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Macomb County Medical Control Authority

2024 PROTOCOL EDUCATION

PROTOCOL ICONS

EMT 

Specialist 

Paramedic 

Contact Medical Control 

Pediatric Patients
(14 and Under) 

- **The protocols include images to give visual cues**

SECTION 1

GENERAL TREATMENT

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SECTION 1.1 GENERAL PRE-HOSPITAL CARE (NO CHANGES)

- Every patient contact begins with protocol 1.1
- A pediatric patient is less than or equal to 14 years of age or up to 36 kg (80lbs)
- Signs of life-threatening illness = Pt will be moved by EMS.
- Refer to the appropriate protocol as described in protocol 1.1.



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SECTION 1.1
GENERAL PRE-HOSPITAL CARE (NO CHANGES)

- Vital signs: Minimum of two sets (transports) at least every 15 minutes or more frequently as needed. Two sets of vitals are suggested for refusals.

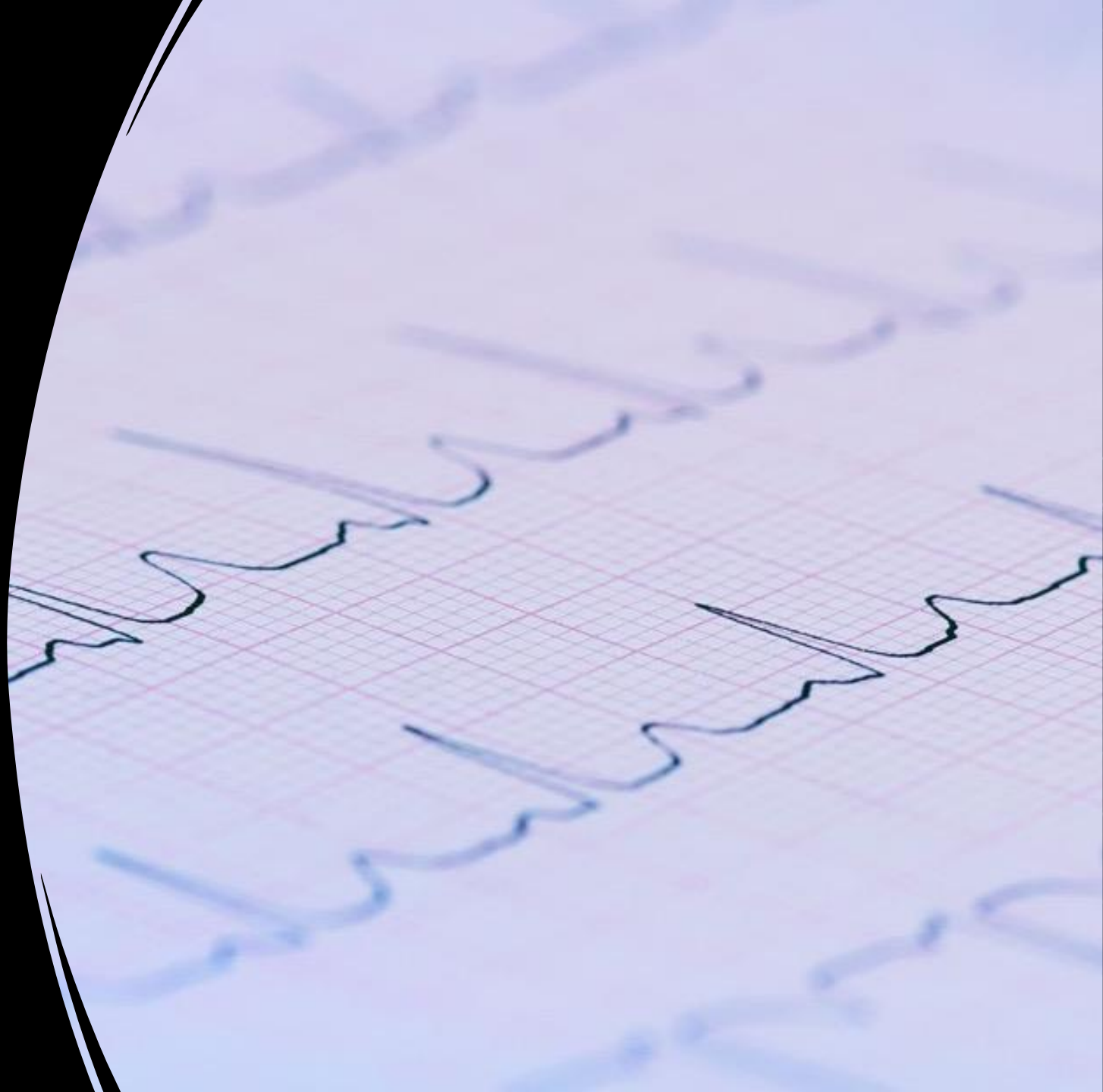
- A secondary survey is needed. Follow appropriate treatment and procedure protocols.
-
- If applicable perform a 12 lead, and provide a copy with the patient identifier, to the receiving hospital.

- Consider capnography when indicated.



SECTION 1.2 ABDOMINAL PAIN (NON-TRAUMATIC)

- Conduct a physical exam. Assess central and bilateral distal pulses.
- Treat shock if indicated
- Obtain a 12 lead ECG following 12 Lead ECG-Procedure Protocol (Paramedic only in Macomb County)
- Do not allow Pt's to eat or drink anything (not including ODT meds)



SECTION 1.3 NAUSEA AND VOMITING

Consider underlying causes of nausea and vomiting (i.e., stroke, trauma, cardiac, etc.) and further evaluate according to appropriate protocol.

Pediatric patients utilize MI MEDIC cards for appropriate medication dosages. When unavailable utilize pediatric dosing listed within protocol.

Isopropyl alcohol - Consider allowing patients to inhale vapor from isopropyl alcohol wipe 3 times every 15 minutes as tolerated.

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SECTION 1.3 NAUSEA AND VOMITING

For patients greater than or equal to 30 kg that are not actively vomiting, administer **ondansetron** (Zofran) 4 mg ODT. **Pt's with PKU: Zofran (ODT route) is contraindicated

Dehydration:

Bolus: Adult up to 1 liter

Pediatric 20 mL/kg - max 40 ml

Repeat as necessary/Hypotension

Monitor for pulmonary edema

If ODT is not administered or pt vomits post-ODT:

Adults 4 mg IV/IM

Pediatrics –MI Medic cards or

0.1 mg/kg IV/IM max 4mg

Repeat X1 if needed

Consider diphenhydramine if: previous medications are ineffective or contraindicated

- Adult: 12.5-25 mg IV/IM, Max 25 mg.
- Pediatric (2 years of age AND greater than 12 kg) 1.0 mg/kg IV. Maximum dose 25 mg.

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SECTION 1.4 SYNCOPE

Check blood glucose

(EMT Allowed)

If altered mental status perform stroke assessment and evaluate for stroke per Stroke/Suspected Stroke-Treatment Protocol

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SECTION 1.4 SYNCOPE

If Pt has altered mental status refer to Adult or Pediatric Altered Mental Status Protocol.

Dehydration: Administer NS or LR Adults up to 1L Ped up to 20 mL/kg

Additional IV bolus as indicated by hemodynamic state.

Repeat Bolus = Adults to a max of 2 liters. Pediatrics repeat 20 mL/kg max 40 mL/kg. Monitor for pulmonary edema – if present stop fluids and contact medical control for direction



Obtain 12 Lead



Contact medical control for additional IV fluids

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SECTION 1.5 SHOCK

- Consider etiologies of shock and refer to the appropriate protocol. Control major bleeding

- Administer NS or LR per Vascular Access Protocol and consider establishing a second large-bore IV en route.

- Obtain 12 lead

- NEW: If accompanying head injury, refer to Head Injury-Treatment Protocol.
  - Maintain SpO2 greater than or equal to 90%
  - Maintain SBP >90 mmHg < 140 mmHg
  - Do NOT hyperventilate



SECTION 1.5 SHOCK

- Hypotensive patients - Repeat fluid bolus and prepare push dose EPI.
  - Adult up to max 2 liters
  - Ped up to max 40mg/kg
  - Monitor for pulmonary edema. If present stop fluids and contact Med Control
- Persistent Hypotension: Push dose EPI
  - Prepare EPI 10 mcg/ml = Combine 1 ml of 1mg/10ml in 9 ml NS.
  - Adults: Admin 10-20mcg (1-2ml of 10 mcg/ml) IV/IO every 3-5 min to SBP greater than 90.
  - Pediatric: 1mcg/kg (0.1ml EPI 10mcg/ml) MAX dose 10mcg (1ml) Repeat every 3-5 min.



SECTION 1.6 ANAPHYLAXIS/ALLERGIC REACTION



Ped Patients: Access MI MEDIC cards – If unavailable utilize protocol.
Ensure ALS response – Determine anaphylaxis/severe allergic reaction (wheezing and/or hypotension) or if an allergic reaction (itching/hives)



Anaphylaxis/Severe Allergic Reaction: Assist w/auto-injector IM

Contact med control if pt weighs less than 10kg (approx. 20lbs) prior to epi if possible

Ped auto injector 10-30 kg (approx. 20-60lbs) Adult auto-injector over 30 kg (60lbs plus)



Draw Up EPI includes EMT & MFR. **Epi 1 mg/ml**. Admin 0.15mg for pt 10-30 kg.
Admin 0.30 mg for pt over 30 kg. May repeat every 3-5 min up to 2 dose max.
If wheezing admin **albuterol 2.5 mg**

SECTION 1.6 ANAPHYLAXIS/ALLERGIC REACTION



If wheezing and/or airway constriction continues, administer nebulized albuterol 2.5 mg/3 ml NS nebulized and ipratropium **500 mcg/2.5 ml** NS. Ipratropium is no longer 250 for 18 kg (40lbs) and under.



- Hypotensive patients - Repeat fluid bolus and prepare push dose EPI.
  - Initial Adult – 1 liter wide open. Repeat up to max 2 liters.
  - Ped 20 ml/kg up to max 40 mg/kg
  - Monitor for pulmonary edema. If present stop fluids and contact Med Control.



- Persistent Hypotension and/or Severe Respiratory: Push dose EPI
  - Prepare EPI 10 mcg/ml = Combine 1 mL of 1 mg/10 mL in 9 ml NS.
  - Adults: Admin 10-20 mcg (1-2 mL of 10 mcg/mL) IV/IO every 3-5 min to SBP @/over 90.
  - Pediatric: 1 mcg/kg (0.1mL EPI 10mcg/mL) MAX dose 10 mcg (1 ml) Repeat every 3-5 min.

SECTION 1.6 ANAPHYLAXIS/ALLERGIC REACTION

After EPI or if pt. is having an "allergic reaction" that is not severe/anaphylaxis:

Administer **diphenhydramine:**

Adult 50 mg IM/IO Pediatric 1 mg/kg IM IV IO Max dose 50 mg

- Administer **albuterol** for wheezing if not done previously.
- If wheezing continues administer **albuterol and ipratropium**
- Administer **prednisone** 50 mg PO to adults and children over 6

- If prednisone is not available, pt is 6 years old or under, or pt is unable to take meds PO:
- Administer **methylprednisolone**
  - Adult: 125 mg
  - Pediatric: 2 mg/kg (max 125)

Patients unresponsive to treatment contact Med. Control

SECTION 1.7 ADRENAL CRISIS (KNOWN ADRENAL INSUFFICIENCY OR ADDISON'S DISEASE EXPERIENCING SIGNS OF CRISIS)

- Symptoms: Pallor, HA, weakness, dizziness, nausea and vomiting, hypotension, hypoglycemia, heart failure, decreased mental status, or abdominal pain.

- CONTACT MEDICAL CONTROL – Prior to treatment.
  - Fluid bolus: Adults up to 1 Liter – Pediatrics 20 ml/kg
  - Assist patient with their own **Solu-Cortef**
    - **Adult 100 mg IV IM – Pediatric 1-2 mg/kg IV/IM**



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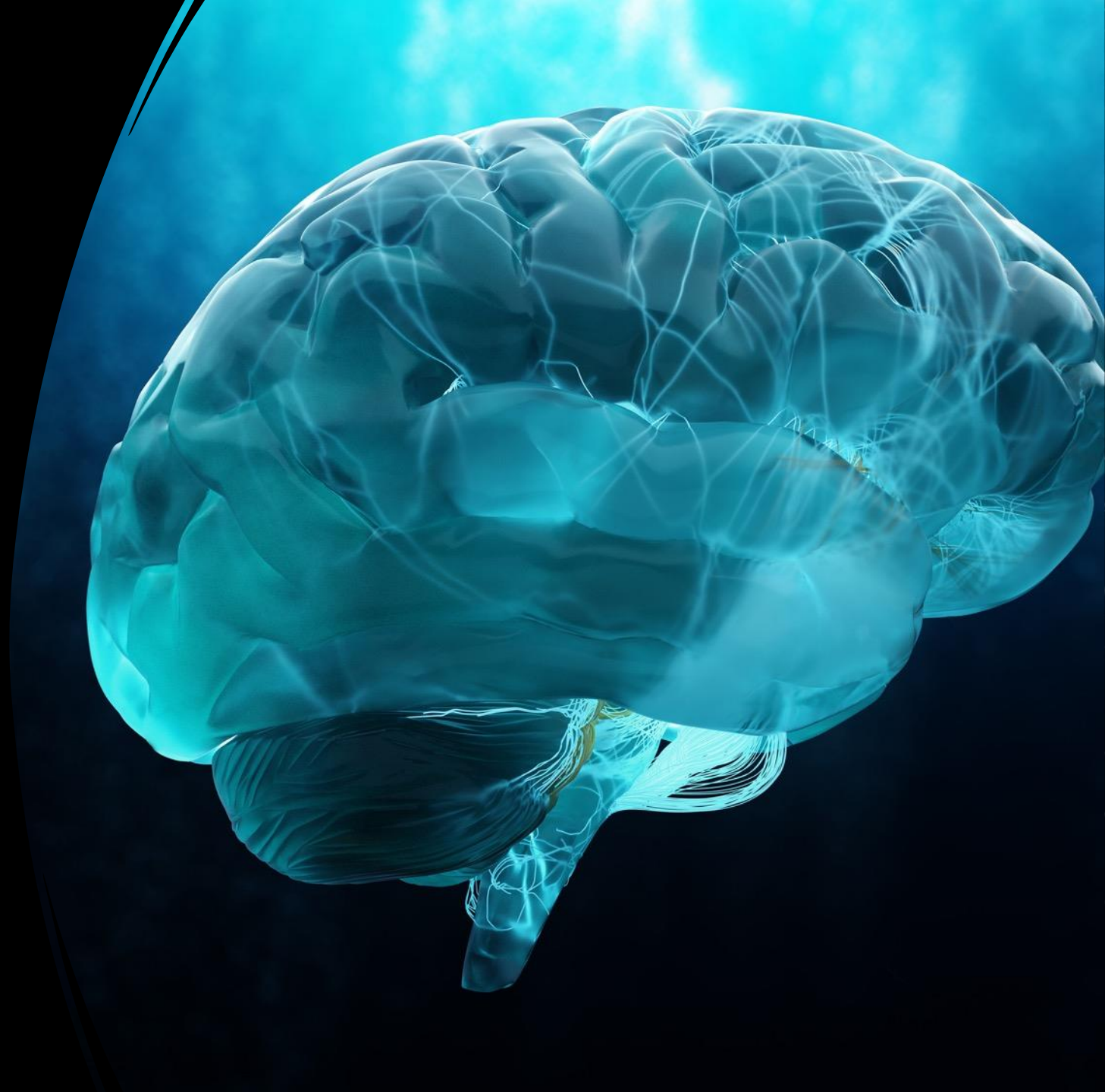
SECTION 1.7 ADRENAL CRISIS (KNOWN ADRENAL INSUFFICIENCY OR ADDISON'S DISEASE EXPERIENCING SIGNS OF CRISIS)

- If Solu-Cortef is not present admin. **Prednisone 50 mg** PO for children over 6 years old/adults.

