearing the DNR Comfort Care official logo (Tab 700, R-6).
- A DNR order signed by the patient’s attending physician, a certified nurse practitioner (CNP) or clinical nurse specialist (CNS).
- A verbal DNR order issued by the patient’s attending physician, CNP or CNS.
PROCEDURES

Rapid Sequence Intubation

- **Common Indications**
  - Neck injury with Stridor
  - Depressed Level of Consciousness
    - GCS less than 8
  - Respiratory Failure
    - After CPAP

- **Medication**
  - **Analgesic**
    - EITHER Morphine 2-4mg IV OR Fentanyl 25-50mcg IV
  - **Sedation**
    - Midazolam (Versed) 2-4mg IV OR Etomidate (Amidate) 0.3mg/kg IV (max dose 40mg)
  - **Paralytic**
    - Succinylcholine (Anectine) 1mg/kg IV, max dose 100mg

- Caution in head injured (may cause increased ICP) or dialysis patient (elevated potassium).
TRAUMA

TRAUMATIC DEATH

Withholding Resuscitation:

- The decision to withhold CPR should be documented such that, if questioned, it can be easily supported.
- Consider possibility of assault/crime and avoid excess movement of the body to avoid the destruction of or compromising evidence.
- Avoid disturbing the body/scene if there is a question of resuscitating, unless necessary to make the decision.
- Document death if:
  - Injury incompatible with life;
  - Signs of decomposition, rigor
mortis or extreme dependent lividity

- 2 lead confirmation of asystole necessary in all other cases.
- Any rhythm other than asystole will be treated and transported with all available resuscitation treatments.
- If pulseless and apneic but not meeting criteria in part three (3), initiate full resuscitation.

- EXCEPTION: Mass casualty incident- follow Trauma Triage guidelines

- Asystole
  - If after 15 minute resuscitation effort, asystole persists contact Online Med Control to terminate resuscitation;
  - Asystole with hypothermia is treated & transported;
  - Do not delay transport to achieve 15 minute cut off.
If there is any doubt about the case, treat and transport or contact Online Med Control.

**AMPUTATED PARTS**

- Information
  - Location of amputation
  - What has been amputated
  - Mechanism of amputation
  - Is amputated part being transported with patient
  - Other injuries
  - Past medical history
  - Vital signs
  - Treatment rendered
  - ETA

- Care of Amputated Part:
  - Place amputated part in waterproof container
  - Use cold packs to cool amputated part
- DO NOT allow direct contact of coolant with the amputated part
- DO NOT allow the part to freeze.
  - Do not delay patient transport searching for body part(s)
  - If amputated part located after transport initiated, treat part as above and transport to the same hospital as patient.

**MULTISYSTEM TRAUMA**

- Prior to transport:
  - C-Spine control
  - Manual first, then adjunct
- CPR
- Airway Control
  - Begin with 02 15L per NRB
  - Add positive pressure as needed
- Goal = Et CO₂ 35-45
- Head injured patients ventilate 12-20 breaths/minute for signs of increased intracranial pressure
  - Unequal Pupils
  - Open Skull Fracture
  - Seizures
  - Posturing

➢ During Transport:
  - Secondary assessment
  - For LOC with no gag (GCS<8)- intubate
    - For obstructed or severely traumatized upper airway, surgical airway (cricothyrotomy).
  - For signs of tension pneumothorax or traumatic arrest:
    - 14ga 3 ¼” catheter
• 2nd intercostal space mid clavicular line or 5th intercostal space anterior axillary line
• Seal with syringe and J-Loop
• DO NOT remove catheter once placed
• Document reason for decompression
• For arrest, you may decompress both sides

- **Circulation**
- 2 large bore IVs with NS and 10 drop tubing for shock
- IO may be needed in untraumatized bone
- If IO, Lidocaine 1% 2-4mL first for pain control
- Bolus NS at 20mL/kg
  • Maintain warmth
  • Cardiac monitor
- Treat arrhythmia
- For arrest, **20mL/kg fluid bolus** plus cardiac protocols

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**PAIN MANAGEMENT**

- **Contraindications**
  - Hypotension
  - Head injury
  - Allergy to med
  - Respiratory depression

- **Precautions**
  - Naloxone (Narcan) available
  - Pediatrics: [Online Med Control for children under 8](#).