- If prednisone is not available, or pt is 6 years old or younger, or unable to receive med PO then admin **methylprednisolone** IV/IM/IO – **Adults 125mg**, **Pediatrics 2mg/kg. Max dose 125.**

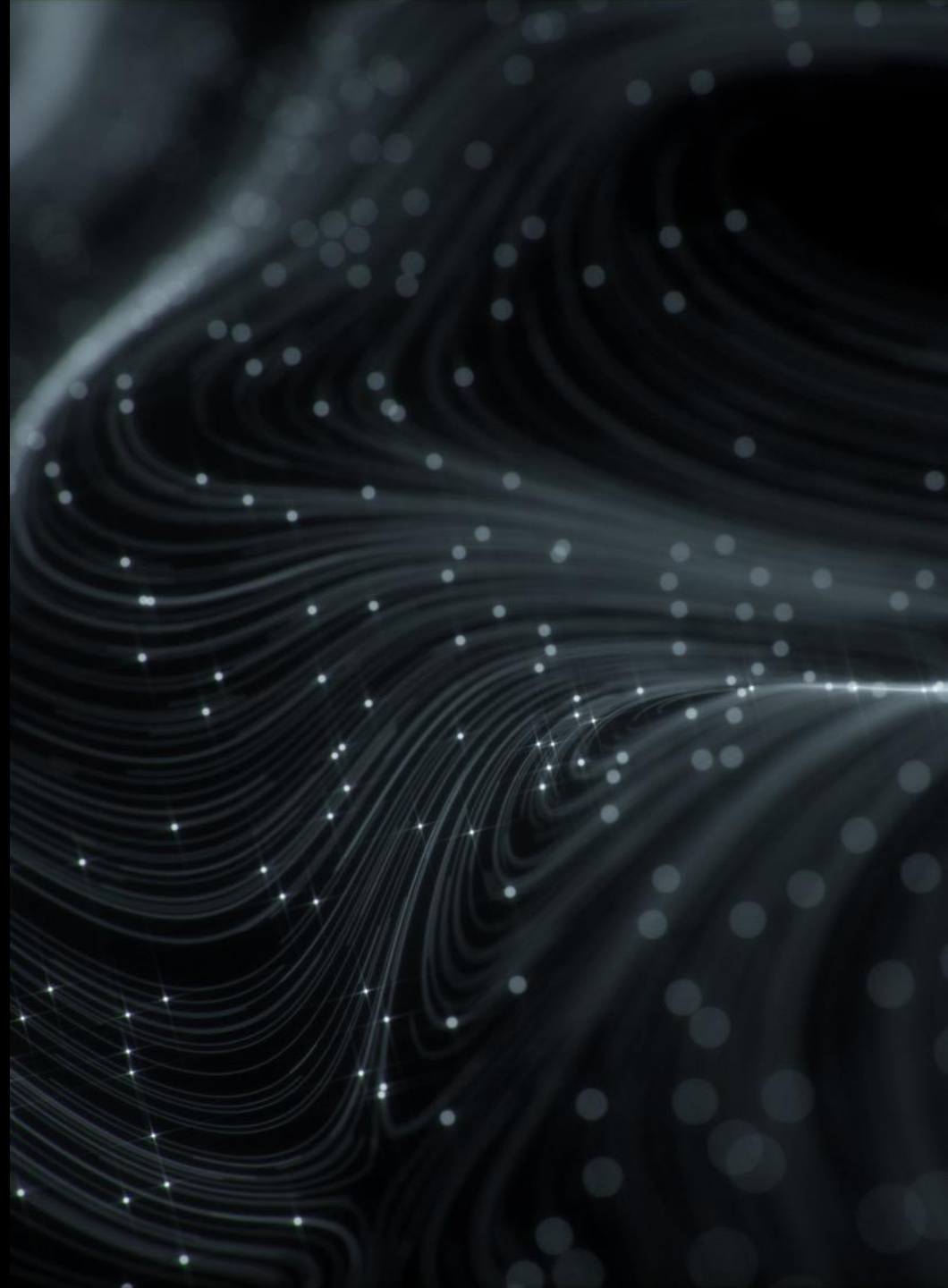


SECTION 1.8
BEHAVIORAL HEALTH

- Treat possible causes. Respect patients' dignity, be calm, offer assistance. Attempt de-escalation and if violent use soft restraints.

- Transport if: Threat /Harm to themselves or others, can’t fulfill basic needs, judgement impairment that could result in harm due to age, epilepsy, alcohol/drugs etc.

- Severe agitation/combative/aggressive/sweating/ delirium/elevated temp/lack of fatigue = **Refer to Hyperactive Delerium Syndrome with Severe Agitation-Treatment Protocol**



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SECTION 1.9 OPIOID OVERDOSE TREATMENT AND PREVENTION

Indications: Decreased LOC, resp. depression, Opioid Overdose or signs of use/indications.

Provide Oxygen, ventilations.

Goal: to restore effective respirations.

MFR administration of naloxone. EMT and above may repeat intranasal one time in 3-5 minutes if respirations not restored.

Intranasal Naloxone: Narcan Nasal Spray 4mg (**Adults Only**).
Entire dose in one nostril. Additional dose in opposite nostril

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SECTION 1.9 OPIOID OVERDOSE TREATMENT AND PREVENTION

Intranasal Naloxone: Prefilled 2 mg/2ml IN via Atomizer (Half dose in each nostril)

- Adults and children over 3 years: 2ml
- Pediatric dosing: Up to 3 months: 0.5mL, 3 to 18 months: 1ml, Children 19-35 months 1.5ml

Administer Naloxone IM, IN or slow IV, titrate to restore respirations.

Adult: 2mg IM or IN via atomizer (IN max of 2 doses) Up to 2mg IV q every 3-5

Pediatric 0.1 mg/kg IM/IN/IV

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SECTION 1.9 OPIOID OVERDOSE TREATMENT AND PREVENTION

- Pt's w/ Tremors chills, N/V, hallucinations, muscle cramps, etc.
  - IV, Treat Dehydration, fluid bolus, Hypotensive pt's receive add'l bolus. Monitor for pulmonary edema – if yes stop fluids.
  - Refer to N/V protocol

Pt's who have received Naloxone and refuse transport: CONTACT MED CONTROL – Pt may not have altered loc, intentionally overdosed, thoughts of self harm.

Place physician's name in PCR

Leave behind Narcan for 15 years old and above

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SECTION 1.10
FOREIGN BODY AIRWAY OBSTRUCTION

- Consider cardiac arrest from dispatch info
- Chest thrusts for: Wheelchair bound patients, Obesity, pregnancy, pt's under 1 years old
- Video laryngoscopy during CPR – Remove foreign body if seen.
- If not visualized, continue CPR alternating video laryngoscopy with ventilations
- Once foreign body is relieved, if spontaneous respiration does not return refer to **Airway Management-Procedure Protocol.**

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SECTION 2

TRAUMA AND ENVIRONMENTAL

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SECTION 2.1 ADULT/PEDIATRIC TRAUMA TRIAGE

- Includes trauma activation
- Includes patient prioritization



SECTION 2.2 GENERAL TRAUMA

- Avoid hypo or hyper ventilation in head injury patients

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SECTION 2.3 BURNS

Burn severity determination/definitions

- Superficial- NOT counted in TBSA
  - Dry, red, easily blanching, sometimes painful

Superficial partial thickness

- Counted in TBSA
  - Moist, red, blanching, blisters, very painful

Deep partial thickness

- Counted in TBSA
  - Drier, more pale, less blanching, less pain

Full thickness

- Counted in TBSA
  - Dry, leathery texture, variable color(white, brown, black), loss of pin prick sensation

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SECTION 2.3
BURNS



Cover burned area in clean, dry dressing for transport.



For patients with hypotension administer NS IV/IO fluid bolus

Adults: up to 1 liter

Pediatrics: up to 20 ml/kg



If patient remains hypotensive consider other underlying causes for hypotension and contact Medical Control prior to further fluid resuscitation.



For non-superficial burns without hypotension and BSA > 10% deep partial thickness (second degree) or any full thickness (third degree) administer fluids according to age

<1 year Contact Medical Control

1-5 years old: 125 mL/hour

6-13 years old: 250mL/hour

14 or older: 500mL/hour

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SECTION 2.4 GENERAL CRUSH INJURY

Administer albuterol 2.5 mg/3 ml NS nebulized continuous if IV access is not immediately available. Albuterol may be continued to a maximum dose of 20 mg.

Avoid LR solution as it contains potassium

Adults: 1 liters NS IV/IO wide open followed by 500-1,000 mL/hr

Pediatrics: 20 ml/kg NS IV/IO wide open followed by 10 mL/kg/hr

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SECTION 2.5 SOFT TISSUE AND ORTHOPEDIC INJURIES

Ceftriaxone Slow IV Push: 2gm diluted with 20 ml NS

- Adult: 2 gm (diluted) slow IVP 3-5 min
- Pediatrics > 2 months of age: Administer diluted dose according to MI MEDIC cards.
  - If MI MEDIC cards are not available administer 50 mg/kg (diluted) slow IVP 3-5 min (maximum dose 2 gm)

Ceftriaxone Infusion: Diluted dose added to 100 mL NS bag

- Adult: 2 gm (diluted) added to 100 mL NS bag. Infuse over 15-30 min
- Pediatrics 7 or older: Administer according to MI MEDIC cards
  - If MI MEDIC cards not available add 50 mg/kg (diluted) to 100 mL NS bag. Max dose 2 gm. Infuse over 15-30 min

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2.6 SPINAL INJURY ASSESSMENT

No Change to Protocol

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2.7 TRAUMATIC ARREST

No Change to Protocol

SECTION 2.8 DROWNING/SUBMERSION INJURY

Position patients with SCUBA incident with rapid ascent supine

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SECTION 2-9 POISONING/OVERDOSE/ENVIRONMENTAL EXPOSURE

No Change to Protocol

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SECTION 2-10 HEAT EMERGENCIES

No Change to Protocol

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SECTION 2-11
HYPOTHERMIA/FROSTBITE

No Change to Protocol

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2.12 HEAD INJURY (TBI)



AVOID HYPO AND HYPER VENTILATION



MONITOR O2 LEVELS

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SECTION 2-13 BLEEDING CONTROL

No Change to Protocol

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SECTION 2-14 HEMORRHAGIC SHOCK

No Change to Protocol

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SECTION 2-15 SEXUAL ASSAULT

Includes Patient Resources

Includes How to Bag Clothing

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SECTION 3

ADULT TREATMENT

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SECTION 3.1 ALTERED MENTAL STATUS

- Maintain airway/O2
- Consider naloxone & oral glucose
- If glucose level under 60 mg/dL admin. **25 gm IV** titrated to A&Ox4. Recheck Pt. glucose level @ **10min**.

- If glucose is >250 mg/dL admin. NS IV bolus up to **1 liter**
  - For renal failure/heart failure, decrease volume to **500 mL**
- Consider 12 lead.
  - If patient is not alert after glucose admin. consider causes

3.2 STROKE OR SUSPECTED STROKE

- Includes FAST ED Scale

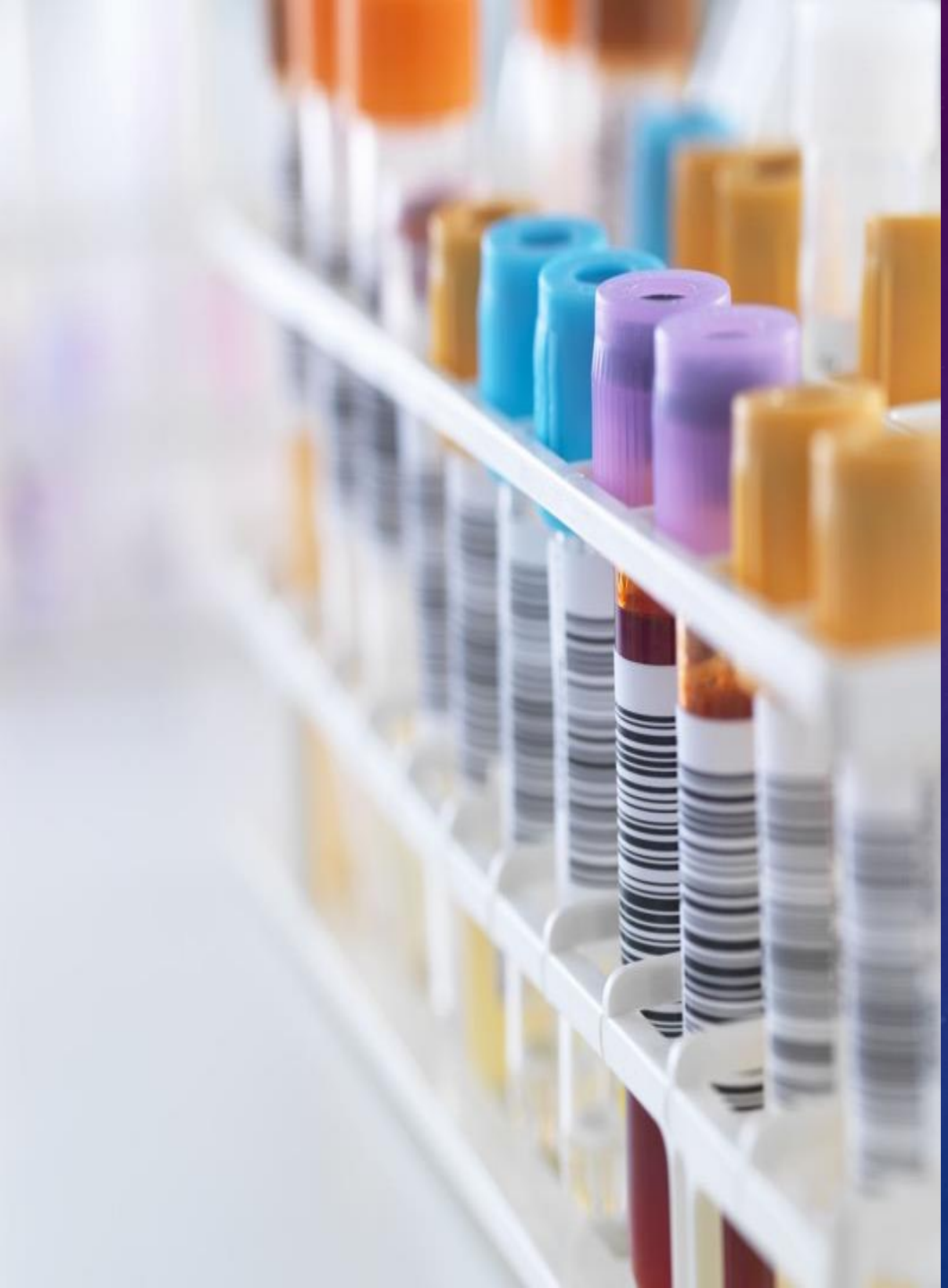




SECTION 3.2 STROKE/SUSPECTED STROKE

- Screen for stroke w/CPSS if new onset neurological symptoms are present
  - Facial palsy/arm weakness/speech changes = positive stroke screen
- Date and time: last well-known/sign and symptoms first discovered?
- Calculate FAST-ED
- Rule out stroke mimics: Drugs/ETOH, infection, seizure, migraine. Treat glucose if under 60mg/dL.

- Obtain **SAMPLE** history: Blood thinners/last dose? Stroke risk factors?



SECTION 3.2 STROKE/SUSPECTED STROKE

- **Symptom onset equal to or less than 24 hours:**
  - See protocols 8.2 and 8.3 for transport decisions. (Katie please insert link to section 8.2/8.3)
- **On-scene treatments**
  - On-scene time ideally less than 15 min.
  - Critical interventions only.
  - Transport supine to support collateral blood flow.
  - Use minimum 02 necessary to maintain SPO2 94%
- **Treatments during transport:**
  - Initiate 18-gauge AC vascular access and 12 lead ECG but **DO NOT** delay scene time



SECTION 3.2 STROKE/SUSPECTED STROKE

Stroke Alert!

Radio report or e-Bridge with a "STROKE ALERT" notification as soon as a stroke is identified

- FAST-ED w/neuro deficits
- Last known well / symptom discovery date & time
- Blood thinner usage, name, last dose
- Vital signs, ETA
- Send stroke assessment video through e-Bridge
  - https://www.youtube.com/watch?app=desktop&v=3W1isYsbkNU
- PCR includes all information above plus next of kin & blood glucose level



SECTION 3.2 STROKE/SUSPECTED STROKE

FAST-ED Stroke Severity Scale Checklist	
Facial Palsy – Ask the patient to show their teeth or smile.	
1. Both sides of the face move equally or not at all.	**0**
2. One side of the face droops or is clearly asymmetric.	**1**
Arm Weakness – Ask the patient to extend both arms with palms up out in front of them, close their eyes, and hold them there for a count of 10.	
1. Both arms remain up for >10 seconds or slowly move down equally.	**0**
2. Patient can raise arms but one arm drifts down in <10 seconds.	**1**
3. One or both arms fall rapidly, cannot be lifted, or no movement occurs at all.	**2**
Speech Changes	
Expressive Aphasia – Ask the patient to name 3 common items.	
1. Names 2 to 3 items correctly.	**0**
2. Names only 0 - 1 items correctly.	**1**
Receptive Aphasia – Ask the patient to perform a simple command. Example: Ask the patient, "*show me two fingers*."	
1. Normal, patient can follow the simple command.	**0**
2. Unable to follow the simple command.	**1**
Eye Deviation	
1. No deviation, eyes move equally to both sides.	**0**
2. Patient has clear difficulty when looking to one side (left or right).	**1**
3. Eyes are deviated to one side and do not move to the other side.	**2**
Denial/Neglect – (Do not perform if expressive or receptive aphasia is present)	
Anosognosia – Show the patient their affected arm and ask, "*Do you feel weakness in this arm?*"	
1. Patient recognizes the weakness in their weak arm.	**0**
2. Patient does NOT recognize the weakness in their weak arm.	**1**
Asomatognosia – Show the patient their affected arm and ask, "*Whose arm is this?*"	
1. Patient recognizes their weak arm.	**0**
2. Patient does NOT recognize their weak arm.	**1**
A FAST-ED score ≥ 4 indicates a high likelihood of a severe stroke	**Total Score** ***(0-9)***

SECTION 3.3 RESPIRATORY DISTRESS



ADMINISTER NEBULIZED ALBUTEROL 2.5 MG/3 ML NS NEBULIZED AND IPRATROPIUM 500 MCG/2.5 ML NS



DRAW UP EPI INCLUDES EMT AND MFR

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SECTION 3.3 RESPIRATORY DISTRESS

For Patients equal to or under 14 years old refer to Pediatric Resp. Distress-Treatment Protocol

- Allow Pt. position of comfort and determine respiratory problem involved
- Crackles due to cardiac or fluid overload see **Pulmonary Edema/Cardiogenic Shock Protocol**

BREATH SOUNDS

- **CLEAR:**

  Obtain 12-lead. Potential MI, metabolic, pulmonary embolus, hyperventilation.
- **ASYMMETRICAL:**

  Evidence of a tension pneumothorax and unstable? Consider decompression.
- **STRIDOR/UPPER AIRWAY OBSTRUCTION:**

  Complete obstruction: Follow FBAO-Treatment Protocol.