- **Meds**
  - Morphine 2-4mg IVP
    - Repeat 2mg in 3-5 minutes if needed
  - Fentanyl 25-100mcg slow IVP
  - Ketorolac (Toradol) 15-30mg IVP (or 30-60mg IM/IN)
• Use the lower doses for elderly, diabetics, renal patients
  ▪ Ondansetron (Zofran) 4mg IVP if needed for nausea, may repeat once after 10 minutes

❖ **SPINAL IMMOBILIZATION**

➢ **Indications**
  ▪ Suspicion of spine/neurologic injury
  ▪ Provider decision to use protocol

➢ **Procedure**
  ▪ Explain what you will do to patient. Clarify that “Yes” and “No” are to be used instead of head gestures. Have patient report any pain immediately.
  ▪ Log roll to palpate spine.
- Palpate spine from base of skull to sacrum
- If there is no pain in the spine and no contraindication-intoxication, distracting injury--turn patient head 45° to either side-immobilize for any complaint of pain
- If no spine pain and NSAIDs are negative, have patient flex and extend neck-immobilize for pain.

聿 Special Considerations
- Consider immobilization: Arthritis, Cancer, Chronic Disease
- Mechanism of injury may be adequate indication to immobilize
- NSAIDs – Reasons to immobilize: SEE BELOW
• Neurologic-numbness, tingling or weakness of an extremity
• Significant Mechanism—especially in the elderly
• Alertness-altered LOC = immobilization
• Intoxication
• Distracting injury—usually another site fractured
• Spinal pain
  ▪ The decision not to immobilize is the paramedic’s
  ▪ Helmets should generally remain in place, unless airway management compromised.
MEDICAL EMERGENCIES

ALTERED LEVEL OF CONCIOUSNESS

- Glucose testing
- If glucose under 80, D50 50mL IV. If over 80 go to #4
- If no IV for glucose under 80, Glucagon 1mg (1 ampule) IM/IN
- If depressed LOC persists & glucose over 80, please proceed to Naloxone (Narcan) 2mg IVP/IN
  - For IN use MAD to administer 1mg each nostril.
  - May repeat once
- For agitated altered LOC:
  - Versed 2-4mg slow IVP OR
  - Haldol 1-5mg IV/IM
  - If patient has muscle twitching or facial grimacing after Haldol:
    • Benadryl 25mg IV/IM
**COMA/UNCONSCIOUS/UNKNOWN**

- **Glucose testing**
- If glucose less than 80, **D50 50mL IV**
- If glucose less than 80 and no IV access, **Glucagon 1mg (1 ampule) IM/IN**
- **Monitor vitals, any change in LOC**
- For persistent unconsciousness,
  - **Naloxone 0.4 – 2 mg IN**
  - **Naloxone 0.4 – 2 mg IV/IM**
  - For IN use MAD to administer 1mg each nostril
  - May repeat once
- Unless trauma suspected (then immobilize) transport left lateral recumbent to prevent aspiration.
POISON/OVERDOSE

- For external contamination:
  - Appropriate self-protective gear
  - Remove patient clothing & any solid contaminant
  - Decontaminate with running water for 15 min if patient stable
  - Treat patient symptoms/injuries according to appropriate protocol
  - Online Med Control for precautions, antidotes

- Ingestions
  - For altered level of consciousness, use appropriate protocol
  - Vitals & cardiac monitor
  - Transport medications with patient

- Opiate overdose
- Naloxone 0.4 – 2 mg IN
- **Naloxone 0.4 – 2 mg IV/IM**
- Assess if another responder on scene has already given patient Naloxone

- **SEIZURES**
  - Consider need for c-spine precautions
  - Establish IV, vitals, monitoring
  - Glucose testing
  - Use altered LOC protocol for hypoglycemia
  - Mediations
    - Ativan 2-4mg IV/IM – first choice for seizure **OR**
    - Versed 5mg slow IVP/IM/IN
    - Watch for hypotension and respiratory suppression
- Supplement O₂, use EtCO₂, Advanced Airway as needed
- IV fluids, positioning for hypotension
- Consider eclampsia
  - May occur up to 6 weeks postpartum
- Online Med Control for any further medications/repeat dosing

**SYNCOPE**
- Establish responsiveness
- Vitals, cardiac monitoring, IV access
- 12-lead
- Glucose monitoring
- Treat hypoglycemia according to altered LOC
- Treat hypotension with fluids and positioning (Trendelenburg)
- Treat cardiac rhythms according to protocol
**ASTHMA**

- **Albuterol plus Ipratropium (1 vial each)**
- **Repeat Albuterol unit dose for persistent wheezing**
- **Consider CPAP**
- **SoluMedrol 125mg IVP for persistent wheezing**
- **Magnesium sulfate 2gm IV over 10 minutes for persistent wheezing**
  - Mix magnesium 2gm in D5W 50mL – run wide open through mini-drip tubing
- **For marked distress, consider Epinephrine 1:1000 0.3mg IM**
  - Caution in patients over 50 or with heart history
ANAPHYLAXIS