  Partial airway obstruction: Epiglottis, foreign body, anaphylaxis - Follow the corresponding protocol.

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SECTION 3.3 RESPIRATORY DISTRESS

For Patients equal to or under 14 years old refer to Pediatric Resp. Distress-Treatment Protocol

BREATH SOUNDS:

- **RHONCHI (SUSPECTED PNEUMONIA):** Sit Patient up, Consider CPAP, Consider IV bolus 1L wide open if tachycardic repeat as needed per IV Fluid Therapy Protocol.
- **CRACKLES:** Of suspected non-cardiac etiology/fluid: Follow wheezing/diminished breath sounds
- **CRACKLES:** due to cardiac or fluid overload: **Pulmonary Edema/Cardiogenic Shock Protocol**
- **WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA,COPD):**
  - Assist patient with their albuterol inhaler if available
  - Administer **albuterol 2.5mg/3mL** NS nebulized

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SECTION 3.3 RESPIRATORY DISTRESS

For Patients equal to or under 14 years old refer to Pediatric Resp. Distress-Treatment Protocol

- **WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):**
  1. Assist patient with their **albuterol inhaler** if available
     a. Administer **albuterol 2.5mg/3mL** NS nebulized
  2. Consider **CPAP**
     - **<u>Impending respiratory failure & unable to tolerate neb therapy</u>:**
  3. Admin.
     EPI auto-injector 0.3mg
  4. Administer **1mg/mL 0.3mg (0.3mL) IM**
     w up EPI:
     - **<u>MFR & EMT W/MCA APPROVED TRAINING:</u>** Administer **1mg/mL 0.3mg (0.3mL) IM**
  5. Nebulized **albuterol and 2.5mg/3mL and Ipratropium 500mcg/2.5mL** for wheezing and/or airway constriction

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SECTION 3.3 RESPIRATORY DISTRESS

For Patients equal to or under 14 years old refer to Pediatric Resp. Distress-Treatment Protocol

- **WHEEZING, DIMINISHED BREATH SOUNDS (ASTHMA, COPD):**


6. Pt's over 6 yrs. of age admin. **prednisone 50mg** tablet PO. If Pt. under 6 yrs. of age/**unable** to receive med PO/or prednisone unavailable: admin **methylprednisolone IV/IO/IM**: Adults **125mg, Pediatrics 2mg/kg** (max 125 mg)


7. Contact medical control - consider **repeat EPI 1mg/mL 0.3 (0.3mL) IM** in asthma patients with impending resp. failure if unable to tolerate nebulizer therapy.


8. Consider **magnesium sulfate 2gms slow IV** in refractory status asthmaticus. Administration of magnesium sulfate is best accomplished by adding magnesium sulfate 2gm to 100-250mL of NS and infusing over approximately 10 minutes.

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3.4 SEIZURES

No Change to Protocol

SECTION 3.4 SEIZURES

For Patients equal to or under 14 years old refer to Pediatric Seizure-Treatment Protocol

- **ACTIVELY SEIZING:**



A. Protect patient from injury & D/N force anything between teeth

1. Pregnant women 20 weeks gestation up to 6 weeks post birth WITHOUT a seizure disorder treat as eclampsia. Administer **magnesium sulfate 4gm over 10 minutes IV/IO**
2. Administer **midazolam 10 mg IM** prior to IV start



B. MFR/EMT Check blood glucose level.



C. **Under 60** mg/dL or suspected hypoglycemia admin **dextrose 25 gm IV.**

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SECTION 3.4 SEIZURES

For Patients equal to or under 14 years old refer to Pediatric Seizure-Treatment Protocol

- **ACTIVELY SEIZING:**

D. Pregnancy/eclampsia:



1. Administer **magnesium sulfate 4 gm over 10 minutes IV/IO** until seizure stops.
   a. Suggested: magnesium sulfate 4 gm to 100 or 250 mL of NS. Infuse over 10 min.
   b. If eclamptic seizure does not stop after magnesium sulfate, an IV is established and IM/IN midazolam has not been administered: administer **midazolam 5mg IV/IO.**
   c. Persistent seizure **repeat midazolam 5 mg IV/IO/IM/IN** and contact medical control.

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3.5 SEPSIS

No Change To Protocol

SECTION 3.5 SEPSIS

For Patients equal to or under 14 years old see Pediatric Treatment Protocol

- **Treatment:**
  1. Lay pt. **supine**
  2. Start a large bore **IV/Two if time permits.**
  3. Put pt. on **cardiac monitor**/treat rhythm according to protocol
  4. Pulse ox & blood glucose
  5. IV bolus **1L NS/LR wide open.** Repeat if vital signs permit.
     
     a. Monitor for pulmonary edema, if present stop fluids and call Medical Control.
  6. If hypotension persists, refer to **shock protocol.**
  7. Monitor ETCO2 level. Report any levels outside of **35-45 mm Hg** to the receiving facility

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SECTION 3.6 HYPERACTIVE DELIRIUM SYNDROME WITH SEVERE AGITATION



Ketamine 4 mg/kg IM maximum single dose 500 mg (3-5 min onset)

SECTION 3.6 HYPERACTIVE DELERIUM SYNDROME WITH SEVERE AGITATION

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

- **Indications:** Patient over 14 years of age and an **imminent psychical threat** to personnel and/or themselves and level of agitation is such that transport may place all parties at risk.
- **Symptoms:** May include (not limited to) vital sign abnormalities such as **tachycardia and hyperthermia**
- **Treatment:**
    1. ALS response with enough personnel to provide safety and refer to **Patient Restraint Procedure**
    2. Obtain History, visual assessment, and **look for possible causes** i.e. trauma & stroke,
        a. Follow appropriate protocol.
    3. After de-escalation techniques have failed prepare for **airway management and medication administration.**

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SECTION 3.6 HYPERACTIVE DELERIUM SYNDROME WITH SEVERE AGITATION

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

Treatment:

4. Medication administration: **Ketamine 4 mg/kg IM** max single dose 500 mg **(3-5 min onset)**
5. **VITALS: CONTINUOUSLY MONITOR SPO2, MONITOR & CAPNOGRAPHY**
   a. Obtain temperature: If temp. is above 100.4 (38C) **provide cooling** w/ice packs on neck, axilla, groin etc.
   b. Monitor patient for potential **need of airway** and hemodynamic compromise.
6. Establish IV and provide fluid bolus of up to **1 L of NS or LR.** Repeat if necessary.
7. Monitor for pulmonary edema. If present, stop fluids and contact medical control.
8. Monitor EKG and consider 12 lead if **hyperkalemia** is suspected.
   a. Look for peaked T waves prolonged PR, widened QRS.
9. Contact medical control if additional sedation is required.

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

PSRO will review all cases of witnessed arrest in the presence of EMS to ensure the protocol was followed

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **Inclusion criteria:** New onset altered LOC, airway compromise, severe resp. distress/failure, signs & symptoms of shock/poor perfusion when cardiac or respiratory arrest appears imminent
- **Exclusion criteria:** Life-threatening trauma that has not been corrected.
  - i.e. exsanguination (bleeding to death), pneumothorax etc.
- **Critical actions: Done within the first 5 minutes:** Airway, breathing, monitoring

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **CRITICAL actions: Done within the first FIVE minutes:**
  - **Airway:** Insert Nasal/Oral Airway if tolerated & indicated. Pt is not following commands, GCS under 6, unresponsive to verbal stimuli etc.
  - **Breathing**: If a spinal injury is not suspected, **sit** the respiratory distress/failure pt. up. Provide **high flow O2.** Respirations may be assisted with BVM in a sitting position.
    - Respirations under 10/min: **Use two-handed, two-rescuer,** BVM technique w/O2 15LPM
    - Respirations over 10/min but inadequate: **CPAP** for resp. distress hypoxia.
    - Consider **PPV by BVM** if not following commands or SPO2 is less than 90%

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **CRITICAL actions: Done within the first FIVE minutes:**
  - **Monitoring:** SPO2, ETCO2, EKG, Repeat blood pressure every 3 minutes.
- **IMMEADIATE actions: Done within the first TEN minutes:**
  - **Circulation**:
    - Electrical therapy (cardioversion/pacing) if dysrhythmia is the primary cause of shock.
    - Emergent IV/IO access. Admin. 1 L NS or LR infused under pressure.
    - Stop infusion and contact Medical Control if edema presents.

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **IMMEADIATE actions: Done within the first TEN minutes:**
  - **Circulation:**
    - **Push dose EPI:**

iv. Consider push-dose **epinephrine** per the **Shock-Treatment Protocol.** Prepare **epinephrine** 10 mcg/mL by adding 1mL of 1mg/10mL **epinephrine** in 9mL **NS**, then

1. Administer 10-20 mcg (1-2 mL **epinephrine** 10 mcg/mL) IV/IO
2. Repeat every 3 to 5 minutes.
3. Titrate SBP greater than 90 mmHg.

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **Ongoing actions: Done within the first FIFTEEN minutes:**
  - **Reassess:**
    - Response to treatments
  - **Circulation**:
    - Repeat fluid bolus up to 2 L total if indicated.
    - Bradycardia: Atropine 1 mg IV/IO
    - Consider push dose epi (**per Shock-Treatment Protocol**) while administering 2nd fluid bolus

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

PURPOSE: For patients critically ill and quickly deteriorating to the point of cardiac or respiratory arrest.

STABILIZE THE PATIENT PRIOR TO LOADING.

- **Ongoing actions: Done within the first TWENTY minutes:**
  - **Reassess:**
    - Response to treatments
  - **Circulation**:
    - Continue fluids as indicated.
    - Continue vasopressors (push dose epi) as indicated.
    - Contact Medical Control for additional fluids/vasopressors
  - **Airway:**
    - Insert advanced airway if indicated

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SECTION 3.7 CRASHING ADULT/IMPENDING ARREST

For Patients equal to or under 14 years old refer to Pediatric Treatment Protocol

- **Once critical and immediate actions have been completed:**

- **Move the patient to the ambulance for transport.**

- **Transport may be initiated earlier per provider discretion.**

Notes:

1. The specific lengths of time listed are approximate to provide a sense of urgency and to prioritize actions. Provider safety is of utmost importance. Care for these patients should be given as quickly as possible, but safety considerations and the scene environment may lead to times that are longer than these stated goals. When conditions make it impossible to meet these goals, the reasons should be documented.

2. Actions listed should be simultaneous and not in any specific order. As critical actions are performed, transport may be initiated. However, transport should not supersede initiation of life saving intervention.

3. The concepts/actions listed can also be used in conjunction with the **Return of Spontaneous Circulation (ROSC)-Treatment Protocol** to prioritize key interventions prior to transport of cardiac arrest patients with ROSC.

MCA Quality Improvement Performance Parameters:

1. Review all cases of cardiac arrest witnessed by (in presence of) EMS providers for compliance with this protocol.

2. Ensure that specific treatments also follow other appropriate protocols, e.g., Airway Management, Shock, Tachycardia, Bradycardia, etc.

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SECTION 4

Obstetrics and Pediatrics

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4.1 PEDIATRIC MEDICATION EMERGENCY DOSING AND INTERVENTION CARDS

Cards updated

Protocol supersedes MIMEDIC cards in the event they are not available

SECTION 4.2 CHILDBIRTH AND RELATED OBSTETRICAL EMERGENCIES

- Administer magnesium sulfate 4 gm over 10 minutes IV/IO until seizure stops. Administration of magnesium sulfate is best accomplished by adding magnesium sulfate 4 gm to 100 or 250 ml of NS and infusing over 10 min.
- Prophylaxis treatment for severe preeclampsia
    - High flow oxygen
    - IV access
    - Administer magnesium sulfate 4 gm over 10 min pre radio

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4.3 NEWBORN/NEONATAL ASSESSMENT AND RESUSCITATION

No Change to Protocol

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4.4 PEDIATRIC ALTERED MENTAL STATUS

No Change to Protocol

SECTION 4.5 PEDIATRIC RESPIRATORY DISTRESS, FAILURE OR ARREST

Draw up EPI includes EMT and MFR

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SECTION 4.6 PEDIATRIC FEVER

Administer acetaminophen according to MI MEDIC cards if not available use dose chart in protocol

The > 2 months of age restriction for acetaminophen administration was removed but the requirement for a rectal temperature to be obtained on children < 2 months of age prior to administration was added. The 10 mg/kg for ibuprofen was removed. Both acetaminophen and ibuprofen for pediatrics will be according to MI MEDIC or the dosing chart in the protocol. The dosing chart was updated to reflect MI MEDIC

SECTION 4.7 PEDIATRIC SEIZURES

- If seizure persists 10 minutes after initial dose of midazolam and correction of low blood glucose repeat one time midazolam pre radio.

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4.8 SAFE TRANSPORT OF CHILDREN IN AMBULANCES

No Change To Protocol



SECTION 4.9 PEDIATRIC CRASHING PATIENT/IMPEDING ARREST

PSRO to review all cases of witnessed arrest in the presence of EMS to ensure the protocol was followed

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SECTION 5

Adult Cardiac

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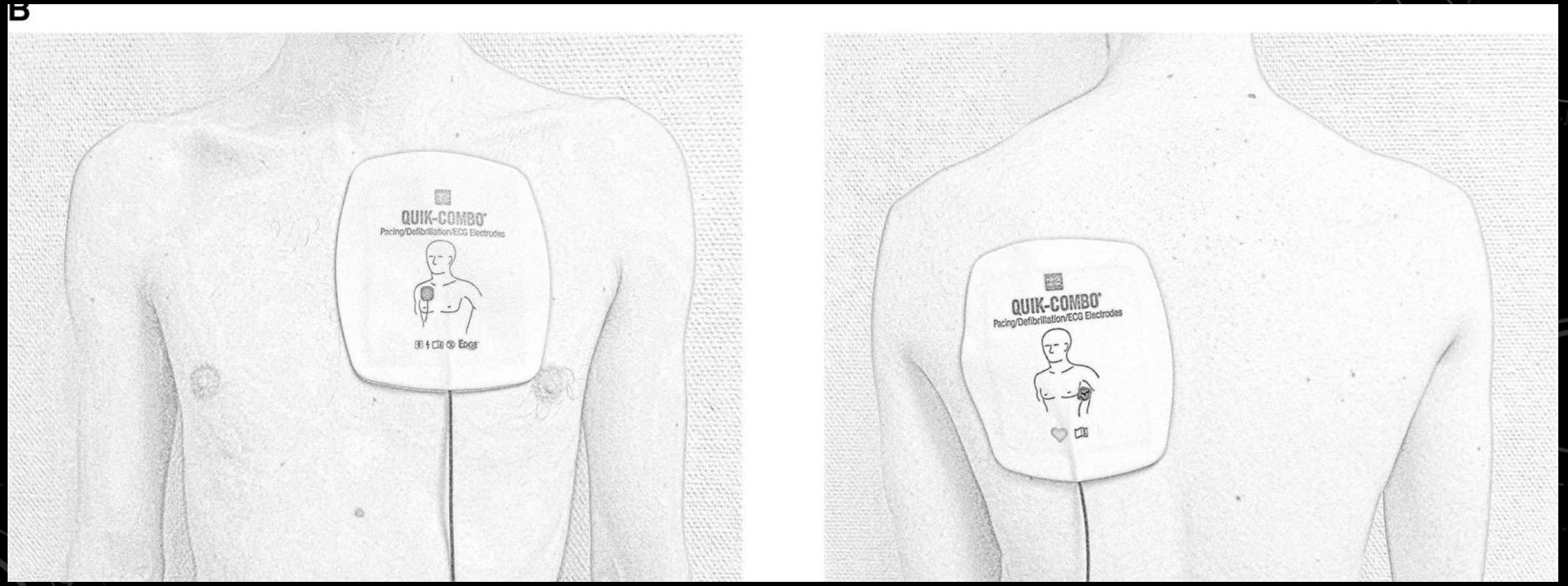
SECTION 5.1 CARDIAC ARREST-GENERAL

- Administration of amiodarone 300 mg IV/IO (Repeat 150 mg IV/IO)
- Anterior/posterior pad placement is preferred