- O2, vitals, IV access
- Epinephrine 1:1000 0.3mg IM
  - For unconsciousness/shock:
    - Epinephrine 1:10,000 0.3mg IVP may be used
    - Watch for V.Fib, vomiting
- For wheezing, Albuterol unit dose aerosol
- Diphenhydramine (Benadryl) 25-50mg IV/IM
- Vitals
- NS Boluses for shock
- SoluMedrol 125mg IVP
- Online Med Control
CVA
- Full vitals, cardiac monitoring, O2 if tachycardic, tachypneic or pulse ox less than 94%
- NS @ KVO
- Glucose testing
- Treat for altered LOC if appropriate

HYPERTHERMIA
- Cool with cold packs or water moistened sheets
  - Ensure air flow over patient for evaporative loss
- Glucose testing
- Treat hypoglycemia according to altered LOC protocol
- For seizure:
  - Ativan 2-4mg IV slow push OR
  - Versed 5mg IV/IM/IN
- Monitor for hypotension and respiratory suppression
- For hypotension: **NS 250mL boluses and** positioning (Trendelenburg)
- For respiratory suppression: O₂, mask ventilations, airway adjuncts, **advanced airway mechanical ventilation as needed**

- **Cardiac monitoring**
- **Special Considerations:**
  - Elderly-meds may inhibit thermal regulation
  - Distinguish heat exhaustion from heat stroke (altered LOC)
  - Good airflow essential for evaporative loss
  - Cooling in the field should not delay transport
**ABDOMINAL PAIN**

- Vitals: treat shock
- If over 40, cardiac monitor
- Medications:
  - Fentanyl: 25-100mcg IV-may repeat dose once
  - Morphine: 2-4mg IV-may repeat dose once
  - Ketorolac (Toradol): 15-30mg IV; 30-60mg IM/IN
    - Use lower dose for elderly or diabetics
    - Ideal for colicky right upper quadrant pain (gallbladder) or flank pain radiating to groin (kidney stone)
    - Reasonable for narcotic resistant pain: e.g. chronic back pain
  - Ondansetron (Zofran): 4mg IV for nausea, may repeat once
- Think of abdominal catastrophe:
- Abdominal aortic aneurysm rupture
- Ruptured ectopic pregnancy
- Injury to liver or spleen
  - Elderly may have relative hypotension
  - Symptoms with SBP over 90

CYANIDE POISONING
  - Protect yourself first, then remove patient to safe area
  - O₂ via NRB, airway adjuncts, Advanced Airway as appropriate
  - IV Access, NS @ KVO; second site is recommended - be vigilant for shock
  - Cardiac monitor-serial 3-lead, 12-lead
HYPERTENSION

- Vitals, manual BP
- Saline lock
- O2 if SAT less than 94% or if tachycardic or tachypneic
- For SBP over 180 and/or DBP over 110, assess for symptoms:
  - Cincinnati Scale Negative for signs of stroke
  - Headache
  - Change in vision-blurred, doubled, loss
  - Chest pain
  - Confusion
- Repeat vitals & contact Online Med Control who may order:
  - NTG: 0.4mg sl
  - Morphine: 2-4mg slow IVP-may repeat every 5 minutes to a total of 0.2mg/kg max
  - Goal: to lower MAP by 20-30%
    - MAP = (2*DBP+SBP)/DBP
SHOCK (NON-TRAUMATIC)

- Cover to prevent heat loss
- Vitals, 12-lead
  - Treat arrhythmia per protocol
- Assess for CHF
  - Distended neck, veins, tachypnea, lung rales, edema
  - Treat per protocol
- Assess for tension pneumothorax
  - Treat per protocol
- Assess volume status
  - CHF is volume overload
  - If hypovolemic, fluid challenge
    - NS 20 mL/kg bolus
  - If volume overload or euvoletic and still hypotensive:
    - Trendelenburg position
    - Levophed 2mcg/min IV titrate to SBP over 100 or 10 mcg/min
- Levophed 4mg in D5W 250mL

Consider other causes of shock:
- Sepsis-relative or actual hypovolemia
- Neurogenic – cord injury – relative hypovolemia
- Anaphylaxis – Epinephrine per protocol
- Overdose – relative hypovolemia

**NAUSEA/VOMITING/DIARRHEA**
- Vitals, assess for shock
- **NS bolus – 20mL/kg** – may use 250mL boluses for the elderly
- **Ondansetron (Zofran): 4mg IV** for nausea/vomiting- may repeat once
- **Cardiac Monitor**
  - Treat potential cardiac causes of nausea accordingly
COPD

- Vitals, 12-lead
- Consider CPAP
- Versed 2 -4 mg IV OR Ativan 1-2mg IV, for anxiety
- Albuterol plus ipratropium unit dose aerosol (1 vial each)
  - Repeat Albuterol unit dose for persistent wheezing
- Supplement O₂ to keep SATS over 90%
- NS @ KVO
- Online Med Control
  - SoluMedrol 125mg IV