SECTION 5.2 BRADYCARDIA

Administer atropine 1 mg IV/IO

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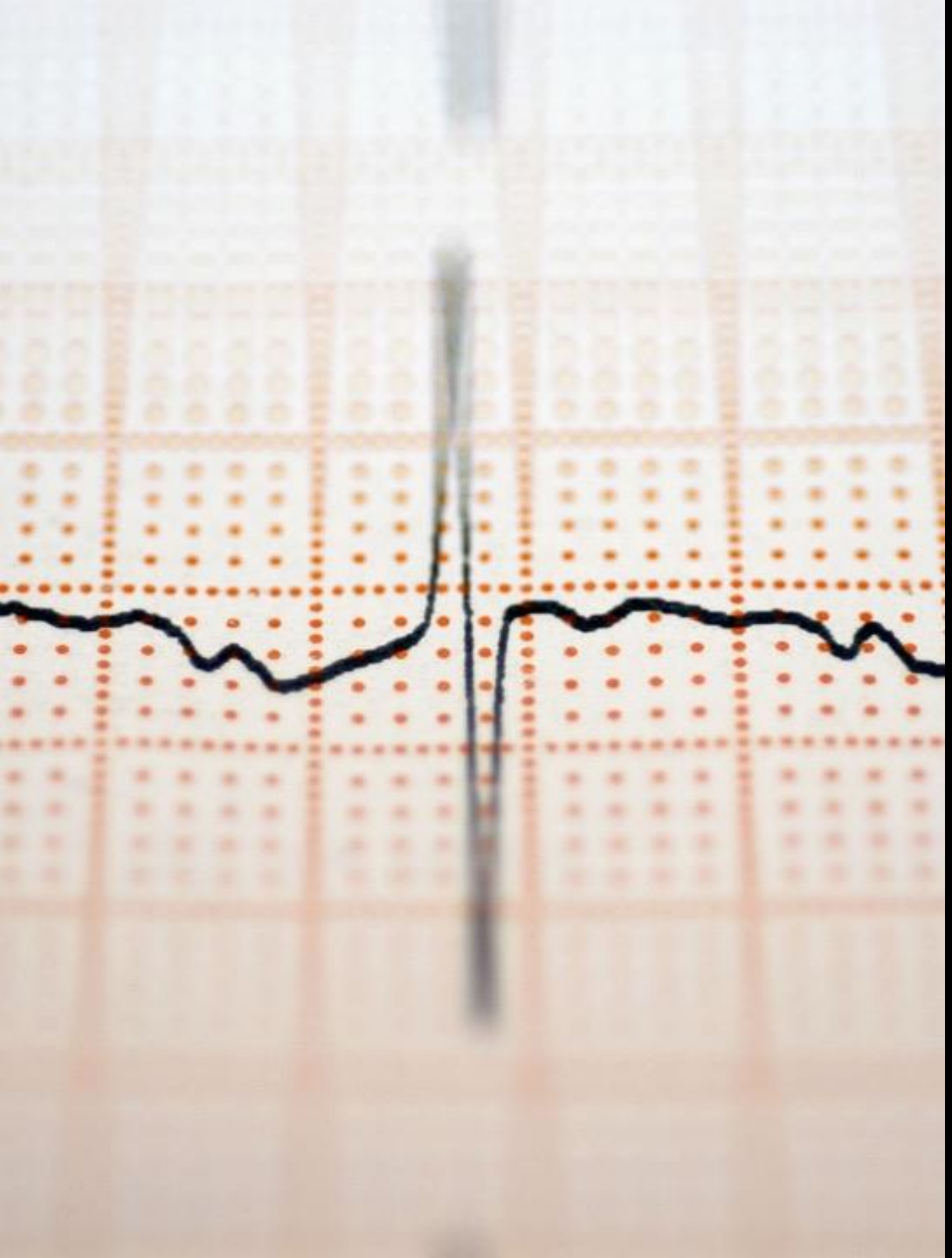

SECTION 5.3 TACHYCARDIA

- Regular and narrow rhythm tachycardia perform Valsalva Maneuver with Postural Modification
- Irregular and narrow rhythm administration of amiodarone 150 mg IV over 10 minutes post radio
- Regular wide QRS rhythm administer amiodarone 150 mg IV over 10 minutes

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5.4 PULMONARY EDEMA/CARDIOGENIC SHOCK

No Change to Protocl

SECTION 5.5 CHEST PAIN/ACUTE CORONARY SYNDROME

- For patients with suspected cardiac chest pain refractory to nitroglycerin or if nitroglycerin is contraindicated due to erectile dysfunction medication, consider fentanyl
  - Adults <65 years of age administer fentanyl 1 mcg/kg IV/IO/IN, max single dose 100 mcg, may repeat one time. Total dose may not exceed 200 mcg
  - Adults >65 years of age administer fentanyl 0.5 mcg/kg IV/IO/IN, max single dose 50 mcg, may repeat three times. Total dose may not exceed 200 mcg.
  - Total dose may not exceed 200 mcg without Medical Control contact and approval

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5.6 RETURN OF SPONTANEOUS CIRCULATION

No Change to Protocol

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SECTION 6

Pediatric Cardiac

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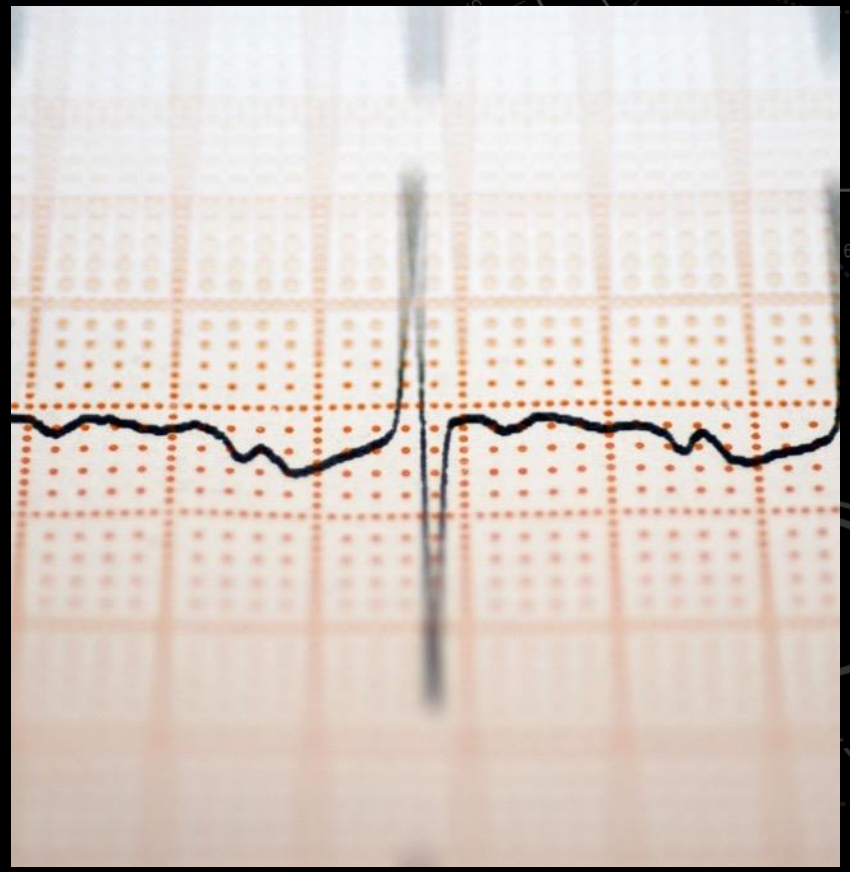
SECTION 6.1 PEDIATRIC CARDIAC ARREST- GENERAL

- **Anterior Posterior** pad placement should be used
- CPR-AHA. Compression: avoid interruptions, depth **1.5 infant, 2 inches for child**, full chest recoil
- Breaths: Adv. Airway **20 per min** or **1 q 3** seconds. Use ventilation pauses to **read ECG** and **plan assessment period** for end of 2-minute cycle.
- If AED is applied skip to approp. Place in protocol. **ALS** switch to manual defibrillation.



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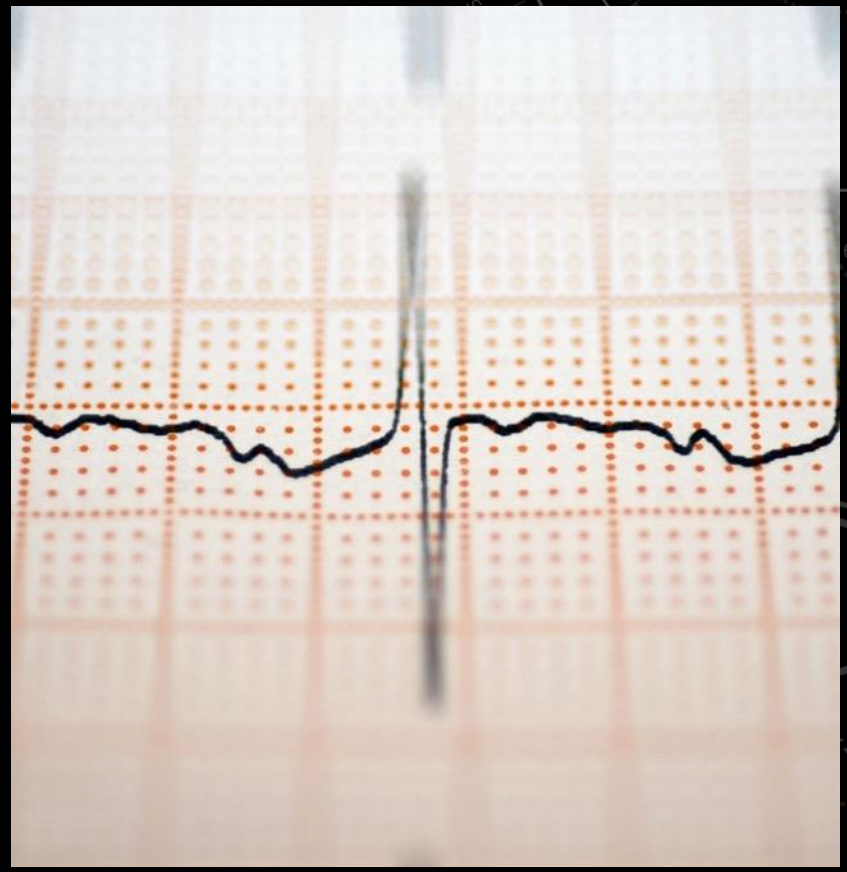
SECTION 6.1 PEDIATRIC CARDIAC ARREST- GENERAL

- Mechanical chest compression devices are allowed Auto Pulse/Lucas **if manufacturer specifications allow.**
- **ITD use over 10 kg.** (22lbs) connect to face mask or BVM then move to advanced airway. Discontinue if ROSC occurs.
- BVM – **2-person w/ oral airway.** If unable to ventilate est. advanced airway w/ **supraglottic as first choice.** Requires **ETCO2 monitoring**. If under **10mmHG** improve CPR
- Pulse checks = **10 seconds** max.
  - q 2 minutes.
  - Chest Compression Fraction 80%



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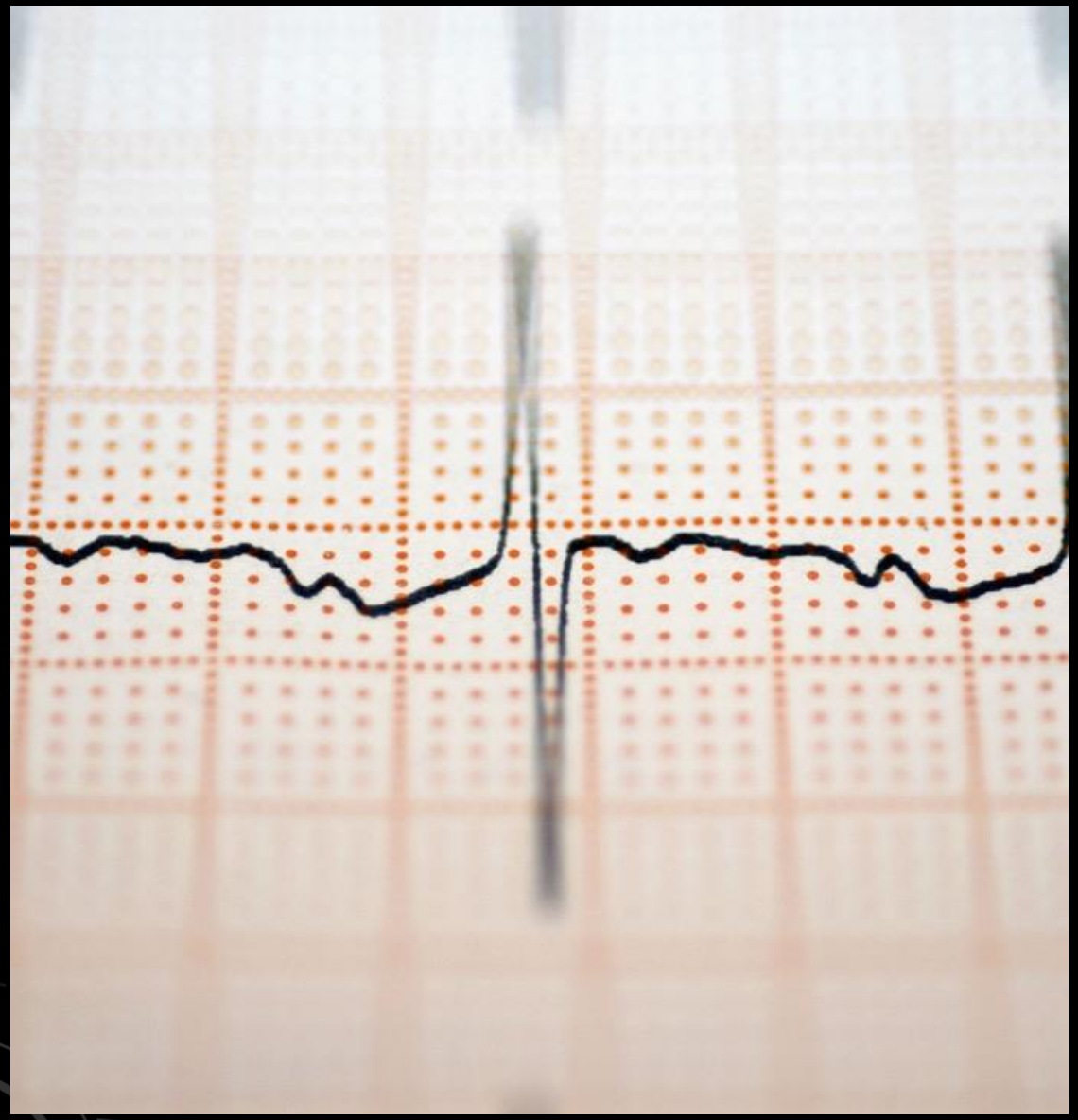


SECTION 6.1 PEDIATRIC CARDIAC ARREST-GENERAL

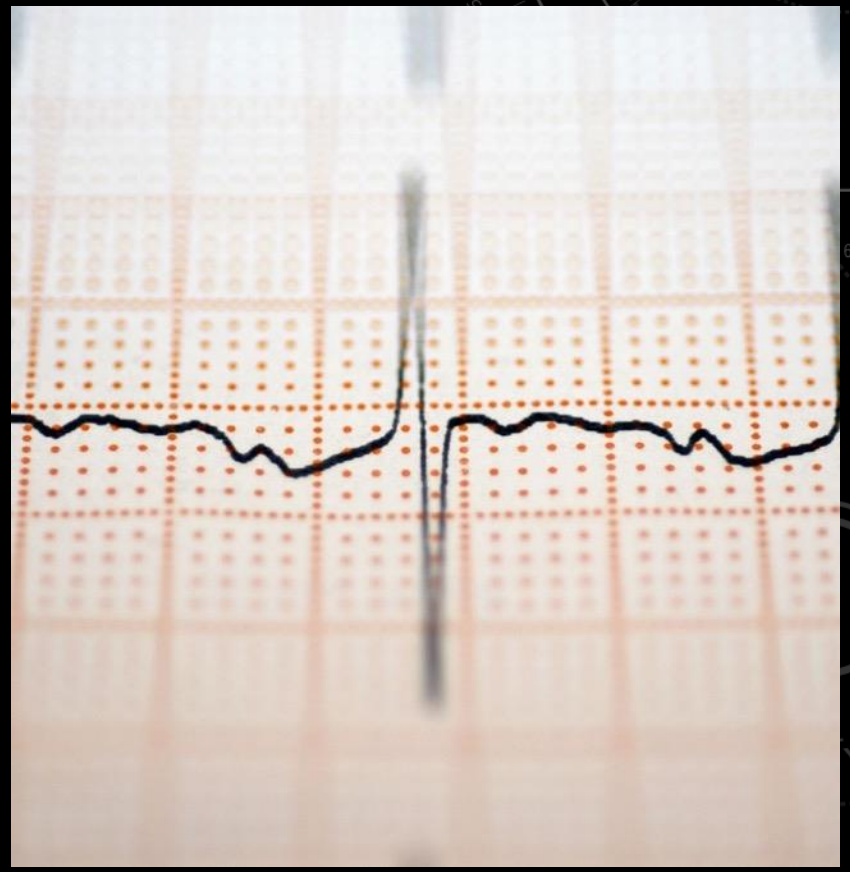
- Defibrillate according to **MI MEDIC Cards**. If not available:
  - 2J/kg first dose
  - 4J/kg-10J/kg second dose

- EPI initial dose within **5 min** of ALS.
  - 0.01mg/kg of 1mg/10mL = 0.1 mL/kg. Max dose 1mg or 10mL. Q 3-5 min

- **Administer amiodarone** 5 mg/kg (max single dose 300 mg) IV/IO (May Repeat twice) Do not exceed 450 mg total IV/IO

SECTION 6.1 PEDIATRIC CARDIAC ARREST- GENERAL

- Treat reversible causes:
    - **Hypovolemia** = 20mg/kg bolus.
    - **Hypoglycemia:** MFR **+** check blood glucose
        - Less than 60mg/dL treat according to **MI MEDIC**
        - If unavail. Admin dextrose 0.5g/kg
    - **Tension Pnuemo** – see Pleural Decompression procedure EPI initial dose within 5 min of ALS.
    - **Hyperkalemia** = calcium chloride 10% and Sodium Bicarb 1mEq/kg IV/IO per **MI MEDIC**
        - Flush line w/20 cc saline in between
- If ROSC is not achieved: Contact Med Control **Before transport!** BLS @ **20 min** ALS @ **30 min** for further direction.



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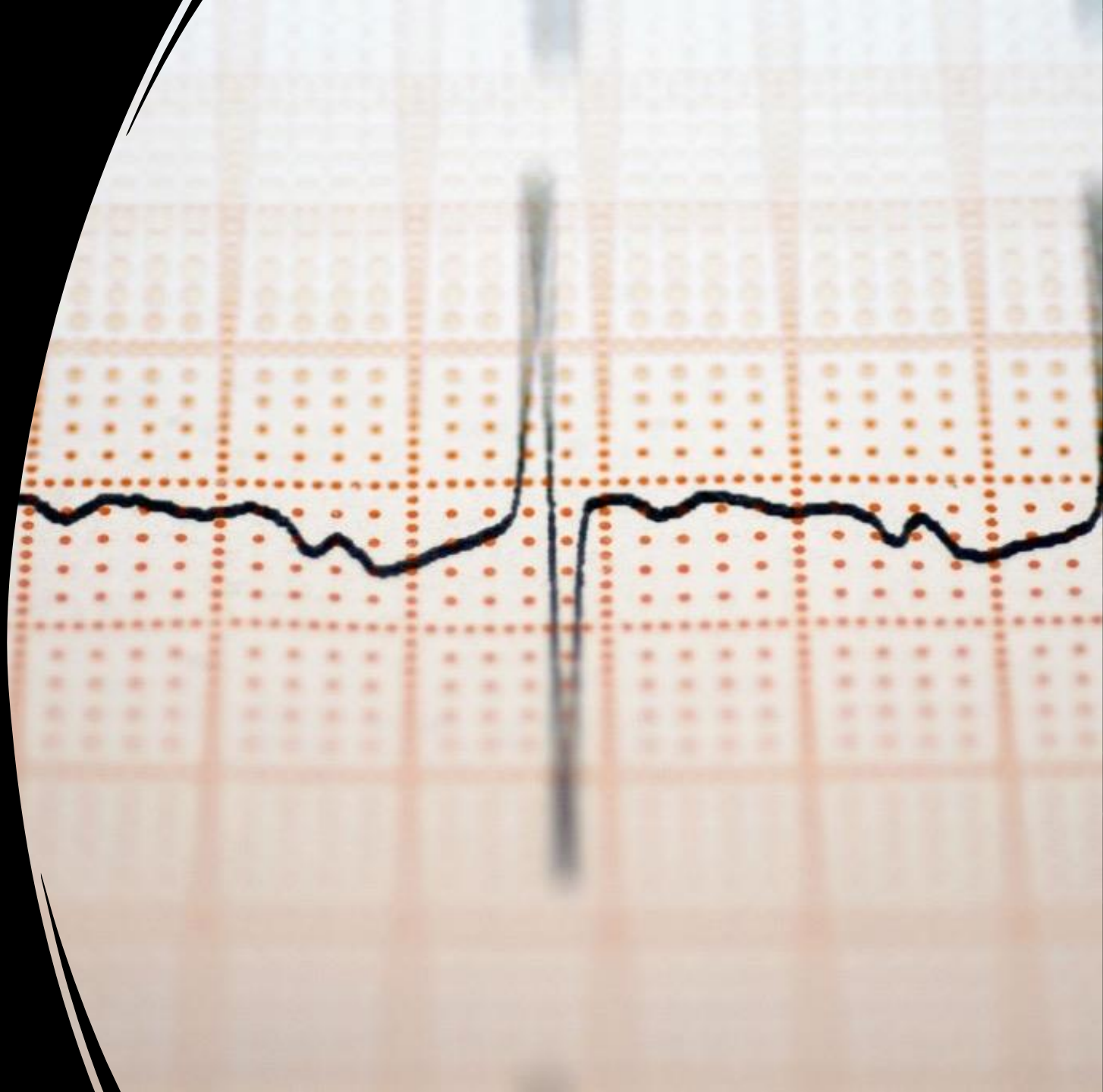
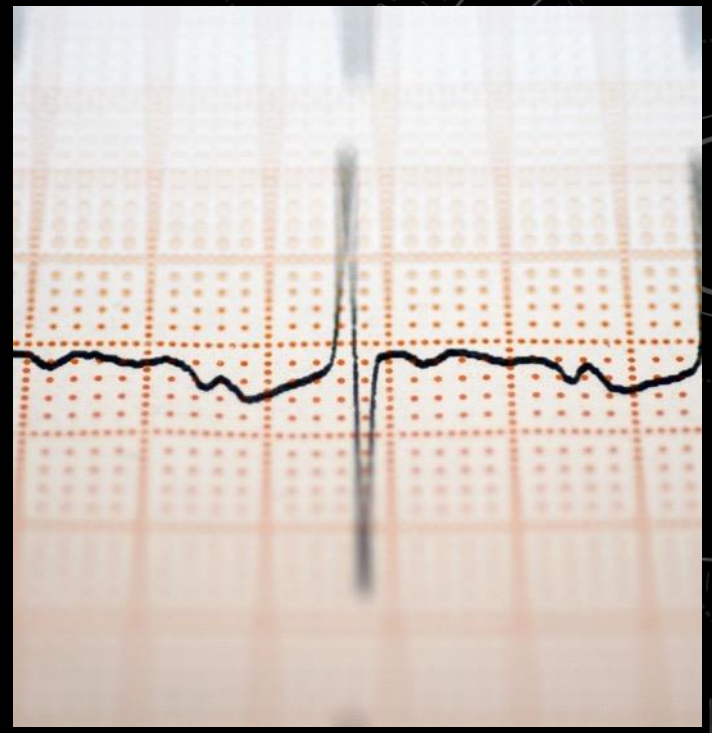
SECTION 6.2 PEDIATRIC SYMPTOMATIC BRADYCARDIA

- **General Treatment**
- Ped patients 14 and under use MI-MEDIC Cards
    - **Manage airway:**
        - O2 sat at or under 94% provide O2
    - **Initiate Monitoring:**
        - If pulse under 60 confirm & support O2 and ventilation
        - If pulse remains under 60 and Pt. is symptomatic **perform CPR**
        - Establish IV
        - Apply monitor/Identify rhythm
    - **If pulse is less than 60 despite O2 & Ventilation**
        - **Administer EPI according to MI-MEDIC**
        - If cards are not avail. admin **EPI** 1mg/10mL, 0.01mg/kg (0.1mL/kg IV/IO up to 1 mg (10ml)
        - q 3-5 min.
        - Administer **atropine** according to MI-MEDIC or .02mg/kg IV/IO. Min dose 0.1mg Max single 0.5mg repeat 1 time in 5 min.
        - Continue Epi



SECTION 6.2 PEDIATRIC SYMPTOMATIC BRADYCARDIA



- **General Treatment**
- Ped patients 14 and under use MI-MEDIC Cards
  - **If Pt remains unstable after EPI and Atropine:**
    - TCP w/rate up to 100 – Energy @ manufacturers recommendation
    - Sedation may be used – Only 1 sedation may be given pre-radio.

Pediatric Sedation:
(Titrate to minimum amount necessary)

- ☒ Midazolam 0.05 mg/kg IM/IV/IO titrated slowly (IN, if available); may repeat once in 5 minutes to a maximum of 0.1 mg/kg.
- ☒ Fentanyl 1 mcg/kg IM/IV/IO titrated slowly (IN, if available); may repeat every 5 minutes to a maximum of 3 mcg/kg.
- ☒ Ketamine 4 mg/kg IM **OR** 1-2 mg/kg IV/IO titrated slowly (1-2 mg/kg IN, if available)

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SECTION 6.2 PEDIATRIC SYMPTOMATIC BRADYCARDIA

- **General Treatment**

- Ped patients 14 and under use MI-MEDIC Cards

  - **Ensure adequate patient warming**

  - **Continuously monitor for pulses**
    - Pulse not present: refer to **Pediatric Cardiac Arrest Protocol**
    - When CPR is required, precise arrhythmic diagnosis is **not important**

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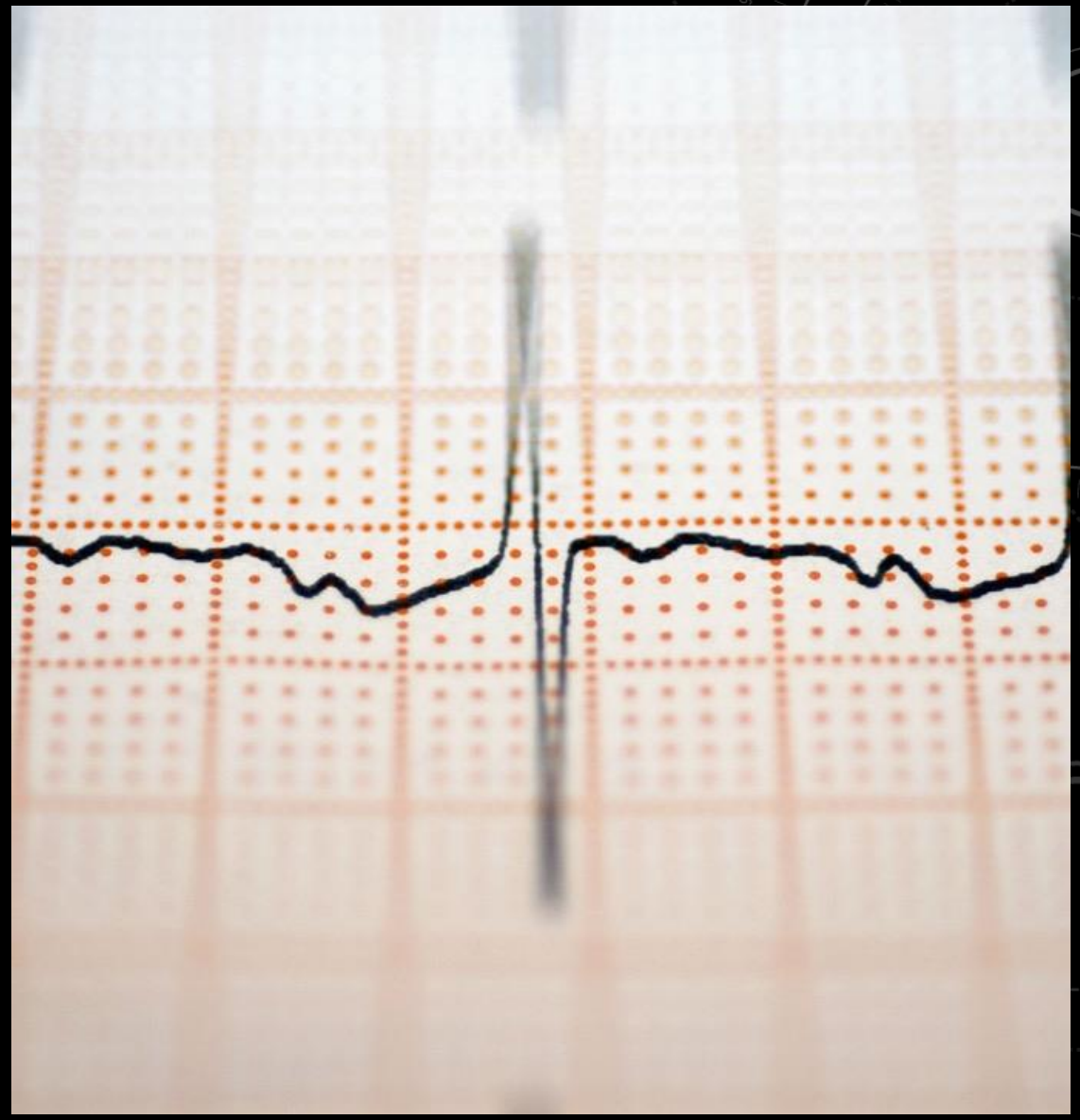
SECTION 6.3 PEDIATRIC TACHYCARDIA

- Symptomatic Pediatric Patients w/ Elevated Heart Rate
- **General Treatment**
- Ped patients 14 and under use MI-MEDIC Cards
    - Determine if Pt. is stable or unstable
    - Manage airway & provide O2. Keep spo2 above 94%
    - Initiate monitoring & perform 12 lead. Do not delay care or transport on unstable Pt.
    - Establish IV
    - **Treat underlying causes:**
        - Dehydration, fever, vomiting, sepsis, and pain
        - Hypovolemia = Bolus 20mg/kg
    - **Unstable:**
        - Pulse not present: refer to **Pediatric Cardiac Arrest Protocol**
        - When CPR is required, precise arrhythmic diagnosis is **not important**



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SECTION 6.3 PEDIATRIC TACHYCARDIA

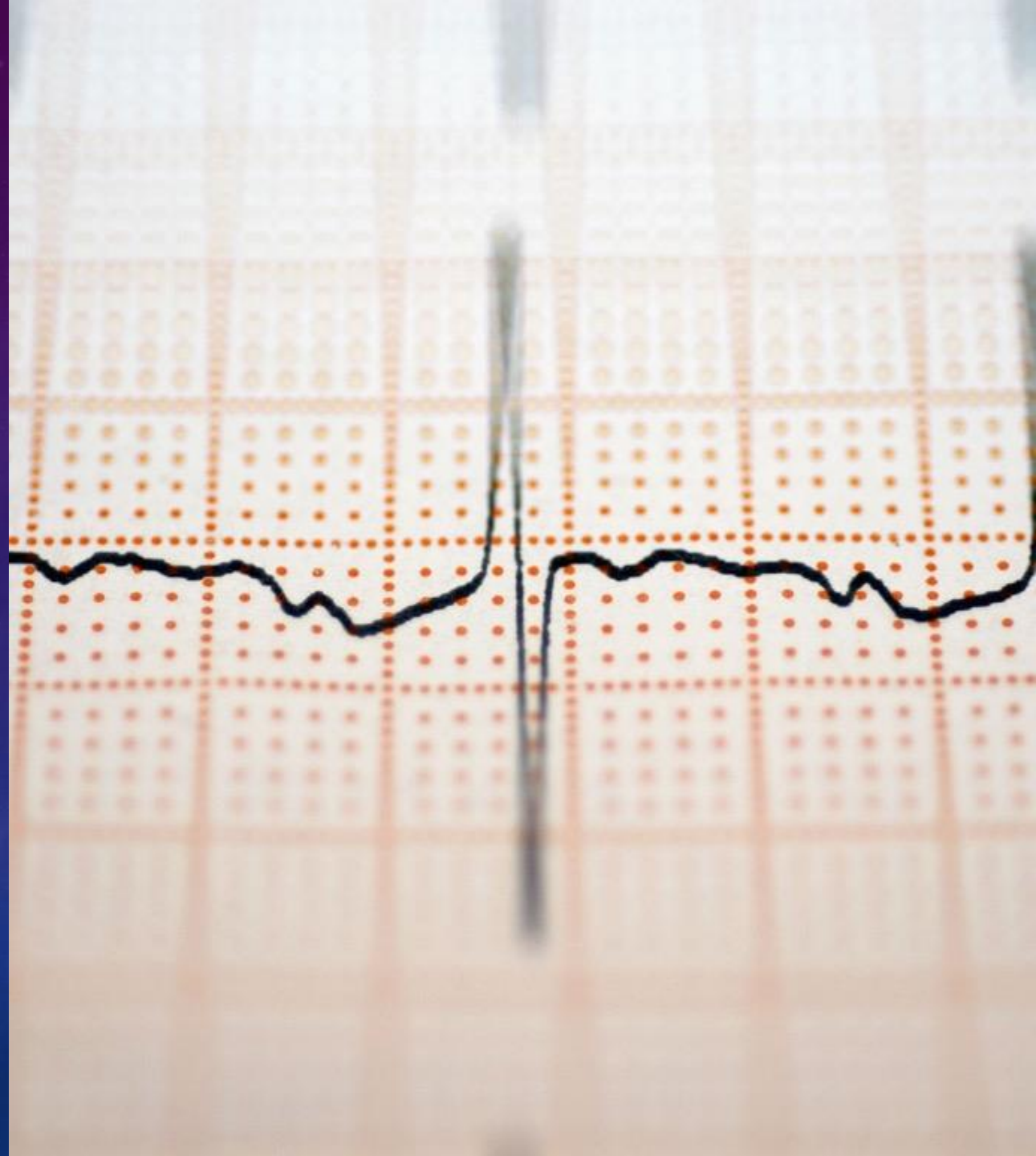
- **Unstable:**
  - Regular Narrow Complex Tachycardia
    - **Cardioversion – consider sedation**
    - Deliver synchronized shock **1J/kg first dose repeat dose 2J/kg**
    - **DO NOT EXCEED ADULT DOSING**
  - Regular Wide Complex Tachycardia
    - As above
    - For recurrent or refractory wide complex tachycardia consult Med Control prior to med admin.