BURNS

- Thermal
  - “Stop the Burn”
  - O₂, IV NS @ KVO
  - Trauma assessment
- Remove rings, bracelets, any constricting item as possible
- Cool wet dressings for small (less than 20%) burns
- Sterile dressings for large (more than 20%) burns
- Serial vitals, monitor for shock
- Pain management per protocol
- For burn over 10% - consider destination hospital
- Consider inhalation effect to airway
- O2, airway adjuncts, Advanced Airway as needed
- Cardiac monitoring, serial vitals
- Pain Management Protocols

➤ Chemical

- Treat per hazardous material protocol
- Pain management protocol
- Online Med Control for antidotes, decontamination on arrival
Electrical

- Cardiac monitor
- Treat arrhythmia per protocol
- Spine immobilization, trauma assessment
- Sterile dressings to entry & exit wounds
- Pain Management Protocols

**RULE OF NINES**

May be used to estimate burn size:

<table>
<thead>
<tr>
<th>RULE OF NINES</th>
<th>CHILD</th>
<th>ADULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>18%</td>
<td>9%</td>
</tr>
<tr>
<td>Arms</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Chest/ABD</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Back/Butt</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Leg</td>
<td>13.5%</td>
<td>18%</td>
</tr>
<tr>
<td>Genitals</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Palm</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
**DROWNING/NEAR DROWNING**

- Clear airway-suction frequently/as needed
- Ventilations immediately for apnea
- C-spine precautions, remove from water per backboard
- O2 15 lpm
- If unconscious:
  - Advanced airway, positive pressure ventilation
  - NS @ KVO
  - Cardiac monitor – treat per protocol
  - Serial vitals
- If conscious = transport
- Risks:
  - Vomiting-aspiration
  - Undetected trauma
- “Dry Drowning” – sudden pulmonary edema
- Hypothermia – treat per protocol
HYPOTHERMIA & FROSTBITE

General:

- Cardiac monitoring – dysrhythmias common @ core temperature of 30°C [86°F]
- CPR for pulseless/apneic
- Meds & electricity not generally effective in severe hypothermia
- Remove wet garments & constrictive clothing
- Wrap in blankets, protect from wind/exposure
- NS-warmed-boluses
- Glucose testing
  - Treat hypoglycemia
- Online Med Control for further orders

Localized (frostbite)

- Remove wet/constricting garments; protect from wind/exposure
- Only attempt to warm areas if no potential for re-freezing
- Light, clean, cloth dressings – protect from pressure/friction
  - DO NOT RUB AREA
  - DO NOT BREAK BLISTERS
- Evaluate core temperature, treat as above
- Elevate & support frost bitten areas during transport
- Pain control per protocol
PEDIATRIC MEDICATIONS

- Amiodarone
  - 5mg/kg

- Adenosine (Adenocard)
  - 0.1mg/kg

- Albuterol
  - 2.5mg
  - Half dose if under 18 months

- Atropine
  - 0.02 mg/kg

- Ativan (lorazepam)
  - 0.05 – 0.1mg/kg

- Benadryl (diphenhydramine)
  - 1mg/kg

- Calcium Chloride
  - 20mg/kg

- Dextrose 50
  - 1-2mL/kg

- Epinephrine 1:1,000
  - 0.01mg/kg or 0.01mL/kg IM
- Epinephrine 1:10,000
  - 0.01mg/kg or 0.10mL/kg IV
- Fentanyl
  - 1 mcg/kg
- Glucagon
  - 1mg [1 ampule]
  - For < 25kg give half dose
- Morphine
  - 0.1 - 0.2mg/kg
- Naloxone (Narcan)
  - 0.1mg/kg
- NS
  - 20mL/kg
- Sodium Bicarbonate (Bicarb)
  - 1mEq/kg
- SoluMedrol
  - 1mg/kg
- Versed (midazolam)
  - 0.1mg/kg
PEDIATRIC RESPIRATORY DISEASES

- Offer O2 gently
- Broselow tape for weight/dosing
- Vitals, Pulse Ox and ECG as appropriate
- Saline lock or NS @ KVO
- Consider plain saline nebulizer [3 mL NS]
- Online med control with assessment

PEDIATRIC ASTHMA

- Broselow for weight/dosing
- O2 gently
- Albuterol
- 2.5mg aerosol (under age 18 months use half dosage)