Per MCA Selection

☑ Amiodarone 5 mg/kg (max single dose 300 mg) IV/IO (May repeat twice). Do not exceed 450 mg total IV/IO

or

☐ Lidocaine 1 mg/kg IV/IO (May repeat 0.5 mg/kg twice at 5-10 minute intervals). Maximum 3 doses total



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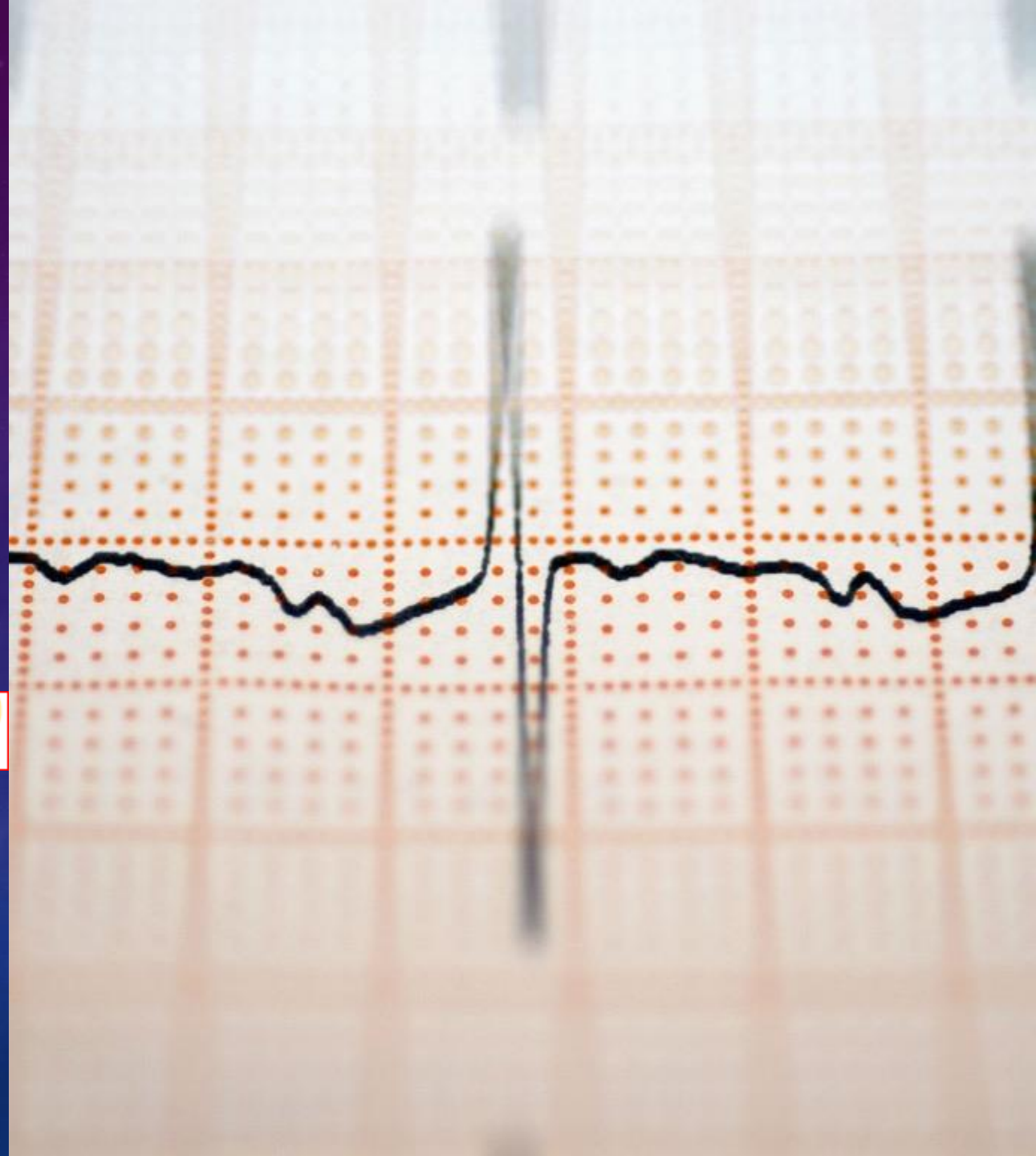
SECTION 6.3 PEDIATRIC TACHYCARDIA

- **Unstable:**
  - Irregular Wide Complex Tachycardia
    - **Defibrillate according to Electrical Therapy Procedure**
    - **Refer to Pediatric Cardiac Arrest Protocol**

If able to convert tachycardia, maintain full cardiac monitoring including pulse oximetry and supportive care until transfer of care at the receiving facility.



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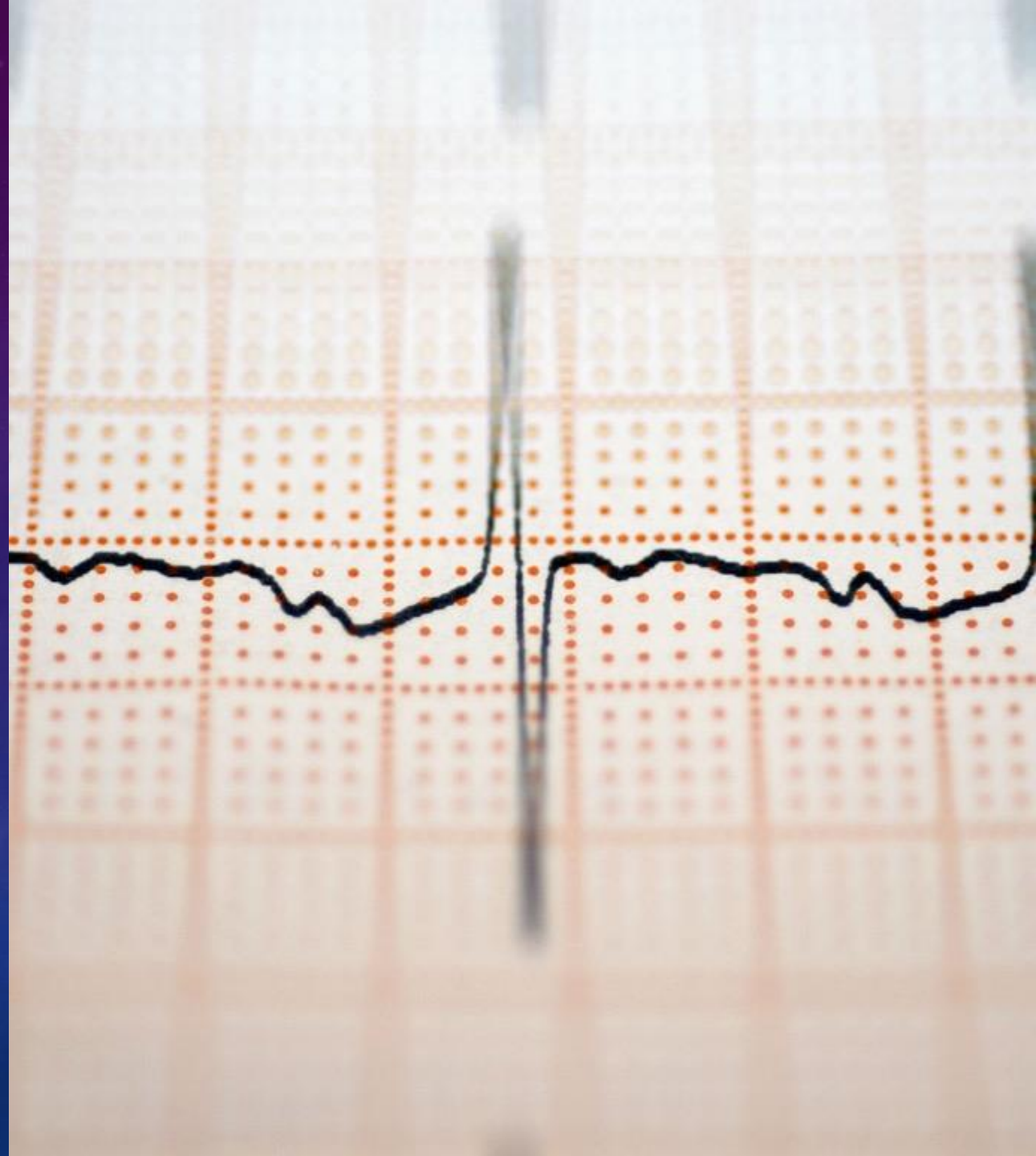
SECTION 6.3 PEDIATRIC TACHYCARDIA

- **Stable:**
  - Regular Narrow Complex Tachycardia – Stable SVT
    - **Perform vagal maneuvers**
    - **O2, ECG monitor, Run ECG during procedure**
    - **Have child blow into 10 mL syringe for 15 seconds, squat and bear down.**
    - **If child is unable: Lay child supine & Elevate knees to chest for 60 seconds.**
    - **If available quickly place ice on eyes and forehead not occluding mouth/nose.**
      - **Results generally seen in15 seconds**
      - **Not an ongoing procedure it is abrupt = 15 seconds.**
    - **DO NOT USE CARODTID MASSAGE**



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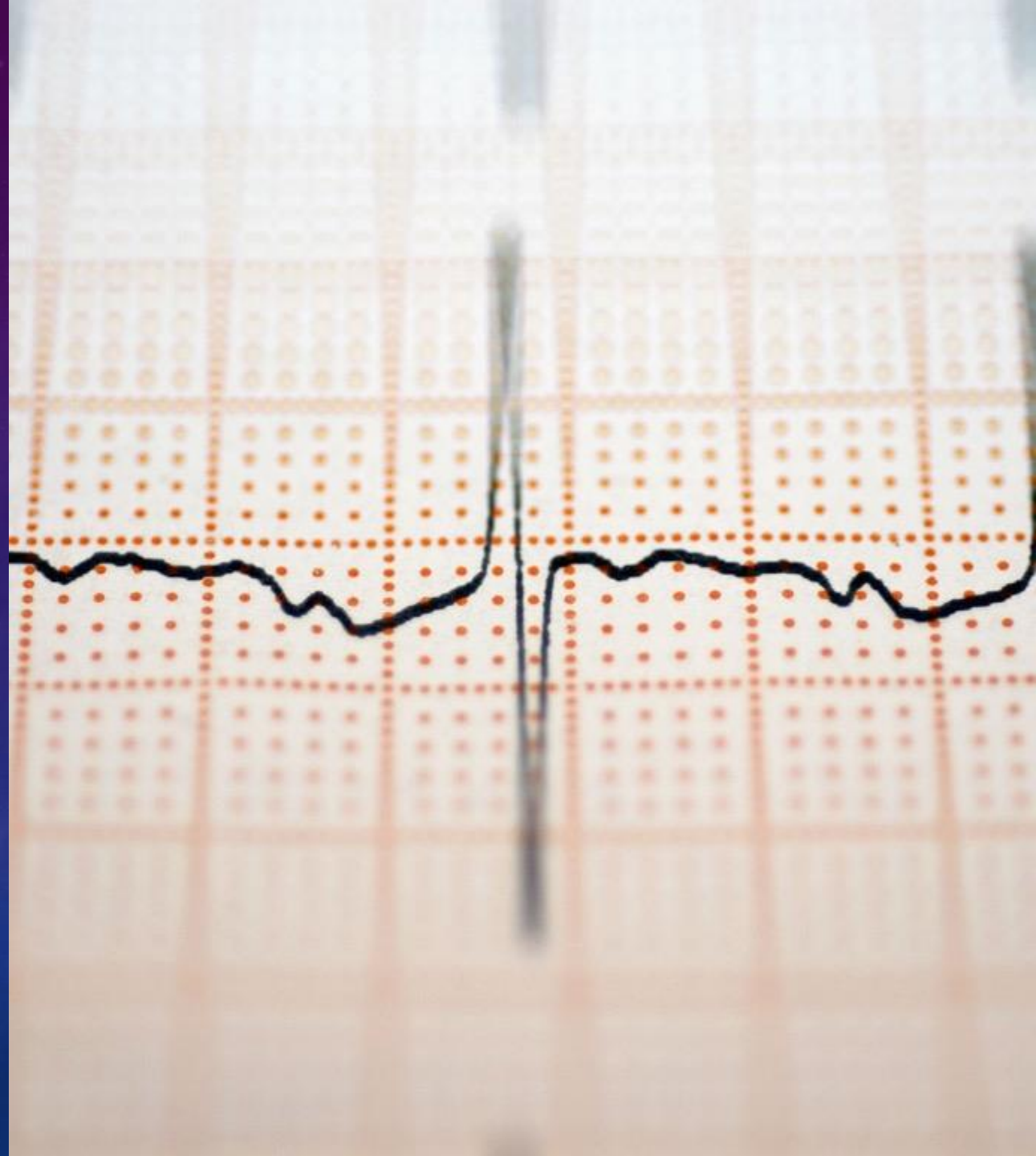
SECTION 6.3 PEDIATRIC TACHYCARDIA

- **Stable:**
  - Regular Narrow Complex Tachycardia – Stable SVT
    - **If Vagal maneuvers are unsuccessful contact Med Control Prior to med admin**
    - **Administer adenosine according to MI-MEDIC or if unavailable**
      - **0.1 mg/kg(Max of 6 mg) rapid IV push most proximal site. Follow w/ 10mL flush**
      - **Repeat once 0.2mg/kg (max of 12 mg) w/ flush.**



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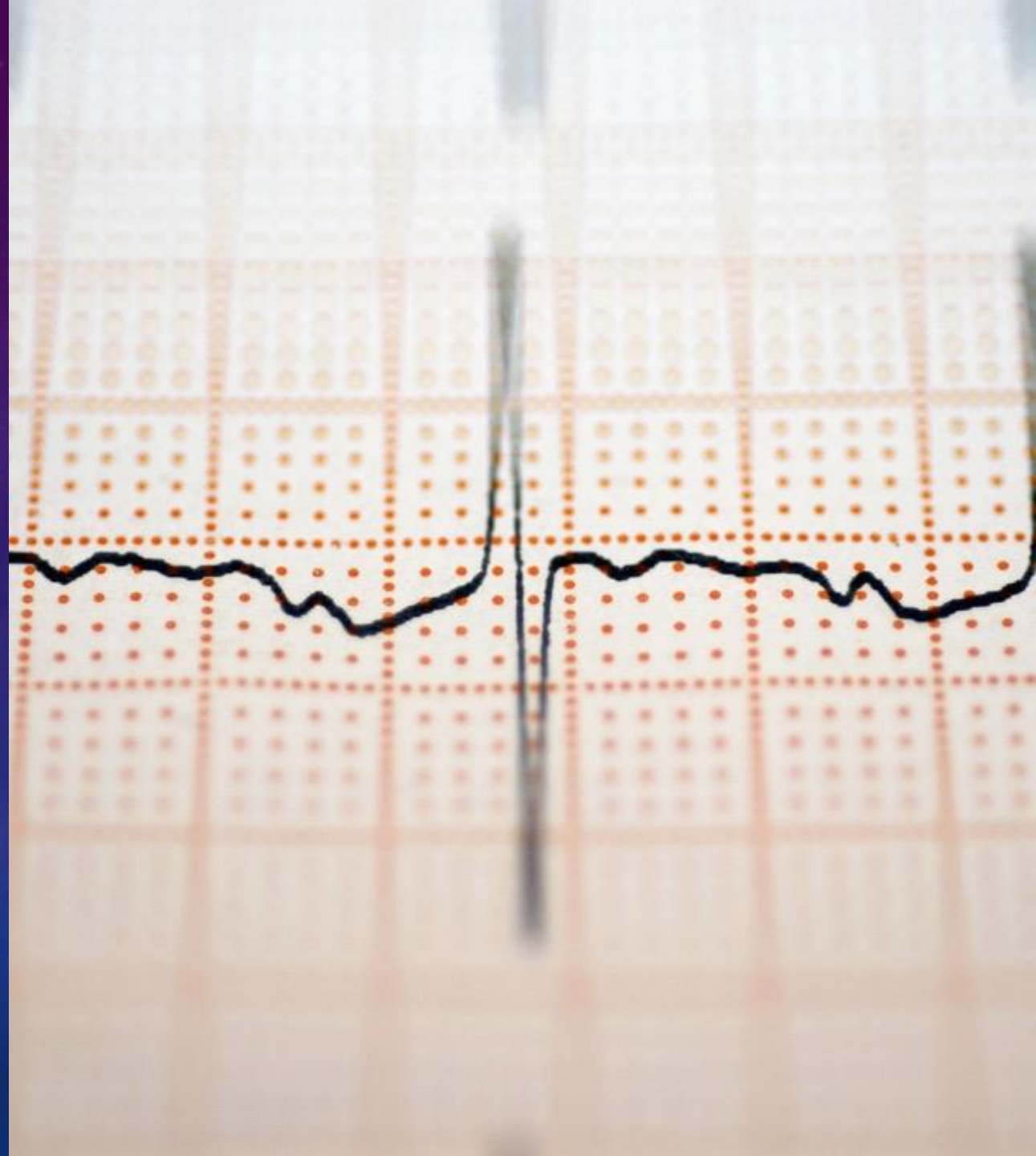
SECTION 6.3 PEDIATRIC TACHYCARDIA

- **Stable:**
  - Regular Wide Complex Monomorphic QRS Tachycardia
    - **Consider adenosine**
    - **Administer adenosine according to MI-MEDIC or if unavailable**
      - **0.1 mg/kg(Max of 6 mg) rapid IV push most proximal site. Follow w/ 10mL flush**
      - **Repeat once 0.2mg/kg (max of 12 mg) w/ flush.**