- For persistent wheezing, repeat albuterol and contact Online Med Control

- NS @ KVO or saline lock

- Consider SoluMedrol
  - 1mg/kg IV
  - Max dose 125 mg

- Consider Epinephrine 1:1000
  - 0.01mg/kg IM
  - Max dose .3 mg IM

-PEDIATRIC ALLERGY AND ANAPHYLAXIS

- Epinephrine 1:1000 (for evidence of airway obstruction/compromise)
  - 0.01mg/kg (0.01mL/kg)
  - Max dosage 0.3 mg (0.3mL/kg)

- NS @ KVO, IO if necessary
- O2, pulse ox, monitor
- Benadryl
  - 1mg/kg IV/IM/IO
  - Max dose 25mg
- For wheezing:
  - Albuterol
    - 2.5mg aerosol (under age 18 months use half dosage)
- For shock:
  - NS
    - 20mL/kg bolus
- Contact Online Med Control

- **PEDIATRIC V. FIB/TACH**
  - CPR, AED, Broselow for weight
  - I.D. rhythm as v.fib/tach
  - Defib with 2J/kg
  - CPR
  - Airway adjuncts, BVM
Monitor Lead II
IV/IO
After 2 min CPR
  ▪ Check rhythm
  ▪ Defib with 4J/kg for persistent fib/tach

Epinephrine 1:10,000
  ▪ 0.01mg/kg (0.1mL/kg)
  ▪ Repeat every 3 to 5 minutes.

CPR for 2 minutes
  ▪ Check rhythm
  ▪ Defib with 4J/kg for persistent fib/tach

Amiodarone
  ▪ 5mg/kg IV for persistent fib/tach, MAX dose 150mg
  ▪ May repeat this two times.

Online Med Control
  ▪ No termination of Pediatric resuscitation efforts until arrival at hospital
PEDIATRIC PEA

- CPR, Fast Patches, Broselow for weight
- IV/IO, Airway adjuncts, BVM
- Epinephrine 1:10,000
  - 0.01mg/kg (0.1mL/kg)
  - Repeat every 3 to 5 minutes.
- Check for shockable rhythm every two minutes of CPR
- H’s and T’s
  - Hypoglycemia
  - Hypoxia
  - Hydrogen Ion (Acidosis)
  - Hypokalemia or Hyperkalemia
  - Hypothermia
  - Tension PTX
  - Tamponade, Cardiac
  - Toxins
  - Thrombosis: Coronary or Pulmonary
**PEDIATRIC ASYSTOLE**

- CPR, Fast Patches and Broselow for weight
- IV/IO, Airway adjuncts, definitive airway as possible
  - EtCO2 should be monitored
- ID Asystole in two different leads
- Epinephrine 1:10,000
  - 0.01mg/kg (0.1mL/kg)
  - IV/IO repeat every 3 to 5 minutes.
- Online Med Control
  - Resuscitation to continue until arrival at the hospital

**PEDIATRIC TRAUMA ARREST**

- CPR, Fast Patches, Broselow with C Spine Precautions
- Airway adjuncts
- Must confirm ventilation and adjunct positioning after each movement,
- Definitive airway as possible
  - Et CO2
  - IV/IO bolus 20mL/kg
  - Treat any rhythm disturbance per appropriate protocol
  - Online Med Control

❖ PEDIATRIC HYPOTHERMIC ARREST
  - Remove from environment
    - Remove wet garments
    - Warm and protect from heat loss
  - If pulseless/ apneic, CPR, Fast Patches, Broselow
  - Airway Adjuncts
- Advanced airway as possible
- Defibrillate 2J/kg → 4J/kg → 4J/kg between 2 minute cycles of CPR as appropriate.
- Medications are generally not effective for hypothermia arrest.
- Online Med Control

**PEDIATRIC BRADYCARDIA**

- Vitals, Fast Patches, Broselow
- If pulseless use PEA protocol
- I.D. Bradycardia
- IV/IO
  - Epinephrine 1:10,000
    - 0.01mg/kg (0.1mL/kg) IV/IO
    - May repeat every 3 to 5 minutes
    - Max dose 1mg
- **Atropine**
  - 0.02mg/kg (minimum dose 0.1mg; maximum 0.5mg child, 1mg adolescent)
  - May repeat once.
    - Consult [Online Med Control](#) before pacing.
- **Sedation for pacing:**
  - Versed 0.05 – 0.10 mg/kg
  - Max dose 2mg
  - May repeat as needed
  - Max total dose 6mg
- **Transcutaneous Pacing:**
  - Rate 100, mAmps 10
- **Increase in 5 mAmp increments until capture**
  - [Online Med Control](#) for sedation, further orders.
PEDIATRIC TACHYCARDIA:
SYMPTOMATIC