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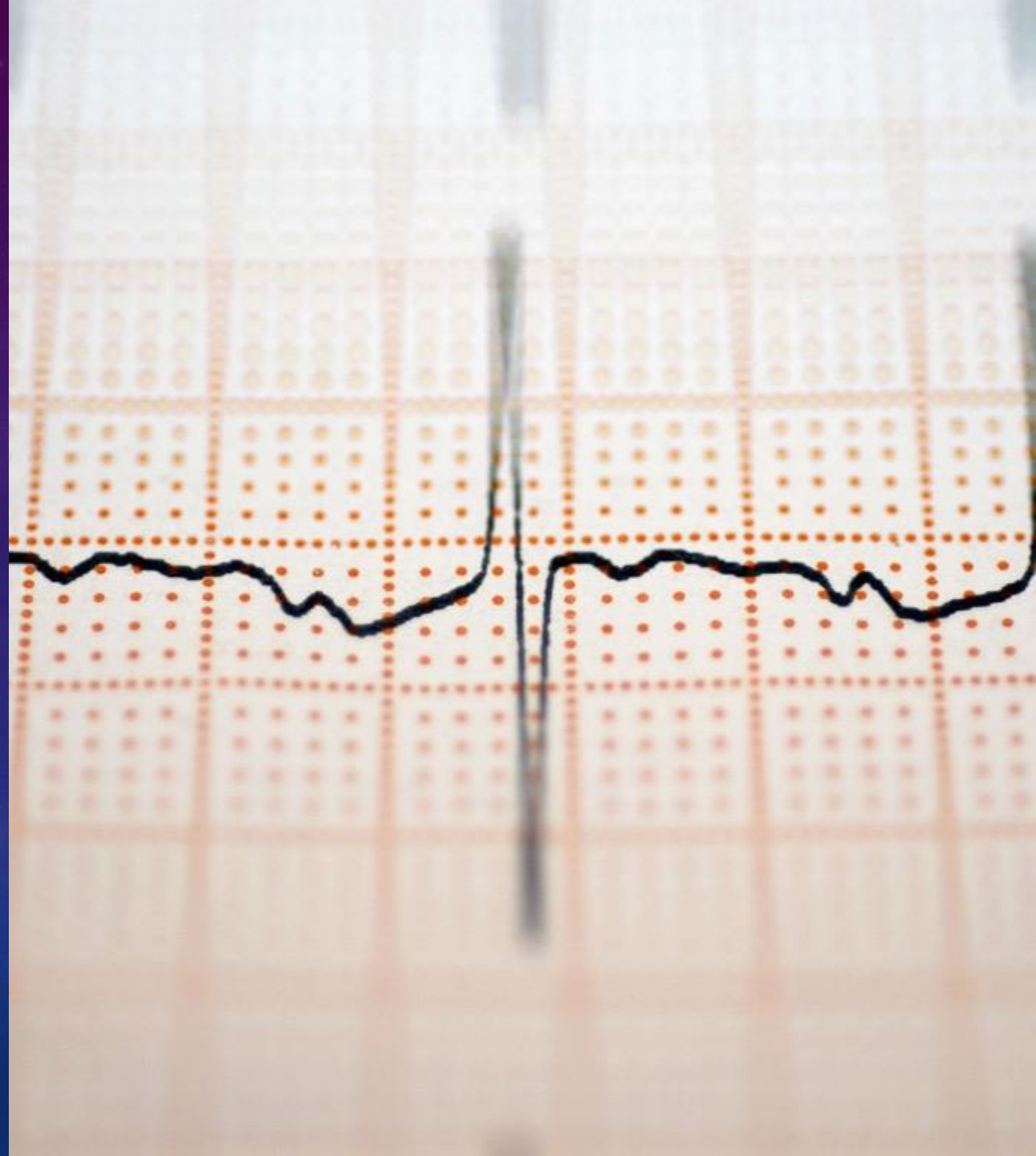
SECTION 6.4 RETURN OF SPONTANEOUS CIRCULATION

- After ROSC, stabilize Pt's on scene for ideally 5 minutes before leaving
- Do not hyperventilate. 10-12 breath per min.
- Reassess – Vitals, blood glucose
- IV/IO – Treat hypotension w/ fluid bolus/shock treatment
- Critical interventions first then 12-lead
- Monitor ETCO2
  - Target 35-45 mmHG
- Push dose EPI if needed for SBP up to 100.
  - SBP 70 mmHG +(2 x age yrs)
- Anticipate airway, Pt sedation – refer to applicable protocol



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SECTION 7

Procedures

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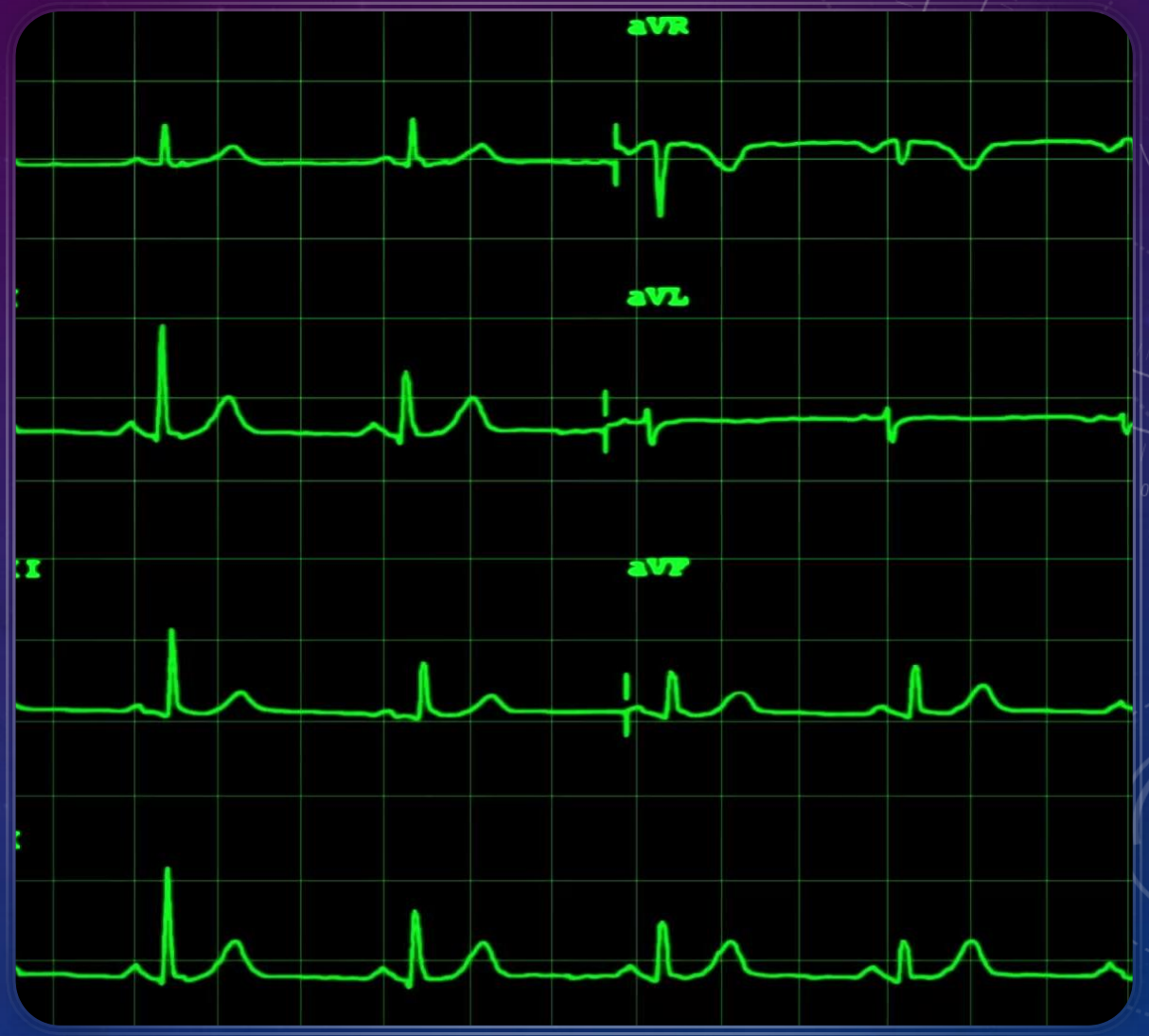
7.1 - 12 LEAD EKG

- No Change to the Protocol



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7.1(S) 12 LEAD ECG SUPPLEMENT

- No change to protocol

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7.2 CHILD ABUSE AND NEGLECT (SUSPECTED)

NO CHANGE TO THE PROTOCOL

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7.3 CRIME SCENE MANAGEMENT

NO CHANGE TO PROTOCOL

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7.4 VULNERABLE ADULT

- No Change to protocol

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7.5 CONTINUOUS POSITIVE AIRWAY PRESSURE ADMINISTRATION (CPAP)

- No change to protocol

Copyright MCMCA 2024

7.6 DEAD ON SCENE & TERMINATION OF RESUSCITATION

- No change to protocol

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7.7 DO-NOT - RESUSCITATE

NO CHANGE TO PROTOCOL

Copyright MCMCA 2024

7.8 ELECTRICAL THERAPY

- No change to protocol

Copyright MCMCA 2024

7.8 (S) DOUBLE SEQUENTIAL DEFIBRILLATION

(MCA OPTIONAL PROTOCOL)

MCMCA **DID NOT** ADOPT

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7.9 AIRWAY MANAGEMENT

Primary SGA is the i-Gel

- MFR agencies are to use i-Gel's

Secondary SGA's

- Air Qsp3/Air Qsp3G
- King

Cricothyroidotomy procedures allowed

- Surgical
- Needle
- MCA approved commercial device

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7.10 HELMET REMOVAL

- NO CHANGE TO PROTOCOL

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7.11 IMPEDANCE THRESHOLD DEICE (ITD) (MCA OPTIONAL PROTOCOL)

- NO CHANGE TO PROTOCOL

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7.12 OXYGEN ADMINISTRATION

- NO CHANGE TO PROTOCOL

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7.13 PAIN MANAGEMENT

Administration of Acetaminophen, Ketorolac, Morphine and Fentanyl.

- Ketamine not to be used for pain management

Acetaminophen

- Adults (>14 years of age) administer 650 mg PO
- Pediatrics refer to MI MEDIC cards. When MI MEDIC cards are not available refer to dosing table.

Ketorolac

- Adults (>14 years of age) administer 15 mg IM/IV
  - Do Not use in pregnant patients
- Pediatrics (>6 months of age and 14 or younger) refer to MI MEDIC cards. When MI MEDIC cards are unavailable.
  - 1 mg/kg IM/IV (max dose 15mg)

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7.13 PAIN MANAGEMENT (CONT.)

- Morphine
  - Adults (>14 years of age) administer 0.1 mg/kg IV/IO (maximum single dose 5 mg) may repeat three times. Total dose may not exceed 20 mg.
  - Pediatrics (>18 months of age and 14 or younger) refer to MI MEDIC cards. When MI MEDIC cards are unavailable administer 0.1 mg/kg IV/IO (maximum single dose 5 mg) may repeat three times total dose may not exceed 20 mg.
  - Do Not administer Morphine to children 18 months or younger.

7.13 PAIN MANAGEMENT

- Fentanyl
  - Adults (>14 years of age and 65 years old and younger) administer 1 mcg/kg IV/IO/IN max single dose 100 mcg. May repeat one time. Total dose may not exceed 200 mcg.
  - Adults >65 years of age administer 0.5 mcg.kg IV/IO/IN max single dose 50 mcg. May repeat three times. Total dose may not exceed 200 mcg.
  - Pediatrics (14 years old or younger) refer to MI MEDIC cards. When MI MEDIC cards are unavailable Administer 1 mcg/kg IV/IO/IN.

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7.13 PAIN MANAGEMENT

- If an IV is not available a single dose of opioid may be given IM. DO NOT ADMINISTER ADDITIONAL PAIN MEDICATIONS after IM administration without online medical direction.

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7.14 PATIENT ASSESSMENT

NO CHANGE TO PROTOCOL

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7.15 DOCUMENTATION AND PATIENT CARE RECORDS

An Electronic EMS PCR must be completed on any request for service to which a life support agency arrives on scene.

Patient care records must be completed within 24 hours of incident conclusion. If changes or documentation must be completed after 24 hours, an addendum to the record noting the circumstances must be created.

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7.16 PATIENT RESTRAINT

Ketamine is not to be used as part of this protocol without online medical direction

If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel cannot remove, a law enforcement officer must accompany the patient to the hospital.

EMS Personnel may NOT use

Hard plastic ties	Any restraint device that cannot be immediately removed by the attending EMS provider	Backboards to "sandwich" the patient	Restraints which secure the patients hands and feet behind the back	Restraints that "hog tie" the patient	Any device that restricts normal breathing

EMS personnel shall NOT transport a restrained patient in the prone position

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7.16 PATIENT RESTRAINT

- Pharmacological Management
  - Should only be utilized when soft restraint placement alone would pose a safety risk or is ineffective in calming the patient
  - Contact Medical Control prior to medication administration, unless extreme circumstances exist in which delaying administration poses an immediate danger to patient or others.
  - Administer Midazolam 0.1 mg/kg IM or IN
    - Adult patients (> 14 years of age) maximum dose of 10 mg
      - Consider lower range of dosing for Geriatric patients
    - Pediatric patients (14 years old or younger) administer 0.1 mg/kg IM maximum single dose 5 mg

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7.17 PATIENT PROCEDURAL SEDATION



Midazolam

Adult 1-5 mg (0.05 mg/kg) IV/IO titrated slowly (IN if available) may repeat once in 5 minutes to a maximum of 0.1 mg/kg

Pediatric 0.05 mg/kg IV/IO titrated slowly (IN if available) may repeat once in 5 minutes to a maximum of 0.1 mg/kg

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Ketamine

Adult 4 mg/kg IM or 1.5 mg/kg IV/IO (IN if available) titrated slowly to sedation (max dose 500mg)

- Not for CPAP/HFNO sedation

Pediatric 4 mg/kg IM or 1.5 mg/kg IV/IO (IN if available) titrated slowly to sedation

- Not for CPAP/HFNO sedation

7.18 PLEURAL DECOMPRESSION

ALLOW FOR THE USE OF MCA APPROVED COMMERCIAL DEVICES ON ADULT AND PEDIATRIC PATIENTS.

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7.19 REFUSAL OF CARE: ADULT AND MINOR

NO CHANGE TO PROTOCOL

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7.20 SPINAL PRECAUTIONS

NO CHANGE TO PROTOCOL

Copyright MCMCA 2024

7.21 BLOOD GLUCOSE LEVEL TESTING

MCA APPROVED MFR BLOOD GLUCOSE LEVEL TESTING

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7.22 TOURNIQUET APPLICATION

NO CHANGE TO PROTOCOL

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7.23 VASCULAR ACCESS & IV FLUID THERAPY

NO CHANGE TO PROTOCOL

Copyright MCMCA 2024

7.24 END TIDAL CARBON DIOXIDE MONTIORING

(CAPNOMETRY AND CAPNOGRAPHY)

NO CHANGE TO PROTOCOL

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7.25 MICHIGAN PHYSICIAN ORDERS FOR SCOPE OF TREATMENT (MI-POST)

NO CHANGE TO PROTOCOL

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7.26 INTERFACILITY HIGH FLOW NASAL OXYGEN

- High flow nasal oxygen can be used on interfacility transfers by Paramedics with MCA approved training

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7.27 TRANSPORT OF ADULT VENTILATOR-DEPENDENT PATIENT

NO CHANGE TO PROTOCOL

Copyright MCMCA 2024

7.28 LEFT VENTRICULAR ASSIST DEVICE (LVAD)

MCA APPROVED LVAD CENTER:
HENRY FORD HOSPITAL - DETROIT

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SECTION 7-29 MECHANICAL CHEST COMPRESSION DEVICE

The MCMCA approved the use of the following devices:

Stryker Lucas



Zoll Auto Pulse



Utilize device according to manufacturer's recommendations

7-29 MECHANICAL CHEST COMPRESSION DEVICE (MCA OPTIONAL PROTOCOL)

INDICATIONS

1. Cardiac Arrest

CONTRAINDICATIONS

1. Return of Spontaneous Circulation
2. Age and weight restrictions per manufacturers recommendations
3. Patients with LVAD

PROCEDURE

1. Perform high-quality CPR while the device is being prepared for use
2. Utilize device according to the manufacturer's recommendations
3. Refer **to Adult or Pediatric General Cardiac Arrest – Treatment Protocol**
4. Document use of Mechanical Chest Compression Device in patient care record including but not limited to:
   A. Type/brand of device
   B. Applicable times Mechanical Chest Compression Device was in use.
   C. Rate at which the device is set/delivering mechanical chest compressions

7-30 ACTIVE COMPRESSION – DECOMPRESSION DEVICE (MCA OPTIONAL PROTOCOL- ADOPTED)

INDICATIONS

1. CARDIAC ARREST

CONTRAINDICATIONS

1. **RETURN OF SPONTANEOUS CIRCULATION**
2. **AGE AND WEIGHT RESTRICTIONS PER MANUFACTURER RECOMMENDATIONS**

- PROCEDURE:
  - PERFORM HIGH QUALITY CPR WHILE THE DEVICE IS BEING PREPARED FOR USE.
  - UTILIZE DEVICE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - REFER TO **ADULT OR PEDIATRIC GENERAL CARDIAC ARREST – TREATMENT PROTOCOL**.
  - DOCUMENT USE OF THE ACTIVE-COMPRESSION-DECOMPRESSION DEVICE IN PATIENT CARE RECORD.

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SECTION 8

System

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8.1 DOWNGRADE OF RESPONSE



No change to this protocol.



8.2 PATIENT PRIORITIZATION AND USE OF LIGHTS AND SIRENS

- Life support vehicles in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene and/or transporting to the hospital.
    - Response
    - Transport
- Life support vehicles, in compliance with Michigan Motor Vehicle Code, use lights and sirens while responding to the scene, transports without lights and siren.