- Vitals, Fast Patches, Broselow
- Airway adjuncts as needed, IV/IO as needed
- Evaluate 3-lead--key on QRS
  - Narrow with p waves: sinus tach, treat cause
  - Narrow without p waves: SVT
    - Vagal maneuvers
    - Adenocard
      - 0.1mg (max 6mg) IV – 2 syringe technique
      - May repeat once at 0.2mg/kg (max 12mg) for persistent tachycardia
    - Synchronized Cardioversion
      - 0.5 to 1.0 joule per kg
    - Sedation for Cardioversion
      - Versed
- 0.05mg/kg per dose (max dose 2mg)
- May repeat up to a total of 6 mg
  - Wide (More than 0.08 msec [2 boxes]): V- tach
    - With pulse: Amiodarone 5mg/kg (max dose 150mg)
    - Amiodarone is calculated dose in D5W, infuse over 10 minutes
    - Pulseless – See arrest protocol

**PEDIATRIC SEIZURES**

- Broselow, IV/IO
- Versed
  - 0.2mg/kg IV/IO
  - IN (half dose in each nare) if IV/IO unavailable max dose 5mg
- **Ativan**
  - 0.05 – 0.1mg/kg IV/IO
- **Glucose check**
- For hypoglycemia – less than 60
  - D25 1-2mL/kg IV
  - Use D50 1-2mL/kg plus an equal amount of saline.
  - Glucagon ½ ampule IM if no IV

**Online Med Control**

- **PEDIATRIC POISONING AND OVERDOSE: UNCONSCIOUS AND UNKNOWN**
- Vitals, gentle O2 delivery
- Assess LOC, if depressed
  - IV
  - **Glucose Check**
- For Glucose less than 60
  - Neonate (age less than 28 days):
    - Dose: D12.5 1-2mL/kg
• Use D50 1-2mL/kg plus NS 2-4mL/kg (1:2 dilution)
  ▪ Over 28 days:
  • Dose: D25 1-2mL/kg
  • Use D50 1-2mL/kg plus an equal amount NS (1:1 dilution)
  • If no IV: Glucagon ½ amp IM or IN
  ➢ For depressed respirations:
    ▪ Narcan 0.1mg/kg (max 2mg) IV/IM/IN
  ➢ Online Med Control

❖ PEDIATRIC VOMITING AND DIARRHEA
  ➢ Vitals, O2 gently, Broselow
  ➢ Zofran
    ▪ 8-15kg: 2mg
    ▪ Over 15kg: 4mg
  ➢ IV: NS 20mL/kg
- Cardiac monitor
- Consider glucose testing
- **Online Med Control**

**PEDIATRIC TRAUMA**

- Vitals, O2 gently, Broselow, immobilize as appropriate
- IV/IO: consider sites
- NS
  - 20mL/kg as needed
- Control hemorrhage with pressure
- Splint fractures/deformed parts
- For head injury:
  - Frequently reassess LOC
  - Intubate if GCS less than 8
- Frequently assess breath sounds, consider pneumothorax
- For amputation, follow amputated part protocol
- **Pain management per protocol**
- **Online Med Control**
**PEDIATRIC PAIN MANAGEMENT**

- Vitals, O2 gently, Broselow
- Control pain with splinting, cold packs
- **IV: NS KVO**
- **EITHER** Morphine **OR** Fentanyl:
  - Morphine
    - 0.1-0.2mg/kg IV
    - Max dose 4mg
  - Fentanyl
    - 1mcg/kg IV
    - Max dose 25mcg
- Zofran:
  - 8-15kg: 2mg IV
  - Over 15kg: 4mg IV
- **Online Med Control** [Intermediates may be given orders to administer pain meds only with permission from Med Control]
PEDIATRIC ALTERED LOC

- Vitals, O2 gently, immobilize as appropriate, Broselow
- Glucose check
- IV/IO
- For Glucose less than 60
  - If alert enough to swallow: Oral Glucose
  - Neonate:
    - D12.5 1-2mL/kg
      - Use D50 1-2mL/kg with NS 2-4mL/kg (1:2 dilution)
  - Over 28 days:
    - Dose: D25 1-2mL/kg
    - Use D50 1-2mL/kg plus an equal amount NS (1:1 dilution)
  - If no IV, Glucagon ½ ampule IM/IN
- For respirations depressed:
- Narcan 0.1mg/kg IV/IM/IN max dose 2mg/kg
- For signs of dehydration:
  - NS 20mL/kg IV/IO
- Online Med Control

**PEDIATRIC HYPOTENSION/SHOCK**

- Vitals, O2 gently, Broselow
- IV/IO
- NS
  - 20mL/kg IV/IO
  - May repeat
- If hypotensive after 2 NS boluses
  - Levophed
    - 0.05-0.1 mcg/min IV
    - Levophed 4mg in D5W 250mL titrate per chart
- Online Med Control
- Consider Glucose testing
PEDIATRIC BURNS

Thermal
- If no airway involvement or altered LOC, consider direct transport to Burn Unit for BSA over 10%
  - Vitals, Broselow, remove constricting rings, bracelets
  - IV for pain management as needed.
  - Assess burn percentage and severity
  - Pain management per protocol
  - NS
    - 20 mL/kg for BSA over 30%
  - Online Med Control

Chemical
- If no airway involvement or altered LOC, consider direct
transport to Burn Unit for BSA over 10%

- Vitals, Broselow, remove constricting rings, bracelets
- Remove affected garments
- Flush area with water or saline for 15 minutes
- IV for pain management as needed.
- Assess burn percentage and severity
- Pain management per protocol
- NS 20 mL/kg for BSA over 30%
- Online Med Control

- Electrical
  - If no airway involvement or altered LOC, consider direct transport to Burn Unit for BSA over 10%
• Vitals, Broselow, remove constricting rings, bracelets
• Cardiac Monitoring
  ♦ Treat arrhythmias accordingly
  ♦ Search for entrance/exit wounds
• IV for pain management as needed.
• Assess burn percentage and severity
• Pain management per protocol
• NS
  ♦ 20 mL/kg for BSA over 30%
• Online Med Control
PEDIATRIC : Rule of 9’s

- Head 18%
- Arms 9% each
- Chest and ABD 18%
- Back and Buttocks 18%
- Leg each 13.5%
- Genitals 1%
OB-GYN PROTOCOLS

VAGINAL BLEEDING

- If non-pregnant or less than 12 weeks pregnant
  - IV
    - NS @ KVO or 20mL/kg bolus for signs of shock
  - Trendelenberg position

- If more than 12 weeks pregnant
  - IV
    - NS @ KVO or 20 mL/kg bolus for signs of shock
  - Towel roll under right hip

- If term pregnancy
  - External vaginal exam
  - For crowning treat accordingly
  - Cord prolapse
    - Insert gloved fingers into vagina to elevate presenting part.

- If post-partum
- IV
  - NS @ KVO or 20mL/kg for signs of shock
- Massage uterus
- Encourage nursing of infant to help uterus contract
- Online Med Control

**VAGINAL DELIVERY**

- Vitals, Left lateral position, O2, monitor
  - NS KVO
  - External vaginal exam to determine crowning
  - Online Med Control to report situation
- Delivery
  - As head delivers, apply gentle, negative,
downward pressure to prevent explosive delivery.

- Check for cord around neck and reduce
- Suction mouth, then nose of infant
- Complete delivery of infant

- Stimulate infant, dry, warm, exam and offer blow-by O2
- Clamp cord in 2 places and cut.
- Allow for at least 6 inch umbilical stump on infant.
- Monitor mother for bleeding, massage uterus.
- Do not put traction on cord.
- Monitor for delivery of placenta

- Online Med Control
NEONATAL RESUSCITATION

- Dry, warm and stimulate the infant
- Assess respirations, color and heart rate.
  - If cyanotic at 30 seconds
    - Position, begin BVM with room air
    - Increase O2 concentration as needed for color (not by pulse oximeter)
  - If heart rate < 100
    - BVM as above
  - If heart rate < 60
    - Chest compressions
    - IV access
    - For persistent rate < 60 after 1 minute:
      - Epinephrine 1:10,000 0.01mg/kg (0.1mL/kg) IV
      - May repeat every 3 to 5 minutes.
    - Online Med Control
ECLAMPSIA/PREECLAMPSIA

- Elevated BP, Headache, Blurred Vision, Right upper quadrant pain
- Risk for seizure
- Eclampsia may occur up to 6 weeks post-partum
- Magnesium Sulfate 2g 50mL D5W mini drop tubing, infuse over 10 min.
# Vital Signs in the Pediatric Age Group

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse Beats/min</th>
<th>Resps Rate/min</th>
<th>BP Systolic +/- 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premature</td>
<td>144</td>
<td>20-38</td>
<td>N/A</td>
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<tr>
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<td>140</td>
<td>20-38</td>
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<tr>
<td>6 months</td>
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<td>80 Palp</td>
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<tr>
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<tr>
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<tr>
<td>8 years</td>
<td>90</td>
<td>12-20</td>
<td>100 Palp</td>
</tr>
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## Pediatric Airway Sizes