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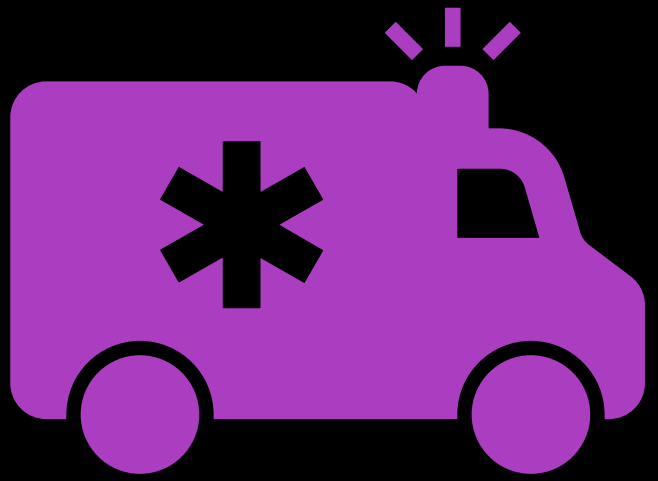
8.3 TRANSPORT DESTINATION AND DIVERSION

No change to the protocol.



8.4 OB HIGH RISK DELIVERY TRANSPORT GUIDELINES (MCA OPTIONAL PROTOCOL)

- MCMCA DID NOT ADOPT



8.5 ALS AND LALS INTERCEPT/TRANSFER OF CARE



Did not adopt.

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8.6 EMERGENCY MEDICAL DISPATCH

Public Safety Answering Points and Life Support Agency dispatch centers **will** use Enhanced 911 technology.

All medical callers shall be evaluated based on symptoms provided and/or observed and provided with pre-arrival instructions as determined through an Emergency Medical Dispatch program.

Evaluation and prioritization shall be made through an Emergency Medical Dispatch program which shall include proper response mode, proper response unit and include Q/I.

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8.6 (S) EMERGENCY MEDICAL DISPATCH

Previously 8.30

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8.7 ALS TO BLS TRANSFER OF CARE

- Patient care can be transferred from ALS to BLS
  - Patients assessed by on scene paramedic and deemed appropriate for BLS care
  - Airway is patent, maintained without assistance or adjuncts
  - Patient is hemodynamically stable with medical complaints or injuries that would be cared for at the BLS level
  - No imminent changes are anticipated in the patient's present condition
  - Patients presents at baseline mentation and GCS or if unknown, GCS equal to or greater than 14
  - The EMT in attendance must be willing to accept the transfer of care given the patient's condition
  - ALS may consider transfer to BLS for the patient who have meet the above criteria and have had the following ALS interventions
    - IV placement with Saline Lock
    - Dextrose administration with return to baseline mental status
    - Naloxone administration with return to baseline mental status and without respiratory complaints
    - Analgesia administration, with no other excluding criteria and not requiring additional doses during transport

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8.8 AIR AMBULANCE PERSONNEL SCOPE OF PRACTICE

- Adopted by MCMCA.
- Air ambulance programs may provide care over and above that specified in the local MCA protocols, including (but not limited to): administration of blood products, placement of central venous access devices, placement of thoracostomy tubes, establishment of a surgical airway, and administration of medications not included in the local MCA protocols.
- Responsibility for training and quality assurance regarding these additional protocols will be the responsibility of the air ambulance program.

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8.9 HELICOPTER UTILIZATION

- Online Medical Control pre-approval is **not required** for helicopter service response. Follow established Medical Control guidelines.

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8.10 – 8.14 NO CHANGES TO THESE PROTOCOLS

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8.15 INTERFACILITY PATIENT TRANSFERS

- Will allow the following to be transported via BLS:
  - IV Fluids on a pump
  - IV Antibiotics that have been infusing for at least 15 minutes prior to departure
  - IV Lipids / TPN
  - PCA Pump (Patient Controlled Analgesia)

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8.15S2 INTER-FACILITY PATIENT TRANSFERS SUPPLEMENTAL: CCT AND SCT TRAINING REQUIREMENTS

This protocol specifically outlines training requirements for EMS providers conducting critical care transports and specialty care transports.

ALS = Non SCT/ CCT paramedic (certified in ACLS and PALS per MCA requirements)

ALS SCT = Paramedic trained in their ambulance agency specific specialty care paramedic program

ALS CCT = Paramedic certified as a critical care transport paramedic through University of Maryland Baltimore County or Cleveland Clinic Critical Care.

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8.15S2 INTER-FACILITY PATIENT TRANSFERS SUPPLEMENTAL: CCT AND SCT TRAINING REQUIREMENTS CONT.

- For agencies that provide CCT, they must have providers conducting those transports trained either through the University of Maryland Baltimore County (UMBC), the Cleveland Clinic Critical Care or other programs approved by the MCMCA medical director and the agency medical director.
- An agency may provide Specialty Care Transports (SCT) without having their staff trained through the above programs, but through a program created by the agency. The SCT education program must also meet ***all*** of the following:
  - Be approved by the agency medical director who is responsible for verifying the agency education program and the instructors of the courses
  - Be reviewed by the MCMCA Education Committee and MCMCA Medical Director
  - Conduct a recertification of paramedics completing the program no less than once every three years

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8.16 LICENSURE LEVEL REQUIREMENT OF ATTENDANT DURING TRANSPORT

NO CHANGE TO THIS PROTOCOL

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8.17 MEDICAL CONTROLPRIVILEGES

MCA will require

- Yearly provider assessment
- ICS 100, 200, 700 and 800

Paramedics are required to have ACLS

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8.18 – 8.35 NO CHANGES TO THESE PROTOCOLS.



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SECTION 9

Medications

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9.1 MEDICATION ADMINISTRATION

- MCA APPROVAL FOR ***INTRANASAL*** MEDICATION ADMINISTRATION FOR MFR

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9.2 MEDICATION SUBSTITUTION

- NO CHANGE TO PROTOCOL

Copyright MCMCA 2024

9.3 MEDICATION SHORTAGE

NO CHANGE TO PROTOCOL

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9.4 PERSONAL METERED DOSE INHALER USE (MCA OPTIONAL PROTOCOL)

MCA ADOPTED

This protocol is to allow for the use of the patient's own prescribed Metered Dose Inhaler (MDI) containing only albuterol in place of nebulized albuterol administration by EMS personnel.

INDICATIONS: ONLY patients with febrile respiratory symptoms

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9.5 EMS: MEDICATION AND IV SUPPLY REQUIREMENTS

- No change to protocol

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9.6 MEDICATION EXCHANGE AND REPLACEMENT PROCEDURE – VERSION 37
SOUTHEAST MICHIGAN REGIONAL PROTOCOL

- No change to protocol

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9.7 EPINEPHRINE AUTO-INJECTOR PROCEDURE

- No change to protocol

Copyright MCMCA 2024

9.8 NALOXONE LEAVE BEHIND KITS (MCA OPTIONAL PROTOCOL)

- MCA adopted
- Adopted for all licensure levels

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SECTION 10

Special Operations

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SECTION 10: SPECIAL OPERATIONS

The changes in protocols will be shown in *italic* *and underlined*

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SECTION 10-1
GENERAL CBRNE IDENTIFICATION OF AGENTS

- A. Chemical Incidents
  - Line iii. *Similar presentation and/or symptoms for multiple patients*

- Medical Response
  - Line 6. Utilize resource materials such as the Emergency Response Guidebook, Emergency Care for Hazardous Materials exposure, *or smart phone applications*

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SECTION 10-1 GENERAL CBRNE IDENTIFICATION OF AGENTS CONT.

Select Agents

- Line 1. Chemical Agents
  - ii. Non-persistent agents are volatile and evaporate quickly, within several hours. Gases, aerosols, and highly volatile liquids tend to disperse rapidly after release. Phosgene, cyanide *and certain nerve agents* (with the exception of GD-Soman) are non-persistent agents. Because of their volatility, they pose an immediate respiratory hazard but are not particularly hazardous in liquid form.

Line 3. Radiological Agents

- Exposure typically has no immediate effect. The sooner the victim has symptoms *(example: nausea and vomiting) the more significant the exposure*.

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SECTION10-2
CHEMICAL EXPOSURE

Line I. Nerve Agents & Cyanide Compounds – refer to Nerve Agent/Organophosphate Pesticide Exposure-*Special Operations Protocol* and Cyanide Exposure-*Special Operations Protocol*

Line 3. If wheezing, administer albuterol 2.5 mg/3ml NS nebulized *per Nebulized Bronchodilators-Medication Protocol* (Per MCA selection may be EMT skill).

SECTION10-2
CHEMICAL EXPOSURE

Line a. *4 puffs from patient's own prescribed albuterol metered dose inhaler (with spacer if available)*

Line 3. For severe exposure consider early interventional airway and aggressive ventilatory support *(including CPAP per CPAP-Procedure Protocol)*

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SECTION 10-3
NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT

Purpose: This protocol is intended for EMS personnel at all levels *that have been trained in the use of these devices and authorized by the medical control authority* to assess and treat patients exposed to nerve agents and organophosphate pesticides utilizing the Duo Dote/Mark I Antidote Kits and/or a *combination of auto injectors and/or nasal sprays. Administration of non-prepackaged kits is restricted to ALS.*

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10-3 NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT CONT.

Medication/Definitions

- *A. One (1) Nerve Agent (NA) Antidote Kit – for the purpose of this protocol means either one (1) Duodote OR one (1) Mark I*
  - *1. Duodote – a single device with 2 chambers. The front chamber contains 2.1 mg atropine, the back chamber contains 600 mg pralidoxime (2-PAM). When activated the device sequentially administers both drugs through a single needle.*
  - *2. Mark I Antidote kit– 2 separate injectors. One containing 2mg atropine, the second containing 600 mg of pralidoxime (2-PAM).*
- *B. Atropine auto injector- a single auto-injector of atropine that comes in 3 doses: atropine 0.5 mg, atropine 1 mg, atropine 2 mg.*
- *C. Midazolam auto-injector – 20 mg midazolam per device*
- *D. Midazolam nasal spray – 5 mg per device*
- *E. Diazepam auto-injector – 10 mg per device*
- *F. Non prepackaged kit administration: Administer 600 mg pralidoxime and 2 mg of atropine for every one (1) NA Antidote Kit.(ALS only)*

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10-3
NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT CONT.



NOTE: Pupil constriction is a relatively unique finding occurs early and persists after antidote treatment. The presence of constricted pupils with SLUDGEM findings indicates nerve agent /OPP toxicity. *Constricted pupils may not be present with localized dermal exposure.



Patient Management (After Evacuation and Decontamination)



Line 3. *Administer appropriate number of NA Antidote kits (Duo Dote OR Mark I) kits perChart A. below.*

A. *NOTE: For NA kit administration only:*

- *i. Adult is > 8 years of age*
- *ii. Pediatrics is < 8 years of age*

B. *NOTE: Medical Control contact is required prior to administration for:*

- i. *Patients that meet self-administration criteria*
- ii. *Patients that meet mild symptoms and signs criteria in chart below:*

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10-3 NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT CONT.

- Line 4. *Establish vascular access per Vascular Access and IV Fluid Therapy-Procedure Protocol when feasible, do NOT delay medication administration*

- Line 5. *If NA Antidote kit is not available:*
  - *A. Administer atropine auto injector 2 mg IM for every 1 NA Kit- that is required.*
  - *B. Administer atropine 2 mg IV/IM for every 1 NA Kit that is required*
  - *C. Administer 600 mg pralidoxime IV/IM for every 1 NA Kit that is required (when available)*

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10-3 NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT CONT.

- 6. Treat seizures
  - *A. Adult (> 14 years of age)*
    - *a. Administer midazolam 10 mg IM or 5 mg IN*
      - *1. If available, midazolam auto-injector or midazolam nasal spray may be utilized, ensure total dose (regardless of dosage per device) equals 10 mg IM or 5 mg IN.*

OR

    - *b. Administer Valium (diazepam) auto-injector.*
  - *B. Pediatrics (< 14 years of age)*
    - *a. Administer midazolam 0.1 mg/kg IM (maximum individual dose 10 mg) or 5 mg IV/IO/or IN*

OR

1. If available, diazepam auto-injector or diazepam nasal spray may be utilized, ensure total dose (regardless of dosage per device) does not exceed 10 mg IM or 5 mg IN.

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10-3 NERVE AGENT ORGANOPHOSPHATE PESTICIDE EXPOSURE TREATMENT CONT.

- Line 8. For continued secretions, contact Medical Control and administer additional atropine per orders.
  - A. *Adults (> 14 years of age) atropine 2 mg IV/IM*
  - B. *Pediatrics (< 14 years of age) atropine 0.05 mg/kg IV/IM*

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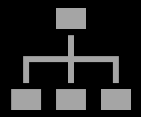
10-4 CHEMPACK/MEDDRUN



BETP has been replaced with

Bureau of Emergency Preparedness, EMS, and Systems of Care (BEPESOC)



Activation Line A, Subsection 2,

Hospital, Public Health, EOC or Emergency Management contacts MEDDRUN and/*or CHEMPACK Communications Agency*

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10-5 CYANIDE EXPOSURE



Definitions: For the purposes of this protocol Cyanokit (brand name) refers to Hydroxocobalamin



Assessment

1. Hypotension

2. Shortness of breath

- *a. Possibly accompanied by chest pain*
- *b. Generally, not associated with cyanosis*
- *c. Pulse oximetry levels usually normal*
- *d. Usually associated with increased respiratory rate and depth*
- *e. Potential for rapid respiratory arrest*

3. Confusion, decreased level of consciousness, coma

4. Seizures

5. Headache, dizziness, vertigo (sense of things spinning)

6. Pupils may be normal; dilation is a late sign



Indications for Antidote use in patient with suspected cyanide poisoning:

1. Cardiac or Respiratory Arrest

2. Hypotension SBP<90 mm Hg

3. GCS <= 9

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10-5 CYANIDE EXPOSURE CONT.



Patient Management (in Cold Zone)



Line 1. Administer oxygen 10-15 LPM via non-rebreather mask and support ventilation as needed. Per Oxygen Administration-Procedure Protocol and/or Airway Management-Procedure Protocol

a. Note: Patients in respiratory arrest (i.e., not breathing but still having a pulse) have been found to respond to antidote therapy and should receive positive pressure ventilation when operationally feasible.

b. This is in contrast to most triage systems that would categorize non-breathing patients as non-survivable.



Line 2. Establish vascular access. Refer to Vascular Access & IV Fluid Therapy-Procedure Protocol



Line 3. Administer antidote:

a. Cyanokit® (5g. adult IV/IO; 70 mg/kg pediatric IV/IO) per Hydroxocobalamin(Cyanokit®)-Medication Protocol (preferred, per MCA Selection)Assessment

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10-5 CYANIDE EXPOSURE CONT.

- *b. Each vial of Cyanokit® for injection is to be reconstituted with diluent (not provided with Cyanokit®) using the supplied sterile transfer spike.*
  - *i. The recommended diluent is 0.9% Sodium Chloride injection (0.9%NaCl).*
  - *ii. The line on each vial label represents the volume of diluent. Following the addition of diluent to the lyophilized powder, each vial should be repeatedly inverted or rocked, not shaken, for at least 60 seconds for the 5g bottles, 30 seconds for the 2.5g bottles prior to infusion.*
  - *iii. Cyanokit® solutions should be visually inspected for particulate matter and color prior to administration.*
  - *iv. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should not be administered to the patient and should be discarded.*
  - *v. There are a number of drugs and blood products that are incompatible with Cyanokit®, thus Cyanokit® requires a separate intravenous line for administration.*
  - *vi. Depending upon the severity of the poisoning and the clinical response, a second dose of 5 g may be administered by IV/IO infusion for a total dose of 10g in adults. The rate of infusion for the second dose may range from 15 minutes (for patients in extremis) to two hours, as clinically indicated. Contact medical control for second dose instructions for pediatric patients*

10-8 HAZARD CONTAMINATED PATIENT

I. Identification of the Contaminated Patient

- *a. Use all your senses. Suspect hazardous material situation if you:*
- *i. See containers, labels or placards, or a location suggesting a hazardous substance*
- *ii. Hear explosions, or reports of possible contamination, pre-arrival or on scene*
- *iii. Smell unusual odors – be suspicious*

II. If contamination of a patient is suspected, the local fire or public safety department must be informed of the hazardous material situation.

III. The responding EMS agencies must prevent further contamination to themselves or others. Determine if any contaminated patients have already left the scene and promptly notify the hospital(s).

IV. The responding EMS agency must not spread any contamination outside the response area until the responding fire or public safety department incident commander, or appropriate designee, has confirmed that decontamination is complete. Contaminated patients will not be transported out of the decontamination area until field decontamination is complete.

V. EMS responders will not enter a known contaminated area without proper personal protective equipment, training, and direction by incident command.

VI. Invasive patient care procedures (IV/IO, OPA, NPA, ET, and Emergency Airway Devices) should not begin until decontamination of the patient is confirmed or until personal protective equipment is in place.

VII. Prior to transport of a decontaminated patient, on-line medical control will be contacted to assure the patient is transported to a facility equipped to handle the specific needs of the patient.

VIII. Once the scene Incident Commander, or the appropriate designee, has confirmed that the patient is decontaminated, the responding EMS agency may transport the patient to the designated facility.

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10-9 SUSPECTED PANDEMIC

Epidemic/pandemic of influenza replaced with *epidemic/pandemic*.



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10.10-10.18 MCMCA DID NOT ADOPT

SPRN Transport and Destination Guideline (MCA Optional Protocol)
SPRN Patient Contamination Algorithm (MCA Optional Protocol)
SPRN Transport Supplies (MCA Optional Protocol)
SPRN Transport Procedure (MCA Optional Protocol)
SPRN Patient Care During Transport of Suspected Highly Infectious Agent (MCA Optional Protocol)
SPRN Ambulance Cleaning and Disinfection (MCA Optional Protocol)
SPRN Medical Isolation Transport Device (MCA Optional Protocol)
SPRN Team Selection Procedure (MCA Optional Protocol)
SPRN Death During Transport (MCA Optional Protocol)

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