<table>
<thead>
<tr>
<th>Age</th>
<th>Oral Airway</th>
<th>ET Tube (uncuffed)</th>
<th>Suction Cath</th>
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</thead>
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<tr>
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<td>0</td>
<td>2.5-3.0</td>
<td>6 FR</td>
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<tr>
<td>Newborn</td>
<td>0</td>
<td>3.0-3.5</td>
<td>8 FR</td>
</tr>
<tr>
<td>6 months</td>
<td>0-1</td>
<td>3.5</td>
<td>8 FR</td>
</tr>
<tr>
<td>1 year</td>
<td>1</td>
<td>4.0</td>
<td>8 FR</td>
</tr>
<tr>
<td>3 years</td>
<td>2</td>
<td>4.5</td>
<td>8 FR</td>
</tr>
<tr>
<td>5 years</td>
<td>2-3</td>
<td>5.0</td>
<td>10 FR</td>
</tr>
<tr>
<td>8 years</td>
<td>3</td>
<td>6.0 cuffed</td>
<td>10 FR</td>
</tr>
</tbody>
</table>
Amiodaraone (Cordarone) Specifics

- 5mg/kg
- Use: V-fib, V-tach
  - Adult dose: 300mg/IV, followed by 150mg IV
  - Pediatric dose: 5mg/kg IV, may repeat up to 15mg/kg IV; MAX dose 150mg
- Use: Hemodynamically stable V-tach, A-fib
  - Adult dose: 150mg in 50mL D5W over 10 minutes followed by 1mg/min infusion
  - Pediatric dose: 5mg/kg IV given by slow infusion (over 20-60 min), may repeat up to 15mg/kg (MAX dose 300mg)
- For IV administration
- A loading dose of 5mg/kg is recommended. This may be administered as a rapid IV push for cardiac resuscitation, but is more commonly administered over an hour in less critically ill patients.

- **Amiodarone (Cardarone) Table**

<table>
<thead>
<tr>
<th>Lb</th>
<th>kg</th>
<th>mg</th>
<th>mL from 150mg/3mL vial</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4</td>
<td>2</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>8.8</td>
<td>4</td>
<td>20</td>
<td>0.4</td>
</tr>
<tr>
<td>13.2</td>
<td>6</td>
<td>30</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>40</td>
<td>0.8</td>
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<tr>
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<td>----</td>
<td>----</td>
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</tr>
<tr>
<td>17.6</td>
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</tr>
<tr>
<td>22</td>
<td>10</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>26.4</td>
<td>12</td>
<td>60</td>
<td>1.2</td>
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<td>30.8</td>
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<td>70</td>
<td>1.4</td>
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<tr>
<td>52.8</td>
<td>24</td>
<td>120</td>
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<tr>
<td>57.2</td>
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<tr>
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<td>28</td>
<td>140</td>
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<tr>
<td>66</td>
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<td>150</td>
<td>3</td>
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</table>
Norepinephrine Specifics & Table

Norepinephrine (Levophed) Specifics

- Use: Hypotension, shock
  - Adult dose: 2-30mcg/min (Rarely, much larger doses may be necessary; 50mcg/min)
  - Neonate/Infant/Child/and Adolescent dose: 0.1-2mcg/kg/minute
  - MIX 4mg in 250mL D5W
  - Adverse events: tachyarrhythmias, hypertension at high doses
## Norepinephrine (Levophed) Table

<table>
<thead>
<tr>
<th>Mcg/min</th>
<th>Drops/min</th>
<th>mcg/min</th>
<th>mL/hr</th>
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<td>41</td>
</tr>
<tr>
<td>2</td>
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<td>15</td>
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<td>23</td>
<td>16</td>
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<tr>
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### COLOR KEY

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<thead>
<tr>
<th>BLACK</th>
<th>All first responders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLUE</strong></td>
<td>EMT-Basic EMT-Advanced Paramedic</td>
</tr>
<tr>
<td><strong>GREEN</strong></td>
<td>EMT-Advanced Paramedic</td>
</tr>
<tr>
<td><strong>RED</strong></td>
<td>Paramedic</td>
</tr>
<tr>
<td><strong>RED, BOLD, UNDERLINED</strong></td>
<td>Online Med Control</td>
</tr>
</tbody>
</table>
CONTACT PHONE NUMBERS

- Dr. Daniel Hoffman, Medical Director
  - Cell: 419-376-4318
- Chad E. Smith, Emergency Services Director
  - Cell: 419-266-3860
  - EMS Office: 419-337-9207 ext 2001
- OnLine Med Control
  - 419-330-2626
- Poison Control
  - 1-800-222-1222
- Funeral Homes
  - Barnes
    - 419-822-5995
  - Grisier
    - 419-445-3551
  - Short
    - 419-445-3556
- Hospitals
  - Fulton County Health Center, ER
    - 419-330-2626
- St. Lukes, (Promedica)
  - 419-893-5911
- Flower Hospital, (Promedica)
  - 419-824-1444
- St. Vincent’s, (Mercy)
  - 419-251-3232
- UTMC
  - LVAD: 419-218-3344
  - MAIN: 419-383-4000